Humanities and Social Science Research; Vol. 8, No. 4; 2025
ISSN 2576-3024 E-ISSN 2576-3032
https://doi.org/10.30560/hssr.v8n4p118

The Enlightenments for Chinese Higher Education from Positioning Among Functions and Positioning Internal Functions in American and German Universities

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Received: July 14, 2025; Accepted: August 5, 2025; Published: August 6, 2025

Abstract

The positioning among function of Chinese university/college is scientific research. The positioning internal function is explicit performance. The result of evolution is the niche of scientific research drives out teaching and the niche of explicit performance drives out tacit performance. According to the experience of the balanced positioning among function and the quality positioning internal function of American and German university/college, Chinese university/college should stress on the balanced positioning among function and positioning internal function of teacher, so that realizes the evolution of positioning among function and positioning internal function of Chinese university/college from the expansion in quantity to improvement in quality.

Keywords: university, college, positioning among function, positioning internal function, niche

1. Introduction

In the era of the knowledge economy, from the perspective of explicit quantitative indicators, the 2024 China Science and Technology Paper Statistics Report shows that China continues to rank first globally in the number of influential journal articles across disciplines, the number of papers published in high-level international journals, and citation frequency. In 2024, China also topped the world in the number of international patent applications under the Patent Cooperation Treaty (PCT) and design applications under the Hague System. From the perspective of implicit quality indicators, however, there remains a significant gap between China's Total Factor Productivity (TFP)-which generally measures productivity or innovation attributable to technological progress-and that of developed countries. China's annual TFP growth rate is less than 2%. Notably, as of the end of 2024, only one domestic Chinese scientist had received a Nobel Prize in the natural sciences, out of a total of 655 laureates worldwide. [1]

Developed countries such as the United States and Germany have long led the world in the implicit quality dimension of scientific and technological innovation, particularly in Nobel Prizes in the natural sciences (as of the end of 2024, the U.S. had 414 laureates and Germany 111). China still needs to draw on the successful experiences of the U.S. and Germany to shift from quantitative expansion to qualitative improvement, transforming the focus from the quantity of papers and patents to substantive innovation. [2]

2. Problems in the Inter- and Intra-Functional Positioning of Chinese Universities

2.1 Inter-Functional and Intra-Functional Positioning

In practice, universities are typically positioned around three core functions: teaching, research, and social service. The niche of full-time university faculty (hereafter referred to as "teachers") refers to their role within university performance assessments, which includes both material/ecological niches (benefits-based) and spiritual/ecological niches (recognition-based). Differences in the value of different functions (i.e., how rewards or recognition are allocated) are referred to as inter-functional differences. When universities or teachers choose which function is most valuable, this is known as inter-functional positioning, aimed at maximizing inter-functional value. [3]

Even within the same function, there can be differences in the value of explicit achievements (recognized outputs in performance assessments) versus implicit achievements (valuable contributions not recognized in assessments, akin to organizational citizenship behavior). These differences are referred to as intra-functional differences. To maximize their value within each function, teachers must choose between emphasizing explicit or implicit achievements-this is known as intra-functional positioning.

2.2 Problems in the Inter- and Intra-Functional Positioning of Chinese Universities

From the inter-functional perspective, over the past two decades, many colleges have been upgraded to universities, and teaching-focused or teaching-research universities have increasingly aligned their positioning with research universities. Chinese universities often use a points-based performance evaluation system covering teaching, research, and social services. Because research is assigned significantly more value than teaching or service, both universities and teachers tend to prioritize research-i.e., the research niche crowds out the teaching niche.

From the intra-functional perspective, because explicit achievements are rewarded more heavily, teachers tend to focus on explicit over implicit outputs. Universities prioritize quantifiable results in rewards and promotions, driving teachers to pursue measurable achievements, while the quality of work becomes an afterthought. This has led to a phenomenon where explicit achievements grow rapidly, while implicit quality declines-the explicit achievement niche crowds out the implicit achievement niche. Specifically: In research, teachers tend to focus on knowledge recombination (which produces quick and numerous results) rather than knowledge innovation (which takes longer and yields fewer, slower-growing outputs).

In teaching, there is a shift toward rote lecturing (easier to generate measurable teaching outputs) rather than guidance and mentoring (which requires more preparation and long-term investment with minimal immediate output).

3. Inter-Functional Positioning in U.S. and German Universities and Its Implications

3.1 Types and Inter-Functional Positioning of U.S. Universities

As of 2024, U.S. higher education institutions can be broadly categorized as follows: Comprehensive Universities (Universities): About 2,300 four-year institutions, including 326 research universities offering doctoral degrees. The rest are mainly teaching-oriented. Liberal Arts Colleges: 606 four-year institutions granting bachelor's degrees, with a focus on teaching. Community Colleges: 1,275 two-year institutions granting associate degrees. These include: Academic community colleges: Students may transfer to four-year universities. Vocational community colleges: Students enter the workforce directly. [4]

The diversity and stability of institutional types and roles are protected by federal and state laws. For example, California's 1960 state legislation classified public universities into three types: research universities, teaching-focused universities, and community colleges. Institutions are not allowed to change their designated roles. Expansion has focused on increasing the size of each type rather than upgrading one type to another. [5]

3.2 Types and Inter-Functional Positioning of German Universities

According to the 2024–2025 German Study Abroad Report by the Education International Cooperation Group (EIC), German higher education institutions include: Universities (Universitäten, Uni): 120 institutions offering bachelor's, master's, and doctoral degrees, with a focus on both teaching and research. Universities of Applied Sciences (Fachhochschulen, FH): 209 institutions offering bachelor's and master's degrees, focused on training applied professionals. Academies of Arts (Kunstakademien): 57 institutions offering bachelor's and master's degrees, primarily focused on the arts. [6]

Germany's inter-functional positioning traces back to Wilhelm von Humboldt, who founded Humboldt University and led a major university reform in 1809. He argued that only research achievements based on creative activities qualify as knowledge to be taught, making scientific inquiry the foundation of university-level education. [7] In 2010, Germany adopted the Bologna Process, implementing standardized degree structures and maintaining a strict distinction between research and applied institutions. No FH institution has been upgraded to a Uni. Each institution adheres to its designated role. [8]

3.3 Implications for Chinese Universities

Ancient Chinese philosopher Laozi said: "The Tao gives birth to one, one gives birth to two, two gives birth to three, and three gives birth to all things." [9] The Tao (fundamental purpose) of a university is to cultivate talent. Initially, this was a single teaching mission, then evolved into dual functions (teaching and research), and later into three functions (teaching, research, and service), eventually branching into various specific roles. However, in practice, because the value assigned to research is significantly higher, the functional development in Chinese

universities has regressed from multi-functionality to a single research-centric model. As a result, research functions determine the ecological niche of teachers, and institutions of all types converge toward becoming research universities.

The diversity and legal safeguards for institutional roles in the U.S. and Germany, especially their resistance to homogenization, offer valuable lessons. The misalignment of roles in China-where universities of all types are skewed toward research at the expense of teaching-requires correction. Overexpansion of the research function leads to negative correlations among the three performance dimensions, undermining education and service.

4. Intra-functional Positioning in U.S. and German Universities and Its Implications

4.1 U.S. University Evaluation Systems and Intra-Functional Positioning

The academic ranks and research orientation in U.S. universities directly determine a faculty member's professional positioning. The functions and time allocation of university faculty reflect the division between visible achievements and hidden contributions.

4.1.1 Academic Ranks in U.S. Universities: "Up or Out"

The academic ranks for faculty in U.S. universities are generally divided into three levels: Assistant Professor, Associate Professor, and Professor. Associate Professors and Professors typically hold tenured positions. Most U.S. universities implement a tenure-track system, also known as the "Up or Out" system. Faculty appointments in the professorial track are primarily evaluated based on years of service and the quality of academic achievements. Assistant Professors are generally expected to be promoted within seven years; failure to achieve a higher rank by the deadline may result in dismissal.[10]

According to reports from the American Association of University Professors (AAUP) and the National Center for Education Statistics (NCES), 42.4% of full-time faculty in U.S. universities have tenure, while 22.0% of all faculty (including part-time faculty) have tenure. The percentage of faculty with tenure varies by rank: 69.1% of Professors, 47.4% of Associate Professors, and 13.8% of Assistant Professors hold tenured positions. At American University, a research-oriented institution, approximately 30% of Assistant Professors are promoted to Associate Professor, and around 50% of Associate Professors are promoted to full Professor. [11]

4.1.2 Research in U.S. Universities: Publish or Perish

"Publish or Perish" has become the prevailing career model for faculty at U.S. research universities. Research aimed at publication, also known as the "scholarship of discovery," has become the central mission of these institutions. University reward systems and teaching workload arrangements are increasingly tilted in favor of research. However, in many non-research universities, such as comprehensive universities, liberal arts colleges, and community colleges, the core missions and available resources do not permit faculty to devote the majority of their efforts to research. Imposing uniform research expectations and responsibilities on all faculty members-without considering the nature of the institution, the characteristics of faculty work, or the student population-can have serious consequences. This is particularly evident in undergraduate education, which has led to widespread dissatisfaction among American students and parents. [12]

According to survey results from the AAUP and NCES, the number of papers published by faculty over the two-year period from 2021 to 2022 is shown in Table 1:

Table 1. The number of papers published by American university teachers (pieces)

University Type	Papers Published by Tenured Faculty	Papers Published by Tenure-Track Faculty	Papers Published by Non-Tenure-Track Faculty	Job Focus
Research Universities	14.2	7.9	5.3	Research
General Comprehensive Universities	6.9	6.0	2.8	Teaching
Liberal Arts Colleges	6.5	3.8	2.8	Teaching
Community Colleges	2.7	3.6	1.2	Teaching

According to Table 1, research universities within U.S. comprehensive universities produce twice as many publications as general comprehensive universities. The number of publications by faculty in general

comprehensive universities is roughly equivalent to that of faculty in liberal arts colleges and community colleges. (Since the data between public and private institutions are largely similar, Table 1 does not distinguish between them.) The quality of academic papers in the U.S. is generally evaluated based on citation rate. On average, tenured faculty in the U.S. have 0.77 citations per paper, while non-tenured faculty average 0.73 citations per paper. According to the National Science Foundation (NSF) 2023 report, despite a continued increase in funding for university research (annual growth rate of 4%), the number of academic papers published in the U.S. grows by fewer than 10,000 annually (a growth rate of only 0.5%). On average, less than 0.4 papers per person were published in SCIE (Science Citation Index Expanded) journals over a two-year period. [13]

4.1.3 Time Allocation of U.S. University Faculty

According to an NCES survey, in 2023, U.S. university faculty worked an average of 53 hours per week. About 45% of this time was spent on teaching and related work, and 25% on research and related activities. Faculty at research universities taught about 6 class sessions per week; faculty at four-year institutions taught around 8–10 sessions per week; and community college faculty taught approximately 14–16 sessions weekly. A study conducted in 2014–2015 by the Higher Education Research Institute at the University of California showed that faculty teaching 9–12 sessions per week spent 25.2% of their time preparing for class (approximately 9 hours/week); those teaching 13–16 sessions spent 17.3% (about 6 hours/week); and those teaching 17–20 sessions spent 13.8% (around 5 hours/week). At American University, professors typically follow a "2–2" teaching load (two courses per semester, each with two hours per week), while lower-ranked faculty often follow a "3–3" or even "4–4" schedule. [14]

4.2 Assessment and Professional Positioning in German Universities

4.2.1 Academic Titles in German Universities

According to the 21st-century German Higher Education Services Law, universities (Universitäten, Uni) and universities of applied sciences (Fachhochschulen, FH) follow the same salary structure. The professorship system consists of Junior Professor (W1), Professor (W2), and Senior Professor (W3, tenured), similar to the U.S. system of Assistant, Associate, and Full Professors. The German professorship system is hierarchical. The entry point is a doctoral degree (up to 4 years, a prerequisite for W1), followed by postdoctoral research (2–3 years, not mandatory for W1). W1 is a non-tenured junior professorship (up to 6 years). W2 is tenured and designated as a civil servant or employee by the state. W3 is the highest professorship level, also tenured, with similar status designation.

W1 professors undergo internal teaching evaluations and external research assessments during the first three-year term. A negative review results in dismissal within one year after the first term ends. A positive review allows for a second three-year term, during which W1 professors may apply for W2 positions. To move from W2 to W3, in addition to significant achievements in research and teaching, candidates must wait for vacancies at other universities, as internal promotions are not allowed in the German system-appointments must be made across institutions. [15]

4.2.2 Research Output and Time Allocation of German University Faculty

German universities prioritize quality over quantity in research. Faculty are not required to meet quantitative research output standards. On average, each professor publishes one academic paper or approximately 100 pages of scholarly work per year. Evaluations of faculty research and teaching are conducted every 5–7 years, focusing primarily on original research contributions and the scholar's ability to articulate their field of study. These evaluations influence salary adjustments and resource allocation. According to the Standing Conference of the Ministers of Education and Cultural Affairs (KMK), Uni professors at the W2 and W3 levels are assigned 8 teaching hours per week (each session at least 45 minutes). W1 professors teach 4 hours per week during their first three-year term and 4–6 hours per week during the second term. FH professors have a teaching load of 18 hours per week. Administrative heads (such as deans or department chairs) may receive up to a 50% reduction in teaching load, while vice presidents or equivalent positions may be granted up to a 75% reduction. [16]

4.3 Implications for Professional Positioning in Chinese Universities

Although "Publish or Perish" has become the dominant model for faculty in U.S. comprehensive universities, 91% of U.S. higher education institutions-including non-research universities, liberal arts colleges, and community colleges-lack the resources or mission focus to support research as the primary faculty activity. Outside of research universities, faculty in the U.S. publish an average of about two papers per year, a research output significantly lower than that of Chinese universities, where research includes not only papers but also projects, monographs, and other scholarly work. Universities in both the U.S. and Germany clearly define teaching as a fundamental duty

of faculty, and this is reflected in faculty promotions, performance-based compensation, and departmental incentives. This provides valuable insights for China.

In the U.S., faculty spend significantly more time on teaching and related activities (45%) than on research (25%). Faculty spend at least 15% of their time on lesson preparation. The research evaluation cycle is two years, and the average annual publication output is around two papers. In Germany, the research assessment cycle is 5–7 years, and the average annual publication output is about one paper. These practices offer useful lessons for Chinese universities, where the lack of differentiation in faculty roles and the emphasis on visible, large-scale "outputs" have led to an overemphasis on quantity rather than quality-often favoring visible over hidden achievements. Universities should follow the laws of knowledge dissemination: faculty members' material (profit-based) and spiritual (reputation-based) ecological niches should not be determined solely by visible outputs (explicit achievements), but also by the quality of their hidden contributions (implicit achievements). For faculty, the ecological niches of "output" (explicit achievement) and "quality" (implicit achievement) do not always overlap. When output exceeds a certain threshold, the two may become inversely related. Therefore, more output is not always better; it is essential to preserve the ecological niche of quality-based implicit achievements.

5. Conclusion

The research positioning among positions and the "achievement" positioning within positions in Chinese universities have evolved to result in the research niche driving out the teaching niche, and the prominent achievement niche driving out the hidden achievement niche. The stability of the inter-job positioning of universities in the United States and Germany has been legally guaranteed, and Chinese universities have been assimilated into research-oriented universities. The expansion of research functions will lead to a negative correlation among the performance of teaching, research and social services. Therefore, the inter-job positioning in Chinese universities needs to be properly aligned. The scale of scientific research performance in American and German universities is relatively small, and the assessment cycle for scientific research is relatively long, leaving corresponding ecological niches for the hidden achievements of various functions in universities. This can serve as a reference for the "quality" positioning within Chinese universities. Chinese universities should draw on the experiences of the United States and Germany, attach importance to the ecological niche balance between teachers' positions (teaching, research and service functions) and positions (visible achievements and hidden achievements), ensure the positive correlation between positions and positions, and ultimately achieve the evolution of university functions from quantitative expansion to qualitative improvement.

Acknowledgments

2024 Chongqing Municipal Education Commission Humanities and Social Sciences Project: "Research on the Mechanism and Path of Empowering the Virtualization Innovation of Teaching Forms in Chongqing Vocational Colleges through Education Sharing Economy" (24SKGH435); 2024 Chongqing Higher Vocational and Technical Education Research Association Project: "Research on the Path of Empowering the Virtualization Innovation of Teaching Forms in Chongqing Higher Vocational Colleges through Education Sharing Economy" (293); 2024 Chongqing Higher Education Teaching Reform Research Project: "Practical Research on the Integration of Ideological and Political Education in Secondary and Higher Vocational Courses under the Background of 'Red Rock Ideological and Political Education'" (Z2241587S); Guangxi Education Science '14th Five-Year Plan' 2025 Annual Project: "Innovative Research on the Virtual Organizational Structure of Smart Education in Guangxi Universities Based on the Law of Knowledge Transmission" (2025A032).

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