

The Evolution Logic of Internationalization of Education in World-Class Universities Take Harvard University as an example

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Abstract: As a world-renowned institution, Harvard University has developed a modern university model with American characteristics through innovative practices in the development of world-class universities. In this process, the internationalization of education at Harvard has formed a significant positive feedback mechanism, whereas low-level openness often falls into a negative feedback loop due to a lack of solid foundations. This phenomenon underscores the intrinsic link between the level of higher education development and the quality of openness. Only through high-level construction can the strategic goal of high-level openness be achieved.

Keywords: World-Class University; Internationalization of Education; Harvard University

1. Evolution Logic of Internationalization of Education

The evolutionary logic of internationalization of education comprises two mechanisms: positive feedback and negative feedback. Harvard University's journey exemplifies the positive feedback mechanism. By prioritizing world-class university development, it has cultivated strong global appeal, which naturally drives internationalization of education. This, in turn, reinforces its global influence, ultimately forming a self-reinforcing virtuous cycle. Here, internationalization of education is an integral part of the feedback process rather than an isolated entity. Conversely, low-level openness often operates independently of feedback mechanisms. While various measures may promote external engagement (often creating path dependence), constraints like educational standards frequently hinder progress toward higher-level internationalization, ultimately leading to negative feedback.

Positive feedback refers to a process where the

output of a system increases or enhances its input, leading to further amplification of the output. Negative feedback, on the other hand, is a process where the output of a system suppresses or reduces its input, resulting in a weakened or stabilized output. If we consider the two ends of a causal relationship as the input terminal (A) and the receiving end (B), the negative feedback mechanism is defined as a type of mechanism where "an increase in A leads to an increase in B, but the feedback from B subsequently causes a decrease in A". (e. g., Figure 1 Negative feedback) The positive feedback mechanism, conversely, is defined as a type of mechanism where "an increase in A leads to an increase in B, and the feedback from B further increases A". (e. g., Figure 2 Positive feedback) [1]

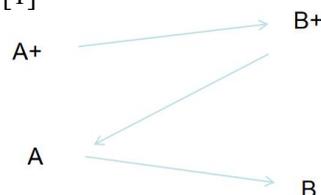


Figure 1. Negative Feedback

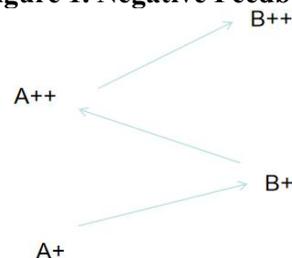


Figure 2. Positive Feedback

Throughout its history, Harvard University has consistently pursued excellence as its benchmark, leveraging its educational standards to serve as a high-leverage force in achieving world-class university status. Its global reputation has created an academic magnetism that attracts top-tier faculty and students worldwide. This virtuous cycle of academic excellence has further solidified Harvard's leadership in global higher education. (e. g., Figure 3 Positive Feedback Mechanism of Internationalization of

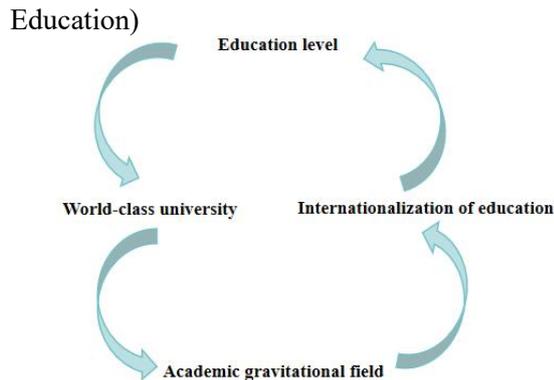


Figure 3. Positive Feedback Mechanism of Internationalization of Education

Under the negative feedback mechanism, low-level opening-up, despite a series of reform measures, remains constrained by its inherent limitations. It fails to attract top-tier talents and outstanding students, and its outward expansion lacks credibility, making it difficult to break free from the cage and achieve breakthrough progress. The disappointment and subsequent reactions of reform promoters when outcomes fall short of expectations often trigger a chain of negative effects, further worsening the reform situation. As reform promoters become increasingly eager and forceful in implementing measures, others perceive the impact and threat, leading to resistance and even negative labels like "cultural infiltration", resulting in growing resistance. (e. g., Figure4 Negative feedback mechanism of low-level opening-up) High-level opening-up is not about quantitative accumulation but qualitative leap. To reverse the feedback mechanism, it is essential to accurately identify and completely eliminate the constraints imposed by the negative feedback mechanism.



Figure 4. Negative Feedback Mechanism Of Low-Level Opening-Up

2. Evolution Logic of Internationalization of Education in Harvard University

As a British-originated institution, Harvard University has consistently incorporated advanced educational philosophies from continental Europe throughout its development. More importantly, it has steadfastly upheld a

spirit of localized innovation, adapting to American societal evolution through continuous educational reforms and institutional innovations. This has enabled it to successfully establish a modern university model with distinct American characteristics. Harvard's ascent to the ranks of world-class universities not only exemplifies the dialectical unity of localization and internationalization in higher education, but also stands as a pivotal paradigm in advancing global educational integration due to its exceptional educational practices.

2.1 Imitating Foreign Countries

As an institutional transplant of British higher education traditions from the North American colonies, Harvard University continued to prominently reflect the governance model of England's classical universities in its educational practices well into the 19th century.

The rise of the University of Berlin in the early 19th century marked a watershed moment in global higher education history, representing a paradigm shift in modern university philosophy. As the crowning achievement of Prussian educational reform, this institution under the visionary leadership of humanist scholar Wilhelm von Humboldt systematically established its educational principles of "academic freedom" and "the unity of teaching and research". These groundbreaking concepts not only propelled Berlin University to rapid academic advancement but also laid the institutional foundation for modern research universities, swiftly pioneering new trends in global higher education and leaving a lasting impact on worldwide academic development.

The innovative German university model perfectly aligned with the needs of British-American institutions represented by Harvard. Against this backdrop, starting in 1815, Harvard scholars Edward Everett, George Tickner, Joseph Cogswell, and George Bancroft embarked on their studies in Germany, becoming pioneers of 19th-century American intellectuals' journey to Germany. The radically renewed academic paradigm profoundly impacted them, leaving an indelible impression. Subsequently, a wave of young Americans flocked to Germany for education. These scholars received rigorous academic training at universities like Göttingen and Berlin. As early advocates introducing modern German university concepts to America, they passionately pursued higher education

reform, only to face fierce resistance from conservative forces both within and outside the academic community.

2.2 Adhere to Innovation

Throughout its development, Harvard University has never blindly followed foreign models. Instead, it has consistently adhered to a philosophy rooted in local context and oriented toward the times, forging a distinctive path in higher education. Each successive president has driven reforms aligned with the developmental phases of American society: President Eliot established the Graduate School during a critical period for elevating academic standards; President Lowell strengthened undergraduate education during the era of massification stage; President Conant prioritized graduate education amid the scientific revolution; and President Bok refocused on undergraduate quality during popularization stage. These distinguished leaders have steadfastly elevated educational standards, staunchly defended academic freedom, maintained a benchmark status, and strived to lead the way. Ultimately, Harvard successfully established a modern higher education paradigm markedly different from traditional European universities.

2.1.1 Pioneer of Reform

Charles William Eliot, a landmark figure in Harvard's educational history, served as president for four decades. With visionary insight and a progressive spirit that transcended his era, he spearheaded reforms with unwavering resolve and decisive action. During his tenure, he consistently challenged the constraints of traditional educational models and pioneered innovative pathways for Harvard's development.

2.1.1.1 Based on the national conditions of the United States

Eliot's educational philosophy system was rooted in Harvard traditions while aligning with the developmental needs of American society. The latter half of the 19th century marked a critical period of social transformation in the United States: the emerging American national culture gradually took shape, industrialization accelerated, and democratic politics advanced. These structural changes posed new demands for higher education. With the keen insight of an educator, Eliot loudly criticized the outdated practices of American education. Universities urgently needed fundamental reconstruction grounded in existing social and cultural

foundations. Amid the nationwide trend of American universities emulating European models, Eliot, through his sharp insight, profoundly recognized the essential differences between American and European social-cultural traditions and educational needs. He particularly emphasized that the reconstruction of American universities must align with national conditions. In his critical analysis, he pointed out that American higher education had long been confined to the framework of European universities, leading to severe lag in localized innovation. He fervently anticipated the emergence of new American universities.

2.1.1.2 Hiring top-tier teachers

"The true progress of a university must rely on its faculty. " [2] Eliot emphasized that Harvard University needed to build a high-caliber teaching team to join the ranks of top-tier institutions. The professional competence and scholarly attitude of faculty members directly determine the quality and standards of higher education. Outstanding professors with profound academic expertise and rigorous research spirit not only lead institutional development but also serve as the driving force behind expanding human knowledge frontiers and advancing academic progress. Eliot spared no expense in recruiting elite scholars to Harvard, creating superior academic environments and providing maximum support to enable them to focus on teaching and research. He increased professors' annual salaries from \$3,000 to \$4,000—while most professors at major U. S. universities earned less than \$3,000 at the time—allowing Harvard to attract nearly any outstanding scholar from the United States. [3]

2.1.1.3 Admitting outstanding students

Beyond having top-tier faculty, elite universities must attract gifted students. Eliot advocated rigorous entrance exams to ensure admission of outstanding candidates. The admission criteria focused not on family background or wealth, but on innate talent and ability. Through scholarship systems, he ensured that exceptional students wouldn't be denied university education due to financial constraints. Eliot repeatedly emphasized that Harvard's aristocratic nature was not rooted in European traditions or wealth-based arrogance, but rather in democratic principles that gathered a multitude of elites. These individuals would be cultivated as pillars of the nation, distinguished leaders in various human endeavors, noble guardians of justice in

peacetime, and the first to charge into battle during wartime. [3]

2.1.1.4 Improving the quality of education

Upon assuming office, Eliot immediately initiated reforms to professional schools, rigorously ensuring educational quality and elevating academic standards. Taking the Law School as an example: at the time, Harvard Law School had only three adjunct professors—all practicing attorneys who prioritized private law practice over teaching. The legal education system lacked both structured curricula and rigorous academic standards, retaining strong apprenticeship characteristics. Admission criteria were lax, and degree conferral required no rigorous evaluation. To address this, President Eliot promoted Randall to lead the Law School, implementing three foundational reforms: establishing a three-year progressive curriculum; adopting case-based teaching methods to revolutionize traditional legal education; and creating standardized written examinations to ensure quality control in talent development. The Law School's educational quality improved significantly, graduates' professional competence gained widespread recognition in the legal community, and student enrollment grew exponentially. The school further strengthened academic research functions through initiatives like founding the Harvard Law Review and establishing the Harvard Law Society, elevating legal education to the level of graduate studies.

2.1.1.5 Upholding Academic Freedom

Before Eliot's appointment, Harvard University still lacked the concept of academic freedom, with the institution's authority firmly held by Puritans. Eliot explicitly stated that "(a Harvard professor) is the master in his field", [4] steadfastly defending the freedom of academic research.

Academic freedom encompasses not only "teaching freedom" but also "learning freedom". Eliot championed the elective system, advocating that universities must provide students with three key components: the freedom to choose courses, opportunities to excel academically in specific subjects, and the capacity to develop self-discipline and responsibility in shaping personal habits. [3] This initiative faced opposition from conservative forces both within and outside the university, with parents expressing skepticism about the elective system. As a result, Harvard University's enrollment growth during this

period lagged significantly behind other peer institutions. In the 1870s, Harvard's enrollment increased by only 3.7%, while Yale saw a 37.3% rise, Princeton by 34%, and Williams College by 61%. However, public attitudes toward the elective system shifted in the 1880s, with Harvard's enrollment growing by 66.4% and reaching 88.8% in the 1890s—almost surpassing all other institutions during the same period. [5] This phenomenon exemplifies the delayed effect of reform. Delay refers to the gap between action and its outcomes. The impact of transformative measures requires time to manifest, which is what we call the "delay". [6] (e. g., **Figure 5 Delayed Feedback**). Therefore, any reform must fully consider systemic delays and maintain steadfast commitment.

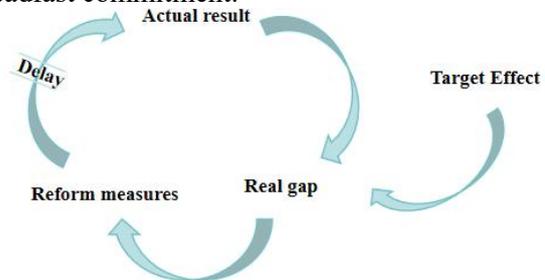


Figure 5. Delayed Feedback

To elevate its academic standards, Harvard University established the Graduate School, implementing comprehensive measures including substantial investments in library and laboratory infrastructure, increased faculty salaries, and the creation of academic incentive funds. These initiatives attracted top-tier faculty to teach at Harvard and outstanding undergraduates to pursue studies there. The Graduate School's establishment marked a pivotal transition for Harvard into a modern university. As graduate education demands higher professional competencies, the university had to raise hiring standards for new faculty, with doctoral degrees gradually becoming the baseline requirement for academic positions. This effectively enhanced the scholarly caliber and expertise of the faculty. Furthermore, graduate education requires faculty to undertake mentoring responsibilities, which drives them to engage in research and continuously update their knowledge systems, thereby strengthening the university's research-oriented mission. Eliot's bold reform made Harvard University both impart knowledge and create knowledge, which pushed Harvard University to the position of modern university and laid a solid foundation for Harvard University to join the world's first-

class universities.

2.1.2 Keeping pace with the times, focusing on educational standards

When Abbott Lawrence Lowell assumed the presidency of Harvard University, American higher education was transitioning from an elite to a mass education system. Lowell advocated for strengthening undergraduate education. Building on this philosophy, he reformed the elective system by implementing a centralized and distributed model. Recognizing that character development is profoundly influenced by peer dynamics, Lowell modeled his approach after Oxford and Cambridge by establishing student dormitories at Harvard, creating a learning community through collective housing, and introducing a tutorial system to guide undergraduates' academic and personal growth.

During his tenure at Harvard University, James Bryant Conant witnessed a golden age of scientific advancement in the United States. As leading American institutions of higher education focused on elevating academic standards to build world-class research universities, Conant prioritized strengthening graduate education while making scientific research a cornerstone mission. His goal was to establish and maintain Harvard's academic leadership not only in the U. S. but globally. Conant clearly pointed out that the establishment of a world-class teaching staff is the first and most urgent problem to be solved. "A university is a gathering place of great minds. If its tenured professors are the most renowned in the world, then this university must be the finest." [4] Disappointed with Harvard's overall faculty caliber, he implemented a "promote or leave" policy, asserting that academic excellence should be the ultimate criterion for faculty selection.

Conant was equally convinced that Harvard University's ambition to become a world-class institution required not only cultivating a top-tier faculty but also attracting elite students. Furthermore, he proposed welcoming the finest young talents from around the globe to Harvard. This vision aimed not only to solidify Harvard's leadership as America's premier academic institution but also to establish it as a globally influential academic powerhouse.

Within this framework, Harvard fully implements general education, whose core mission is to cultivate interdisciplinary talents with both humanistic literacy and scientific spirit, achieving dynamic equilibrium between

individual development and societal needs. "We live in an era of specialization. We cannot reject specialization, " yet society itself and its demands on talents are complex and diverse. "To fully fulfill civic duties, one must somehow grasp the complexity of life as a whole. " Regarding specialized education, general education can "provide a broad key awareness to discern the capabilities of any field. " The purpose of education should be to "cultivate individuals as experts in both a specific professional art and the general arts of being a free person and citizen. " [2]

After World War II, American higher education entered a phase of massification, leading to a rapid increase in Harvard's undergraduate enrollment. However, this expansion coincided with a decline in the quality of undergraduates. When Derek Bok assumed the presidency, he initiated reforms by focusing on the Undergraduate School, implementing a core curriculum program. Bok firmly believed that the core competitiveness of American universities lay in their students and faculty. He also stressed the importance of universities being able to respond swiftly to environmental changes to adapt to market-driven competition.

2.1.3 Openness for World-Class Excellence

In the 1990s, with the advent of the information age and the rise of the knowledge economy, academic disciplines underwent rapid evolution. Universities shifted from the periphery to the core of society, assuming increasingly vital roles. In response to this shift, Harvard University President Neil L. Rudenstine spearheaded reforms across both administration and education. He sought to dismantle the silos of isolated departments and fragmented resources, advocating for collaborative exchange. His vision was to transform Harvard into a collaborative institution that emphasized centralized governance, harnessed diverse strengths, and transcended disciplinary boundaries. Rudenstine championed interdisciplinary learning and research, designing and leading the Interdisciplinary Learning and Research Program.

During his tenure, John L. Lederer maintained an open-door policy, welcoming students and faculty from diverse social and economic backgrounds. He made history by appointing two African American scholars to Harvard's most prestigious academic positions—University Professors—doubling the number of female

professors from 85 in 1991 to 183 in 1999. [3] Simultaneously, Lederer actively expanded international collaborations, broadening academic exchanges and enhancing global influence.

In recent years, Harvard University has consistently upheld an open policy to advance faculty diversity, demonstrating significant structural transformations in its development trajectory. According to the 2024 annual report released by the Office of Faculty Development and Diversity, the university has achieved groundbreaking progress in faculty composition: over the past decade, the proportion of female

scholars in the tenured faculty ranks has risen to 30%, while the percentage of faculty members from racial and ethnic minority groups has reached 23%. (e. g., Figure 6. Percentage of Teachers of Colored People in the 24th Academic Year) [7] This data evolution not only reflects Harvard's open approach to talent recruitment policies but also highlights the institutional efforts of higher education institutions in promoting diversity within academic communities. It marks a substantial breakthrough for top research universities in building inclusive academic ecosystems.

	Tenured Faculty												Tenure-Track Faculty											
	AY14	AY15	AY16	AY17	AY18	AY19	AY20	AY21	AY22	AY23	AY24	AY14	AY15	AY16	AY17	AY18	AY19	AY20	AY21	AY22	AY23	AY24		
Total Faculty	1,044	1,055	1,067	1,085	1,090	1,086	1,065	1,067	1,067	1,068	1,067	405	400	405	391	390	396	404	400	394	403	416		
White Men	658	663	653	658	650	642	624	620	609	597	587	175	168	171	162	160	156	149	142	131	129	132		
White Women	207	208	218	223	227	229	224	228	234	238	233	104	105	107	104	105	103	111	109	110	110	112		
White Nonbinary	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/		
Men of Color	131	133	140	145	150	149	152	151	152	156	163	79	76	76	74	73	82	84	89	91	93	94		
Women of Color	48	51	56	59	63	66	65	68	72	76	83	47	51	51	51	52	55	60	60	62	71	77		
Total Faculty of Color	179	184	196	204	213	215	217	219	224	232	246	126	127	127	125	125	137	144	149	153	164	171		
Asian	103	106	110	115	119	123	127	127	132	134	142	75	76	77	76	77	81	84	91	91	93	97		
Black	38	40	43	44	46	47	43	44	45	50	51	13	13	17	19	19	23	25	22	25	28	26		
Hispanic or Latino/a	29	30	35	37	40	35	37	38	36	38	42	30	29	24	22	22	23	24	27	26	31	32		
Multiracial	9	8	8	8	8	9	9	9	10	9	10	8	9	9	8	7	9	10	8	10	11	15		
Native American																								
% of Faculty	72%	73%	72%	74%	74%	73%	72%	73%	73%	73%	72%	28%	27%	28%	26%	26%	27%	28%	27%	27%	27%	28%		
White Men	63%	63%	61%	61%	60%	59%	59%	58%	57%	56%	55%	43%	42%	42%	41%	41%	39%	37%	36%	33%	32%	32%		
White Women	20%	20%	20%	21%	21%	21%	21%	21%	22%	22%	22%	26%	26%	26%	27%	27%	26%	27%	27%	28%	27%	27%		
White Nonbinary	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/		
Men of Color	13%	13%	13%	13%	14%	14%	14%	14%	14%	15%	15%	20%	19%	19%	19%	19%	21%	21%	22%	23%	23%	23%		
Women of Color	5%	5%	5%	5%	6%	6%	6%	6%	7%	7%	8%	12%	13%	13%	13%	13%	14%	15%	15%	16%	18%	19%		
Total Faculty of Color	17%	17%	18%	19%	20%	20%	20%	21%	21%	22%	23%	31%	32%	31%	32%	32%	35%	36%	37%	39%	41%	41%		
Asian	10%	10%	10%	11%	11%	11%	12%	12%	12%	13%	13%	19%	19%	19%	19%	20%	20%	21%	23%	23%	23%	23%		
Black	4%	4%	4%	4%	4%	4%	4%	4%	4%	5%	5%	3%	3%	4%	5%	5%	6%	6%	6%	6%	7%	6%		
Hispanic or Latino/a	3%	3%	3%	3%	4%	3%	3%	4%	3%	4%	4%	7%	7%	6%	6%	6%	6%	6%	7%	7%	8%	8%		
Multiracial	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	4%		
Native American	0%	0%	0%	0%	0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0%	0%	0%	0%	0%	0.3%	0.2%	0.3%	0.3%	0.2%	0.2%		

Figure 6. Percentage of Teachers of Colored People in the 24th Academic Year

By embracing innovation, focusing on quality, and fostering openness, prestigious institutions like Harvard University have gradually shed their reputation for subpar academic standards. As of 2024, Harvard University leads the global list with 160 Nobel laureates, cementing its status as the ultimate destination for elite scholars.

3. Conclusion

Throughout its development, Harvard University has consistently focused on building the core competitiveness of a world-class higher education institution. In the process of building a world-class university, Harvard University has

always adhered to two core principles: one is to be rooted in local cultural traditions and maintain its distinctive educational features; the other is to adapt to the changing times and continuously promote institutional innovation. This dialectical unity of "cultural inheritance and reform and innovation" has shaped its unique university governance model. By continuously elevating teaching and research standards, upholding academic freedom, implementing top talent recruitment strategies, optimizing resource allocation systems, and advancing diversity development strategies, the university has successfully established a globally influential academic magnetism. This development model

has formed a positive feedback mechanism. (e. g., Figure 3 Positive Feedback Mechanism of Education Internationalization)

It is crucial to emphasize that high-level development serves as both the prerequisite and foundation for open education, representing the most compelling manifestation of international competitiveness. To break the vicious cycle of low-level openness, the key lies in dismantling restrictive conditions and developmental constraints. By continuously strengthening internal development, adhering to quality-oriented principles, and staying at the forefront of academic innovation, we can ultimately achieve a transformative leap from being followers to becoming leaders.

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