温州肯恩大学
WENZHOU-KEAN UNIVERSITY

2025

第二届中外合作办学质量评估工作交流会

The 2nd Sino-Foreign Cooperative Education Quality Assessment Conference

论文集

PROCEEDINGS

主办方：温州肯恩大学

前 言

2025年10月24日，温州肯恩大学举办了第二届“中外合作办学质量评估工作交流会”。作为世界青年科学家峰会系列活动之“大学教育与未来人才论坛”，本次分论坛聚焦“人工智能与国际教育”，围绕生成式AI深度介入高等教育后的质量保障、课程与评价重塑、以及中外合作大学在双重质量框架下的治理与自我证明展开讨论。会议汇集了林丹明、Adam R. Cross、李树英、韩蔚、孙建荣五位嘉宾的主题发言；本论文集即以其演讲整理稿为主体，力求为中外合作办学的质量评估提供可操作、可验证、可持续的思路与路径。

从质量治理视角切入，林丹明指出，中外合办大学因办学模式与治理结构的特殊性，质量评估呈现“多主体协同、双重对标、国际化导向与市场敏感”的特征：既要满足国内法规与分类评估要求，也需对齐外方学术标准与专业认证逻辑；在评估组织方式上，强调由国家层面牵头以确保公信力与导向的一致性。这一判断为中外合作办学的“谁来评、按何评、评什么”提供了清晰的制度坐标。

在“AI+课程+评价”的实践图景上，Adam R. Cross以西交利物浦大学为例，系统阐释了高校层面“教育+AI”的战略支柱与推进机制：从AI治理、课程体系重构、到在授课模块中嵌入“AI导师”和个性化学习支持，并在学习成效与诚信之间建立可验证的证据链。同时，他呈现推进过程中的具体情形与压力来源——如对1630个模块的审视发现，仅约3.2%为AI核心模块、约91%尚未提及AI，显示变革的深水区在于教师能力、课程目标与外部质量保障压力的协同调适，而非单点技术引入。

面向大学使命与人才培养的再平衡，孙建荣强调生成式AI已从“辅助者”加速向“替代者”跃迁，高等教育必须从“防范AI”转向“整合AI”：以产教融合作为学术与社会的结构性衔接，把真实场景嵌入课程设计与评价，并以“AI驱动的三维度自适应学习评价”兼顾过程、产出与整合能力，守住并强化学术诚信的底线。

立足“未来的大学”与变革路径，李树英从颠覆性技术、在地国际化与人口结构变化出发，勾勒大学在角色、课程、治理与空间形态上的系统迁移：从“知识投喂”转向能力建构与数据驱动的快速迭代，从“选学校/专业”走向以课程为基本单元的拼装式学习；并提示“课程聚合、学分银行、个体中心的认证范式”等新机制对国际化与人才培养链条的重塑意义。

围绕世界一流本科建设的关键指标体系，韩蔚提出以“培养环境—培养过程—培养结果”贯通的人才培养关键指标框架：在资源端突出生师比、小班化、教授为本科生授课与外籍教师比例；在过程端强调导师制、项目式学习与跨文化深度体验；在结果端按学校类型分类关注深造质量或就业质量。其核心主张是把关键指标“年化、内化”，让质量保障成为学校治理语言，避免“迎评式”“盒子工程”，构建可连续叙事的自我画像。

综合诸位嘉宾的洞见，本论文集的共同主线可以概括为三点：其一，以AI为变量重写课程与评价的组织逻辑，在证据与诚信之间建立可验证的质量闭环；其二，在“双重对标”的质量生态中，形成既合规又有解释力的中外合作办学叙事；其三，以关键指标为抓手推动治理现代化，让国际化的人才培养从理念走向可量化、可迁移的制度实践。我们期望这些研究与案例，能够为中国高校——尤其是中外合作大学——在“人工智能与国际教育”交汇的关键窗口期，提供可执行的参考框架与改进线索。

谨向参与会议与撰稿的各位嘉宾、专家与同仁致谢。编校过程中难免疏漏，敬请批评指正。

编者

2025年11月7日 · 温州

PREFACE

On October 24, 2025, Wenzhou-Kean University hosted the Second Sino-Foreign Cooperative Education Quality Assessment Conference. As part of the World Young Scientists Summit's "University Education and Future Talent Forum", the conference is centered on "Artificial Intelligence and International Education". The conference examined how the growing use of generative AI is reshaping quality assurance, the redesign of curricula and assessments, and how Sino-foreign universities articulate governance and self-assessment within a dual quality-benchmarking regime. This proceedings volume distills keynote talks by Lin Danming, Adam R. Cross, Li Shuying, Han Wei, and Sun Jianrong to offer actionable, verifiable, and sustainable approaches to quality assessment.

From a quality-governance perspective, Lin Danming underscored that, given the distinctive operating models and governance structures of Sino-foreign universities, quality assessment is characterized by multi-actor collaboration, dual benchmarking, international orientation, and market sensitivity. The assessment must satisfy domestic regulatory and classification requirements while aligning with the foreign partner's academic standards and professional accreditation logic. Organizationally, a state-led approach was emphasized to ensure credibility and coherence of purpose. Together, these points clarified the institutional coordinates of who assesses, how to assess, and what to assess in Sino-foreign cooperative education.

On "AI + Curriculum + Assessment" Adam R. Cross (Xi' an Jiaotong-Liverpool University) presented an institutional "Education + AI" strategy and its implementation: AI governance, curriculum redesign, embedding AI tutors within taught modules, and personalized learning support—paired with a firm commitment to protect academic integrity through appropriate assurance mechanisms. Meanwhile, he presented the specific circumstances and sources of pressure during the promotion process. An analysis of 1,630 modules reveals that only about 3.2% are AI core modules, while approximately 91% have not yet mentioned AI — this data indicated that the deep water of reform lies in the collaborative adaptation of teachers' capabilities, curriculum objectives, and external quality assurance pressures, rather than the introduction of single-point technology.

Rebalancing university mission and talent development, Sun Jianrong argued that generative AI is transitioning from an assistant to a substitute. Higher education should shift from guarding against AI to integrating AI: adopt Industry-Education Integration/Work-Integrated Learning (WIL) as a structural bridge between academia and society; embed authentic scenarios in curriculum and assessment; and implement an AI-enabled, three-dimensional, adaptive evaluation that attends to process, outputs, and learners' ability to

integrate AI—while upholding and strengthening academic integrity.

Focusing on the "future of universities and the university of the future", Li Shuying mapped system-level shifts in roles, curricula, governance, and learning spaces driven by disruptive technologies, "internationalization at home", and demographic change: from knowledge transmission to capability building and data-driven iteration; from choosing an institution or central to modular, course-centered pathways. He highlighted mechanisms such as course aggregation, credit banks, and course- and individual-centered accreditation to redesign the whole chain from admission to alum relations.

Addressing indicators for world-class undergraduate education in Sino-foreign cooperative settings, Han Wei proposed a framework spanning Educational Environment → Educational Process → Educational Outcomes. On the resource side: student-faculty ratio, small-class teaching, professors' direct involvement in undergraduate instruction, and the proportion of international faculty. On the process side: the tutorial system, project-based learning, and profound cross-cultural experiences. On the outcomes side: differentiated attention to further-study quality or employment quality by institutional type. She advocated "annualizing and internalizing" key indicators so that quality assurance becomes the university's governance language—eschewing check-the-box projects and forming a continuous, evidence-based self-portrait.

Taken together, the contributions in this conference converge on three themes. First, treat AI as a core variable that rewrites the organizational logic of curriculum and assessment, establishing verifiable quality assurance between evidence and integrity. Second, within a dual-benchmarking regime, develop a quality narrative for Sino-foreign cooperative education that is both compliant and explanatory. Third, utilize key indicators to drive governance modernization, enabling the internationalization of talent cultivation to transition from principle to measurable, transferable institutional practice. We hope these studies and cases provide actionable frameworks and paths to improvement for Chinese universities—especially Sino-foreign cooperative universities—at this pivotal intersection of AI and international education.

We thank all speakers and colleagues who contributed to the conference and to this proceedings volume. Any errors or omissions in editing are ours alone, and we welcome critique and correction.

Editor

Wenzhou · November 7, 2025 2025

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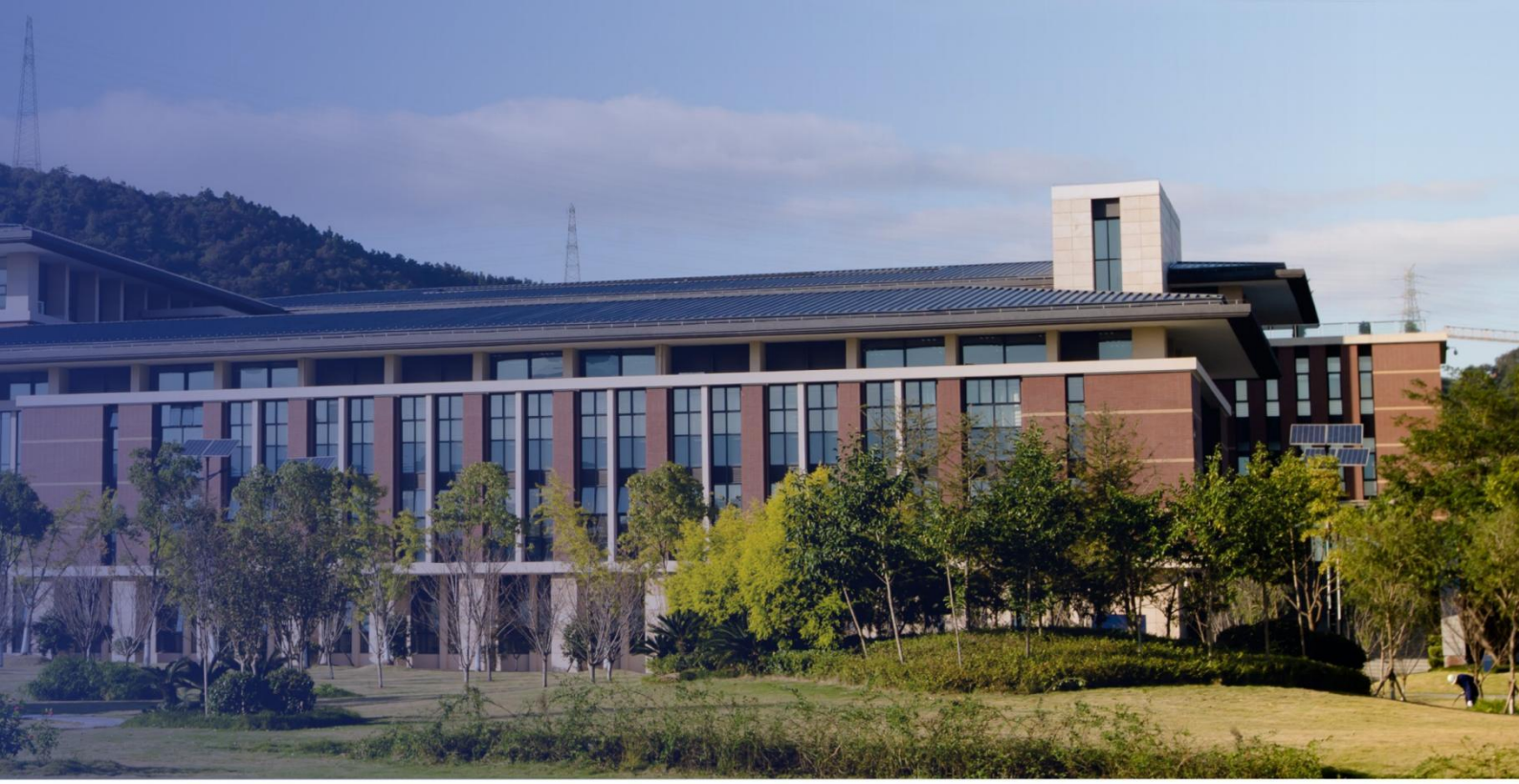

中外合办大学办学质量评估的若干思考

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【摘要】大学的办学质量评估是一项系统性工程，旨在全面衡量高校在人才培养、科学研究、社会服务、文化传承与创新以及国际交流合作等方面的整体水平，是保障和提升高等教育质量的关键机制。具有独立法人资格的中外合办大学由于办学模式、资源依托和治理结构的特殊性，不能简单套用传统公办大学的质量评估框架。

【关键词】中外合办大学；办学质量评估；评估主体；评估维度；评估标准；国际化人才培养；科研组织模式

一、大学办学质量评估及其重要性

大学办学质量评估是对高校整体运行和成效的系统审视，旨在衡量其在人才培养、科学研究、社会服务、文化传承创新及国际交流等方面的综合水平。评估既关注资源投入与治理过程，也看重成果是否达到教育目标和社会期望。

实践中，评估体系多元并存。国内有学科评估、“双一流”评价、本科教学审核评估等；国际上则有 QS、THE、ARWU 和 U.S.News 等大学排名。不同体系的指标和结论虽不尽相同，但通过交叉比对，仍可较全面把握学校发展实况。

大学质量评估不仅是外部问责手段，更是影响资源分配、学科发展与社会声誉的关键制度，关乎高校生存发展，也关乎国家高教质量与科技创新能力。

二、中外合办大学办学质量评估的特点

（一）评估主体多元协同

中外合办大学通常涉及中外双方共同参与评估，并可能引入国际专业认证机构。外方合作高校在师资标准、课程设置、学位授予等学术质量环节具有实质性话语权；中方主体则负责确保办学符合国内法规政策，并在合规基础上推动办学水平提升。多元主体并存要求中外双方必须在责任分工与质量标准上达成共识，否则评估难以有效推进。

（二）评估维度突出国际化与市场导向

中外合办大学以国际化办学为核心使命，评估重点包括国际化资源引进质量、跨文化人才培养成效及市场认可度。与主要依赖财政拨款的公办高校不同，中外合办大学经费部分来自学费，其评估更关注社会需求与学生能力适配性。直接套用公办评估体系，既难以准确反映其国际化价值，也容易导致评价结果偏离实际办学成效。

（三）评估标准强调“双重对标”

在师资、人才培养和科研等方面，中外合办大学采取与国际接轨的评价方式：师资评价侧重外籍教师比例、跨文化教学能力及外方聘任标准，不简单沿用国内“以头衔论人才”的做法；人才培养更关注毕业生海外深造质量、回国服务情况等国际化发展指标；科研评价注重国际合作网络、跨

文化创新链建设等国际影响力要素。

此外，中外合办大学必须同时满足中方主管部门的合规要求与外方合作院校的学术标准，形成“双重质量对标”，并在课程设置、师资晋升、学位审核等环节实现跨制度协同。

三、实践与思考

中外合办大学的办学质量评估面临的根本挑战，源于中外双方在办学理念与运行逻辑上的深层次差异，具体体现在引才、育人、教学、科研及外籍师资使用等关键环节。

在引才方面，中外合办大学无法简单套用公办高校“戴帽即入职”的做法，而须同时符合外方合作高校的聘任标准，更注重教师的国际化背景与跨文化教学能力，而非仅看重人才头衔。

育人理念上，外籍教师普遍将学生视为独立学习者，强调自主性；而国内体系则倾向于全方位管理与学业支持，这导致“学生发展质量”在两套体系中的内涵与评价方式存在差异。

教学组织方面，中外合办大学多遵循学术自治逻辑，学院与教师享有较大自主权，不同于公办高校自上而下的行政主导模式。因此，评估应关注其学术治理的有效性，而非仅看行政执行力。

科研评价则面临更大张力。中外合办大学常实行以项目负责人（PI）为核心的自主科研模式，而国内更强调“有组织的科研”与大平台建设。生硬套用后者的评价标准，易造成形式拼接而缺乏实质协同。此外，高比例外籍教师对本地科研生态与项目机制尚需适应期，若仅以项目规模或成果转化率为指标，易造成评估偏差，更应关注其国际合作能力与国际学术影响力。

四、质量评估组织方式的制度性考量

关于中外合办大学质量评估应由谁组织主导的问题，主要有两种路径：国家统筹或第三方机构实施。基于当前国情，由国家牵头组织更为合理。

首先，国家主导能确保评估的严肃性与公信力，完全依赖社会第三方评估往往因缺乏官方背书而难以获得广泛认可。

其次，中外合办大学经费较大比例来自学费等市场性收入，其生存发展高度依赖社会认可。评估结果直接影响其办学空间，因此现阶段由政府主导更为稳妥。

再者，若具有独立法人资格的中外合办大学长期缺乏官方评估，既可能引发制度公平性质疑，也会对其外部声誉造成压力。

五、结语

中外合办大学的评估体系需考虑实际办学中的观念差异，如引才机制、育人理念、教学科研模式等，以确保评价公正。建议由国家层面牵头建立评估机制，保障其公信力与导向合理性，使其真正成为促进中外合办大学健康、可持续发展的有效保障。

Some Reflections on Quality Assessment of Sino-Foreign Cooperative Universities

Lin Danming
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Abstract

University quality assessment is a systematic project aimed at comprehensively measuring the overall performance of higher education institutions in areas such as talent development, scientific research, social service, cultural heritage, innovation, and international exchange and cooperation. It serves as a key mechanism for safeguarding and enhancing the quality of higher education. Sino-foreign cooperative universities with independent legal entity status, due to their distinctive educational models, resource dependencies, and governance structures, cannot simply apply the quality assessment frameworks designed for traditional public universities.

Keywords

Sino-foreign Cooperative Universities; Quality Assessment of University Operations; Assessment Body; Assessment Dimension; Assessment Criteria; Cultivation of Internationalized Talents; Research Organization Model

1. University Quality Assessment and Its Importance

University quality assessment involves a systematic review of an institution's overall operation and effectiveness, aiming to measure its comprehensive level in talent cultivation, scientific research, social service, cultural inheritance and innovation, and international exchange. Assessment focuses on both resource inputs and governance processes, as well as on whether outcomes meet educational objectives and societal expectations.

In practice, multiple assessment systems coexist. Domestically, these include discipline assessment, the "Double First-Class" initiative assessment, and undergraduate teaching audit assessment. Internationally, there are several university rankings, including the QS World University Rankings, Times Higher Education (THE) World University Rankings, Academic Ranking of World Universities (ARWU), and U.S. News & World Report's Best Global Universities Rankings. While the indicators and conclusions of different systems vary, cross-referencing them can provide a relatively comprehensive understanding of a university's actual development.

University quality assessment is not only a tool for external accountability but also a key system influencing resource allocation, disciplinary development, and social reputation. It is crucial for the

survival and development of higher education institutions, as well as for the nation's higher education quality and scientific and technological innovation capabilities.

2. Characteristics of Quality Assessment for Sino-Foreign Cooperative Universities

2.1 Diverse and Collaborative Assessment Bodies

Sino-foreign cooperative universities typically involve joint participation in assessment by both Chinese and foreign parties and may also introduce international professional accreditation bodies. The foreign partner university holds substantial influence over academic quality aspects such as faculty standards, curriculum design, and degree conferral. The Chinese entity is responsible for ensuring compliance with domestic regulations and policies, and based on this, promoting the improvement of educational standards. The coexistence of multiple assessment bodies necessitates consensus between Chinese and foreign parties on the division of responsibility and quality standards; otherwise, effective assessment is difficult to achieve.

2.2 Assessment Dimensions Highlighting Internationalization and Market Orientation

Sino-foreign cooperative universities have internationalization as a core mission. The assessment focus includes the quality of introduced international resources, the effectiveness of cross-cultural talent cultivation, and market recognition. Unlike public universities that rely primarily on government appropriations, Sino-foreign cooperative universities derive a significant portion of their funding from tuition fees, making their assessment more concerned with societal needs and the alignment of student competencies with market demands. Directly applying the public university assessment system can make it difficult to accurately reflect their internationalization value and may easily lead to assessment of results deviating from their actual operational effectiveness.

2.3 Assessment Criteria Emphasizing "Dual Benchmarking"

In areas such as faculty development, talent cultivation, and scientific research, Sino-foreign cooperative universities employ assessment methods that align with international best practices. Faculty assessment emphasizes the proportion of international faculty, cross-cultural teaching ability, and the appointment standards of the foreign partner, rather than simply following the domestic practice of prioritizing titles. Talent cultivation places more emphasis on indicators of international development, such as graduates overseas for further studies and their return service. Research assessment focuses on elements of international influence, such as international cooperation networks and the development of cross-cultural innovation chains.

Furthermore, Sino-foreign cooperative universities must simultaneously meet the compliance requirements of Chinese competent authorities and the academic standards of the foreign partner institution, forming a "dual quality benchmarking." This requires achieving cross-system coordination in areas like curriculum design, faculty promotion, and degree review.

3. Practice and Reflections

The fundamental challenge facing the quality assessment of Sino-foreign cooperative universities stems from deep-seated differences in educational philosophy and operational logic between the Chinese and foreign partners. These are concretely manifested in key areas such as talent recruitment, student cultivation, teaching, research, and the utilization of international faculty.

Regarding talent recruitment, Sino-foreign cooperative universities cannot simply adopt the public university approach where "appointment follows title recognition." They must simultaneously meet the appointment standards of the foreign partner university, placing greater emphasis on the international background and cross-cultural teaching ability of faculty, rather than solely focusing on talent titles.

In terms of student cultivation philosophy, international faculty generally view students as independent learners, emphasizing autonomy, whereas the domestic system tends towards comprehensive management and academic support. This leads to differences in the connotation and assessment methods of "student development quality" between the two systems.

In teaching organizations, Sino-foreign cooperative universities often follow a logic of academic autonomy, where schools and faculty enjoy considerable autonomy, differing from the top-down, administratively driven model common in public universities. Therefore, the assessment should focus on the effectiveness of their academic governance, not just administrative execution.

Research assessment faces greater tension. Sino-foreign cooperative universities often implement a principal investigator (PI)-centered, autonomous research model, while the domestic system emphasizes "organized research" and large platform development. Rigidly applying the latter's assessment criteria can easily lead to superficial alignment without substantive synergy. Furthermore, a high proportion of international faculty requires an adaptation period to the local research ecosystem and project mechanisms. If the assessment relies solely on indicators like project scale or achievement transformation rate, it can easily cause assessment bias. More attention should be paid to their international collaboration capacity and international academic influence.

4. Institutional Considerations for the Organization of Quality Assessment

Regarding who should organize and lead the quality assessment of Sino-foreign cooperative universities, there are two main approaches: state coordination or implementation by third-party institutions. Based on the current national context, state-led organizations are more reasonable.

Firstly, state leadership can ensure the seriousness and credibility of the assessment. In China's context, complete reliance on social third-party assessments often struggles to gain widespread recognition due to the lack of official endorsement.

Secondly, as a significant portion of the funding for Sino-foreign cooperative universities comes from market-based sources, such as tuition fees, their survival and development highly depend on social

recognition. The assessment results directly affect their operational space, making government leadership more prudent at this stage.

Furthermore, if Sino-foreign cooperative universities with independent legal entity status lack official assessment for an extended period, it could raise questions about institutional fairness and create external reputational pressure.

5.Conclusion

The assessment system for Sino-foreign cooperative universities needs to account for practical differences in philosophy encountered during operations, such as in talent recruitment mechanisms, student cultivation concepts, and teaching and research models, to ensure fair assessment. It is recommended that a state-level body take the lead in establishing an assessment mechanism to guarantee its credibility and reasonable orientation, making it a truly effective safeguard for promoting the healthy and sustainable development of Sino-foreign cooperative universities.

生成式人工智能的颠覆性影响与大学教育：学术与社会的再思考

孙建荣
（西安欧亚学院）

【摘要】生成式人工智能已从技术工具发展为重塑高等教育体系的结构性力量。本文基于中外合作办学实践，探讨两大核心议题：AI 时代大学如何在坚持学术育人与满足社会就业需求之间取得平衡；如何通过课程创新与评价改革，化解学历与就业能力脱节的问题。

文章从五个维度系统阐述：首先，大学需认清 AI 正重构教育逻辑，并理解数字原生代学生的学习特质；其次，学术育人的传统使命并未过时，但须直面就业导向的现实要求；第三，应通过产教融合、雇主参与课程设计及 AI 支持的学习评价，实现产业需求与学术目标的对接；第四，高等教育正从“AI 辅助”迈向“AI 替代”，须重新定义人机协作关系；最后，应构建“与 AI 共在”的教育范式，将 AI 制度化融入教学与评价，在提升学习质量的同时守护学术诚信。

【关键词】生成式人工智能；高等教育；学术诚信；产教融合；课程设计；学习成效评价；就业准备度；中外合作办学

一、AI 时代的特征与受教育人群的代际画像

AI 时代可以用一个直接的判断来概括：生成式人工智能已经渗透到社会运行、高校教学设计、思维方式乃至个体生活的日常层面，呈现为“AI 无处不在”的状态，即一个普及化（AI-infiltrated world）这一特征也同步体现在大学层面，表现为常态化（AI-infiltrated college）、正常化（AI-infiltrated design, AI-infiltrated mindset）、变化中（AI-infiltrated life）等。换言之，AI 已经被视为校园运行的常态前提，被引入教学组织和课程设计的日常机制，也进入了学生的思维过程与生活方式。

当前及未来几年进入大学的群体被界定为 Z 世代以及其后的 Alpha、Beta 等新生代，他们的共性特征是“在高度数字化、社交媒体深度介入、全球互联的环境中原生成长”，即所谓“数字原住民”“互联网成长者”。

这一代人的行为模式与以往显著不同：他们的学习习惯依赖即时反馈，他们习惯在网络化的协作环境中定义自我，他们对不确定性、变化、颠覆和重塑（uncertainty, change, disruptive, transformative）的接受度明显高于前几代学生。这种代际身份并非仅是文化标签，而是直接影响他们对“为什么学习”、“怎样学习”、“学习是什么”的理解。

因此，未来若干年内高校所面向的学生群体在特征上高度一致：他们是与生成式 AI 同时代的人群，他们在进入大学之前就已经把 AI 视为可用资源，甚至视为“默认存在的学习伙伴”。

这意味着，大学如果仍将课堂理解为单一的“知识投喂场景”，或者假定学生在技术使用上是“空白起点”，将迅速失效；同样，如果大学依赖的课程逻辑、教学逻辑、评价逻辑仍假设学生毕业后才开始接触真实工作环境，那么大学的节奏将落后于学生的现实节奏。

二、大学使命的双重维度：学术信仰与社会责任

大学在传统意义上始终强调学术性的正当性，即大学的首要使命在于知识体系的传授、学术人格的养成、判断力与理解力的塑造，这一立场可被视为大学的“初心宣言”。

这一初心并未因为 AI 的到来而作废。相反，在一个由生成式 AI 驱动、由即时生成内容主导的世界里，系统知识的严密性、判断标准的稳健性、理解事物的深度能力和提出问题的能力，都愈发重要。

但与此同时，大学已经无法仅以“学术”为唯一回应社会。现实的压力在于：社会和政策层面将就业率、就业难度、学生的就业准备度（employability）等指标直接摆在高校面前，要求其对“毕业去向”负责。

这种要求在过去一度主要出现在中国高等教育的讨论中，而现在也正在成为包括美国在内的高等教育强国对大学进行判断的重要维度之一，即“就业”指标与“毕业率”指标并列，甚至超越后者，成为衡量高校“是否有价值”的直接尺度。

大学必须在“学术”与“就业准备度”之间寻找一种不是简单折中、而是结构性衔接的方式。换句话说，大学必须在保持学术信仰的同时，承认并回应社会的现实期待，主动介入学生与行业之间的关系，而不是仅在毕业末端“补一课就业辅导”。

三、产教融合作为衔接机制：课程层面的制度化对接

在这一背景下，产教融合（Work-Integrated Learning, WIL）成为高校试图缓解“学术与社会”张力的主要机制。产教融合并不是简单的实习安排，而是“将真实的工作场景锲入到大学教育的课程设计之中”，使学生在校期间持续接触真实的工作情境。

这种模式可以用三个层次来理解。第一是“产教融合度”（integration scalability），即行业场景在多大程度上被常态化嵌入课程，而不是只在个别课堂临时出现。第二是“产教融合教学与实施策略”（pedagogistic strategy），即课程设计与课程实施如何在理念和操作上保持一致，把“行业需求—课程内容—教学活动”的映射关系做实。第三是“产教融合教学成效的创新型评价”（transformative assessment design），即不只评价学生是否上完课、交了作业，而是评价学生是否在这一融合过程中真正形成了可迁移的能力。

值得注意的是，真正的挑战不在于“有没有企业进课堂”，而在于“能否把这种企业—课堂对接转化为课程设计的常态”。这要求学校在资源配置、教学管理、师资培养方面承担结构性压力，也要求学校将“行业导向”从临时活动升级为制度设计。

进一步看，这类课程改革并非只发生在“就业指导”层面，而是触及学科—专业—课程的纵深结构。课程不再只是专业培养目标的末端载体，而是被要求成为“产业需求—学术标准—学生学习体验”三者的交汇点。

在一些工科或技术类专业中，这一过程还与国际专业认证标准（例如工程类的专业认证体系，如 ABET）相关联，即将行业标准、学术标准、认证机构的质量要求放进同一课程的结构设计中，以“对标+对接”的方式提高课程及其教学的解释力和公信力。

四、AI 介入下的教学与评价：从协助到替代

在产教融合课程的推进中，AI 的介入已经不是“锦上添花”，而是组织逻辑的一部分。AI 被用于了解学生、分组学生、组织学习单元、支持教学实施、评估学习过程和学习成效，甚至用于在大班课堂中“人工切出小班式的学习群组”（learning clusters），以弥补资源约束下小班教学难以大规模铺开的现实困难。

这类做法形成了一个重要的实践方向，即 AI 驱动的三维度自适应学习评价（AI-enabled tri-dimensional assessment of adaptive learning）。该评价体系把学生的学习过程、项目完成质量、学习成效结合在一起观察，并将 AI 的使用本身纳入评价：既评价 AI 如何帮助课程交付（AI-facilitated course delivery），也评价 AI 如何促进个人学习产出（AI-facilitated learning outcomes），还评价学生在这一过程中对 AI 的整合能力（effect of AI integration）。

这种评价逻辑代表着从“只看过程”走向“过程+成效”的并重，也体现出北美高等教育传统中对“学习成效”（learning outcomes）和“项目质量”（project quality）的重视。评价的目标不再只是记录“学生做了什么”，而是要判断“学生因此具备了什么”。

需要强调的是，生成式人工智能正在经历角色跃迁：从“过程协助者”（helper; facilitating role）向“行为替代者”（performer; producing role）演进。过去教育技术更多是“技术+教育”的线性叠加，而在生成式 AI 阶段，技术开始具备可替代人的部分行为能力，直接产出成果。这迫使我们必须重新审视“人类在学习中的位置”，并由此重新定义人类行为与人工智能之间的关系。

可以说，高等教育正在进入“with-AI 教育”的状态，即教育与 AI 的关系不再是外加、外挂式的“技术+教育”，而是“一体共存”的“教育即与 AI 共同进行”。

这一状态并非意味着放弃教师、放弃学术标准，恰恰相反，它要求教育者正面回答：在 AI 介入的前提下，哪些能力必须由学生亲自展现？哪些过程必须保留为人的判断行为？哪些价值必须被视为人类不可让渡的部分？

五、“与 AI 共在”的高等教育与学术诚信

无论教学方式如何改变，学术诚信依然是高等教育的核心内涵。受过高等教育的人之所以被社会以特定的眼光识别，不只是因为其掌握了某项技术技能，而是因为其在学习过程中经历了学术诚信的训练，形成了可以被信任的判断方式和自律方式。这一点在任何学科、任何专业、任何课程层面上都成立。

生成式 AI 直接介入了学生的写作、表达、分析和产出过程，也介入了教师的教学设计和评价设计过程，使得“学术诚信”不再只是“不能抄袭”的传统命题，而是“如何在与 AI 共存的前提下维持学术诚实”和“如何把 AI 融入学术训练本身”的新命题。通过策略性拥抱生成式 AI、将其制度化地整合进大学学习过程，并在此过程中以教学设计确保诚信标准不被稀释，而是被强化。

“禁止 AI”并不能解决问题。真正需要解决的是：如何在课程中、课堂中、评价体系中设计出可复制的框架，使生成式 AI 不再被视为对学术诚信的威胁，而是被转化为提升学习表现、提升教学质量的促进因子，同时用明确的学术规范保护人的判断能力、原创能力和责任能力。这意味着，

高等教育需要从“防范 AI”转向“整合 AI”，并以此建立起“AI 参与下仍可验证的学术诚信”。

结论

生成式人工智能的到来，使得高等教育必须在两个层面同时作答。第一个层面，是“大学是什么”：大学仍必须坚持以学术为核心，仍必须将学生引入结构化知识体系，帮助其认识自我、理解世界、形成独立判断与社会行动能力。

第二个层面，是“大学如何被社会理解”：大学已经无法回避对“就业准备度”的直接回应，也无法回避家庭、学生、政策和产业对人才适配度的现实要求。

中外合作办学的特殊性在于，它站在这两种要求的交汇点上：一方面，它在教学中引入真实的产业场景、以产教融合（WIL）为抓手，把行业需求常态化写入课程设计、课堂实施和学习评价；另一方面，它又在努力保持大学的学术属性，通过导师式陪伴、项目式学习、跨学科整合和国际化的学习路径，去保障学生在走向社会之前，仍然经历完整的学术训练和学术诚信训练。

在这一意义上，AI 不是结束，而只是开端。我们仍处在“重新定义人类行为与人工智能关系”的过程中，仍在探索“人—机融合”究竟意味着怎样的责任划分和能力底线。

高等教育必须在这一过程中主动构建可解释、可追踪、可复制的制度化实践：将 AI 融入课程设计、教学过程、产教融合模式与学习成效评价；以此维护并提升学术诚信，而不是让诚信让位于工具。这种“与 AI 共在”的教育图景，正是大学在生成式 AI 时代需要承担的学术责任与社会责任的结合。

The Disruptive Impact of Generative Artificial Intelligence and University Education: Rethinking Academia and Society

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Abstract

Generative Artificial Intelligence (GenAI) has evolved from a technological tool into a structural force reshaping the higher education system. Based on practices in Chinese-foreign cooperative education, this paper explores two core issues: how universities in the AI era can balance adhering to academic education (academic cultivation) and meeting the demands of societal employment; and how to resolve the disconnect between academic qualifications and employability through curriculum innovation and assessment reform.

The article systematically elaborates on five dimensions: First, universities need to recognize that AI is reconstructing educational logic and understanding the learning characteristics of digital native students. Second, the traditional mission of academic education is not obsolete; rather, it must confront the practical requirements of an employment-oriented approach. Third, alignment between industry needs and academic goals should be achieved through industry-education integration, employer participation in curriculum design, and AI-supported learning assessment. Fourth, higher education is moving from "AI-assisted" to "AI-substituted," necessitating a redefinition of human-AI collaboration. Finally, an "AI-Coexistent" educational paradigm should be constructed, institutionally integrating AI into teaching and assessment while safeguarding academic integrity and enhancing learning quality.

Keywords

Generative Artificial Intelligence; Higher Education; Academic Integrity; Industry-Education Integration; Curriculum Design; Learning Outcome Assessment; Employment Readiness; Chinese-Foreign Cooperation in Running Schools

1. Characteristics of the AI Era and the Generational Profile of the Educated Population

The AI era can be summarized by a straightforward assertion: Generative Artificial Intelligence has permeated the daily aspects of societal operation, university teaching design, thought patterns, and even individual life, presenting even individual life, presenting a state of an "AI-infiltrated world". This characteristic is simultaneously reflected at the university level, manifesting as "AI-infiltrated college,""AI-infiltrated design,""AI-infiltrated mindset," and "AI-infiltrated life." In other words, AI is already regarded as a normal premise of campus operation, introduced into the day-to-day mechanisms of

teaching organization and curriculum design, and has entered students' thinking processes and lifestyles.

The cohorts entering university currently and in the coming years are defined as Generation Z and subsequent new generations, such as Generation Alpha (born since 2012) and Generation Beta (born during 2025). Their common characteristic is having "natively grown up in a highly digitalized environment, deeply involved with social media, and globally connected," so-called "digital natives" and "internet-raised individuals."

This generation's behavior patterns are significantly different from those of previous ones: their learning habits rely on instant feedback; they are accustomed to defining themselves within networked, collaborative environments; and they experience uncertainty, change, disruption, and transformation at noticeably higher rates than those of previous student generations. This generational identity is not merely a cultural label but directly influences their understanding of "why to learn," "how to learn," and "what learning is."

Therefore, the student population targeted by higher education institutions in the coming years is highly consistent in characteristics: they are contemporaries of generative AI, who already view AI as an available resource, even as a "default learning partner," before entering university.

This implies that if universities still perceive the classroom as a singular "knowledge-feeding scenario" or assume students are "blank slates" in terms of technology use, it will quickly become ineffective. Similarly, if the curricular logic, teaching logic, and assessment logic relied upon by universities still assume students only encounter real work environments after graduation, then the university's pace will lag behind the students' reality.

2. The Dual Dimensions of the University Mission: Academic Belief and Social Responsibility

Universities have traditionally always emphasized the legitimacy of the academic nature, i.e., the primary mission of the university lies in the transmission of knowledge systems, the cultivation of academic character, and the shaping of judgment and comprehension. This stance can be seen as the university's "declaration of original intent."

This original intent is not invalidated by the arrival of AI. On the contrary, in a world driven by generative AI and dominated by instantly generated content, the rigor of systematic knowledge, the robustness of judgment standards, the deep ability to understand things, and the capacity to pose questions have all become increasingly important.

However, simultaneously, universities can no longer respond to society solely with "academics." The practical pressure lies in the fact that society and policy levels place indicators such as employment rates, employment difficulty, and students' employment readiness directly before higher education institutions, demanding accountability for "post-graduation destinations."

This demand, which was once primarily discussed in the context of Chinese higher education, is now becoming an important dimension for judging universities, including in higher education powerhouses like the United States. Here, the "employment" indicator is juxtaposed with, or even surpasses, the "graduation rate" as a direct measure of whether a university is "valuable."

Universities must find a way to structurally connect "academics" and "employment readiness," not through simple compromise, but through integrated design. In other words, while maintaining academic belief, universities must acknowledge and respond to society's realistic expectations, proactively intervening in the relationship between students and industry, rather than merely offering "a last-minute career guidance supplement" at the graduation stage.

3. Industry-Education Integration as a Bridging Mechanism: Institutionalized Alignment at the Curriculum Level

Against this backdrop, Industry-Education Integration (IEI) has become a primary mechanism for universities attempting to alleviate the tension between "academia and society." Industry-education integration is not simply arranging internships, but rather "embedding real work scenarios into the curriculum design of university education," enabling students to continuously engage with authentic work situations during their studies.

This model can be understood through three levels. The first is the "degree of integration" (integration scalability), i.e., to what extent industry scenarios are routinely embedded into the curriculum, rather than appearing temporarily in isolated classes. The second is the "pedagogical strategy for integration" (pedagogistic strategy), i.e., how curriculum design and implementation maintain consistency in philosophy and operation, solidifying the mapping relationship between "industry needs - curriculum content - teaching activities." The third is "innovative assessment of integrated teaching effectiveness" (transformative assessment design), i.e., assessing not just whether students completed the course and submitted assignments, but whether students genuinely developed transferable abilities through this integration process.

It is noteworthy that the real challenge lies not in "whether enterprises enter the classroom," but in "whether this enterprise-classroom connection can be transformed into the norm of curriculum design." This requires the university to bear structural pressures in resource allocation, teaching management, and faculty development, and also demands that the university upgrades "industry orientation" from occasional activities to institutional design.

Furthermore, such curriculum reforms do not only occur at the "career guidance" level but touch the deep structure of discipline—major—course. The course is no longer merely the end carrier of professional training objectives but is required to become the convergence point of "industry needs — academic standards—student learning experience."

In some engineering or technical majors, this process is also linked to international professional accreditation standards (e.g., accreditation systems like ABET), i.e., incorporating industry standards, academic standards, and the quality requirements of accrediting bodies into the structural design of the same course, enhancing the explanatory power and credibility of the course and its teaching through a "benchmarking + alignment" approach.

4. Teaching and Assessment under AI Intervention: From Assistance to Substitution

In the advancement of industry-education integrated curricula, AI's involvement is no longer just an "icing on the cake" but an integral part of the organizational logic. AI is used to understand students, group students, organize learning units, support the implementation of teaching, assess learning processes and outcomes, and even to "artificially create small-class-like learning clusters" inters in large classes to compensate for the practical difficulty of scaling small-class teaching under resource constraints.

Such practices form an important direction, namely the AI-enabled tri-dimensional assessment of adaptive learning. This assessment system observes students' learning processes, project completion quality, and learning outcomes together, and incorporates the use of AI itself into the evaluation: it assesses both how AI helps course delivery (AI-facilitated course delivery) and how AI promotes individual learning outcomes (AI-facilitated learning outcomes), while also evaluating students' ability to integrate AI in this process (effect of AI integration).

This assessment logic represents a shift from "only looking at the process" to emphasizing both "process + outcomes," also reflecting the importance traditionally placed on "learning outcomes" and "project quality" in North American higher education. The goal of assessment is no longer just to record "what the student did," but to judge "what capabilities the student has consequently developed."

It needs emphasis that generative artificial intelligence is undergoing a role transition: evolving from a "process facilitator" (helper; facilitating role) to a "behavior substitute" (performer; producing role). Past educational technology was mostly a linear addition of "technology + education," whereas in the generative AI stage, technology begins to possess the capability to substitute for part of human behavior, directly producing outcomes. This forces us to re-examine "the place of humans in learning" and, from this, redefine the relationship between human behavior and artificial intelligence.

It can be said that higher education is entering a state of "with-AI education," where the relationship between education and AI is no longer an externally added, attached "technology + education," but an "integrated coexistence" of "education as conducted with AI."

This state does not mean abandoning teachers or academic standards. On the contrary, it requires educators to directly answer: given the premise of AI involvement, which abilities must be demonstrated by students themselves? Which processes must be reserved for human judgment? Which values must be regarded as non-transferable parts of being human?

5. Higher Education "Coexisting with AI" and Academic Integrity

Regardless of how teaching methods change, academic integrity remains the core connotation of higher education. The reason individuals who have received higher education are recognized by society in a specific light is not just because they have mastered certain technical skills, but because they have undergone training in academic integrity during their learning process, forming a trustworthy approach to judgment and self-discipline. This holds true across all disciplines, majors, or courses.

Generative AI directly intervenes in students' writing, expression, analysis, and production processes, as well as in teachers' teaching design and assessment design processes. This makes "academic integrity" no longer just a traditional proposition of "no plagiarism," but a new proposition of "how to maintain academic honesty under the premise of coexisting with AI" and "how to integrate AI into academic training itself." The approach involves strategically embracing generative AI, integrating it institutionally into the university learning process, and ensuring, through instructional design, that integrity standards are not diluted but strengthened in this process.

"Banning AI" does not solve the problem. What really needs resolution is: how to design replicable frameworks within courses, classrooms, and assessment systems so that generative AI is no longer perceived as a threat to academic integrity, but is transformed into a factor promoting learning performance and teaching quality, while simultaneously using clear academic norms to protect human judgment, original ability, and responsibility. This means that higher education needs to shift from "guarding against AI" to "integrating AI," thereby establishing "verifiable academic integrity even with AI participation."

Conclusion

The advent of generative artificial intelligence necessitates that higher education provide answers simultaneously on two levels. The first level is "what is a university": the university must still insist on being academically core, must still guide students into structured knowledge systems, helping them understand themselves, comprehend the world, and form independent judgment and social action capabilities.

The second level is "how the university is understood by society": the university can no longer avoid directly responding to "employment readiness," nor can it avoid the practical demands from families, students, policy, and industry regarding talent suitability.

The particularity of Chinese-foreign cooperative education lies in its position at the intersection of these two demands: on one hand, it introduces authentic industry scenarios into teaching, uses Industry-Education Integration (WIL) as a grasp, and routinely integrates industry needs into curriculum design, classroom implementation, and learning assessment. On the other hand, it strives to maintain the academic attributes of the university, ensuring students undergo complete academic training and academic integrity training before entering society through mentor-style companionship, project-based learning,

interdisciplinary integration, and internationalized learning pathways.

In this sense, AI is not the end, but only the beginning. We are still in the process of "redefining the relationship between human behavior and artificial intelligence," still exploring what "human-machine integration" truly means in terms of responsibility division and capability baselines.

Higher education must proactively construct explainable, traceable, and replicable institutionalized practices in this process: integrating AI into curriculum design, teaching processes, industry-education integration models, and learning outcome assessment; thereby maintaining and enhancing academic integrity, rather than letting integrity yield to tools. This educational prospect of "Coexisting with AI" is precisely the combination of academic responsibility and social responsibility that universities need to undertake in the era of generative AI.

将人工智能融入大学课程体系：以西交利物浦大学为例

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（西交利物浦大学）

【摘要】人工智能正在变革高等教育的课程设计、教学实践、评估、学生体验、教职工发展与治理。西交利物浦大学作为中国一所大型中外合作大学，授予中国本科文凭和英国利物浦大学学位，已制定机构战略，将人工智能全面融入其运营与学术供给。这一"教育+AI"战略框架涵盖人工智能治理、课程开发、研究与创新、创业与产业合作、运营效率以及基础设施与支持等支柱领域。在此框架内，大学设定了开发全面人工智能课程、通过人工智能提升学生学习体验、以及赋能学术与行政人员将人工智能融入教学、评估与实践的目标。

本文基于西交利物浦大学助理副校长（教育）、国际商务教授 Adam R. Cross 博士的演讲整理而成。文章阐述了大学采纳人工智能的机构背景；概述了其人工智能战略与目标；描述了课程重新设计的努力，包括本科各阶段的必修人工智能相关模块；分析了在授课模块中嵌入人工智能导师和人工智能驱动的个性化学习的尝试；并讨论了重塑评估、优先发展人工智能时代的"软技能"以及保障学术诚信的必要性。文章还报告了员工人工智能能力内部审计的结果，反思了实施过程中的文化与运营挑战，包括员工参与度不均、学生投入不足或过度自信，以及中英两国外部质量保障机构带来的压力。本文提出的论点是，人工智能的融合是一个持续的过程，没有自然的终点；随着人工智能技术的发展，大学必须持续重新审视其教学、评估、人员配备和政策。

一、引言

西交利物浦大学（以下简称西浦）是中国规模最大的合作创办大学之一。作为一所授予中国文凭和英国利物浦大学学位的中外合作机构，大学必须同时满足中国和英国的质量保障体系要求。西浦即将迎来其 5 月 22 日成立的二十周年纪念日，这一里程碑标志着机构的成熟，以及在治理、课程和战略上迈向定义独立身份的新阶段。

在此背景下，人工智能已成为一股决定性力量。随着大语言模型的发布，大学管理层迅速行动，向学生提供人工智能工具。本文作者最初持怀疑态度，但在学校通过内部设施向学生提供全套国际和中国大语言模型（如 Claude、Gemini 2.5 Pro、ChatGPT-5 和 DeepSeek）的访问权限后改变了立场。问题随之转变为如何全面接纳并将人工智能嵌入课程体系。学校随后明确了其愿景：成为一所人工智能赋能型大学，以其在学与教中变革性且合乎伦理地使用人工智能而闻名，利用人工智能驱动研究创新并数字化组织运营。在此愿景下，学校推出了"教育+AI"战略框架，并制定了为期三年的计划，旨在将人工智能"嵌入大学所做的一切事务中"。

二、西浦人工智能战略支柱

西浦的人工智能战略通过以下战略支柱得以正式化：AI 治理（政策、规章、项目化管理与机构

自我治理）、AI 赋能教育与体验、AI 驱动科研与创新、AI 产业协作与创业、组织与运营优化以及 AI 资源与支持体系。每个支柱都设定了明确的目标、任务、时间表和实施要求。副校长（教育）负责领导 AI 赋能教育与体验这一支柱。

2.1 AI 赋能教育与体验

该战略支柱将人工智能定位为不仅是工具，更是大学未来身份的结构性条件。人工智能将嵌入本科、硕士和博士层面，影响课程内容、教学方法、评估实践、运营决策和学术治理。大学还将人工智能与创业和产业合作联系起来，支持人工智能应用的商业化，鼓励学生创业，并通过系统性采纳人工智能来追求运营效率。

三、目标 1：开发并实施全面的人工智能课程

在目标 1 下，西浦计划通过在各专业中整合必修的、针对各学院特色的 AI 模块，在所有学术层面建立全面、跨学科的人工智能课程。这一举措拓宽了人工智能主题，使其超越现有课程结构，加强了人工智能素养和伦理使用，并开设了与新兴趋势和行业需求相符的聚焦人工智能的课程。

西浦的本科学习经历包含四个阶段。第一阶段是进入学士学位课程前的基础年；第二阶段标志着正式进入学士学位课程；第三和第四阶段对应进阶学习和毕业学年。在第一阶段，学校开设了两个与人工智能相关的计学分模块——"人工智能基础"和"人工智能导论"。上一学年，这些模块招收了约 4800 名学生；本学年，人数约为 5400 名。授课常采用大规模形式，尤其是在线教学，虽然出勤率易于记录，但参与度难以核实。学生的反馈呈现两极分化，部分学生喜欢这些模块，而另一些则不然。模块内容经过修订，强调实用的提示技巧（提示工程与元提示）以及构建支持个人学习的个性化人工智能助手。然而，目前尚不清楚一年级学生是否能充分领会这种方法的价值。在第二阶段，各本科专业已启动开设学科特定的人工智能模块，以阐释人工智能在各领域内的应用。由于首个授课周期尚处于早期阶段，学校正在评估学生的感知价值，他们可能尚未完全认识到人工智能正在多大程度上改变其专业领域。计划是随着学生年级晋升，在第三和第四阶段引入必修的人工智能模块，并在部分学院（如理学院、智能工程学院）的硕士层面推广类似做法，同时也认识到其他学术单位——尤其是在社会科学和人文学科——仍有大量工作待完成。

为监控进展，学校使用"人工智能"、"AI"和"智能"等关键词，对所有模块的教学目标、学习成果、Syllabus 和方法进行了分析。结果表明：在大约 1630 个模块中，仅 53 个（约 3.2%）被确定为核心人工智能模块；1487 个模块（约 91%）均未提及人工智能。因此，需要付出巨大努力以确保在模块层面向学生教授人工智能相关知识。然而，部分教职工倾向于继续使用长期沿用的幻灯片进行培训，或维持既定内容而不加更新。学校领导层认为，人工智能对各教学模块均产生了深远影响。各模块团队应据此系统反思并调整课程目标、学习成果、教学设计、教材选择及教学实施方式。目前，目标 1 的部分任务已完成或正在实施中；而包括在后续阶段和研究生课程中拓展人工智能。

3.1 外部压力与期望

该战略的形成主要受到两大外部因素的推动。其一，中国教育部的相关政策文件明确提出，要将人工智能融入课程体系之中。其二，英国质量保障署（QAA）——鉴于西交利物浦大学的学位由

利物浦大学授予，与其密切相关——在最新发布的学科基准声明中，也首次明确提及人工智能的要求。该声明强调，各专业应确保学生理解并掌握生成式人工智能在本领域的应用，具备使用相关工具的能力，并认识其局限性；能够对人工智能生成内容进行批判性评估并具备伦理意识；同时应在教学与评估中进行必要调整，以充分发挥人工智能的优势，并确保学术诚信与学习成果的可验证性。对于西浦而言，这些外部要求凸显了在课程体系中系统融入人工智能、强化“软技能”培养、重构评估策略以及建立并落实人工智能伦理规范的紧迫性与必要性。

四、目标 2：通过人工智能转变学生学习体验

目标 2 旨在通过整合人工智能工具与方法，在本科、硕士和博士层面提升学生的参与度、个性化程度及技能发展，从而转变学生学习体验，为毕业生进入人工智能驱动的工作环境做好准备。

一个核心机制是在每个授课模块中引入人工智能导师。作者认为，可以快速创建有效的、学科专业的人工智能导师，并将其嵌入校内教学平台（"Learning Mall Core"）。尽管有政策要求，本学期仅有约三分之一的模块包含了人工智能导师，这表明教职工的认同度不均，且需进一步说服他们相信此举对学生有益。

目标 2 还重新定位了毕业生特质：既然人工智能可以轻易产生知识，那么"软技能"——包括领导力、同理心、系统思维、创造力、原创性和独立思考能力——必须被视为在人工智能介入的工作环境中提升就业能力的核心能力。

评估实践正在被重新考量。在一个可以按需生成文本的人工智能高度饱和环境中，大规模考试和三千词的课程作业正日益显得不再适应。在核心课程之外，学校正积极开发以人工智能为主题的暑期、冬季学期课程及选修项目（扩展学习计划、“硕士 Plus”项目），以进一步拓展学生人工智能方面的学习与发展机会。

五、目标 3：赋能教职工掌握人工智能知识与技能

目标 3 旨在确保教职员工具备必要的知识、技能与资源，能够将人工智能有效融入课程设计、教学、评估及教学法之中，从而在校内培育创新与协作的文化。

在一项内部培训需求审计中，学校将教职员工的人工智能应用能力划分为三个等级：第一级（初学者）、第二级（中级）和第三级（高级）。在约 1200 名教师中，共有 209 人（约占 20%）参与了问卷反馈。其中，约 7%的受访者表示尚未使用人工智能，约 42%自评为初级水平，约 31%为中级，约 18%（约 45 人）达到高级水平。一位发言者提到，他本人通过在日常工作中持续、深入地使用中国的大语言模型（尤其是 DeepSeek），在两年内便从完全不会使用成长为高级用户。由此，学校认为教职员工在人工智能应用方面仍需得到更多支持与培训。

目前，教职员工的能力建设正逐步与政策和激励机制相挂钩。西交利物浦大学正在考虑更新职称晋升与专业发展评审流程，以表彰在教学与科研中有效整合人工智能的实践者；同时，未来在教师招聘中，也可能优先考虑具备可验证的人工智能素养者。据教育部一位发言人透露，人工智能素养正逐渐成为中国高校教师招聘的重要考量因素。

与此同时，学生群体的参与情况则显得颇为矛盾。学校面向博士生开设的“人工智能在科研中的应用”系列讲座，现场参与人数极少——例如，在一场面向约 800 至 850 名博士生的讲座中，仅有 3 名学生到场，线上观众也寥寥无几。对此，学校认为可能的原因包括：部分学生对人工智能的应用过度自信，或因其迅速发展而感到焦虑。无论如何，学校意识到有必要进一步深入了解学生在人工智能学习与应用方面的真实需求。

六、讨论：评估、诚信与持续适应

在人工智能时代，必须重新审视评估与学术诚信。依赖传统的课程作业越来越难以为继。各专业应强调对学习成果的真实展示，以及培养人工智能无法复制的人类能力。学校同时面临来自国内和国际的双重压力，被要求在课程设置、教学方法以及伦理标准等方面进行调整，这进一步凸显了全面融入人工智能的紧迫性。

七、结论

西浦的经验表明，将人工智能融入大学课程体系并非一次性的改革，而是一项持续的制度性调整。学校的态度也从最初的怀疑逐步转向普遍采纳：目前已向师生开放多种大语言模型的使用权限；在第一阶段推出了基础人工智能模块，第二阶段则启动了学科方向的专题模块；计划在第三、第四阶段将人工智能课程纳入必修模块；同时在授课单元中试点“人工智能导师”；拓展与人工智能相关的学习与实践机会；并在评估方式上转向更具真实性的评价与口头答辩，将“软技能”重新界定为毕业生的核心能力之一。

然而，推进过程中仍面临不少障碍。例如，一些教师对更改长期沿用的教材持抵触态度；尽管学校出台了相关政策，但“人工智能导师”的实施仍较为有限；约 91%的课程大纲仍未提及人工智能的应用；学生反馈呈现明显的两极分化；与人工智能相关的科研培训参与率偏低等。为此，学校正考虑在晋升、发展评审及招聘制度上进行体制层面的改革，将人工智能素养明确纳入对学术和行政人员的基本要求。在中国教育部政策导向与英国质量保障框架的双重压力下，人工智能的融合已不仅仅是教学创新的尝试，更被视为合规、质量保障与学校声誉管理的重要议题。总体而言，这一进程仍在进行之中、尚无定论。随着新一代人工智能技术不断涌现，为了学生的成长与学校的长远发展，持续的适应与调整将成为必然。

Embedding AI into a University Curriculum: The Case of Xi’an Jiaotong－Liverpool University

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Abstract

Artificial intelligence (AI) is transforming higher education across curriculum design, teaching practice, assessment, student experience, staff development, and governance. Xi’an Jiaotong－Liverpool University (XJTLU)—a large Sino－foreign joint-venture university in China that awards both a Chinese undergraduate degree and a Liverpool degree—has adopted an institutional strategy to embed AI across its operations and academic provision. This “Education Plus AI” strategic framework comprises pillars covering AI governance, curriculum development, research and innovation, entrepreneurship and industrial partnership, operational efficiency, and infrastructure and support. Within this framework, the University has set objectives to develop a comprehensive AI curriculum, to enhance the student learning experience through AI, and to empower academic and professional staff to integrate AI into teaching, assessment, and practice.

This paper formalizes a talk delivered by XJTLU’s Associate Vice President for Education and Professor of International Business, Adam R. Cross. It presents the institutional context for AI adoption; outlines the University’s AI strategy and objectives; describes curriculum redesign efforts, including compulsory AI-related modules across undergraduate stages; analyzes attempts to embed AI tutors and AI-driven personalization into taught modules; and discusses the need to reshape assessment, prioritize AI-era “soft skills,” and safeguard academic integrity. It also reports results from an internal audit of staff AI capability. It reflects on cultural and operational challenges in implementation, including uneven staff engagement, student disengagement or overconfidence, and pressures from external quality assurance bodies in both China and the United Kingdom. The argument advanced is that AI integration is ongoing, with no natural endpoint: universities will have to continually revisit teaching, assessment, staffing, and policy as AI technologies evolve.

1.Introduction

Xi’an Jiaotong－Liverpool University (XJTLU) is one of the largest collaborative joint-venture universities in China. As a Sino－foreign institution awarding two undergraduate degrees—a Chinese degree and a Liverpool degree—the University must satisfy both Chinese and British quality assurance

regimes. XJTLU approaches its twentieth anniversary on May 22nd 2026, a milestone that signals institutional maturity and a shift toward defining an independent identity in governance, curriculum, and strategy.

Against this backdrop, AI has become a decisive force. Following the release of large language models (LLMs), the University leadership moved quickly to make AI tools available to students. The speaker initially identified as a skeptic but shifted position after XJTLU granted student access — through an internal facility — to a full suite of international and Chinese LLMs (e.g., Claude, Gemini 2.5 Pro, ChatGPT-5, and DeepSeek). The question then became how to embrace and embed AI within the curriculum fully. The University subsequently articulated a vision to be an AI-empowered university, recognized for the transformative and ethical use of AI in learning and teaching, utilizing AI to drive research innovation and to digitalize organizational operations. Within this vision, XJTLU launched an "Education Plus AI" strategic framework with a three-year plan to integrate AI across all aspects of the University's operations.

2.Institutional Strategy for AI at XJTLU

The University's AI strategy is formalized through six strategic pillars: AI Governance (policy, regulation, project management, and institutional self-governance), AI Education and Experience, AI Research and Innovation, AI Industrial Collaboration and Entrepreneurship, AI University Organization and Operations, and AI Infrastructure and Support. Each pillar sets clear objectives with tasks, timelines, and implementation requirements. The Associate Vice President for Education leads the pillar on curriculum, learning, and teaching.

2.1 AI: Education and Experience

This pillar treats AI not merely as a tool but as a structural condition for the University's future identity. AI is to be embedded at undergraduate (UG), postgraduate (PG), and PhD levels, shaping curriculum content, teaching methods, assessment practices, operational decision-making, and academic governance. The University also links AI to entrepreneurship and industry partnerships, supporting the commercialization of AI applications, encouraging student ventures, and pursuing operational efficiency through systematic AI adoption.

3. Objective 1: Develop and Implement a Comprehensive AI Curriculum

XJTLU plans a comprehensive, interdisciplinary AI curriculum across all academic levels by integrating compulsory, school-specific AI modules into every program. This approach broadens AI topics beyond existing program structures, strengthens AI literacy and ethical use, and launches AI-focused offerings aligned with emerging trends and industry needs.

XJTLU's undergraduate experience comprises four stages. Stage 1 is a foundational year before

formal entry to the bachelor's degree; Stage 2 marks entry to the degree; Stages 3 and 4 correspond to progression and the final year. At Stage 1, two AI-related credit-bearing modules—Essentials of AI and Foundations of AI—were introduced. In the previous academic year, these modules enrolled approximately 4,800 students; in the current year, approximately 5,400 students are enrolled. Delivery often occurs at scale, particularly online, where attendance is easy to record but engagement is harder to verify. Feedback has been polarized, with some students enjoying the modules while others do not. Content has been revised to emphasize practical prompting skills (prompt engineering and meta-prompting) and the construction of personal AI assistants to support individual learning. However, it remains unclear whether first-year students fully appreciate the value of this approach.

At Stage 2, discipline-specific AI modules have been launched across undergraduate programs to illustrate AI applications in each field. As the first delivery cycle is still in its early phase, the University is evaluating perceived value among students who may not yet fully recognize the extent to which AI is transforming their professions. The plan is to introduce compulsory AI modules at Stages 3 and 4 as cohorts progress, extend similar practices at the master's level in some schools (e.g., Science; Intelligent Engineering), and acknowledge that other units—particularly in the social sciences and humanities—have significant work ahead.

To monitor progress, the University analyzed all module specifications (educational aims, learning outcomes, syllabus, and methods) using keyword searches for "artificial," "intelligence," "AI," and "intelligent." Results were stark: across roughly 1,630 modules, only 53 (~3.2%) were identified as core AI modules, while 1,487 (~91%) contained no mention of AI. Substantial effort is therefore required to ensure that students are taught AI at the module level. Internal resistance is acknowledged: some staff prefer long-standing slide decks or maintain established content without updating it. The leadership position is unequivocal: every module subject is impacted by AI, and module teams must revisit specifications, materials, and delivery accordingly. Some tasks under Objective 1 are complete or underway, while others, such as extending AI coverage to later programme stages and postgraduate curricula, are ongoing.

3.1 External Pressures and Expectations

Two external forces shape this strategy. First, guidance from China's Ministry of Education is interpreted as a mandate to embed AI into the curriculum. Second, the United Kingdom's Quality Assurance Agency (QAA)—relevant because XJTLU awards a Liverpool degree—has introduced Subject Benchmark Statements that explicitly reference AI. These statements urge programs to ensure that students learn how generative AI is used in their field, develop skills in relevant tools, and understand limitations; they call for critical evaluation of AI-generated content and ethical awareness; and they press for adapted teaching and authentic assessment methods that leverage AI's benefits while assuring academic integrity

and demonstrable understanding. For XJTLU, these pressures underscore the need to integrate AI into syllabi, emphasize “soft skills,” rethink assessment strategies, and establish and enforce ethical standards in relation to AI usage.

4. Objective 2: Transform the Student Learning Experience Through AI

Objective 2 aims to transform the student experience by integrating AI tools and methodologies to enhance engagement, personalization, and skills development at the UG, PG, and PhD levels, preparing graduates for an AI-mediated workplace. A central mechanism is the introduction of an AI tutor in every taught module. The speaker argues that an effective, subject-specialist AI tutor can be rapidly created and embedded in the University’s digital learning environment (“Learning Mall Core”). Despite a policy requirement, only about one-third of the modules this semester included an AI tutor on the module page of the Learning Mall Core, indicating uneven staff buy-in and the need for further persuasion regarding the benefits for students.

Objective 2 also reframes graduate attributes. Because AI can readily generate knowledge, soft skills—including leadership, empathy, systems thinking, creativity, originality, and independent thinking—must be treated as core capabilities for employability in an AI-saturated workplace. Assessment practices are being reconsidered: large-scale examinations and 3,000-word coursework are increasingly misaligned with a world in which text can be generated on demand. Beyond core programs, the University is developing AI-specific summer and winter schools, as well as elective schemes (the Extended Study Scheme and “Master’s Plus”), to broaden AI-related learning opportunities.

5. Objective 3: Empower Staff with AI Knowledge and Skills

Objective 3 aims to ensure that staff possess the necessary knowledge, skills, and resources to effectively integrate AI into module design, teaching, assessment, and pedagogy, thereby fostering a culture of innovation and collaboration. An internal training-needs audit survey categorized academic staff into three capability levels: Level 1 (beginner), Level 2 (intermediate), and Level 3 (advanced). Of the roughly 1,200 teachers, 209 (~20%) responded. Approximately 7% reported being non-users, while 42% self-rated themselves as Level 1, 31% as Level 2, and 18% (approximately 45 persons) as Level 3. The speaker noted his own progression from non-user to advanced within two years through intensive, hands-on use of Chinese LLMs (especially DeepSeek) in daily practice. The University infers that substantial support is still needed for staff adoption.

Staff capability is being linked to policy and incentives. XJTLU is considering updates to promotions and Professional Development Review processes to recognize effective AI integration, and it may prioritize candidates with demonstrable AI literacy in future hiring. Comments attributed to a Ministry of Education representative suggest that AI literacy is becoming an employability expectation for academic hires in

China. Meanwhile, student engagement presents a paradox: doctoral workshops on AI for research have seen very low attendance (e.g., three in-person attendees from a cohort of ~800 – 850 PhD students), possibly reflecting overconfidence or anxiety about AI's rapid evolution. The University recognizes the need to understand student needs more precisely.

6. Discussion: Assessment, Integrity, and Ongoing Adaptation

Assessment and academic integrity must be revisited in the era of AI. Reliance on traditional coursework is increasingly untenable. Programs should emphasize authentic demonstrations of learning and the cultivation of human capabilities that AI cannot replicate currently. At the same time, XJTLU faces simultaneous national and international pressures to adapt curriculum, pedagogy, and ethical standards—pressures that reinforce the urgency of comprehensive AI integration.

7. Conclusion

XJTLU's experience suggests that embedding AI into a university curriculum is an ongoing institutional realignment rather than a one-off reform. The University has moved from skepticism to broad adoption: providing access to multiple LLMs; launching foundational AI modules in Stage 1 and discipline-specific modules in Stage 2; planning compulsory AI modules at Stages 3 and 4; piloting AI tutors in taught modules; broadening AI-related learning opportunities; and reorienting assessment toward authenticity and oral defense while redefining soft skills as core graduate capabilities. Yet barriers remain: staff resistance to changing long-established materials, limited implementation of AI tutors, the finding that ~91% of module specifications contain no mention of AI, polarized student responses, and low attendance at AI-related research training. Under the dual pressures of Chinese ministerial guidance and UK quality assurance frameworks, AI integration has become a matter of compliance, quality assurance, and institutional reputation—not merely a pedagogical experiment. Ultimately, there is no definitive conclusion: continuous adaptation will be required as new AI technologies emerge, benefiting both students and the institution.

AI 时代大学的未来和未来的大学

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【摘要】在移动互联网、5G、云计算、物联网、虚拟现实与生成式人工智能等“颠覆性技术”快速迭代的背景下，高等教育正处在结构性重塑的关口。本文基于多国实践调研、人口趋势及区域差异等背景，探讨两大问题：AI 时代大学的未来形态，以及如何建设包括中外合作大学在内的一流大学。

【关键词】AI 时代；大学变革；颠覆性技术；在地国际化；人才培养；产教融合；一流大学建设

一、研究背景与问题意识

关于“大学的未来与未来的大学”的关注由来已久。十三年前关于“州立大学的未来”的研讨汇聚了来自政界与学界的重量级声音。新一代 AI（如 ChatGPT、DeepSeek、Grok、Sora 等）与一系列数字技术共同构成“教育的颠覆性技术”，其典型特征在于“摧毁旧业与催生新业”的同时，改变知识生产、学习方式与治理形态。后疫情时代推动“在地国际化”成为常态路径，而全国出生人口的持续下降意味着“幼儿园—小学—中考—高考—大学”链条上的生源规模与结构变动在可预见时间窗口内将进入“拐点期”。

二、理论与现实观察：不变的大学

大学之所以为大学，在于其以“人才培养”为根而派生科研、社会服务与文化传承等功能。若回望自博洛尼亚、牛津等大学发生以来的制度谱系，讲坛式授课、围墙与图书馆、学院与宿舍楼等象征性形态几无本质改变，“千年学府”的稳定性由此可见。然而，稳定并非静止：预算约束趋紧、市场竞争加剧、产业深度参与以及知识可得性与低成本传播共同挤压“以传授为中心”的传统课堂逻辑。部分受访校长直言：若大学仍以“信息传递”为核心，竞争对手将不再是邻校而是巨型平台；未来或仅存少数全球性大学，其余则在“为银牌而努力”。此类观点虽显激进，却揭示大学在“非营利”身份与“类企业化运营”逻辑之间的张力。

三、变革中的大学：从观念到机制的系统迁移

“教师何为”首先发生位移：从“讲坛上的圣者”，到“学生身旁的指引者”，再到“翅膀上的幽灵”与“机器中的灵魂”，技术中介与个性化学习将教师推向“促进者—设计者—监督者—智能体协同者”的多重角色。教育理念亦由“言传身教—教书—教会学习”走向“赋能”与“教育即生活”，教学方法从“嚼饭喂人”的满堂灌转向以学习者为中心的主动学习。学生的选择逻辑也在演化，从“选大学”到“选专业”，并进一步走向“以课程为基本单元的拼装式学习”。与之配套，校园物理架构从科层化“衙门式”服务转向一站式、开放式、线上线下一体化的学生服务体系，线上课程成为公共可接受的供给形态。这些正在发生的改变，昭示大学正经历“从知识传递到能力建构、从行政供给到学习者体验、从线性培养到数据驱动与智能协同”的迁移。

四、未来的大学：趋势与图景

课程与研究将更强调跨学科与复合能力，大学与产业的关系将由“合作”走向“共同体”，线上教育从“权宜之计”转为“稳态供给”，校园将被“物理—虚拟”双空间重构，教学组织将以证据与数据为依据实现快速迭代。治理层面，职业化管理与专业化团队将更深介入复杂巨系统的高效运营，认证范式将由“学位中心”转向“课程—个体中心”，纸质教材式微而学习资源与学习记录的数字化成为常态。

与此同时，大学之间可能出现“高端精品教育—大众职业教育”的两极分化，协同与联盟更为紧密，教授的职业形态由“隶属于单一机构”转向“多机构服务”。在教育运营模式上，“课程聚合”“学分银行”“开放式课程/专业认证”“终身会员制”“教育殖民式”“家庭式大学教育”“未来入学模型”以及“研究=课程”等新范式，将对招生、培养、认证与校友关系的全链条提出重新设计的要求。

五、大学的未来：建设一流大学的路径

若以“人才培养质量”为纲，大学之建设需围绕这一根本任务统筹物理与精神架构。第一，定位与使命须清晰、稳定且可执行，以“特色化”抵御同质化；第二，厘清“学科—专业—课程”的链条关系，以高质量课程群塑造专业品牌，以专业品牌支撑学科品牌，进而反哺大学品牌；第三，处理好教学与科研的耦合关系，使科研回流课堂、以严谨的教学研究提升教学本身；第四，推动校政行企的深度协同与产教融合，在真实场景中锻造面向复杂问题的能力；第五，拥抱互联网与数据智能，重塑教学组织、支持体系与治理流程；第六，走向国际化，以更高的视野与标准对标自我，并在国内生源总体下行的结构性趋势中主动布局国际生源与国际合作。对于中外合作大学而言，更应在制度协同、资源整合与育人模式上形成可感可见的“差异化价值”。

结论

大学的未来不是被动等待而是主动创建。处在“AI 与后疫情”的双浪叠加期，大学要在“恒”与“变”的张力中确立进路：以人才培养为纲，以治理现代化为抓手，以数字化与智能化为驱动力，以国际化与产教融合为支点，持续重构课程、教学、评价与服务的全链条。真正的一流，来自“做引领者”而非“做跟跑者”，来自以“创新勇气+专业自信”抵达“可持续的差异化”。惟其如此，方能在“千年学府”之谱系中，交出属于 AI 时代的大学答卷。

The Future of Universities and the University of the Future in the AI Era

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Abstract

Against the backdrop of the rapid iteration of "disruptive technologies" such as mobile internet, 5G, cloud computing, the Internet of Things (IoT), virtual reality, and generative artificial intelligence, higher education is at a critical juncture of structural reshaping. Based on multi-country practical research, demographic trends, and regional differences, this paper explores two major issues: the future form of the university in the AI era, and how to build first-class universities, including Sino-foreign cooperative universities.

Keywords

AI Era; University Transformation; Disruptive Technologies; Internationalization at Home; Talent Cultivation; Industry-Education Integration; Building First-Class Universities

1.Research Background and Problem Identification

Concerning "the future of universities and the university of the future" has a long history. A seminar thirteen years ago on "the future of state universities" brought together influential voices from politics and academia. A new generation of AI (e.g., ChatGPT, DeepSeek, Grok, Sora) and a series of digital technologies collectively constitute "disruptive technologies for education," whose typical characteristic is "destroying old industries and creating new ones" while simultaneously changing knowledge production, learning methods, and governance models. The post-pandemic era has propelled "Internationalization at Home" into a common path, while the continuous decline in the national birth rate implies that changes in the scale and structure of the student population across the "kindergarten-primary school-junior high school entrance exam-gaokao-university" chain will reach a "turning point" within a foreseeable time frame.

2.Theoretical and Realistic Observations: The Unchanging University

The essence of a university lies in its root function of "talent cultivation," from which functions such as scientific research, social service, and cultural inheritance are derived. Looking back at the institutional lineage since the emergence of universities in Bologna, Oxford, and elsewhere, the symbolic forms—lecture-style teaching, walls and libraries, colleges and dormitories—have remained largely unchanged in nature, demonstrating the stability of the "millennium-old institution." However, stability does not mean

stasis: tightening budget constraints, intensified market competition, deep industry participation, and the accessibility and low-cost dissemination of knowledge collectively squeeze the traditional classroom logic centered on "knowledge transmission." Some interviewed university presidents stated bluntly: if universities still focus on "information transfer" as their core, their competitors will no longer be neighboring institutions but giant platforms; in the future, only a few global universities might remain, with the rest "striving for the silver medal." Although such views seem radical, they reveal the tension between the university's "non-profit" identity and its "quasi-corporate operation" logic.

3.The University in Transformation: Systemic Shift from Concepts to Mechanisms

The role of "What teachers do" is shifting first: from "the sage on the stage" to "the guide by the side," and further to "the ghost in the wings" and "the soul in the machine." Technological mediation and personalized learning are pushing teachers towards multiple roles as "facilitators—designers—supervisors—collaborators with intelligent agents." Educational philosophy is also evolving from "teaching by precept and example—imparting knowledge—teaching how to learn" towards "empowerment" and "education as life," with teaching methods shifting from the "spoon-feeding" of lectures to learner-centered active learning. Students' selection of logic is also evolving, from "choosing a university" to "choosing a major," and further towards "modular learning with courses as the basic unit." In support, the physical campus architecture is changing from hierarchical,"bureaucratic" services to one-stop, open, integrated online-and-offline student service systems, with online courses becoming a publicly accepted form of supply. These ongoing changes indicate that universities are undergoing a transition "from knowledge transmission to capacity building, from administrative supply to learner experience, from linear cultivation to data-driven and intelligent collaboration."

4.The University of the Future: Trends and Visions

The curriculum and research will place a greater emphasis on interdisciplinary approaches and composite abilities. The relationship between universities and industry will shift from one of "cooperation" to one of "community." Online education will transition from a "stopgap measure" to a "stable supply." Campuses will be reconfigured into "physical-virtual" dual spaces, combining physical and virtual elements. Teaching organizations will achieve rapid iteration based on evidence and data. At the governance level, professional management and specialized teams will become increasingly involved in the efficient operation of complex, large-scale systems. Accreditation paradigms will shift from "degree-centric" to "course-individual-centric." Paper textbooks will decline, while the digitization of learning resources and learning records will become the norm.

Simultaneously, polarization may occur among universities, distinguishing between "high-end boutique education" and "mass vocational education." Collaboration and alliances will become closer. The

professional profile of professors will shift from "affiliation with a single institution" to "service for multiple institutions." In terms of educational operation models, new paradigms such as "course aggregation," "credit bank," "open course/professional certification," "lifetime membership," "educational colonization," "family-style university education," "future enrollment models," and "research = courses" will necessitate the redesign of the entire chain of enrollment, cultivation, certification, and alumni relations.

5.The Future of Universities: Pathways to Building First-Class Universities

If "talent cultivation quality" is taken as the guiding principle, university development must orchestrate both physical and spiritual structures around this fundamental task. First, positioning and mission must be clear, stable, and executable, using "specialization" to resist homogenization. Second, the chain relationship of "discipline—major—course" must be clarified, using high-quality course clusters to shape major brands, which in turn support discipline brands, and ultimately feed back into the university brand. Third, address the coupling relationship between teaching and research, allowing research to inform the classroom and utilizing rigorous pedagogical research to enhance teaching itself. Fourth, promote deep collaboration among universities, government, industry, and enterprises, and foster industry-education integration to forge the ability to tackle complex problems in real-world scenarios. Fifth, embrace the internet and data intelligence to reshape teaching organizations, support systems, and governance processes. Sixth, move towards internationalization, benchmarking oneself against broader horizons and higher standards, and proactively planning for international student recruitment and cooperation amidst the structural trend of a declining domestic student population. For Sino-foreign cooperative universities, it is even more critical to develop a tangible "differentiated value" in institutional synergy, resource integration, and educational models.

Conclusion

The future of the university is not passively awaited but actively built. Situated in a period overlapped by the "AI and post-pandemic" double waves, universities must chart their course amidst the tension between "constancy" and "change": taking talent cultivation as the guiding principle, leveraging governance modernization as the grip, using digitalization and intelligentization as the driving force, and employing internationalization and industry-education integration as the leverage points to continuously restructure the entire chain of curriculum, teaching, evaluation, and service. True excellence comes from "being a leader" rather than "being a follower," from reaching "sustainable differentiation" through "courage to innovate + professional confidence." Only in this way can the university, within the lineage of the "millennium-old institution," deliver an answer sheet belonging to the AI era.

世界一流本科建设关键指标与中外合作办学质量保障

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【摘要】在“双一流”建设不断深化以及“分类办学、分类管理、分类评估”逐步成为高等教育治理常态的背景下，本科教育被重新确立为大学整体质量的基础性维度，而非附属板块。以本科教育为中心构建一套关键指标体系，既是“双一流”评估的现实需要，也是中外合作办学开展质量保障、证明自身办学价值与独特定位的必然要求。

基于教育部评估系统委托开展的“世界一流本科建设关键指标（2021）”研究，提出一套以“培养环境—培养过程—培养结果”贯穿人才培养全链条的指标框架。

【关键词】世界一流本科；关键指标；中外合作办学；分类评估；本科育人质量；师生关系；小班教学；国际化；以评促建

一、政策背景与研究目的

在当前“双一流”建设与分类评估的导向下，高校“卓越”的内涵正从科研规模回归至人才培养实效，不同类型高校应依其使命进行差异化评价。中外合作大学在此背景下处于特殊位置：它们以本科教育为核心，注重小班化、导师制与跨文化培养，其价值主张与普通公办研究型大学有所区别。

然而，这类学校仍需在国内制度框架内证明其规范性、质量与可持续性。若评价仅强调合规，则难以体现其育人特色；若完全沿袭国外标准，又易脱离本土实际。

因此，有必要建立一套关键指标体系，既能衔接“双一流”话语体系、真实反映本科教育质量，又能尊重本土治理要求，同时充分体现中外合作大学在国际化人才培养方面的独特价值，使其优势可衡量、可验证。

二、指标体系的总体结构：从环境到过程再到结果

本科教育质量评估指标体系围绕三大维度构建：培养环境、培养过程与培养结果，形成从资源投入至教育产出的完整闭环。

培养环境聚焦资源配置，核心在于本科教育是否被置于优先地位。关键观测指标包括：生师比、小班化教学比例、外籍教师占比、教授为本科生授课情况、本科生在校生中比例，以及国际化学习资源实际可获得性。

培养过程关注教学实践，强调“深度参与”与“互动生成”。重点考察项目式学习（PBL）、跨学科项目、科研参与、领导力培养及导师制等环节的实施质量与覆盖程度。这些要素决定了教学是单向灌输还是激发成长，教师是知识传授者还是学习共建者。

培养结果重新定义产出标准，突破单一就业率局限。针对学术导向型高校，重点关注深造率及

深造质量；对于应用型高校，则侧重就业质量、岗位匹配度与行业融入度。

三、关键指标的内涵与解释

在资源端，生师比、小班教学比例和教授为本科生授课是核心指标。低生师比和高小班化比例确保课堂互动与个体关注，体现教学责任的落实。教授直接承担本科教学，特别是核心课程，是高质量教育的关键信号。

教学过程端以导师制为重点，强调教师应“在学生身边”。通过书院—学院双轨制等设计，建立结构性师生互动机制，避免学生成为“沉默的通过者”，确保每位学生在四年中获得持续关注与指导。

国际化端注重实质性的跨文化体验。外籍教师比例、国际项目参与度及课程中的跨文化暴露不仅是数据指标，更体现为学生提供多元学术传统与思维方式的深度融合，是中外合作大学的基本特征而非附加项。

培养结果端强调分类评价：学术型高校应关注学生深造比例与质量，应用型高校则需重视就业质量与职业发展适配度。高校应主动公开其核心成果指标，并将其持续纳入自身质量叙事，以此构建健康的质量文化。

四、质量评估的治理逻辑与实施路径

质量文化的形成不取决于指标体系的完善程度，而在于高校能否将关键指标“年化”与“内化”。中外合作大学应确立核心指标，并将其作为年度跟踪与公开内容，而非仅在评估前临时拼凑数据。若流于“迎评式”应对，将导致评价沦为“盒子工程”——根据评估方偏好临时构建叙事，虽短期安全，长期却会扭曲发展轨迹，使学校偏离原有定位。

“以评促建”的前提是高校能够清晰自述、以连续数据自证。中外合作大学尤其需建立稳定的“自我画像”，以应对国内外监管机构、合作伙伴及第三方认证的多重评价体系。若缺乏一贯的指标语言，将被迫在不同评价标准间切换叙事，代价高昂且易引发内部价值摇摆。

因此，质量保障应视为学校治理的核心组成，而非临时任务。它要求将体现教育实质的指标融入预算、引才、课程、导师制与国际合作等决策中，使学校在任何外部评估前已具备自证价值的成熟叙事。

结论

用关键指标体系把“培养环境—培养过程—培养结果”串联起来，目的不是为了再造一个统一排名工具，而是为了让不同类型的高校，尤其是中外合作大学，能够以清晰、自证的方式向外部表达其价值主张，避免被粗暴地套入单一参照系。

对中外合作大学而言，质量保障的未来不只是证明“我合规”，而是证明“我独特且必要”。这种必要性体现在两个层面：一是培养方式上的高接触、高密度、强互动、小班化、导师常在场、跨文化深浸式学习与真实情境中的问题解决；二是在学生出口上的可验证成果，不论是继续深造的广度和层级，还是毕业后在产业中的落位与发展。

高校质量文化的成熟，取决于学校是否有自信，把这些关键指标当成内部治理语言，而不是外部迎检话术。只有当“关键指标”真正成为学校年度运行的一部分，成为资源分配和制度迭代的依据，成为学校对学生、家长、社会、政府、合作高校乃至国际质量保障机构所作出的长期承诺，这些指标才不再只是“指标”，而演化为学校的身份、学校的品格以及学校的持续竞争力。

Key Indicators for World-Class Undergraduate Education and Quality Assurance in Chinese-Foreign Cooperative Education

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Abstract

Against the backdrop of the continuous deepening of the "Double First- Class" initiative and the gradual normalization of classification provision, classification management, and classification evaluation in higher education governance, undergraduate education has been reestablished as a foundational dimension of overall university quality, rather than a subsidiary component. Constructing a set of key indicators centered on undergraduate education is not only a practical necessity for Double First-Class evaluation but also an essential requirement for conducting quality assurance and demonstrating the value and unique positioning of Chinese-foreign cooperative education.

Based on research commissioned by the Ministry of Education ' s assessment system, the Key Indicators for World-Class Undergraduate Education (2021) study proposes an indicator framework that spans the entire talent cultivation chain, connecting Educational Environment, Educational Process, and Educational Outcomes.

Keywords

World-Class Undergraduate Education; Key Indicators; Chinese-Foreign Cooperative Education; Classification Evaluation; Quality of Undergraduate Student Development; Faculty-Student Relationship; Small-Class Teaching; Internationalization; Using Evaluation to Facilitate Development

1. Policy Context and Research Objectives

Under the current guidance of Double First- Class development and classification evaluation, the connotation of "excellence" in higher- education institutions is shifting from research scale back to the effectiveness of talent cultivation. Different types of institutions should be evaluated differently according to their missions. Sino-foreign cooperative universities occupy a unique position in this context: they focus on undergraduate education, emphasizing small-class teaching, tutorial systems, and cross-cultural cultivation, thereby distinguishing their value proposition from that of ordinary public research universities.

However, these institutions still need to demonstrate their compliance, quality, and sustainability within the domestic institutional framework. If evaluation emphasizes only compliance, it fails to capture

their distinctive educational characteristics; if it wholly adopts foreign standards, it risks becoming detached from the local context.

Therefore, it is necessary to establish a set of key indicators that can connect with the Double First-Class discourse, genuinely reflect the quality of undergraduate education, respect local governance requirements, and fully embody the unique value of Sino- foreign cooperative universities in cultivating internationalized talents, making their advantages measurable and verifiable.

2. Overall Structure of the Indicator System: From Environment to Process to Outcomes

The quality- assessment indicator system for undergraduate education is constructed around three major dimensions: Educational Environment, Educational Process, and Educational Outcomes, forming a complete cycle from resource input to educational output.

The educational environment focuses on resource allocation, examining whether undergraduate education is given priority. Key observable indicators include the student–faculty ratio, the proportion of small- class teaching, the percentage of international faculty, professors' participation in undergraduate education, the proportion of undergraduates in the total student population, and the actual accessibility of internationalized learning resources.

The educational process involves teaching practices that emphasize "deep engagement" and "interactive generation." It focuses on the implementation quality and coverage of project- based learning (PBL), interdisciplinary programs, research participation, leadership cultivation, and the tutorial system. These elements determine whether teaching is a one-way knowledge transfer or a process that stimulates growth, and whether faculty members are mere knowledge transmitters or co-creators of learning.

Educational Outcomes redefine output standards, moving beyond exclusive reliance on employment rates. For academically oriented institutions, the focus is on the rate and quality of further studies; for application- oriented institutions, emphasis is placed on employment quality, job matching, and industry integration.

3. Connotation and Explanation of Key Indicators

On the resource side, the student–faculty ratio, proportion of small- class teaching, and professorial involvement in undergraduate teaching are core indicators. A low student–faculty ratio and a high proportion of small classes ensure classroom interaction and individual attention, reflecting the fulfillment of teaching responsibilities. Professors directly undertaking undergraduate teaching—especially core courses—is a key sign of high- quality education.

On the teaching- process side, the focus is on the tutorial system, emphasizing that faculty should be "alongside students." Through designs such as the college–house dual- track system, structured faculty

-student interaction mechanisms are established to prevent students from becoming "silent passersby" and to ensure that every student receives continuous attention and guidance throughout their four years of study.

On the internationalization side, the emphasis is on substantive cross-cultural experiences. The proportion of international faculty, participation in international programs, and cross-cultural exposure in the curriculum are not just numerical indicators, but also reflect the deep integration of diverse academic traditions and modes of thinking provided to students. This is a fundamental characteristic of Sino-foreign cooperative universities, not an add-on.

On the cultivation-outcomes side, the emphasis is on classification evaluation: academically oriented institutions should focus on the proportion and quality of student advancement to further studies, while application-oriented institutions need to prioritize the quality of employment and career development alignment. Institutions should proactively disclose their core outcome indicators and consistently incorporate them into their own quality narrative, thereby building a healthy quality culture.

4. The Governance Logic and Implementation Path of Quality Assessment

The formation of a quality culture depends not on the perfection of the indicator system itself, but on whether institutions can internalize and annualize the key indicators. Sino-foreign cooperative universities should identify core indicators and use them for annual tracking and public disclosure, rather than hastily assembling data just before evaluations. Suppose this degenerates into a "checkbox" approach tailored to assessors' preferences. In that case, it may offer short-term safety but will ultimately distort development trajectories and lead the institution away from its original positioning.

The prerequisite for using evaluation to facilitate development is that institutions can clearly articulate their own story and substantiate it with continuous data. Sino-foreign cooperative universities, in particular, need to establish a stable self-portrait to navigate the multiple evaluation systems of domestic and international regulators, partners, and third-party accreditations. Without a consistent indicator language, they will be forced to switch narratives across different evaluation standards—an approach that is costly and prone to internal value fluctuations.

Therefore, quality assurance should be regarded as a core component of institutional governance, not a temporary task. It requires integrating indicators that reflect the substance of education into decision-making related to budgeting, talent recruitment, curriculum, the tutorial system, and international cooperation. This ensures the institution possesses a mature narrative to demonstrate its value—even before any external assessment.

Conclusion

Connecting Educational Environment — Educational Process — Educational Outcomes through a

key- indicator system is not about creating another unified ranking tool but about enabling different types of higher- education institutions—especially Sino- foreign cooperative universities—to express their value proposition to external stakeholders in a clear, self- demonstrating manner, to avoid being crudely forced into a single reference frame.

For Sino- foreign cooperative universities, the future of quality assurance lies not only in proving "I am compliant," but also in proving "I am unique and necessary." This necessity is reflected on two levels: first, in an educational approach characterized by high- touch, high- density, strong interaction, small-class teaching, tutors' constant presence, deep- immersion cross- cultural learning, and problem-solving in authentic contexts; second, in verifiable outcomes for graduates, whether in the breadth and level of further studies or in their placement and development within industries post- graduation.

The maturity of an institution's quality culture depends on its confidence in treating these key indicators as the language of internal governance rather than rhetoric for external inspection. Only when "key indicators" truly become part of the institution's annual operations—the basis for resource allocation and institutional iteration, and the long- term commitment made to students, parents, society, government, partner universities, and international quality- assurance organizations—will these indicators cease to be mere "metrics" and evolve into the institution's identity, character, and sustained competitiveness.