

Reforming Chinese Higher Education Through Outcome-Based Education: A Conceptual Framework for Assessment Ecology, Faculty Development and Humanities Innovation

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ABSTRACT:

Outcome-Based Education (OBE) has become a prominent reform language in Chinese higher education as universities are asked to demonstrate graduate capability, improve assessment evidence and renew undergraduate teaching. Yet implementation often remains documentary: programmes produce curriculum maps, attainment tables and audit reports without substantially changing assessment practice, faculty judgement or humanities curriculum design. Using an integrative conceptual synthesis of OBE theory, constructive alignment, programmatic assessment, feedback literacy, faculty development, new liberal arts research, AI-aware assessment and recent Chinese higher education policy, this article develops the OBE-CQIH framework: Outcome-Based Continuous Quality Improvement for Humanities-Inclusive Higher Education. The framework reframes OBE as a recursive ecology of policy-to-outcome translation, assessment-based evidence generation, faculty-led professional judgement and curriculum renewal. It shifts attention from outcome mapping to the institutional conditions under which learning evidence is generated, interpreted and used to revise curriculum. The article contributes to higher education reform literature by showing how humanities outcomes can be made visible without reducing interpretation, ethical reasoning or cultural judgement to thin indicators. It concludes with six research propositions, an implementation roadmap and operational indicators for future empirical studies in Chinese universities.

Keywords: Outcome-Based Education; Chinese higher education; assessment ecology; faculty development; humanities innovation; new liberal arts; continuous quality improvement.

1. Introduction

Chinese higher education has entered a quality-centred phase. After decades of expansion, policy attention has shifted toward undergraduate learning quality, the independent

cultivation of innovative talent, disciplinary restructuring, digital transformation and institutional accountability. Education Modernization 2035 and the 2024-2035 plan for building China into a leading country in education both place strong emphasis on high-

quality development, teacher capacity, evaluation reform and the renewal of higher education for national and social needs (Communist Party of China Central Committee and State Council [CPC Central Committee & State Council], 2019, 2025). Within this environment, OBE has become attractive because it promises to connect educational aims with observable evidence of student learning.

OBE changes the starting point of curriculum design. Instead of organising teaching only around content coverage, semester hours or disciplinary habit, OBE asks what students should be able to know, do, judge, communicate and create by the end of a programme. This logic draws on Spady's (1994) formulation of outcome-based learning and Biggs's (1996) theory of constructive alignment. In principle, outcomes, learning activities and assessment should form a coherent educational design rather than separate administrative documents.

The difficulty is that OBE is often easier to name than to enact. Across higher education systems, outcome statements may be produced, course matrices completed and attainment rates calculated while classroom routines remain largely unchanged. Recent OBE research has therefore emphasised alignment, quality assurance and curriculum coherence, but also identifies persistent problems of teacher workload, resource constraints, cultural adaptation and weak feedback loops (Asim et al., 2021; Mahrishi et al., 2025; Sun & Lee, 2020). In China, these problems are intensified by policy pressure, institutional differentiation and the uneven readiness of programme teams to use assessment evidence for curriculum change.

The problem is sharper in humanities and social science disciplines. Professional fields such as engineering and medicine often possess task-based competencies, external standards and accreditation traditions. Humanities fields work with more open forms of learning: interpretation, ethical reasoning, cultural memory, aesthetic judgement, public

communication and reflexive critique. These outcomes are not unassessable, but they demand richer evidence than final examinations or mechanical scoring can provide. Humanities education does not resist evidence; it resists thin evidence.

Existing OBE research in China has tended to concentrate on engineering accreditation, course-objective attainment, curriculum mapping or discipline-specific teaching reform. Less attention has been paid to how OBE reorganises the ecology of student assessment, the professional judgement of faculty teams and the renewal of humanities education under the new liberal arts agenda. This gap matters because the success of OBE depends not only on whether outcomes are written, but on how evidence is generated, interpreted and used.

This article addresses three research questions. First, how can OBE be adapted to Chinese higher education without reducing complex learning to narrow indicators? Second, what kind of student assessment ecology is needed to make OBE credible, developmental and discipline-sensitive? Third, how can faculty development support OBE implementation while enabling humanities innovation?

The paper makes three contributions. It first reframes OBE as a continuous quality improvement ecology rather than a technical template. It then specifies how assessment evidence, feedback literacy and faculty professional judgement function as mechanisms of reform. Finally, it extends OBE discussion into humanities education by showing how interpretive, ethical, cultural, digital and public-facing outcomes can be assessed without compromising the intellectual openness of the humanities.

2. Policy and Literature Background

2.1 China's quality turn and the policy space for OBE

The policy basis for OBE in China lies in a broader reorientation from expansion to quality. Education Modernization 2035 emphasises

education modernisation, lifelong learning, equitable quality and the building of a high-quality education system (CPC Central Committee & State Council, 2019). The 2024-2035 master plan further strengthens this orientation by placing emphasis on high-level talent cultivation, discipline adjustment, teacher development and the modernisation of education governance (CPC Central Committee & State Council, 2025). The undergraduate education and teaching audit evaluation plan for 2021-2025 also requires institutions to demonstrate coherence among training objectives, teaching processes, quality assurance and evidence of student development (Ministry of Education of the People's Republic of China [MOE], 2021).

This policy direction does not simply demand more indicators. It requires universities to show how educational goals, curriculum structures, teaching processes and student development evidence fit together. OBE fits this policy space because it can translate abstract quality goals into programme-level graduate capabilities and assessment evidence. Recent evidence from Chinese undergraduate learning experience research suggests that learning outcomes are shaped by institutional resources, teaching quality and student support (Lu et al., 2024). Studies of Chinese quality assurance policy also show that evaluation reform increasingly combines state steering, institutional self-review and evidence-based governance (Liu et al., 2025). These findings reinforce the need to treat OBE as an institutional learning environment rather than a syllabus-writing exercise. The danger, however, is formalism: if OBE is understood only as a documentation requirement, it may generate visible reform without educational consequence.

2.2 OBE, constructive alignment and curriculum coherence

Classical OBE begins with a clear picture of what learners should achieve by the end of a programme or course (Spady, 1994). Constructive alignment strengthens this logic by

requiring teaching activities and assessment tasks to support those outcomes (Biggs, 1996; Biggs & Tang, 2011). Recent work has extended this logic into digital and ontology-based curriculum systems, showing that outcome-based curriculum design requires consistent relationships among programme outcomes, course outcomes, assessment tasks and quality review questions (Aminah et al., 2025).

OBE nevertheless remains vulnerable to reduction. Alignment can become a spreadsheet exercise when outcomes are detached from disciplinary judgement. Automated attainment calculations may give an impression of precision while failing to represent complex learning. Wang et al. (2025), for example, show how network analysis can reveal structural dependencies in an OBE curriculum, but such analytical tools still require educational interpretation. The central issue is therefore not whether OBE can organise curriculum, but whether it can organise meaningful evidence and deliberation.

2.3 Student assessment, feedback literacy and AI-aware validity

OBE stands or falls with assessment. If assessment remains dominated by final examinations or isolated tasks, it cannot provide convincing evidence of complex outcomes. Programmatic assessment responds to this problem by treating assessment as a longitudinal system of evidence rather than a single event (Baartman & Quinlan, 2024). Authentic assessment further requires tasks that resemble meaningful disciplinary, professional or public practices (Ajjawi et al., 2024; Zhan et al., 2025). For humanities-inclusive OBE, this means essays, portfolios, interpretive projects, public communication artefacts, oral defence and process evidence should work together rather than compete as disconnected assignments.

Feedback research also changes how OBE should be understood. Feedback is not simply information transmitted by a teacher; its effect depends on how students interpret, evaluate and use it. Carless (2022) shifts attention from

teacher transmission to student feedback literacy, while Dawson et al. (2024) operationalise feedback literacy through student behaviours. Carless and Winstone (2023) further show that teacher feedback literacy and student feedback literacy are interdependent. In OBE terms, feedback becomes evidence of learning only when students revise, justify and regulate their work across time (Little et al., 2024; Nieminen & Carless, 2023).

Generative AI adds a further challenge. AI can support inquiry, drafting and formative feedback, but it destabilises conventional assumptions about authorship, independent work and assessment validity. A digital assessment perspective therefore requires attention to task purpose, process evidence, explanation and sociotechnical context (Bearman et al., 2023; Nieminen et al., 2023a). Recent work on AI literacy and academic integrity shows that students need explicit capacities to judge, document and defend their use of generative tools rather than merely comply with prohibition-oriented rules (Bittle & El-Gayar, 2025; Walter, 2024). In an age of generative AI, merely announcing permissible use is not enough; assessment validity may require structural redesign rather than communication-only policies (Corbin et al., 2025; Miao & Holmes, 2023; Ogunleye et al., 2024).

This assessment challenge is also social and digital. Collaborative learning and digitally mediated tasks create evidence that is distributed across interaction, process and artefact, making assessment judgement more complex than the grading of a finished product alone (Boud & Bearman, 2024; Hu et al., 2025). For this reason, an OBE assessment design needs to specify not only what students submit, but also what forms of process evidence, peer interaction, revision and explanation will count.

2.4 Faculty development as reform infrastructure

Faculty development is not an optional supplement to OBE. Teachers translate

outcomes into tasks, judge student work, calibrate standards and decide how evidence should inform curriculum revision. In China, faculty development can act as a catalyst for teaching reform when it is sustained, situated and connected to institutional culture (Adarkwah, 2021). Yet workshops alone are insufficient. OBE requires programme-level professional judgement: teachers must examine samples of student work, moderate rubrics, compare evidence across courses and decide whether the curriculum is producing the promised outcomes.

This requirement connects OBE with organisational capacity. Zhang and Li's studies of digital capacity building and organisational resilience are not higher education studies; they are therefore used here only for a limited organisational argument. Their relevance lies in showing that reform becomes sustainable when institutions develop coordination capacity, adaptive routines and cultural readiness rather than merely adopting technical tools (Zhang & Li, 2025a, 2025b). By extension, OBE reform cannot be reduced to syllabus revision. Faculty development will remain symbolic if teachers are expected to redesign assessment without workload recognition, moderation time or promotion incentives.

2.5 Humanities innovation and the new liberal arts

The construction of the new liberal arts in China calls for humanities and social science education to respond to digital transformation, social needs, cultural confidence and interdisciplinary knowledge production (New Liberal Arts Construction Working Group, 2020). This agenda is compatible with OBE only if outcomes are understood broadly enough to include interpretive judgement, ethical reasoning, cultural translation, digital and AI literacy, and public communication. New liberal arts reform should not be equated with adding digital tools to humanities courses. Its deeper task is to redesign the relationship among cultural interpretation, ethical reasoning, public

communication and digital mediation (Feng, 2022; Gao & Gu, 2024). This emphasis also resonates with wider higher education debates on digital and green innovation competencies, where universities are expected to cultivate graduates able to connect knowledge, values and action in uncertain social and technological settings (OECD, 2024).

Recent research on liberal arts education in China emphasises service, civic purpose and Confucian traditions of moral cultivation (Mou, 2024, 2025). These concerns connect with OBE

because graduate capabilities are not only employability skills but also forms of responsible judgement. Zhang (2026) similarly links sustainability-oriented teaching in vocational and applied higher education with students' motivation, learning commitment and social value outcomes. This is relevant to the present article because it supports an expanded view of outcomes as value-bearing, motivational and socially situated rather than merely technical. Table 1 synthesises the policy and theoretical anchors used in the article.

Table 1. Policy and theoretical anchors for a humanities-inclusive OBE reform agenda

Domain	Core idea	Representative sources	Role in this article
Chinese quality reform	High-quality development, undergraduate audit, discipline adjustment and evidence-based improvement	CPC Central Committee & State Council (2019, 2025); MOE (2021)	Positions OBE within a national reform ecology rather than a narrow classroom technique
OBE and constructive alignment	Graduate capabilities, backward design, aligned teaching and assessment	Spady (1994); Biggs (1996); Biggs & Tang (2011); Aminah et al. (2025)	Provides the core design logic for programme-level outcome architecture
Assessment and feedback	Programmatic assessment, authentic tasks, feedback literacy and assessment validity	Ajjawi et al. (2024); Baartman & Quinlan (2024); Carless (2022); Dawson et al. (2024); Zhan et al. (2025)	Makes learning evidence developmental, interpretable and usable for improvement
Faculty development	Professional judgement, moderation, communities of practice and incentive alignment	Adarkwah (2021); Carless & Winstone (2023)	Treats teachers as evidence interpreters rather than policy implementers only
Organisational and digital capacity	Capacity building, digital transformation and resilience as conditions for sustained reform	Zhang & Li (2025a, 2025b)	Explains why OBE requires institutional coordination and adaptive routines rather than technical adoption alone
Humanities and new liberal arts	Interpretation, ethical reasoning, public communication and digital-humanistic inquiry	Feng (2022); Gao & Gu (2024); Mou (2024, 2025); Zhang (2026)	Prevents OBE from narrowing humanities learning to generic skills
AI-aware assessment	Process evidence, AI-use transparency, oral explanation and structural redesign	Bearman et al. (2023); Corbin et al. (2025); Miao & Holmes (2023); Ogunleye et al. (2024)	Protects assessment validity when final artefacts can be co-produced with AI tools

Note. The table summarises the literatures used to position OBE as a policy-informed, assessment-centred and humanities-inclusive reform ecology.

3. Methodological Orientation: Integrative Conceptual Synthesis

3.1 Research design

This article adopts an integrative conceptual synthesis. It does not report original empirical data and does not claim statistical generalisability. Its purpose is theory-building: to clarify how OBE can be reconceptualised for Chinese higher education by connecting policy context, curriculum design, assessment ecology, faculty development and humanities innovation. Conceptual articles are appropriate when the task is to reorganise fragmented literatures, define constructs and propose relationships for future empirical testing (Jaakkola, 2020; Snyder, 2019).

The synthesis is integrative rather than systematic. A systematic review aims to exhaustively identify and evaluate a bounded body of studies. This article instead uses purposive theoretical sampling: sources were selected because they illuminate a specific design problem within OBE reform. Foundational works were retained where they remain theoretically necessary, while recent literature from 2020 to 2026 was prioritised to capture contemporary developments in assessment, AI, quality assurance and Chinese higher education.

3.2 Literature and policy corpus

Searches and source checks were conducted in June 2026 across peer-reviewed journal databases, Web of Science-linked publisher

databases, ERIC, Google Scholar, official Chinese policy portals and selected publisher websites. Search terms included outcome-based education, constructive alignment, programme learning outcomes, curriculum mapping, programmatic assessment, authentic assessment, feedback literacy, teacher feedback literacy, faculty development, new liberal arts, Chinese higher education, quality assurance, generative AI assessment and digital assessment validity.

Policy documents were included when they directly shaped the reform context of Chinese higher education, especially Education Modernization 2035, the 2024-2035 master plan for building China into a leading country in education, the 2021-2025 undergraduate teaching audit evaluation plan and the new liberal arts declaration. The final cited corpus consists of 43 sources, including foundational OBE texts, recent assessment and feedback studies, policy documents, Chinese higher education studies and selected works by Xianghan Zhang. Zhang's education-focused article is used to support the discussion of value-oriented student outcomes, while the digital capacity and organisational resilience articles are treated as contextual organisational-capacity sources rather than direct evidence about higher education teaching. Table 2 makes the synthesis strategy explicit without presenting the article as a PRISMA-style systematic review.

Table 2. Search and synthesis strategy for the integrative conceptual review

Component	Specification	Rationale
Purpose	Build a conceptual framework for OBE reform in Chinese higher education	The aim is theory construction and practical design, not meta-analysis.
Search period	June 2026	The date clarifies the temporal scope of the source check.
Sources	Scopus/WoS-linked publisher databases, ERIC, Google Scholar, MOE and State Council policy	Combines peer-reviewed research

Component	Specification	Rationale
	portals	with authoritative policy materials.
Time window	2020-2026 prioritised; foundational exceptions retained	Spady, Biggs and Biggs & Tang are retained because they anchor OBE and constructive alignment.
Inclusion criteria	Direct relevance to OBE, assessment, feedback literacy, faculty development, Chinese higher education policy, new liberal arts or AI-aware assessment	Ensures each source contributes to framework construction.
Exclusion criteria	Non-scholarly commentary, duplicate entries, sources unrelated to higher education, and documents with insufficient bibliographic detail	Reduces unsupported or weakly relevant citation padding.
Corpus boundary	43 sources retained for direct citation; the corpus is selective rather than exhaustive	Makes the evidentiary boundary clear and prevents the article from being read as a systematic review.
Synthesis procedure	Thematic clustering, tension identification, mechanism specification and proposition development	Connects literature evidence with framework design and future empirical testing.

Note. The synthesis strategy follows an integrative conceptual logic. It clarifies how sources were selected and used while avoiding claims of exhaustive systematic coverage.

3.3 Analytical procedure

The analytical procedure involved four steps. First, the policy context was examined to identify why OBE has become institutionally salient in China. Second, the literature was clustered into four domains: outcome architecture, assessment ecology, faculty professional judgement and humanities innovation. Third, the tensions across these domains were identified, particularly the gap between policy compliance and learning improvement. Fourth, these tensions were translated into the OBE-CQIH framework and six research propositions.

The synthesis was guided by one boundary condition: OBE should not be treated as inherently liberating or inherently reductive. Its

educational value depends on the institutional practices through which outcomes are interpreted, assessment evidence is generated, faculty judgement is exercised and curriculum change is enacted.

4. The OBE-CQIH Framework

The OBE-CQIH framework - Outcome-Based Continuous Quality Improvement for Humanities-Inclusive Higher Education - is developed to explain how outcome language can become consequential in Chinese universities. Figure 1 presents the framework as a four-mechanism cycle rather than a linear implementation checklist. The framework treats OBE as a cycle of evidence, judgement and curriculum renewal rather than a set of attainment calculations.

OBE-CQIH as continuous quality improvement

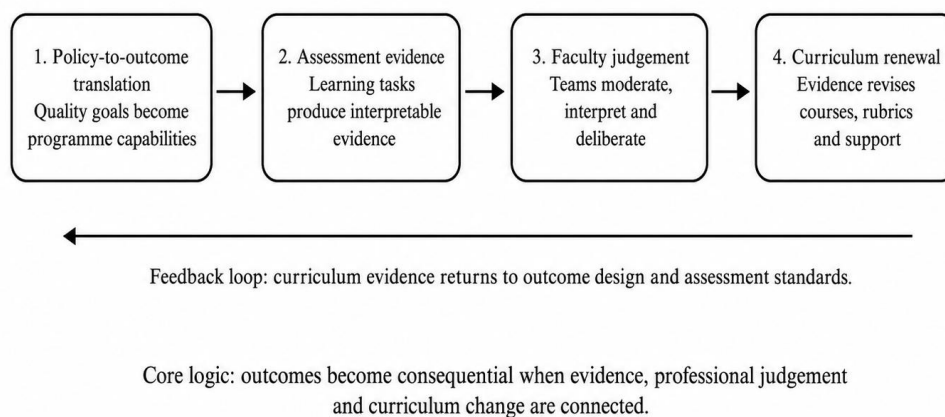


Figure 1. Four-mechanism OBE-CQIH framework for Chinese higher education reform

Note. The framework was developed by the authors by integrating OBE, constructive alignment, continuous quality improvement, assessment, faculty development and new liberal arts literature (Spady, 1994; Biggs, 1996; Biggs & Tang, 2011; Baartman & Quinlan, 2024; Feng, 2022).

As shown in Figure 1, the framework specifies four mechanisms. The first is policy-to-outcome translation: national quality goals and institutional missions become consequential only when programme teams translate them into discipline-sensitive graduate capabilities. The second is assessment-based evidence generation: outcomes require tasks that allow students to demonstrate capability across time. The third is faculty-led professional judgement: evidence must be interpreted through rubric calibration, moderation and collective deliberation. The fourth is curriculum renewal: evidence matters only when it changes courses, assessment design, student support and resource allocation.

The four mechanisms are sequential but recursive. Policy goals must first be translated into programme outcomes; outcomes then require assessment evidence; evidence must be interpreted by faculty communities; and interpretation becomes reform only when it leads to curriculum renewal. The cycle then

returns to outcome architecture because revised curricula often reveal that programme outcomes are too vague, too narrow or poorly sequenced.

4.1 Outcome architecture: from generic statements to graduate capabilities

The first component of the framework is outcome architecture. Many OBE reforms fail because outcomes are either too vague or too numerous. Statements such as 'students will understand the discipline' or 'students will improve comprehensive quality' do not guide teaching or assessment. Conversely, excessively fragmented outcomes can overwhelm teachers and reduce learning to checklists. A stronger architecture distinguishes institutional graduate attributes, programme learning outcomes, course learning outcomes and assessment criteria.

In humanities-inclusive higher education, outcomes need to include knowledge and skills, but also interpretive judgement, ethical reasoning, communication, cultural translation, digital and AI literacy, interdisciplinary problem-solving and self-regulated learning. These outcomes are not vague if they are attached to appropriate forms of evidence. Table 3 identifies capability clusters and assessment evidence suitable for humanities-inclusive OBE.

Table 3. Graduate capability clusters for humanities-inclusive OBE

Capability cluster	Programme-level outcome	Assessment evidence	Humanities innovation value
Disciplinary understanding	Students explain core concepts, debates, methods and historical development in the discipline.	Concept maps, analytical essays, oral examinations, literature reviews	Preserves disciplinary depth and intellectual continuity.
Interpretive judgement	Students interpret texts, cases, artefacts or social phenomena through defensible theoretical lenses.	Close reading, case interpretation, comparative critique, annotated portfolio	Makes ambiguity and argumentation assessable without demanding a single correct answer.
Ethical and social reasoning	Students evaluate problems through ethical, cultural and institutional perspectives.	Ethical dilemma analysis, policy brief, community inquiry, reflective commentary	Connects humanities learning with public responsibility.
Communication and public reasoning	Students communicate complex ideas to academic and non-academic audiences.	Presentation, public essay, podcast script, exhibition narrative, debate	Develops knowledge translation and civic communication.
Digital and AI literacy	Students use digital tools and AI critically, ethically and transparently.	AI-use log, digital humanities artefact, process portfolio, oral defence	Links new liberal arts with digital transformation while protecting authorship.
Interdisciplinary problem-solving	Students integrate humanities, social science and technological perspectives.	Collaborative capstone, design proposal, problem-based project	Prevents interdisciplinarity from becoming superficial theme-mixing.
Lifelong learning and self-regulation	Students set goals, use feedback and revise work based on evidence.	Feedback action plan, revision memo, learning portfolio	Turns feedback into visible student agency.

Note. The table translates humanities and new liberal arts aspirations into assessable graduate capabilities while avoiding narrow behavioural reduction (Carless, 2022; Feng, 2022; Miao & Holmes, 2023; Zhang, 2026).

Table 3 clarifies why humanities programmes should not be treated as resistant to OBE. The issue is not whether outcomes can be stated, but whether they are stated in a way that respects the epistemic character of humanities inquiry. Humanities education does not resist evidence; it resists thin evidence. The assessment challenge is not whether interpretation, ethical reasoning and cultural judgement can be

evaluated, but whether the chosen assessment forms are rich enough to represent them.

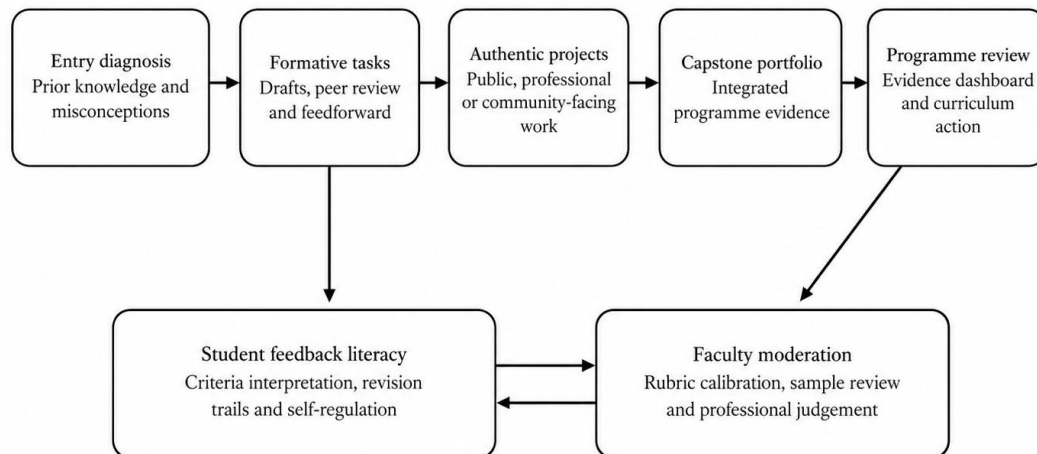
4.2 Student assessment ecology

The second component is student assessment ecology. OBE becomes credible only when the institution can collect evidence that students are moving toward intended capabilities. A single final examination cannot show whether students have developed interpretive judgement, ethical

reasoning, digital literacy or public communication. Evidence must accumulate across a programme and must include both products and processes.

Figure 2 illustrates a programme-level assessment ecology. Entry diagnosis identifies students' prior knowledge and misconceptions.

Formative tasks allow practice, peer review and feedforward. Authentic projects connect learning to disciplinary, professional or community-facing practices. Capstones and portfolios integrate evidence across courses. Programme review then turns aggregated evidence into curriculum action.



Assessment validity is strengthened when evidence accumulates across time and is interpreted collectively.

Figure 2. Programme-level assessment ecology for OBE implementation

Note. The figure visualises assessment as a cumulative ecology rather than a single measurement event, drawing on programmatic assessment, authentic assessment, digital assessment and feedback literacy research (Baartman & Quinlan, 2024; Bearman et al., 2023; Dawson et al., 2024; Nieminen et al., 2023a).

As Figure 2 suggests, assessment validity in OBE should not be reduced to statistical attainment rates. It depends on whether assessment tasks represent the intended capability, whether evidence accumulates across time, whether feedback leads to student action

and whether faculty teams moderate standards. In an AI-mediated environment, the ecology should not rely on final artefacts alone. It should require process evidence, revision trails, AI-use disclosure, oral explanation and student reflection so assessors can judge not merely what was produced but how the student reasoned.

Table 4 shows how this assessment ecology can operate across a programme curriculum. The table moves from course entry diagnosis to programme review, thereby connecting assessment design with continuous quality improvement.

Table 4. Assessment ecology across a programme curriculum

Assessment level	Purpose	Typical tasks	Evidence generated	Quality mechanism
Course entry	Diagnose prior learning, misconceptions and support needs.	Diagnostic writing task, concept inventory, learning self-audit	Baseline profile of student readiness	Course team identifies threshold concepts and support needs.
Formative course work	Support development during the semester.	Draft essay, seminar presentation, case analysis, peer review	Evidence of developing competence and feedback use	Teacher and peer feedforward; students submit revision plans.
Authentic or project work	Assess transfer to meaningful disciplinary or public practice.	Policy brief, public exhibition narrative, digital humanities project, community inquiry	Evidence of application, judgement and audience awareness	Internal moderation and, where appropriate, external stakeholder feedback.
Capstone or portfolio	Evaluate integrated programme-level outcomes.	Thesis, portfolio, oral defence, public-facing project	Cumulative evidence of graduate capability	Double marking, rubric calibration and defence panel discussion.
Programme review	Use assessment evidence to improve curriculum.	Aggregated portfolio review, graduate feedback, employer/community feedback, analytics dashboard	Evidence of outcome strengths, weaknesses and gaps	Programme committee records curriculum changes and resource decisions.

Note. The table operationalises programme-level evidence collection through multiple sources, consistent with programmatic assessment, authentic assessment and AI-aware assessment design (Ajjawi et al., 2024; Baartman & Quinlan, 2024; Boud & Bearman, 2024; Corbin et al., 2025; Hu et al., 2025).

Table 4 is deliberately programme-based. Course-level assessment matters, but graduate capability becomes visible only when evidence is reviewed across a curriculum sequence. This approach also reduces the risk that OBE becomes a compliance exercise because evidence must be discussed and used rather than merely reported.

4.3 Faculty development as professional judgement infrastructure

The third component is faculty development. OBE often fails when teachers are asked to implement outcomes without time, authority or professional learning opportunities. Faculty development should therefore be repositioned

as professional judgement infrastructure. The core question is not whether teachers can write learning outcomes, but whether programme teams can design valid tasks, interpret student work and decide what curricular changes are justified by the evidence.

Teacher feedback literacy is especially important. Students cannot develop feedback literacy if teachers themselves are uncertain about standards, criteria and the purpose of feedback (Carless & Winstone, 2023). Programme teams therefore need structured spaces for rubric calibration, sample review, moderation and reflection on student revision behaviour. Table 5 proposes a three-layer faculty development model for OBE-CQIH implementation.

Table 5. Three-layer faculty development model for OBE-CQIH implementation

Layer	Development focus	Mechanisms	Expected outputs	Evidence of effectiveness
Individual teacher	Outcome writing, assessment literacy, feedback design, AI-aware pedagogy	Workshops, mentoring, teaching consultation, micro-credential modules	Revised syllabus, aligned assessment task, feedback plan, AI-use guidance	Peer-reviewed syllabus and evidence of student feedback use
Programme team	Curriculum mapping, assessment moderation, capstone design, evidence interpretation	Faculty learning communities, programme retreats, rubric calibration, assessment review meetings	Programme outcome map, shared rubrics, assessment schedule, annual improvement plan	Moderated samples of student work and documented curriculum changes
Institutional system	Incentive alignment, workload recognition, quality assurance, teaching scholarship	Teaching development centre, teaching innovation grants, promotion criteria, external review	OBE implementation guide, reward mechanisms, teaching research projects	Faculty participation, curriculum improvement records and teaching scholarship outputs

Note. The table reframes faculty development as a multi-level system connecting individual capacity, programme-level professional judgement and institutional incentives (Adarkwah, 2021; Carless & Winstone, 2023).

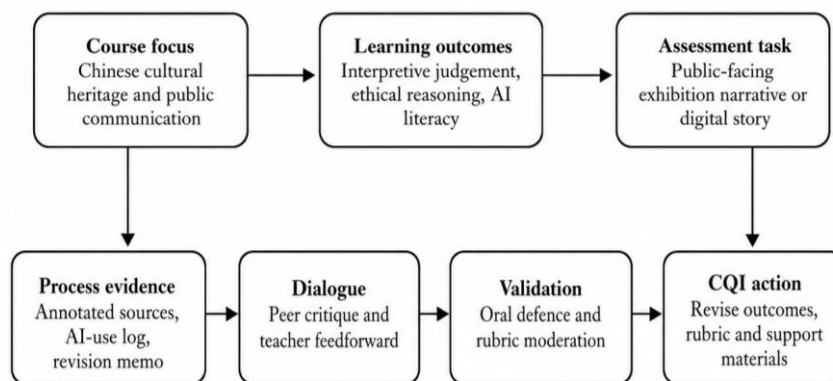
Table 5 emphasises that the most important unit of OBE implementation is not the isolated teacher but the programme team. Individual teachers can redesign assignments, but only programme teams can determine whether graduate capabilities are introduced, developed, reinforced and assessed across the curriculum. Institutional incentives are equally important. If curriculum design, moderation and feedback-intensive assessment are not recognised in workload and promotion, OBE will likely be experienced as administrative burden rather than professional renewal.

4.4 Humanities innovation under OBE-CQIH

The fourth component is humanities innovation. New liberal arts reform requires

humanities programmes to engage with digital culture, public problems, cultural communication and interdisciplinary inquiry. OBE can support this agenda if it is used to clarify what forms of judgement students should develop and how such judgement can be demonstrated. It can damage humanities education if it reduces open inquiry to thin measurable indicators.

Figure 3 offers an illustrative course redesign for Chinese cultural heritage and public communication. The example is not presented as empirical evidence. It illustrates how the framework can be operationalised in a humanities course by linking outcomes, assessment tasks, process evidence and continuous quality improvement.



The vignette illustrates operational design rather than empirical findings; evidence is assessed through artefacts, process traces and explanation.

Figure 3. Illustrative OBE-CQIH redesign for a humanities course

Note. The vignette demonstrates how a humanities course can use artefacts, process traces and oral explanation to assess interpretive, ethical, digital and public communication outcomes. It is an illustrative design scenario rather than empirical evidence.

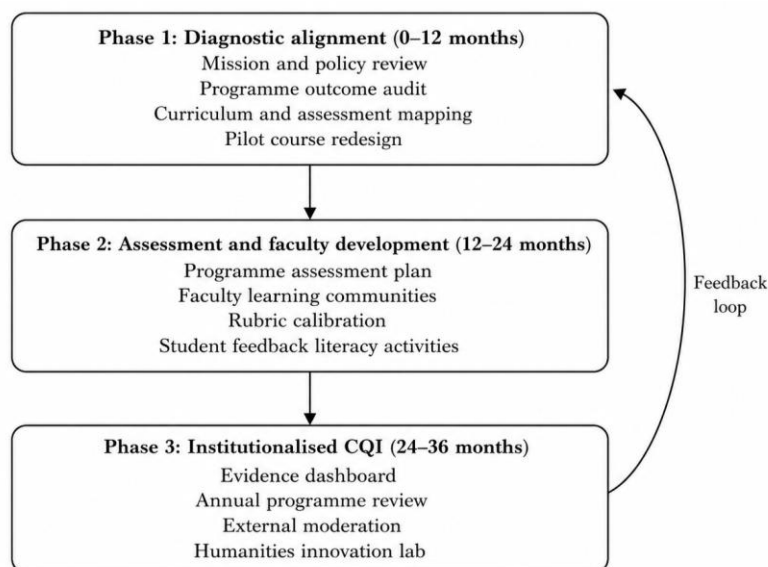
In this vignette, students do not merely submit a final essay. They analyse cultural materials, document their sources, declare any AI assistance, revise their public-facing narrative after peer critique and defend their interpretive choices orally. The assessment therefore captures not only the final artefact but also the student's reasoning process, feedback use and ethical judgement. The programme team can then review student work to refine outcomes, rubrics and support materials.

This example shows how OBE can strengthen humanities education when outcomes are

written as forms of judgement rather than as generic competencies. Cultural interpretation, ethical reasoning and public communication become visible through rich evidence. At the same time, the open-endedness of humanities inquiry is protected because assessment values argument quality, reflexivity and justified interpretation rather than a predetermined answer.

4.5 Implementation roadmap

OBE-CQIH should be implemented in stages. A sudden university-wide requirement to rewrite syllabi may create documents without learning improvement. A more credible approach begins with diagnostic alignment, develops assessment and faculty capacity, and then institutionalises continuous quality improvement. Figure 4 presents a three-phase roadmap for Chinese universities.



Implementation is staged but recursive: later evidence returns to the design of outcomes and assessment.

Figure 4. Three-phase implementation roadmap for OBE-CQIH

Note. The roadmap structures OBE reform as an incremental and recursive process that links diagnostic alignment, assessment and faculty development, and institutionalised continuous quality improvement (MOE, 2021; Liu et al., 2025; Baartman & Quinlan, 2024).

Phase 1 focuses on diagnostic alignment. Universities examine whether programme outcomes are coherent, whether courses contribute to those outcomes and whether assessment tasks provide relevant evidence. Phase 2 develops the infrastructure required for OBE: programme assessment plans, faculty learning communities, rubric calibration and student feedback literacy activities. Phase 3 institutionalises continuous quality improvement through evidence dashboards, annual programme review, external moderation and humanities innovation labs.

The roadmap should be adapted to institutional type. Research universities, local application-oriented universities, private institutions and vocational undergraduate colleges differ in mission, student profile, faculty workload and resource capacity. The OBE-CQIH framework therefore does not prescribe a single institutional template. It defines a disciplined reform logic that each institution can translate into its own governance and pedagogical context.

5. Research Propositions and Empirical Extensions

The OBE-CQIH framework generates six research propositions. These propositions are not findings; they identify mechanisms, mediators and boundary conditions for future empirical testing. Table 6 summarises the propositions and possible research designs.

Table 6. Research propositions derived from the OBE-CQIH framework

Proposition	Claim	Possible empirical design
P1. Outcome architecture	Discipline-sensitive outcome architecture improves curriculum coherence more strongly than generic outcome statements.	Curriculum document analysis; programme-level survey; comparative case study
P2. Assessment ecology	Multi-source assessment ecology provides more valid evidence of graduate capability than isolated final	Portfolio analysis; capstone moderation study; quasi-experimental programme

Proposition	Claim	Possible empirical design
	examinations.	comparison
P3. Feedback literacy	Student feedback literacy mediates the relationship between formative assessment and outcome achievement.	Student survey; revision trace analysis; structural equation modelling
P4. Faculty judgement	Faculty learning communities mediate the relationship between institutional OBE policy and assessment reform quality.	Teacher interviews; observation of moderation meetings; longitudinal case study
P5. Incentive alignment	Workload recognition and promotion incentives moderate the effect of faculty development on OBE implementation quality.	Institutional policy analysis; multi-university survey; mixed-methods study
P6. AI-aware validity	AI-enabled assessment analytics support OBE quality assurance only when used as interpretive support for teacher judgement rather than automated evidence of outcome attainment.	Design-based research; assessment validity study; comparison of AI-disclosure and process-evidence designs

Note. The propositions move OBE research beyond implementation description by identifying mediating mechanisms, boundary conditions and possible empirical tests.

P1 and P2 focus on design validity. They ask whether outcomes and assessments are sufficiently rich to represent the intended capabilities. P3 shifts attention to student agency by treating feedback use as a mediator. P4 and P5 examine the institutional conditions under which OBE moves from policy requirement to professional practice. P6 addresses the emerging problem of AI-aware assessment validity. Together, the propositions allow future studies to move beyond asking whether OBE has been implemented and to examine when OBE becomes educationally consequential.

6. Discussion

6.1 Theoretical contribution

Conventional OBE studies often ask whether outcomes, teaching activities and assessments are aligned. The OBE-CQIH framework asks a different question: what institutional arrangements allow outcome evidence to become curriculum change? This shift matters because alignment without professional judgement may still produce compliance rather than learning improvement.

Compared with conventional OBE models that emphasise outcome mapping and attainment

calculation, the OBE-CQIH framework shifts attention from measurement to institutional learning. It extends OBE theory in three ways: from course-level alignment to programme-level evidence ecology, from individual teacher training to faculty communities of professional judgement, and from generic employability skills to humanities-inclusive graduate formation. This shift is especially important in policy-driven higher education systems where rapid compliance can make reform visible without making learning consequential.

The framework also contributes to assessment theory. Assessment validity is treated as a relational property of tasks, evidence, student action and faculty judgement rather than as a numerical calculation alone. This stance is consistent with recent calls to theorise assessment and feedback beyond objective measurement (Nieminen et al., 2023b). It is also responsive to generative AI, where final artefacts can no longer be assumed to provide transparent evidence of independent capability.

6.2 Practical implications

For university leaders, the framework implies that OBE reform should be led at programme

level. Institutional policy is necessary, but graduate capability is constructed through curriculum sequences, assessment evidence and programme team judgement. Leaders should therefore support programme retreats, moderation meetings, teaching development centres and evidence-informed curriculum review.

For teaching development centres, faculty development should move beyond short workshops on outcome writing. Teachers need sustained opportunities to design assessment tasks, compare student work, calibrate standards and discuss AI-aware validity. Faculty development should also help teachers build feedback processes that require students to act, revise and explain, rather than merely receive comments.

For humanities programmes, OBE should be used cautiously but not rejected. Programmes can define outcomes around interpretation, ethics, culture, communication and digital inquiry. Portfolios, capstone projects, public-facing artefacts and oral defence can provide evidence that final examinations alone cannot provide. The purpose is not to standardise humanities judgement, but to make it discussable, teachable and improvable.

6.3 Risks and mitigation strategies

The first risk is formalism. Universities may produce outcome maps and attainment reports without changing learning. This risk can be reduced by requiring programmes to submit examples of student work, feedback action plans, moderated rubrics and documented curriculum changes rather than matrices alone.

The second risk is outcome narrowing. Programmes may select outcomes that are easy to measure and neglect creativity, ethics, interpretation or cultural judgement. This risk can be reduced by permitting discipline-specific outcome language and by using qualitative evidence, portfolios and oral explanation.

The third risk is faculty overload. OBE can increase administrative work if curriculum

design and moderation are not recognised as academic labour. Universities need to include assessment moderation, teaching innovation and curriculum review in workload and promotion systems; otherwise, the reform may reward documentation while exhausting the teachers expected to enact it.

The fourth risk is AI-related instability. Generative AI makes traditional take-home writing tasks less reliable as evidence of independent learning. Universities should design AI-aware assessment that includes process traces, reflective documentation, oral defence and transparent AI-use declarations. The goal is not simply to prohibit AI, but to ensure that students can demonstrate judgement in a digital environment.

7. Limitations and Future Research

This article is conceptual and policy-informed. It does not report original interviews, survey data, student artefacts or institutional case studies. The framework should therefore be treated as a theoretically grounded model for future research rather than evidence of implementation effectiveness. A second limitation is that the article synthesises English-language and policy sources with selected Chinese higher education literature; future work should include a broader Chinese-language database search and direct institutional data. A third limitation is that the selected works by Xianghan Zhang are used cautiously and thematically: Zhang's education-focused article is directly relevant to value-oriented student outcomes, whereas the digital capacity and organisational resilience articles are used only to illuminate the broader capacity-building logic of reform.

Future research can operationalise the framework through mixed-methods designs. Table 7 translates the main constructs into possible indicators. These indicators can support survey research, comparative case studies, longitudinal programme evaluation or design-based research in Chinese universities.

Table 7. Possible operational indicators for future empirical research

Construct	Possible indicators	Data sources
Outcome clarity	Specificity of programme outcomes; alignment between institutional attributes, programme outcomes and course outcomes	Syllabus review, curriculum maps, expert rating
Assessment ecology	Number and diversity of evidence points; use of portfolios, capstones, process evidence and oral explanation	Assessment plan analysis; student work samples; moderation records
Feedback literacy	Student use of criteria, revision behaviour, peer review quality and feedback action plans	Student survey; revision trace analysis; reflective portfolios
Faculty professional judgement	Frequency and quality of rubric calibration, sample review and moderation meetings	Faculty interviews; meeting observation; document analysis
Institutional incentive alignment	Workload recognition, promotion criteria, teaching innovation grants and quality assurance support	Policy analysis; leadership interviews; faculty survey
Curriculum renewal	Documented changes in outcomes, tasks, rubrics, sequencing and support services after evidence review	Annual programme reports; before-after syllabus comparison
AI-aware validity	AI-use transparency, process evidence, oral defence and task redesign for human judgement	Assessment audit; student AI-use logs; validity argument analysis

Note. The indicators are illustrative and should be adapted to institutional mission, discipline and student profile. They support future empirical testing of the OBE-CQIH framework.

A promising next step is a multi-case study comparing research universities, local application-oriented universities and vocational undergraduate institutions. Another option is a longitudinal study of one department implementing OBE-CQIH over three years, using syllabi, assessment tasks, student portfolios, moderation records and interviews. Quantitative studies could test whether feedback literacy mediates the effect of formative assessment on outcome achievement, and whether incentive alignment moderates the effect of faculty development on implementation quality.

Humanities-specific empirical research is also needed. Studies could examine how programmes in Chinese language and literature, history, philosophy, communication, education or arts translate interpretive and ethical outcomes into assessment evidence. Such

research would help determine whether OBE can support humanities innovation without narrowing its intellectual purposes.

8. Conclusion

OBE offers Chinese higher education a useful language for aligning curriculum, teaching, assessment and quality improvement. Yet its value depends on how it is interpreted and enacted. If OBE is treated as a compliance exercise, it may produce outcome maps without improving learning. If it is treated as a continuous quality improvement ecology, it can help universities make student learning visible, contestable, assessable and improvable.

The OBE-CQIH framework developed in this article integrates policy-to-outcome translation, assessment-based evidence generation, faculty-led professional judgement and curriculum renewal. It argues that student assessment,

faculty development and humanities innovation should not be handled as separate reform agendas. They are mutually dependent. Assessment provides evidence, faculty development gives that evidence professional meaning, and humanities innovation ensures that outcomes include judgement, responsibility, culture, communication and digital agency.

The central task is therefore not simply to ask whether Chinese universities have adopted OBE. The stronger question is whether outcome evidence has begun to change how universities understand learning, assess development, support teachers and cultivate graduates capable of responsible judgement in a changing society.

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Conflict of Interest

The authors declare no conflict of interest.

Data Availability Statement

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Author Contributions

Tao Zhang contributed to conceptualisation, framework development and manuscript drafting. Chandra Mohan Vasudeva Panicker contributed to theoretical refinement, supervision and critical revision of the manuscript.

Ethics Statement

This article does not involve human participants, human data, animal subjects or clinical materials. Ethics approval was therefore not required.

Declaration of generative AI and AI-assisted technologies in the manuscript preparation process

We confirm that this manuscript was prepared entirely by the authors. No generative AI or AI-assisted technologies were used in drafting or revising the manuscript. All authors take full responsibility for the content of the submission.

References

- Adarkwah, M. A. (2021). Teacher professional development as a catalyst for faculty development: The case of a university in China. *Journal of Education and Training Studies*, 9(5), 1-15. <https://doi.org/10.11114/jets.v9i5.5139>
- Ajjawi, R., Tai, J., Dollinger, M., Dawson, P., Boud, D., & Bearman, M. (2024). From authentic assessment to authenticity in assessment: Broadening perspectives. *Assessment & Evaluation in Higher Education*, 49(4), 499-510. <https://doi.org/10.1080/02602938.2023.2271193>
- Aminah, S., Alfa Krisnadhi, A., & Nizar Hidayanto, A. (2025). Ontological framework for the analysis of outcome-based curriculum in higher education. *IEEE Access*, 13, 31497-31516. <https://doi.org/10.1109/ACCESS.2025.3542881>
- Asim, H. M., Vaz, A., Ahmed, A., & Sadiq, S. (2021). A review on outcome based education and factors that impact student learning outcomes in tertiary education system. *International Education Studies*, 14(2), 1-11. <https://doi.org/10.5539/ies.v14n2p1>
- Baartman, L. K. J., & Quinlan, K. M. (2024). Assessment and feedback in higher education reimagined: Using programmatic assessment to transform higher education. *Perspectives: Policy and Practice in Higher Education*, 28(2), 57-67. <https://doi.org/10.1080/13603108.2023.2283118>

-
- Bearman, M., Nieminen, J. H., & Ajjawi, R. (2023). Designing assessment in a digital world: An organising framework. *Assessment & Evaluation in Higher Education*, 48(3), 291-304. <https://doi.org/10.1080/02602938.2022.2069674>
- Biggs, J. (1996). Enhancing teaching through constructive alignment. *Higher Education*, 32(3), 347-364. <https://doi.org/10.1007/BF00138871>
- Biggs, J., & Tang, C. (2011). *Teaching for quality learning at university* (4th ed.). Open University Press.
- Bittle, K., & El-Gayar, O. (2025). Generative AI and academic integrity in higher education: A systematic review and research agenda. *Information*, 16(4), 296. <https://doi.org/10.3390/info16040296>
- Boud, D., & Bearman, M. (2024). The assessment challenge of social and collaborative learning in higher education. *Educational Philosophy and Theory*, 56(5), 459-468. <https://doi.org/10.1080/00131857.2022.2114346>
- Carless, D. (2022). From teacher transmission of information to student feedback literacy: Activating the learner role in feedback processes. *Active Learning in Higher Education*, 23(2), 143-153. <https://doi.org/10.1177/1469787420945845>
- Carless, D., & Winstone, N. (2023). Teacher feedback literacy and its interplay with student feedback literacy. *Teaching in Higher Education*, 28(1), 150-163. <https://doi.org/10.1080/13562517.2020.1782372>
- Communist Party of China Central Committee and State Council. (2019). *China's Education Modernization 2035*. State Council of the People's Republic of China.
- Communist Party of China Central Committee and State Council. (2025). *Outline of the plan for building China into a leading country in education (2024-2035)*. State Council of the People's Republic of China.
- Corbin, T., Dawson, P., & Liu, D. (2025). Talk is cheap: Why structural assessment changes are needed for a time of GenAI. *Assessment & Evaluation in Higher Education*. Advance online publication. <https://doi.org/10.1080/02602938.2025.2503964>
- Dawson, P., Yan, Z., Lipnevich, A. A., Tai, J., Boud, D., & Mahoney, P. (2024). Measuring what learners do in feedback: The feedback literacy behaviour scale. *Assessment & Evaluation in Higher Education*, 49(3), 348-362. <https://doi.org/10.1080/02602938.2023.2240983>
- Feng, H. (2022). The new liberal arts and new digital humanities education. *Digital Humanities Research*, 2(4), 14-21.
- Gao, H., & Gu, Y. (2024). Establishing a research-focused liberal arts college in China: Duke Kunshan University. *Daedalus*, 153(2). https://doi.org/10.1162/daed_a_02065
- Hu, A., Liu, Q., & Daniel, B. (2025). Digital technologies in authentic assessment in higher education: A systematic literature review and narrative synthesis. *SAGE Open*, 15(3). <https://doi.org/10.1177/21582440251357198>
- Jaakkola, E. (2020). Designing conceptual articles: Four approaches. *AMS Review*, 10, 18-26. <https://doi.org/10.1007/s13162-020-00161-0>
- Little, T., Dawson, P., Boud, D., & Tai, J. (2024). Can students' feedback literacy be improved? A scoping review of interventions. *Assessment & Evaluation in Higher Education*, 49(1), 39-52. <https://doi.org/10.1080/02602938.2023.2177613>
- Liu, S., Yang, X., da Rosa, M. J. P., & Zhang, Y. (2025). Higher education policy evolution in China: An exploration of quality assurance policy change and its dynamics. *Beijing International Review of Education*, 7(3), 169-184. <https://doi.org/10.1177/25902547251372716>
- Lu, B., Chen, F., See, B. H., Dai, B., & Shao, X. (2024). How institutional resources affect university students' learning outcomes: Evidence from the 2023 University Student Learning Experience Survey in China. *Studies in Higher Education*. Advance online publication. <https://doi.org/10.1080/03075079.2024.2430373>
- Mahrishi, M., Ramakrishna, S., Hosseini, S., & Abbas, A. (2025). A systematic literature review of the global trends of outcome-based education in higher education with an SDG perspective related to engineering education. *Discover Sustainability*, 6, 620. <https://doi.org/10.1007/s43621-025-01496-z>
-

-
- Miao, F., & Holmes, W. (2023). Guidance for generative AI in education and research. UNESCO.
- Ministry of Education of the People's Republic of China. (2021). Implementation plan for undergraduate education and teaching audit and evaluation in regular higher education institutions 2021-2025. Ministry of Education of the People's Republic of China.
- Mou, L. (2024). A spirit of service in liberal arts education: The legacy from China's former Christian universities. *Asia Pacific Education Review*. Advance online publication. <https://doi.org/10.1007/s12564-024-10008-z>
- Mou, L. (2025). Liberal arts education through a Confucian lens. *Studies in Higher Education*. Advance online publication. <https://doi.org/10.1080/03075079.2025.2499955>
- New Liberal Arts Construction Working Group. (2020). Declaration on the construction of new liberal arts. Ministry of Education of the People's Republic of China.
- Nieminen, J. H., Bearman, M., & Ajjawi, R. (2023a). Designing the digital in authentic assessment: Is it fit for purpose? *Assessment & Evaluation in Higher Education*, 48(4), 529-543. <https://doi.org/10.1080/02602938.2022.2089627>
- Nieminen, J. H., Bearman, M., & Tai, J. (2023b). How is theory used in assessment and feedback research? A critical review. *Assessment & Evaluation in Higher Education*, 48(1), 77-94. <https://doi.org/10.1080/02602938.2022.2047154>
- Nieminen, J. H., & Carless, D. (2023). Feedback literacy: A critical review of an emerging concept. *Higher Education*, 85(6), 1381-1400. <https://doi.org/10.1007/s10734-022-00895-9>
- OECD. (2024). Building competencies for digital and green innovation in higher education. OECD Publishing.
- Ogunleye, B., Zakariyyah, K. I., Ajao, O., Olayinka, O., & Sharma, H. (2024). Higher education assessment practice in the era of generative AI tools. *Journal of Applied Learning & Teaching*, 7(1). <https://doi.org/10.37074/jalt.2024.7.1.28>
- Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104, 333-339. <https://doi.org/10.1016/j.jbusres.2019.07.039>
- Spady, W. G. (1994). Outcome-based education: Critical issues and answers. American Association of School Administrators.
- Sun, P. H., & Lee, S. Y. (2020). The importance and challenges of outcome-based education: A case study in a private higher education institution. *Malaysian Journal of Learning and Instruction*, 17(2), 253-278. <https://doi.org/10.32890/mjli2020.17.2.9>
- Walter, Y. (2024). Embracing the future of artificial intelligence in the classroom: The relevance of AI literacy, prompt engineering, and critical thinking in modern education. *International Journal of Educational Technology in Higher Education*, 21, 15. <https://doi.org/10.1186/s41239-024-00448-3>
- Wang, Y., Zhan, Z., & Wang, H. (2025). Network analysis of outcome-based education curriculum system: A case study of environmental design programs in medium-sized cities. *Sustainability*, 17(15), 7091. <https://doi.org/10.3390/su17157091>
- Zhan, Y., Boud, D., & Du, Z. (2025). Designing for authentic assessment: A scoping review. *Higher Education*. Advance online publication. <https://doi.org/10.1007/s10734-025-01588-9>
- Zhang, X. (2026). Sustainability-oriented teaching in vocational higher education: How intrinsic motivation, programme relevance and learning commitment shape students' social value outcomes. *Education + Training*. Advance online publication. <https://doi.org/10.1108/ET-02-2026-0183>
- Zhang, X., & Li, Z. (2025a). Research on the path of digital capacity building of small and medium-sized enterprises in smart government environment. *Environment, Social and Governance*, 2(1), 36-42. <https://doi.org/10.70267/4a8at429>
- Zhang, X., & Li, Z. (2025b). Research on the mechanisms of organizational resilience formation in the context of digital transformation. *Financial Economics Research*, 2(1), 40-47. <https://doi.org/10.70267/7ew71h22>
-