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Research on the Current Situation Evaluation and Enhancing Paths of Scientific Research and Innovation Ability of Academic Master Students Majoring in Economics and Management

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Abstract: *Scientific research and innovation ability is undoubtedly an indispensable core ability of academic master students, and its level is not only an important measure of the quality of postgraduate education but also closely related to the level of national scientific and technological innovation, which is one of the key factors to promote national scientific and technological progress. By conducting a questionnaire survey on academic master's degree students majoring in economics and management, mainly from five universities such as Xi'an University of Technology and Henan University of Economics and Law, this paper evaluated the current situation of master students' scientific research and innovation ability, analyzed the main influencing factors, and explored the path to improve this ability. The study found that graduate students` overall level of scientific research and innovation ability is good, but there are individual differences. The study revealed the significant positive influence of individual factors, supervisor factors, curriculum and teaching environment, and school factors on scientific research and innovation ability, while the individual factors are the most fundamental influencing factors. Besides, it is recommended that students increase their initiative and enthusiasm to participate in scientific research activities, mentors should take differentiated measures to strengthen guidance and incentives of students` scientific research interests, disciplines should continuously optimize their curriculum system and increase support for hardware teaching resources, and universities should take multiple measures and strive to create a first-class atmosphere of scientific research and innovation.*

Keywords: *Scientific research and innovation ability; Academic master students; Improving path; Questionnaire; Regression analysis*

1. Introduction

Cultivating the scientific research and innovation ability of graduate students is one of the important goals of Chinese higher education. The construction of an educational power is led by higher education as its core. Graduate education is the highest level of higher education and a key indicator of a country's competitiveness in higher education. The research and innovation level of graduate students reflects the overall quality of graduate education to a certain extent. Therefore, in order to effectively enhance the scientific exploration ability of graduate students, it is necessary to pay attention to the systematic cultivation of their scientific research and innovation ability.

In recent years, the scale of graduate education in China has rapidly expanded. In 2000, the number of graduate students enrolled was 301,200, while in 2023, the number of graduate students enrolled was 3.883 million. This leap in number marks a breakthrough in the quantity and scale of graduate education in China. However, the graduate talents cultivated in China still face lots of challenges to meet the needs of modern economic and social development. In the graduate community, there are still some common problems, such as insufficient scientific research foundation, insufficient innovation awareness, lack of teamwork awareness, and the need to improve innovative research ability. The existence of these problems challenges the overall scientific research and innovation ability of academic master`s students. Academic master's students in economics and management, as the backbone of the future economic management field, their scientific research and innovation capabilities are directly related to the sustained and healthy development of the national economy and the modernization level of social management. In recent years, with the intensification of competition in

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the job market and the transformation of economic structure, the demand for economic and management talents with innovative thinking and practical abilities in the market has been increasing. However, due to objective factors such as research objects and teaching methods, academic master`s students majoring in economics and management lack the advantages of students majoring in science and engineering in carrying out innovative activities and achieving innovative results, which to some extent affects the improvement of innovation awareness and ability of academic graduate students in the field of economics and management.

According to the existing research, some scholars are actively exploring the connotation of scientific research and innovation capabilities, its key influencing factors, and the paths of how to more effectively cultivate the research and innovation capabilities of academic master`s students majoring in economics and management. As for the connotation, Yang S. Z. (2001) believes that research and innovation ability is widely regarded as the basic ability of graduate students to propose, analyze, and solve problems in academic research [1]. This ability not only includes mastering research methods and improving overall personal abilities [2] but also involves generating new theories, exploring new laws, and solving unresolved problems through innovative measures and methods based on previous research [3-4]. As for the influencing factors, researchers found that individual factors, supervisor factors, and environmental factors all have a crucial impact on the research and innovation ability of academic master's students. Individual factors include demographic characteristics, personal abilities, and nonintellectual factors, among which grade, urban-rural background, educational level, and disciplinary direction have significant differences in the output of scientific research and innovation achievements [5]. Graduate students with interdisciplinary backgrounds demonstrate significant advantages in research and innovation abilities [6]. In addition, problem awareness, literature reading ability, and familiarity with scientific research methods are considered key elements in forming scientific research innovation ability [7]. Creative thinking ability, systematic thinking ability, and practical ability are also basic elements that affect scientific research and innovation ability [8]. Supervisor play a crucial role in cultivating graduate students' research and innovation abilities. The title, age, guidance style, communication style, and sustainable teaching innovation of a supervisor have a significant impact on the research participation, creative thinking, and academic achievement of graduate students [9]. Besides, supportive and control-oriented guidance styles of supervisors are believed important to promote the development of innovative abilities in graduate students [10]. Compared with other guidance models, the dual mentor system has demonstrated its unique advantages in enhancing the innovation ability of master's students. In addition, the participation of mentors in scientific research projects and guidance on research directions are crucial for enhancing the research creativity of graduate students. As for the environmental factors, the existing research proved that an open learning environment to let students having more chances of participating in scientific research projects, the examination system, university organizational culture environment, and social environment of universities, policy incentives and policy fairness also have a significant impact on the research and innovation ability of graduate students [11-13].

Although there has been some theoretical progress in cultivating the research and innovation ability of academic master's students in economics and management, the academic community has extensively discussed its conceptual connotation, evaluation system construction, and internal and external influencing factors, forming a relatively comprehensive theoretical framework. However, the exploration of these studies at the empirical level still needs to be improved. In order to make up for this deficiency, this paper adopted an empirical research method based on a systematic review and summary of existing literature and conducted an in-depth analysis of the factors influencing scientific research and the innovation ability of academic master`s students. Through empirical methods such as questionnaire surveys and interviews, a large amount of first-hand data was collected to quantitatively analyze the influencing factors of scientific research and innovation ability of graduate students, and revealing the mechanisms and pathways of improving scientific research and innovation ability of academic master`s students majoring in economics and management.

2. Research Objects and Methods

Based on the review and analysis of a large number of literature, as well as the summary of interview opinions from mentors and graduate students, this article developed a survey questionnaire on the scientific research and innovation ability of academic master's students in economics and management based on their actual situation. The questionnaire was conducted in five universities through online and offline methods. The questionnaire consists of four parts. The first part is about personal basic information variables. The second part is about the cognitive status of graduate students'

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scientific research and innovation ability, which includes 13 questions designed from the aspects of cognition of self-innovation ability and participation in innovation practice. The third part is about the status of graduate students' scientific research and innovation ability, which includes 12 questions from the aspects of ability to read literature, the ability to propose, analyze and solve problems, and the ability to self-study software. The fourth part is about the influencing factors of academic graduate students' scientific research and innovation ability, which includes 4 primary dimensions and 27 items such as personal factors, supervisor's factors, curriculum and teaching environment factors, and school factors. Specifically speaking, the third and fourth parts of the questionnaire used the classic Likert 5-point scale, which established five degrees choices of complete conformity, comparative conformity, uncertainty, comparative non-conformity, and complete non-conformity, and scores them according to 1-5 points, with the lower the score, the higher the level of the respondents in this area or the higher the degree of degree of agreement. Cronbach's coefficient was used to measure the reliability and stability of the questionnaire on the status of scientific research and the innovative ability of academic master's degree students in economics and management. As shown in Table 1, after several revisions, the alpha values of the questionnaire in terms of the status of Scientific research and innovation ability and the influencing factors of Scientific research and innovation ability are all higher than 0.8, which fully indicates that the questionnaire has a high degree of reliability.

Table 1: Cronbach's coefficient reliability analysis.

Dimension	Cronbach's alpha value	Number of items
The status of academic master students` scientific research and innovation ability	0.947	12
The influencing factors of academic master students' scientific research and innovation ability	0.964	27

3. The survey results and analysis of academic master students' scientific research and innovation ability

3.1 The basic situation of scientific research and innovation ability of academic master students majoring in economics and management

3.1.1 The basic personal information of academic master students

The data of this survey is shown in Table 2. The number of female students is as high as 70.85%; nearly 40% of them are from Xi'an University of Technology, the number of graduate students from ordinary undergraduate programs is as high as 91.48%, only 5.83% of graduate students are from 985 and 211, and most of them are from undergraduate institutions not belonging to the double first-class, the number of respondents in the first, second and third years of study was 47.09%, 33.18% and 19.73%, respectively; the largest number of respondents came from the discipline of applied economics, amounting to 40.81%, the proportion of those with the same major in their bachelor's degree or not was similar. It could not be used as a control variable, and the number of mentors guided by 3-5 people was the largest, amounting to 39.91%.

Table 2: Basic personal information of the academic master students.

Category		Number of students	Percentage
Gender	Male	65	29.15%
	Female	158	70.85%
School	Xi'an University of Technology	87	39.01%
	Other	136	60.99%
School Level	985	9	4.04%
	211	4	1.79%
	General Undergraduate	204	91.48%
	Other	6	2.69%
Whether the bachelor`s degree obtained from Xi'an University of Technology	Yes	35	15.7%
	No	188	84.3%

ISSN 2522-6398 Vol. 7, Issue 6: 41-52, DOI: 10.25236/FER.2024.070606

Whether the undergraduate school is a double first-class university	Yes	26	11.66%
	No	197	88.34%
Current Grade	First year of graduate study	105	47.09%
	Second year of graduate study	74	33.18%
	Third year of graduate study	44	19.73%
Discipline	Applied Economics	91	40.81%
	Management Science and Engineering	10	4.48%
	Accounting	26	11.66%
	Business Management	5	2.24%
	Technical Economics and Management	11	4.93%
	Finance	4	1.79%
	Other	76	34.08%
Whether the undergraduate and master`s majors are consistent	Yes	113	50.9%
	No	109	49.1%
Number of students guided by supervisors	1-2	74	33.18%
	3-5	89	39.91%
	Six and above	60	26.91%

3.1.2 Current situation of the cognition on scientific research and innovation ability of academic master students

The survey results on the cognitive status of scientific research and innovation ability of master students in economics and management are shown in Table 3. In terms of personal cognition of scientific research and innovation ability, there are 44.84% of students believed that the purpose of participating in scientific research activities is to meet the university's degree requirements and obtain academic degrees. There are only 4.04% of students believed that their scientific research and innovation abilities are very good, most students are agreed with the importance of scientific research and innovation ability, also satisfied with the cultivation of scientific research and innovation ability by their university. There are 56.95% of students believed that the key factor in forming scientific research and innovation ability lies in students themselves, followed by mentors, disciplines, and schools. There are 81.17% of students believed that they could complete the task of publishing papers within the normal graduation time. In terms of graduate students participation in scientific research and innovation, 50.67% of students have accumulated 3-5 hours of scientific research and innovation activities per day, while only 1.35% of students have accumulated more than 10 hours. There are 69.06% of students have not yet published papers, 23.32% of students have published in regular level journals. There are 71.75% of students have not yet participated in a scientific research project as the first/second author and achieved academic achievements, and 22.87% of students have participated in a scientific research project as the first/second author and achieved academic achievements 1-2 times. The highest proportion of mentors have an average monthly guidance frequency of 1-2 times, reaching 44.39%, followed by 3-5 times, accounting for 35.43%. There are 51.57% of students have not yet participated in their supervisor's research projects, and 31.84% of students have participated in their supervisor's provincial-level or above research projects. Most students have not attended or only attended one or two academic conferences.

Table 3: The cognitive status of scientific research and innovation ability of academic graduate students.

Research questions	Answer options	Ratio
Purpose of participating in research activities	To fulfill the university's regulations and obtain academic degrees	44.84%
	Fulfillment of supervisor's tasks	5.83%
	To qualify for awards and prizes	6.73%
	To further study for a doctoral degree	14.8%
	To improve research ability	22.87%
	Others	4.93%
Own scientific research and innovation ability	Very good	4.04%
	Fairly good	36.77%
	Not so good	52.02%

ISSN 2522-6398 Vol. 7, Issue 6: 41-52, DOI: 10.25236/FER.2024.070606

	Very insufficient	7.17%
Is it important to cultivate scientific research and innovation ability	Very important Quite important Fairly important Less important Very unimportant	56.5% 36.77% 4.93% 0.9% 0.9%
Whether scientific research and innovation ability can be demonstrated during graduate school	Completely Comparatively able Fairly able Less able Not at all able	9.42% 57.85% 27.8% 4.04% 0.9%
Are you satisfied with the cultivation of scientific research and innovation ability of the university	Very satisfied Quite satisfied Fairly satisfied Quite dissatisfied Very dissatisfied	13.9% 52.02% 30.94% 3.14% 0%
The most critical factors in the formation of scientific research and innovation ability	Personal factors Mentor factor Disciplinary factors School factor	56.95% 28.25% 9.42% 5.38%
Able to complete the public presentation of the dissertation within the normal time of graduation as specified by the school or training program	Able to Difficulty	81.17% 18.83%
Average time per day for research and innovation activities	Less than 2 hours 3-5 hours 6-10 hours More than 10 hours	35.43% 50.67% 12.56% 1.35%
Publication status	Not yet published Published in general journals Published in core journals Published in authoritative journals	69.06% 23.32% 5.83% 1.79%
Number of times participating in scientific research projects as the first/second author and achieved academic achievements	None 1-2 times 3-5 times More than six times	71.75% 22.87% 4.48% 0.9%
The average number of times your mentor guided you per month	None 1-2 times 3-5 times More than six times	9.87% 44.39% 35.43% 10.31%
Participation in mentor's research projects	No participation Participation in departmental projects Participation in provincial and above projects	51.57% 16.59% 31.84%
Participation in academic conferences	None 1-2 times 3-5 times More than six times	30.04% 40.36% 17.49% 12.11%

3.1.3 Analysis of the current situation of scientific research and innovation ability of academic master students

The survey results on the current status of research and innovation capabilities of academic graduate students are shown in Table 4. The mean value of the various options selected by graduate students in the survey on the current status of scientific research and innovation abilities is around 2.5, indicating that most graduate students believe that their scientific research and innovation ability is at a moderate level. Specifically, the average and standard deviation of "useful information that graduate students can obtain from literature" are the smallest, indicating that most graduate students have a high level of literature reading and the gap between everyone is the smallest. Most graduates can obtain useful information from literature. Whereas the average and standard deviation of "high innovation in scientific research results" are the largest, indicating that there is the greatest gap among graduate students in terms of innovation ability in scientific research academic achievements. Most research achievements may not have much innovation, indicating that students lack attention to innovation ability in academic output, the methods used may be too outdated, and the research topic lacks novelty and cutting-edge to a certain extent.

ISSN 2522-6398 Vol. 7, Issue 6: 41-52, DOI: 10.25236/FER.2024.070606

Table 4: The descriptive statistics of scientific research and innovation ability of academic graduate students.

Research questions	N	Minimum value	Maximum value	Mean value	Standard deviation
Able to obtain useful information from the literature	223	1	5	2.15	.760
Able to identify deficiencies by combing through existing literature	223	1	5	2.48	.853
Being able to ask valuable questions in research	223	1	5	2.61	.889
Keeping abreast of the latest academic developments in one's field of study	223	1	5	2.57	.897
Ability to think in multiple directions and propose different solutions	223	1	5	2.56	.888
Skillfully access, utilize, and analyze data	223	1	5	2.61	.868
Be able to identify problems reflected in data based on the results of the data	223	1	5	2.51	.799
Be able to select appropriate research methods to solve problems	223	1	5	2.57	.790
Ability to self-teach required software or research tools	223	1	5	2.41	.870
Highly innovative research results	223	1	5	2.84	.968
Highly evaluated by teachers and classmates for papers, research reports	223	1	5	2.78	.959
Focused on research related to the output of academic achievements during graduate school	223	1	5	2.65	.903

3.1.4 Analysis of the current situation of the influencing factors of academic master students' scientific research and innovation ability

The results of the descriptive statistics of the factors influencing academic master students' scientific research and innovation ability are shown in Table 5. The overall mean value of the influencing factors on scientific research and innovation ability of academic master's students in economics and management is 2.26, indicating that most students believe that the influencing factors of these four dimensions have a high impact on the scientific research and innovation ability of graduate students. From the specific impact of each dimension, the factors from low to high are the mentor factors, school factors, curriculum and teaching environment factors, and personal factors. This indicates that the majority of students have high demands and expectations for both mentor and school factors. The reason may be that the supervisor, as the first person responsible for academic master's degree students, their guidance will directly affect the research progress and quality of academic achievements of the graduate students, and can effectively prevent students from entering academic misconceptions. Secondly, schools are the main venue and key support for graduate students` academic output, and their policies and support will significantly affect the focus of graduate students` attention. Thirdly, the curriculum and teaching environment also affect the academic thinking and research innovation abilities of graduate students. Finally, most students believe that in a certain research environment, the most critical factor determining their level of research and innovation ability lies in personal factors such as their academic pursuit and planning, innovation awareness, and level of hard work and practice.

Table 5: The descriptive statistics results of influencing factors of the scientific research and innovation ability of academic graduate students.

Influencing factors	N	Minimum value	Maximum value	Mean value	Standard deviation
Personal factors	223	1.00	5.00	2.6291	.74377
Mentor factors	223	1.00	5.00	1.8988	.82434
Curriculum and instructional environment factors	223	1.00	5.00	2.3108	.81289
School factors	223	1.00	4.67	2.1061	.78728

ISSN 2522-6398 Vol. 7, Issue 6: 41-52, DOI: 10.25236/FER.2024.070606

3.2 Differential analysis on scientific research and innovation ability of academic master students in economics and management

This paper mainly used independent samples t-test and one-way ANOVA to explore the differences in scientific research and innovation abilities of academic master students in economics and management on different variables. The study showed that master students with different grades, different perceptions of scientific research and innovation ability, different times of engaging in scientific research and innovation ability activities per day, different thesis publication statuses, different average numbers of supervisors' monthly guidance, and different numbers of attending academic conferences showed significant differences in scientific research and innovation ability. The details are shown as follows.

Firstly, there are significant differences among graduate students of different grades in terms of problem-solving, thinking, and data utilization. As students grow older, they become more able to raise and think about questions, and become more proficient in collecting and applying data. First-year students may have just begun to engage in scientific research activities, are not sensitive to problems, and are not familiar with data, resulting in significant differences between them and second-year and third-year students in these aspects.

Secondly, graduate students with different cognitive abilities in scientific research and innovation have significant differences in literature reading and sorting, problem posing and thinking, data utilization, self-learning software, paper writing, and innovative results. Students who choose scientific research and innovation abilities are more capable than other students in the six aspects mentioned above. This indicates that self-awareness of scientific research innovation ability is very important, and individual interests and cognition will drive different behaviors, resulting in different pursuits, efforts, and outcomes of scientific research innovation.

Thirdly, graduate students with different hours of scientific research and innovation ability activities per day have significant differences in reading and sorting out literature, posing and thinking about problems, using data, and having innovative results. Students engaged in about 6-10 hours of scientific research and innovation activities per day have significantly higher abilities in these aspects than those with less than 2 hours, indicating that the degree of personal effort and persistence can also lead to significant differences in scientific research and innovation abilities.

Fourthly, graduate students with different academic papers publication have significant differences in literature reading and sorting, problem posing and thinking, paper writing, and academic innovation. 30% of students who have published papers generally have higher research and innovation abilities than 70% of students who have not yet published papers. The possible reason is that students who have already published papers have a better understanding of the process and requirements for writing papers, a greater sense of achievement, and a greater willingness to pursue scientific research innovation.

Fifthly, the average monthly guidance frequency of mentors varies, and there are significant differences among graduate students in terms of proposing and thinking about problems, using data, and achieving innovative results. Students who receive more guidance frequency from mentors have significantly higher abilities in the above aspects compared to those who receive less guidance, indicating that diligent guidance from mentors significantly affects the scientific research and innovation abilities of graduate students.

Finally, there are significant differences among graduate students who attend academic conferences with different times in terms of literature reading and sorting, self-learning software, and innovative achievements. Students who attend academic conferences more than 6 times have stronger scientific research and innovation abilities than those who have attended academic conferences 1-2 times or have never participated in academic conferences. The possible reason is that students attending academic conferences can stimulate and motivate them to innovate in scientific research, effectively improve their comprehensive research abilities, help them better integrate into relevant academic fields, and promote students to have a stronger interest and higher pursuit of scientific research.

3.3 Empirical analysis of the scientific research and innovation ability of academic master students in economics and management

To explore the role of factors influencing graduate students' scientific research and innovation ability, this paper took individual factors, tutor factors, curriculum, and teaching environment factors,

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and school factors as independent variables, the status of scientific research and innovation ability as dependent variables, and empirically analyzed the influencing factors of the research innovation ability of academic master's degree students of economics and management by using Pearson's correlation analysis and multivariate linear regression analysis.

According to the Pearson's product-difference correlation coefficient, personal factors have the greatest correlation with the status of scientific research and innovation ability (r=0.856), followed by the curricular and teaching environment factors (r=0.587), then the mentor factors (r=0.479), and lastly, the school factors (r=0.415). This shows that personal factors are the most direct factors affecting the status of scientific research and innovation ability. At the same time, the influence of curriculum and teaching environment factors is also important, and mentor factors and school factors also affect the status of scientific research and innovation ability to some extent.

From the results of multiple linear regression (as shown in Table 6), all influencing factors have a positive impact on the research and innovation ability of academic graduate students. Among them, personal factors have a significant impact on the research and innovation ability of graduate students at the 1% level, while other factors are significant at the 5% level. Specifically, personal factors have the greatest impact on the research and innovation ability of graduate students, with a standardized regression coefficient of 0.787. Curriculum and teaching environment factors also have a certain impact on the research and innovation ability of graduate students, with a standardized regression coefficient of 0.186, followed by mentor factors with a standardized regression coefficient of 0.144, and finally school factors with a standardized coefficient of 0.132. The regression results indicate that whether graduate students have a solid knowledge reserve and a strong sense of innovation has become a core factor affecting their research and innovation ability. The varying degrees of pursuit of disciplinary frontiers, research methods, and research training among individuals result in differences in research and innovation ability. At the same time, the research and innovation atmosphere in the classroom and research room also affects the research and innovation ability of graduate students, and different atmospheres create different students. The requirements and guidance of mentors on the level of scientific research and innovation, as well as the requirements and reward mechanisms of schools for the research and innovation ability of graduate students, will also have a certain impact on the research and innovation ability of graduate students.

Table 6: Regression results of influencing factors on scientific research innovation ability of academic master students in economics and management

Variables	Standardized coefficient	t	Significance
(Constant)		4.444	0.000***
Personal factors	0.787	18.002	<.001***
Instructor Factors	0.144	2.087	0.038**
Curriculum and Instructional Environment Factors	0.186	2.299	0.022**
School factors	0.132	2.001	0.043**
Dependent variable: status of scientific research and innovation ability			

4. Conclusions and enhancing paths

4.1 Conclusions

This paper evaluated the current situation of master students' scientific research and innovation ability by conducting a questionnaire survey on academic master's degree students majoring in economics and management, mainly from five universities such as Xi'an University of Technology and Henan University of Economics and Law, analyzed the main influencing factors, and explored the paths to improve this ability. The main conclusions are shown as follows.

First, the overall level of graduate students' scientific research and innovation ability was moderate, the mean score was 2.5, and only a small number of graduate students showed very high scientific research and innovation ability. Specifically speaking, most of the graduate students were able to obtain helpful information from the literature with minor inter-individual differences. However, the low scores in terms of the innovativeness of scientific research results indicate that graduate students need more attention to innovation ability in their academic outputs, the methods used may be too old, and the research topics lack novelty and cutting-edge to a certain extent.

Secondly, there are significant differences in graduate students' scientific research and innovation ability on different variables. The study shows that there are substantial differences in the scientific

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research innovation ability of master's degree students with different grades, different perceptions of scientific research and innovation ability, different times engaged in scientific research innovation ability per day, different dissertation publication statuses, different average times of supervisors' monthly guidance, and different numbers of attending academic conferences. This may be because different individuals have different self-awareness of scientific research and innovation abilities, the differences in individual interests and perceptions drive different behaviors, leading to different scientific research and innovation pursuits, efforts, and results. In addition, the monthly guidance times of supervisors also bring a certain degree of improvement in graduate students' scientific research innovation ability.

Thirdly, graduate students' scientific research and innovation ability is affected by many aspects, with individual factors having the greatest impact. Regarding individual factors, whether graduate students have a solid knowledge reserve and a strong sense of innovation has become the fundamental reason affecting their research and innovation ability. Individuals have different levels of pursuit for cutting-edge disciplines, research methods, and research training, leading to differences in their research and innovation abilities. At the same time, the scientific research and innovation atmosphere in the classroom and the research lab also affects the research and innovation ability of graduate students, and different atmospheres create students with different innovation abilities. Finally, supervisors' requirements and guidance on the level of scientific research and innovation, as well as the university's requirements and reward mechanism for graduate students' scientific research innovation ability, will also have a particular impact on graduate students' research innovation ability.

4.2 Enhancing paths of the scientific research and innovation ability of graduate students

4.2.1 Encourage and strengthen the initiative and enthusiasm of students to participate in scientific research and innovation activities

To enhance the scientific research and innovation ability of graduate students, the key lies in their enthusiasm and investment in scientific research activities. Students should actively extend their participation in scientific research activities and make scientific research an important component of their academic life. This should include research work conducted in laboratories or libraries, as well as an in-depth exploration of the research field and continuous experimentation with research methods. Students can develop detailed research plans, allocate time reasonably, and ensure a fixed time slot for scientific research activities every day.

At the same time, students should actively participate in academic writing, and exercise their research expression and communication skills by writing and publishing academic papers and research reports. In the process of academic creation, students can not only systematically organize and summarize research results, but also learn how to conduct academic argumentation and logical reasoning. Students should choose appropriate research topics, conduct rigorous data analysis, and write standardized academic papers under the guidance of their supervisors.

In addition, actively participating in academic activities is another important way to enhance the research and innovation capabilities of graduate students. Students should seize the opportunity to participate in academic conferences, seminars, and workshops both domestically and internationally. These activities not only allow students to stay informed about the latest research trends and academic frontiers but also provide a platform for communication with experts and scholars in the field. By participating in academic activities, students can broaden their academic horizons, and gain new research inspiration and ideas.

4.2.2 Mentors should take differentiated measures to strengthen the guidance,cultivation and motivation of master students` scientific research interests

As the guide of the graduate research journey, the frequency and quality of guidance provided by mentors have a direct impact on the research innovation ability of graduate students. Therefore, mentors can help students clarify research goals, solve problems encountered in the research process, and adjust research directions in a timely manner through regular one-on-one communication and guidance. Mentors should provide continuous research support to students through these frequent interactions, help them overcome difficulties in the research process, and stimulate their innovative thinking.

In addition, mentors should strengthen personalized guidance for students. Each student's research interests, abilities, and needs are unique, and mentors should develop personalized training plans and guidance strategies based on their characteristics and research directions. This includes helping

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students choose suitable research topics, providing targeted literature, and suggesting appropriate research methods. Personalized guidance helps students discover their research potential and promote the improvement of their research and innovation abilities.

Furthermore, mentors should encourage students to participate in scientific research projects and academic conferences, lead them in applying for scientific research projects, and provide them the opportunity to participate in real-life scientific research, learning and growing throughout the entire process of topic design, literature review, data analysis, model construction, and academic achievement output. This not only allows students to learn and apply knowledge through practical participation but also helps them establish a research network, laying a solid foundation for their future academic careers.

4.2.3 Disciplines should continuously optimize their curriculum system and increase support for hardware teaching resources

For academic master's students majoring in economics and management, optimizing the curriculum system is one of the important ways to enhance their research and innovation abilities. Firstly, the curriculum should emphasize interdisciplinary integration and practicality. By offering interdisciplinary courses, students can be exposed to knowledge and methods from different fields, thereby stimulating new research ideas and innovative points. For example, courses that combine economics, management, and big data management and application can help students master the application of big data analysis in economic management research, and courses that integrate psychology and marketing can cultivate students' innovative abilities in consumer behavior research; Increasing the provision of practical courses can effectively improve students' ability to apply theory to practical problems. Secondly, expanding teaching content such as case analysis, simulated business operations, and field research can help students improve their research abilities while solving real-world problems.

Similarly, increasing the support of hardware resources is equally essential for enhancing the research and innovation capabilities of graduate students. Good hardware resources support is not only beneficial for improving research efficiency but also stimulates students' spirit of exploration and innovation. Universities should provide advanced laboratory facilities, abundant library resources, and convenient information technology services to lay a solid material foundation for students to carry out scientific research and innovation activities. For example, establishing an economic management experimental center equipped with economic model analysis software and market data analysis tools can support students in conducting complex economic predictions and decision analysis. Good hardware support is not only beneficial for improving research efficiency, but also stimulates students' spirit of exploration and innovation.

4.2.4 Universities should take multiple measures and strive to create a first-class atmosphere of scientific research and innovation

Universities are not only producers and disseminators of knowledge, but also incubators of technological innovation. In order to cultivate academic master's students with innovative spirit and advanced management ability in the field of economics and management, schools should take multiple measures to create a first-class research and innovation atmosphere to support, encourage, stimulate and cultivate the research and innovation ability of graduate students.

Firstly, schools need to establish a comprehensive incentive mechanism to recognize and reward students who have made significant achievements in scientific research and innovation through methods such as a research achievement reward system and a research innovation fund. This positive incentive not only encourages award-winning students to continue pursuing excellence but also stimulates the learning motivation of other students, encouraging them to actively participate in scientific research activities.

Secondly, schools should regularly organize activities such as scientific lectures, workshops, and innovation and entrepreneurship competitions. These activities not only provide students with opportunities to interact with academic frontiers, but also enhance their interest and enthusiasm for scientific research. Through these activities, students can stay up-to-date with the latest research trends, learn advanced research methods, and thus enhance their scientific research and innovation abilities.

Thirdly, schools should encourage teachers to adopt interactive and exploratory teaching methods, such as case teaching, simulation experiments, and group discussions, which can improve students' classroom participation, and cultivate their critical thinking and problem-solving abilities. Through the innovation and improvement of the above teaching methods, students can enhance their theoretical

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guidance ability, teamwork ability, and problem-solving ability through practical teaching and immersive experience, thereby enhancing their research and innovation abilities.

Finally, schools should increase the construction of digital platforms and build an open research platform that integrates industry, academia, and research. Academic master students should be encouraged to communicate, learn, and collaborate across disciplines, actively participate in management and research activities of companies, and engage in interdisciplinary research and practice of enterprises and research institutes. This interdisciplinary communication, cooperation, and learning can effectively stimulate students' innovative thinking and academic problem insight, promote the deep integration of knowledge from different disciplines, and thus generate new research ideas and results, improving scientific research innovation capabilities.

In summary, through the above measures, schools can effectively create an atmosphere conducive to scientific research and innovation, providing a research environment full of opportunities and challenges for academic master's students in economics and management. In such an environment, students can continuously learn, explore, and innovate, ultimately growing into high-quality talents with excellent scientific research and innovation capabilities, and making contributions to the country's scientific and technological progress and social development.

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