

# The Construction of Postgraduate Supervisors Competency Model in the Context of Education Internationalization

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## ABSTRACT

The postgraduate supervisors play an important role in the cultivation of international graduate students. Therefore, improving the competence level of postgraduate supervisors can enhance their ability to guide graduate students. Under the requirements of the internationalization of education, how to select and cultivate a group of postgraduate supervisors who are capable of guiding international graduate students is one of the important topics to improve the quality of international graduate students training in universities. Based on the competency model theory, this paper constructs a competency model of postgraduate supervisors from six dimensions: ability to conduct scientific research, professionalism, scientific research resources, personality quality, ability to train graduate students, and international communication ability. The aim of this paper is to comprehensively improve the guidance level of postgraduate supervisors and the quality of international graduate students training in universities. This paper not only enriches the research on the competency assessment system for postgraduate supervisors, but also provides a reference for universities to optimize the management of the supervisor team of international graduate students.

**Keywords:** *International graduate students, Postgraduate supervisors, Competency model.*

## 1. INTRODUCTION

The mobility of international students has been ongoing for hundreds of years, primarily as a spontaneous, scattered, or aid-oriented educational exchange activity in the early stages[1]. Due to the significant economic and social benefits that international student education can bring to host countries, as well as cultivating a large number of high-level talents for sending countries, the number of international students worldwide has been continuously increasing. According to Education at a Glance 2021: OECD Indicators, over 6 million students worldwide studied abroad in 2019, an increase of 79% compared to a decade ago. Since the 21st century, the number of student mobility in the global higher education sector has increased nearly threefold from 2.1 million in 2000 to 6.1 million in 2019. After more than 40 years of development through reform and opening up, China's higher education has made continuous progress, and Chinese higher education institutions

are also continuously receiving students from countries around the world. According to the statistics of International Students in China released by the Ministry of Education of the People's Republic of China in 2019, 1004 Chinese universities received 492,185 foreign students from 196 countries and regions in 2018, a 0.62% increase or 3,013 more students than in 2017. More than half of these students (52.44% or 258,122) pursued academic degrees, a 6.86% increase or 16,579 more students than in 2017. Notably, 85,062 of these students were master's and doctoral students, indicating an increase of 12.28% from 2017. With the advancement of the Belt and Road Initiative, the number of international graduate students will gradually increase. Postgraduate supervisors, as leaders in the training of graduate students, bear the primary responsibility for improving the quality of international graduate students' training. Therefore, how to mobilize the enthusiasm of postgraduate supervisors and improve their guidance ability are practical and

difficult issues that universities encounter in promoting international graduate work. International graduate students are an important part of graduate students in universities, and their unique needs and differences from domestic graduate students must be considered when providing guidance. To meet the demands of international development, the postgraduate supervisors must possess higher requirements in terms of teaching qualification, professional level, foreign language ability and cross-cultural abilities. To address these challenges, this paper constructs a model of competency index system for the postgraduate supervisors based on the competency model theory. This paper provides a reference for enhancing the practical guidance ability of postgraduate supervisors and further improving the cultivation quality of international graduate students.

## 2. REVIEW OF THE LITERATURE

The concept of competency was first introduced by American psychology professor McClelland in 1973, who defined it as a fundamental characteristic that matches an individual with a specific job. Competency includes various components such as motivation, personal characteristics, self-cognition, attitude, values, knowledge and skills, among others, which can be used to effectively predict an individual's behavior at work[2]. Spencer (1993) further proposed the competency model (Iceberg model) based on this, which compares a person's quality and ability structure to an iceberg, exposing directly observable qualities such as behavior, knowledge, and skills, while representing a large portion of other unobservable qualities such as individual motivation, attitude, values, personality traits, moral qualities, as the potential iceberg below the surface[3].

Through literature review, numerous scholars have conducted relevant research on the competency model and constructed different competency models for employees in various industries. For example, Zhang et al. (2023) constructed a competency model for agricultural science and technology personnel[4], while Wang and Deng (2023) constructed a professional competency quality model for young university teachers[5], and Li and Zhang (2022) constructed a personnel competency model for archival outsourcing service companies[6]. Similarly, Zhu et

al. (2020) constructed a nurse case manager competency model[7].

Previous studies have demonstrated that the competency model can also be applied to study the competency of postgraduate supervisors. Li (2010) constructed a supervisor competency model with 17 characteristics, including benchmark competencies and discriminatory competencies[8]. Xu et al. (2018) used the Delphi method to construct a model of nursing graduate student supervisor competency[9]. Zhou and Chen (2019) constructed a competency model for entrepreneurship supervisors in animal husbandry and veterinary medicine[10]. Su (2020) constructed a supervisor competency model based on the perspective of graduate students' expectations[11].

To sum up, although research on competency has involved many industries, there is still a lack of research on the competency model of the postgraduate supervisors of international graduate students. In the internationalization of education, facing the new requirements of the function transformation of postgraduate supervisors, there is still a lack of scientific basis and methods in the selection, training, evaluation and management of postgraduate supervisors in various universities. Therefore, this paper attempts to construct a competency model and indicators for the postgraduate supervisors, so as to provide a more instructive and applicable reference for the construction of the postgraduate supervisors.

## 3. THE CONSTRUCTION OF THE COMPETENCY MODEL FOR POSTGRADUATE SUPERVISORS

According to the theory of competency model, the connotation of the competency of postgraduate supervisors includes several aspects, such as the supervisor's scientific research ability, personality quality and mentoring skills. However, it is crucial to note that constructing a competency model must not only pay attention to the supervisor's level of professional knowledge and training abilities, but also focus on the supervisor's professional ethics and international communication ability. Hence, the establishment of this model requires comprehensive consideration of multiple factors in order to achieve the best effect of competency assessment for postgraduate supervisors. This paper designs a competency model for postgraduate supervisors based on the principles of scientificity, systematicity, and measurability, to ensure the scientific and fair evaluation of the abilities of

postgraduate supervisors, and to strive for a clear and concise indicator system to achieve comprehensive and multi-level evaluation.

Based on the iceberg theory, this paper constructs an indicator system for the competency model of postgraduate supervisors. The indicator system includes six primary indicators: ability to conduct scientific research, professionalism, scientific research resources, personality quality, ability to train graduate students, and international communication ability, as shown in "Figure 1". Additionally, the model comprises thirty secondary indicators, as shown in "Table 1". The weight coefficients for each index are determined based on

the connotation of each index and its importance in the whole system.

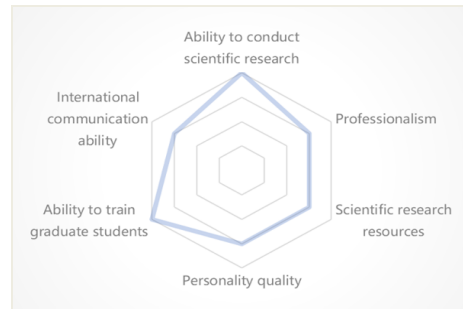


Figure 1 The competency model of postgraduate supervisors.

Table 1. The index system of competency model of postgraduate supervisors

Primary indicators	Secondary indicators	Weight
Ability to conduct scientific research (20%)	Mastery of professional knowledge in their discipline	0.2
	Mastery of practical experience in their discipline	0.2
	Insight into the academic frontier in their discipline	0.2
	Mastery of basic research methods in their discipline	0.1
	Clear research directions	0.1
	The number of research achievements	0.2
Professionalism (15%)	Political quality	0.2
	The moral quality of teachers	0.2
	Academic ethics	0.2
	Professional identity	0.2
	Work aggressiveness	0.1
	Work responsibility	0.1
Scientific research resources (15%)	Research funding support	0.4
	Research project support	0.3
	Research team support	0.3
Personality quality (15%)	Goal orientation	0.3
	Positivity	0.2
	Emotion management ability	0.2
	Stress coping ability	0.2
	Affinity	0.1
Ability to train graduate students (20%)	Imparting of professional knowledge and practical experience	0.2
	Cultivation of graduate students' research thinking	0.2
	Guidance of graduate students in mastering research methods	0.2
	Management of graduate student teams	0.1
	Stimulation of graduate students' innovation	0.2
	Care for the growth of graduate students	0.1
International communication ability (15%)	English listening, speaking, reading, and writing level	0.3
	Understanding and respecting cultural differences in different countries	0.3
	Transnational academic team	0.2
	International academic vision	0.2

The specific contents of the six first-level indicators are as follows:

(1) In terms of the scientific research ability of the postgraduate supervisors, their scientific research level is a prerequisite for guiding international graduate students, which directly affects the quality of international graduate training. With advanced scientific research skills and rich scientific research experience, the postgraduate supervisors can provide high-quality scientific research guidance and support to graduate students, which in turn can effectively improve the research ability and academic level of their graduate students. Specifically, the scientific research ability of the postgraduate supervisors includes six secondary indicators: mastery of professional knowledge in their discipline, mastery of practical experience in their discipline, insight into the academic frontier in their discipline, mastery of basic research methods in their discipline, clear research directions, and the number of research achievements, as shown in "Table 1".

(2) In terms of the professionalism of the postgraduate supervisors, their professionalism is crucial for the cultivation of international graduate students. The professionalism of the postgraduate supervisors refers to their morals, responsibility and other aspects of literacy in guiding graduate students. These qualities are not only helpful for postgraduate supervisors to make high-quality research plans, but also helpful to ensure the cultivation of international graduate students. Specifically, the professional quality of the postgraduate supervisors contains six secondary indicators: political quality, moral quality of teachers, academic ethics, professional identity, work aggressiveness, and work responsibility, as shown in "Table 1".

(3) In terms of the scientific research resources of the postgraduate supervisors, the research resources of supervisors help international graduate students to advance their cutting-edge technology and knowledge in the field of scientific research faster, thus improving their academic level. As the primary responsible person for the training of international graduate students, supervisors need to have basic research funding and projects. This allows them to train graduate students in standardized research methods and provide them with the necessary research platform and conditions to support their work. In addition, supervisors with strong research teams can also provide graduate students with more opportunities to present and

communicate, and to access and benefit from a wider range of academic resources. Specifically, the scientific research resources of the postgraduate supervisors contain three secondary indicators of research funding support, research project support, and research team support, as shown in "Table 1".

(4) In terms of the personality qualities of the postgraduate supervisors, the personality qualities of supervisors are essential to the learning and growth of international graduate students. A postgraduate supervisor with good personality qualities can establish a good teacher-student relationship with students, and help graduate students deal with practical problems with patience and pleasure, and achieve benign interaction and communication between students and supervisors. At the same time, a postgraduate supervisor with strong goal orientation can also give better guidance and support to graduate students in academic direction, help them establish a good academic circle, and bring more opportunities for their future study and development. Specifically, the personality qualities of the postgraduate supervisors contain five secondary indicators: goal orientation, positivity, emotion management ability, stress coping ability, and affinity, as shown in "Table 1".

(5) In terms of the ability to cultivate graduate students, the ability to impart knowledge and the ability to guide graduate students are the core requirements for the postgraduate supervisors. A postgraduate supervisor should foster the independent thinking, innovation and practical skills of international graduate students, stimulate their latent creativity, and guide them to proactively explore and solve problems. Moreover, postgraduate supervisors should care about the well-being and academic development of their students. Specifically, the ability of the postgraduate supervisors to train students contains six secondary indicators: transfer of professional knowledge and practical experience, cultivation of graduate students' research thinking, guidance of graduate students in mastering research methods, management of graduate student teams, stimulation of graduate students' innovation, and care for the growth of graduate students, as shown in "Table 1".

(6) In terms of the international communication ability of the postgraduate supervisors, their international communication ability is a fundamental condition for guiding international graduate students. Postgraduate supervisors not only need to have basic English listening, speaking,

reading and writing skills, but also need to be able to understand the differences between different cultures, including language, beliefs, values, etc., in order to have frequent and effective communication with international graduate students, to ensure the quality of student development and the success of research projects. At the same time, postgraduate supervisors collaborate with other international experts to build multinational academic teams, broaden the perspective of international chemistry, and also help better guide international graduate students in completing research projects. Specifically, the international communication ability of the postgraduate supervisors consists of four secondary indicators: English listening, speaking, reading and writing skills, understanding and respecting cultural differences in different countries, transnational academic team, and international academic vision, as shown in "Table 1".

#### 4. CONCLUSION

As the first person responsible for the cultivation of international graduate students, the responsibilities and requirements of postgraduate supervisors have received great attention in recent years. For the management departments of postgraduate supervisors in various universities, in order to improve the level of postgraduate supervisors' guidance, it is first necessary to evaluate and measure the competence of postgraduate supervisors. Based on this, it is necessary to improve the selection standards of postgraduate supervisors, develop a targeted postgraduate supervisors training system, and ultimately improve the management mechanism of postgraduate supervisors, thus through assessment, supervision, and motivation to enhance the competence level of postgraduate supervisors. Therefore, this paper constructs the competency model of the postgraduate supervisors to provide reference for improving the practical guidance ability of postgraduate supervisors, so as to ensure the further improvement of international graduate training.

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