

The Role and Implications of Specialized Admission Programs in Graduate Education from an International Comparative Perspective

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Abstract: Specialized graduate admission is an important policy measure in various countries, aiming to optimize the structure of graduate education, meet national strategic needs, promote educational equity, and cultivate top talents. This paper conducts a comparative study on the types, characteristics and effects of specialized graduate admission programs in four leading countries in graduate education: the United States, Germany, Japan and the United Kingdom. It also compares the current situation and shortcomings in China, expounds the main roles of such programs in ensuring fairness, matching talent needs, cultivating disciplinary innovation and improving teaching quality. Combined with the above foreign experience and China's actual conditions, this paper puts forward several suggestions to provide references for the high-quality development of graduate education.

Keywords: International comparison; Specialized admission programs; Graduate education; Talent cultivation

Online publication: June 3, 2026

1. Definition of core concepts and development background of international specialized graduate admission programs

1.1. Definition of core concepts

Specialized admission for master's students refers to special enrollment plans formulated by the state or training institutions to achieve specific educational goals and adapt to special needs. It is characterized by targeted orientation and differentiation: targeted orientation means a specific demand for a certain group of people; differentiation means differences from general plans in enrollment targets, admission rules and training models, reflecting the idea of refined management^[1].

1.2. International development background

Since the beginning of the 21st century, rapid progress has been made in global high-end scientific research fields, and the demand for high-level research talents has surged, which has determined the important position

of graduate training in higher education. Problems such as serious homogeneity in the traditional enrollment model, prominent contradiction between supply and demand, and lack of educational equity have become increasingly prominent, restricting the development of graduate training^[2,3].

To this end, governments of many countries and regions have adopted special enrollment policies to optimize the structure, improve quality and enhance global competitiveness, achieving wide success. Some developed countries have formed distinctive project models based on sound research-oriented master systems:

- (1) The United States emphasizes strategic and innovation-oriented development, focusing on high-tech and top talents^[4];
- (2) Germany attaches great importance to practical ability and industry connection, emphasizing the implementation of projects;
- (3) Japan balances internationalization and localization, introducing overseas high-end talents while promoting domestic industrial development;
- (4) The UK seeks to form its own unique brand by upholding elite characteristics.

These are all valuable examples for reference.

2. Implementation models and characteristics of specialized graduate admission programs in typical countries

2.1. United States: Combination of strategic guidance and innovation-driven development

As a major country in graduate education, the US professional degree education is guided by national strategic needs and centered on innovation, forming a diversified implementation model led by the government, combining university autonomy and social diversification. The federal government sets up special funds and formulates policies for macro-control, with special emphasis on high-tech industries, national security, life and health and other fields, thus promoting universities to establish special funds^[5-7].

For example, the Graduate Research Fellowship Program (GRFP) is a special fund set up by the National Science Foundation (NSF) to support outstanding innovative talents, covering natural sciences, engineering, technology and interdisciplinary fields. Awardees receive full financial support, including tuition and living expenses, to cultivate high-level talents. The Department of Defense, Department of Energy and other departments also jointly launch targeted admission programs with universities to ensure the supply of talent in national strategic fields such as defense technology and new energy^[8].

The basic characteristics of US specialized admission programs are strong independence, high precision and industry-university-research integration. Universities enjoy full autonomy in enrollment and can set and adjust admission conditions and training directions based on disciplinary advantages and social needs. The programs are closely linked to research projects and industrial development; admitted students usually participate in national research projects, focusing on practical and innovative ability. Meanwhile, educational equity is emphasized, such as special enrollment systems for ethnic and poor areas, and the High-Level Talent Training Program for Ethnic Minorities, which achieves educational equity by lowering thresholds and providing special financial support^[9].

2.2. Germany: Integration of practice orientation and industry connection

The core concept of German master's education is practical innovation combined with industry, focusing on manufacturing and engineering technology, driving overall development through key projects, which gives

rise to the effective model of university-enterprise cooperation.

To this end, the German government has issued a series of policies, such as the Excellence Strategy and Industry 4.0 Talent Training Program, promoting universities and enterprises to jointly launch special programs to cultivate urgently needed high-level applied talents^[10]. The Dual System Master's Program is a typical example: teaching plans are jointly formulated by universities and enterprises, and students hold dual identities as postgraduate students and enterprise employees. They spend half of their time learning theoretical knowledge on campus and the other half in practical internships in enterprises, integrating theory with practice.

The core characteristics of German specialized admission programs are strong practicality, close cooperation and high standardization. Training objectives and teaching plans are jointly set by universities and enterprises to meet industry needs, ensuring a seamless connection between training and career development. Responsibilities of the government, universities and enterprises are clear: the government focuses on macro-control and funding; universities teach theories; enterprises provide practice and employment. A complete quality management system is formed, strictly controlling the whole process from admission to graduation to ensure training quality.

2.3. Japan: Balance of international orientation and local demand

Japan's Special Graduate Student System aims to enhance international competitiveness and ensure the development of domestic industries, implemented through the model of government guidance, private leadership and domestic-overseas coordination.

To address labor shortages caused by low birth rate and aging, the Ministry of Education, Culture, Sports, Science and Technology launched the International Graduate Education Revitalization Program, encouraging universities to set up separate training programs for overseas students to introduce high-quality international students. Meanwhile, it attaches importance to cultivating talents urgently needed by local advanced manufacturing, information technology and other industries, issuing a series of supporting policies.

The basic characteristics of Japan's special admission programs are high internationalization, deep localization and strong support. Overseas special admission programs adopt English-only teaching, simplify admission procedures for foreigners and set up special scholarships to attract global top talents. Domestic special programs closely match industrial transformation and upgrading, such as the Advanced Information Technology MSc Program and the Advanced Manufacturing Programme, cultivating talents for urgent industrial needs. The government provides strong financial support for these special programs; universities formulate corresponding education strategies, combining theoretical education with practical training to ensure the quality of trained talents.

2.4. United Kingdom: Combination of elite orientation and characteristic development

UK graduate education upholds the principles of elitism and specialization. Based on universities' advantageous disciplines, it adopts an education model of university-led, characteristic-oriented and high-quality development for high-level talent training^[11].

The UK government guides universities to focus on advantageous disciplines through the Research Excellence Framework (REF), launches special talent programs to cultivate outstanding scholars and scientists, and sets up specialized programs to train high-end talents in finance, law, art and other fields.

UK specialized admission programs are known for high positioning, strong characteristics and strict

quality. They target top talents with high requirements and a significantly smaller enrollment ratio than general programs. Universities build brands of specialized programs based on advantageous disciplines, such as the Top Arts and Sciences Program of the University of Oxford and the Special Science and Engineering Program of the University of Cambridge. A complete high-quality evaluation system is established to monitor the whole training process and graduation outcomes, ensuring the quality of high-level talent training.

3. Core roles of specialized graduate admission programs from an international perspective

3.1. Aligning with national strategies and ensuring the supply of urgently needed talents

In practice across countries, specialized admission programs are important measures to meet national strategic needs and cultivate urgently needed talents. The US focuses on defense technology and emerging high-tech fields; Germany leads the Fourth Industrial Revolution^[12]; Japan revitalizes domestic manufacturing; the UK uses superior disciplines to serve national strategies. All these cultivate high-level talents through targeted special programs, precisely matching strategic needs and improving national and regional competitiveness.

3.2. Optimizing educational structure and promoting disciplinary innovation

Specialized admission effectively optimizes the structure of master's education and promotes the professional and innovative development of various disciplines. Based on their own advantages, countries target special groups or emerging disciplines, guiding universities to focus on characteristic and emerging disciplines, breaking the "comprehensive but unspecialized" pattern of traditional master's education and forming a disciplinary layout of "distinct characteristics and complementary advantages". In addition, the above programs emphasize industry-university-research collaboration and domestic-international coordination, promoting interdisciplinary integration and enhancing innovation capacity and core competitiveness.

3.3. Promoting educational equity and addressing imbalanced resource allocation

Equity-oriented education programs are important measures for countries to solve educational inequity and promote fairness. Developed countries have set up special admission programs for students from poor, underdeveloped or ethnic minority groups, relaxed admission conditions and provided supporting preferential policies, offering equal access to high-quality master's education for disadvantaged groups, breaking social class barriers and further achieving educational and social equity^[13].

3.4. Improving training quality and cultivating top innovative talents

Specialized admission programs adopt a model of precise enrollment and targeted training, ensuring graduate education quality in diversified forms and cultivating outstanding researchers. All countries select high-quality students, adopt targeted teaching methods, carry out directional training combined with research projects and practical posts, focus on improving students' innovation and practical ability, and provide sufficient financial support and a sound educational environment to ensure their growth.

4. Implications of international experience for optimizing China's specialized graduate admission programs

4.1. Clarifying strategic orientation and achieving precise matching of talent supply and demand

Drawing on the models of the US and Germany, China should strengthen strategic guidance for specialized admission programs, focus on national strategies and industrial needs in key core technology fields, accurately position the goals of specialized programs and avoid homogeneous competition.

First, strengthen government policy guidance and top-level design, align with national strategies, and clarify majors for specialized programs such as high-end advanced manufacturing, informatics, biomedicine and new energy, guiding universities to set up specialized programs in key fields. Second, guide close cooperation between universities, enterprises and research institutes, establish a talent demand research mechanism, set enrollment quotas, training objectives and curriculum systems according to specific industrial needs, and achieve seamless connection between talent training and post demand.

4.2. Improving the training system and highlighting the advantages of specialized programs

To highlight the particularity, practicality and uniqueness of specialized programs, China should reform its specialized admission system with reference to the German dual system and British elite education model.

First, implement the industry-university-research collaborative training model, encouraging universities, enterprises and research institutes to jointly formulate training plans and set practical modules, enabling students to participate in real research projects or work in enterprises to improve practical creativity^[14]. Second, carry out personalized training, designing differentiated plans according to students' special talents and future needs, emphasizing independent thinking and self-development. Third, build differentiated brands of specialized programs based on universities' advantageous disciplines, avoiding excessive comprehensiveness and pursuing "distinctive and competitive features for each university".

4.3. Strengthening the safeguard mechanism and improving talent training quality

Drawing on sound foreign safeguard mechanisms, China should strengthen the support capacity of specialized programs in three aspects: increasing funding, improving education quality and enhancing management.

First, increase financial support: the state should set up special funds and work with universities to establish special subsidy measures to ensure the smooth implementation of specialized programs, covering student fees, living allowances and research funding. Second, strengthen the teaching team: build a team of university teachers + enterprise engineers + research talents to improve teaching and practical guidance. Third, improve a strict teaching quality management system covering admission threshold, training process and graduation management. A special evaluation mechanism should be established to assess the implementation effect regularly and improve or adjust the programs accordingly to maintain stable talent training quality^[15].

4.4. Promoting international cooperation and enhancing international development

Drawing on the international joint training models of Japan, the US and other countries, China should improve the internationalization level of its specialized graduate programs.

First, expand the enrollment scale of international students, simplify admission procedures and set up special funds to attract global top talents to study in China. Second, promote the construction of English-taught

courses and improve the education system for international students to enhance training quality. Strengthen cooperation with world-renowned universities and research institutions, carry out joint training and scientific research, introduce high-quality foreign educational concepts and resources, and enhance the international influence of China's specialized programs.

5. Conclusion

Specialized graduate programs are an important way to optimize the structure of graduate education, meet national strategic development needs, promote educational equity and cultivate high-level innovative talents, playing an irreplaceable role in the development of graduate education worldwide. The strategic, practice-oriented, international and elite talent training admission policy systems of developed countries such as the US, Germany, Japan and the UK provide useful references.

Based on international and domestic situations and China's reality, we should adhere to clear strategic positioning, improve the training system, strengthen safeguard mechanisms and expand international cooperation to optimize specialized graduate admission programs and promote the high-quality development of graduate education.

Funding:

Approved (Funded) Project by the Talent Selection and Evaluation Committee of the Chinese Society of Academic Degrees and Graduate Education (202406)

Disclosure statement

The author declares no conflict of interest.

References

- [1] Wang YS, Xu YN, Jiang C, 2025, After Leaping Over the Dragon Gate: A Study on the School Integration Mechanism of Students in University Specialized Admission Programs. *Research in Educational Development*, 45(21): 37–45.
- [2] Wang BX, Wang W, 2025, Three-Dimensional Review of the Policy Changes of Master's Admission in China: Mixed Analysis of Policy Texts from 1981 to 2023. *Journal of Higher Education Management*, 19(2): 12–25.
- [3] Wang WY, Wen JY, 2024, Fairness Analysis of University Admission Policies in the New Era. *Research in Educational Development*, 44(23): 20–30.
- [4] Kong Y, 2024, Exploration and Optimization of Specialized Programs from the Perspective of Educational Equity. *University Education*, 22: 8–12.
- [5] Ouyang MZ, 2023, Research on the Fairness of University Admission Policies, thesis, Northeast Normal University.
- [6] Ge XQ, 2023, Research on the Evolution of Graduate Education Policies in China (1977–2022), thesis, Northeast Normal University.
- [7] Wang ZM, 2023, Research on Equity Policies of Access to Higher Education in China, thesis, Nanjing Normal University.

- [8] Zhang SL, 2022, A Study on Affirmative Action in American Higher Education Between Retention and Abolition, thesis, Yunnan Normal University.
- [9] Yang Y, Liu M, Li D, 2022, Research on Dynamic Adjustment of Master's Admission Quota Based on Disciplinary Construction and Performance Appraisal. *Heilongjiang Researches on Higher Education*, 40(3): 81–86.
- [10] Internal Revenue Service, 2022, User Fees Relating to the Enrolled Agent Special Enrollment Examination and the Enrolled Retirement Plan Agent Special Enrollment Examination. *Federal Register*, 87(40): 11295.
- [11] Internal Revenue Service, 2021, User Fees Relating to the Enrolled Agent Special Enrollment Examination and the Enrolled Retirement Plan Agent Special Enrollment Examination; Hearing Cancellation. *Federal Register*, 86(223): 66496.
- [12] Internal Revenue Service, 2021, User Fees Relating to the Enrolled Agent Special Enrollment Examination and the Enrolled Retirement Plan Agent Special Enrollment Examination. *Federal Register*, 86(186): 53893.
- [13] Ma CH, 2021, A Study on China's Master's Admission System Based on Institutional Change Theory (1978–2020), thesis, Hunan Normal University.
- [14] Li YG, Sun H, Zhou K, 2021, Research on the Allocation Criteria and Adjustment Reform of Graduate Admission Quotas Based on Supply Efficiency. *Academic Degrees & Graduate Education*, 2: 58–64.
- [15] Liu NN, 2020, A Study on Regional Differences in Access to Quality Higher Education in China, thesis, East China Normal University.

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