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A Qualitative Study on The Impact of Employment Anxiety on Scientific Research Investment Among Master's Students

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Abstract

In the context of the expansion of universal education, the employment anxiety of master students seriously affects their scientific research investment. Through in-depth interviews with master students and qualitative analysis based on grounded theory, individual characteristics, external environment, invisible culture, and institutional norms are identified as factors affecting the scientific research investment of master students, and are summarized into two dimensions: individual and environment. Under the interaction between individuals and the environment, the scientific research behavior of graduate students has negative performance. By constructing a mechanism model for the impact of master students' employment anxiety on scientific research investment, corresponding strategies are proposed to enhance the understanding of the issue of master students' employment anxiety on scientific research investment in the context of universalization, and provide a basis for education management.

Keywords

Employment anxiety, scientific research investment, master's degree candidate.

1. The Question Is Raised

With the development of the popularization of higher education, the number of graduate students enrolled in my country will reach 1.2425 million in 2023, a year-on-year increase of 5.61%. Among them, there are 139,000 doctoral students and 1.1035 million master's students; there are 3.6536 million graduate students, an increase of 9.64% over the previous year. The graduate population continues to expand, and employment issues have become the focus of social attention. Especially in the face of fierce employment competition and uncertain career prospects, many master's graduates generally have employment anxiety. This anxiety not only affects their mental health, but may also have a profound impact on their scientific research investment and academic achievements.

What impact does employment anxiety have on the scientific research investment of master's students? What factors affect the investment in scientific research caused by employment anxiety? What degree of anxiety can promote scientific research investment? This paper aims to explore the impact of employment anxiety on the scientific research investment of master's students in the context of the popularization of higher education through relevant research and put forward suggestions.

2. Literature Review

The employment situation of master's students is in a dilemma. Compared with doctoral students, they lack human capital; compared with undergraduates, their employment rate is low. Yu Fei et al. (2019) analyzed the employment situation of graduate students in my country

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and found that there are differences in the employment structure of graduate students at different levels. The starting salary is directly affected by human capital, and the salary of master's students is lower than that of doctoral students [1]. Sun Jing (2021) compared the employment situation of undergraduates and master's students and found that graduate students with relatively low employment rates have higher employment satisfaction than undergraduates. Personal, employment choices, and social capital are the main reasons affecting employment [2]. Zhang Huiyi and Tong Xin (2023) believe that master's students generally face pressure, and employment pressure is the primary pressure. The three sources of employment pressure are social pressure sources, personal pressure sources, and school and other pressure sources. For social pressure sources, it is mainly due to the imbalance in the employment structure [3].

Research investment is an important indicator for evaluating the quality of graduate education, which is affected by the external environment and personal internal characteristics. Therefore, Cai Jun (2018) and other scholars, based on this, defined scientific research investment as the degree and state of cognition, emotion and behavior of participating in scientific research activities [4]. Under the guidance of tutors and the support of peers, students are more willing to devote time to scientific research investment. Yuan Qian (2019) believes that different dimensions of tutor support have a certain promoting effect on students' learning investment. Interaction between peers can supplement the need for autonomy and emotion, and regular interaction can produce positive social functions. The validity of peer support on master's students' scientific research learning investment should be improved [5]. Perceiving employment anxiety, some students are no longer purely in the face of scientific research. Yan Yan et al. (2013) studied the impact of employment pressure on graduate students' learning and scientific research, and found that the increase in employment pressure makes students' learning goals tend to be utilitarian, and they reduce the time for learning and scientific research [6]. Tang Li et al. (2024) In order to alleviate employment pressure and gain advantages in job competition, some students blindly participate in competitions, spend a lot of time to obtain certificates, and greatly shorten the time and energy invested in scientific research, resulting in an imbalance between academic development and quality development [7].

Through the analysis of existing literature, we can find that: first, the current research subjects on employment anxiety are mostly undergraduates, and the research on master's students is relatively insufficient; second, the existing research is mainly quantitative analysis, and there are few qualitative studies and theoretical interpretations of scientific research investment. Therefore, based on the current domestic educational background, this paper intends to use the grounded theory method to analyze the factors affecting the scientific research investment of master's students and the impact of employment anxiety on it, in order to improve the quality of master's student training and alleviate the adverse effects of graduate employment anxiety on scientific research investment.

3. Research Design

3.1. Research methods

As a research paradigm, grounded theory was first created by American scholars B. Glaser and A. Strauss in the late 1960s as a method of constructing theory. Strauss called data analysis rooted in theory coding, which is a process of decomposing the collected or translated textual data, conceptualizing the phenomenon, and then re-abstracting, upgrading and synthesizing the concepts as categories in an appropriate way, and operating the core categories [8]. Grounded theory research is a method of building substantive theory from the bottom up. It finds the core concepts that reflect social phenomena based on the collection and analysis of

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original data, and then establishes social theories based on the connections between these concepts. This study aims to extract the impact of employment anxiety on scientific research investment from primary data and explore its mechanism of action, which is consistent with the research purpose and path of grounded theory.

3.2. Data sources

According to the purpose of the research, the original interview outline was designed to form a semi-structured interview questionnaire. The interview was conducted in a combination of online and offline methods. Each interviewee was interviewed for 15 minutes. Before the interview, the interviewee was informed that the interview would be recorded and the interviewee agreed. After each interview, the interviewee's statements and opinions were transcribed and adjusted word by word in a timely manner, and the interviewee's narrative was considered at the same time.In order to protect the privacy of the respondents, the encoding of the respondent information listed in this article is replaced by letters and numbers (as shown in Table 1).

Table 1. Information on respondents in the first class of graduate studies

numbering	gender	Type of degree	numbering	gender	Type of degree
A01	woman	economics	A10	woman	Management
A02	woman	accounting	A11	woman	Management
A03	woman	Management	A12	man	Management
A04	man	Management	A13	man	economics
A05	woman	Management	A14	man	economics
A06	woman	economics	A15	woman	accounting
A07	man	Management	A16	man	economics
A08	man	economics	A17	woman	jurisprudence
A09	man	Science	A18	man	Management

4. Data Analysis

With the help of NVIVO20 qualitative analysis software, this study analyzed the interview text of "employment anxiety on scientific research investment", constructed the three-level coding of graduate students' "scientific research investment" from the bottom up, analyzed its formation mechanism, and used part of the reserved interview data for the theoretical saturation test after coding analysis (Figure 1).

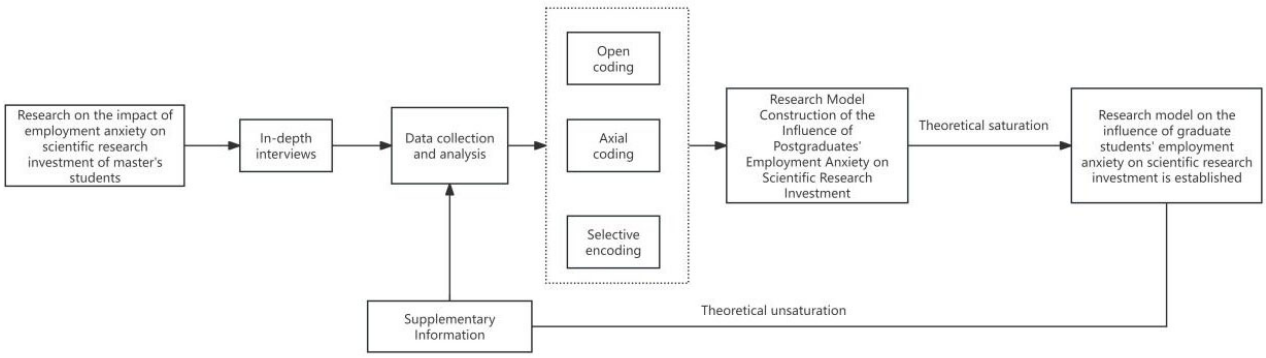

Figure 1. Grounded Theory research process

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4.1. Open coding

Open coding is a process of classifying, comparing, and labeling the original interview data. Its purpose is to conceptualize and abstract the original materials, and to develop concepts and refine categories from them, without considering existing research conclusions and eliminating concepts with low frequency.[9] After multiple rounds of integration and classification, a total of 17 initial concepts were extracted and summarized into 9 initial categories (see Table 2).

Table 2. Open coding

Initial Scope	Initial concept	Original Statement (Integrated)
Academic mentality	Just want to graduate; Be in the moment	At present, I have employment anxiety but I am still in school, so I can only do my current things, attend classes silently, and graduate successfully
Employment pressure	The job is very competitive; Abilities do not match	The current position does not need a professional counterpart, so many job seekers can replace the work of their major, and often feel that their abilities and positions do not match, and they are replaced by others
Research interests	Don't want to do research; No interest in scientific research	I have no interest in scientific research, and I don't want to do scientific research at all, but as a graduate student, I need to conduct scientific research
Mentoring relationships	No contact; The mentor helped me plan	The teacher has already helped me plan the scientific research plan, and I just need to implement it; I don't usually have much contact with the teacher.,I only focus on my own things.
Coaching style	Mentor supervision; Mentor leading	Teachers will often ask about the progress and pay attention to the school's scientific research activities for us to sign up; Under the leadership of the teacher, I am still willing to do scientific research, in addition to the necessary scientific research, others are also willing to try
Peer influence	Incentives for peer achievement; Classmates' progress	If the students around you have scientific research achievements, they will stimulate themselves to increase their energy; Sometimes I still push myself when I see that my classmates are making fast progress.
Peer pressure	peer progress;	Feeling the progress of my peers around me and the amount of time I devote to research can make me anxious;
Academic atmosphere	Learning environment	In the environment with a strong academic atmosphere, I may also integrate and devote myself more hard to scientific research; In a very depressing environment, I don't want to devote myself to scientific research
School system	Participation in academic conferences; Publish short papers; CET-6	You have to meet the school's graduation requirements before you can do other things, but these systems at the school are time-consuming, and I find it difficult to graduate, and it is even more difficult to find a job without internship experience

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4.2. Axial coding

Axial coding is to explore and establish the relationship between the main categories, so as to present the organic connection between the various dimensions[9]. Based on open coding, this study subjectively clustered the nine initial categories abstracted, classified the internal logic and hierarchical relationship between different categories, and finally summarized six main categories (see Table 3).

Table 3. Axial coding

Main Category	Initial Category	Conceptual Explanation
Individual traits	Academic mindset	It refers to the attitude of graduate students towards their studies, which affects the psychological state and behavioral response of graduate students in the face of employment anxiety.
Career Expectations	Employment pressure	It refers to the development plan of graduate students for future work and their cognition of the job market, which directly affects the employment anxiety of graduate students and their investment in scientific research.
Motivation for scientific research	Research interests	It refers to the interest of graduate students in scientific research and the desire for academic pursuit, which determines the level of participation and devotion of graduate students in scientific research activities.
Mentor factor	Coaching style Mentoring interaction	It refers to the value category formed in study and life, and it emphasizes more on the factors of academic organization that affect the employment anxiety of graduate students on scientific research investment than institutional norms.
Peer factor	Peer influence Peer pressure	It refers to the competition, support and influence between graduate students and their classmates in the academic environment, and these factors work together to affect the research behavior and investment of graduate students.
School factors	School system School environment	It refers to the various regulations, procedures, atmospheres and relationships that affect the research behavior of graduate students, which are stable and motivating.

4.3. Selective coding

Selective coding is to extract the core category from the main category, and to describe the overall behavioral phenomenon with the context of a "story line" by repeatedly comparing and analyzing the internal connections between the categories [9]. According to the research topic, it is found that the three existing main categories are the psychology of graduate students' scientific research investment. The three main categories make the external environmental factors that affect the research investment of master students affect the research investment behavior of graduate students under their joint action. The "generation route" of this core category can be summarized as follows: Master students have different employment anxieties and behaviors in the context of universal education, and coupled with the influence of external environmental factors, the willingness to invest in scientific research is transformed into the behavior of scientific research investment (see Table 4).

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Table 4. Selective coding

Dimension	Main category	Connecting relationships
Personal factors	Personal traits	The interaction between individuals and the environment leads to research investment behavior
	Career expectations	
	Motivation for scientific research	
environmental factors	Mentor factor	
	Peer factor	
	School factors	

4.4. Model construction and theoretical saturation test

Through three-level coding and by presenting the relationship between different categories, a mechanism model of "employment anxiety of postgraduate students on scientific research investment" was constructed (Figure 2). The study found that the impact of postgraduate employment anxiety on scientific research investment is generated in two aspects: personal factors and environmental factors. At the personal level, insufficient self-awareness, failure to recognize the importance of academic studies, lack of interest in scientific research, and consideration of one's own lack of ability will increase employment anxiety and affect the cognition and emotion of scientific research investment. The influence of the external environment brings objective anxiety to postgraduate students. At the tutor level, the tutor's guidance style and the interaction between teachers and students have an impact on scientific research investment behavior; at the peer level, the scientific research behavior and scientific research achievements among classmates affect the psychology of postgraduate students and then affect the behavior of scientific research investment; at the school level, due to concerns about not meeting graduation requirements, they cannot devote themselves wholeheartedly when conducting scientific research. Under the joint effect of these two dimensions, postgraduates will reduce the time and energy invested in scientific research. Construct a model based on the findings of the study:

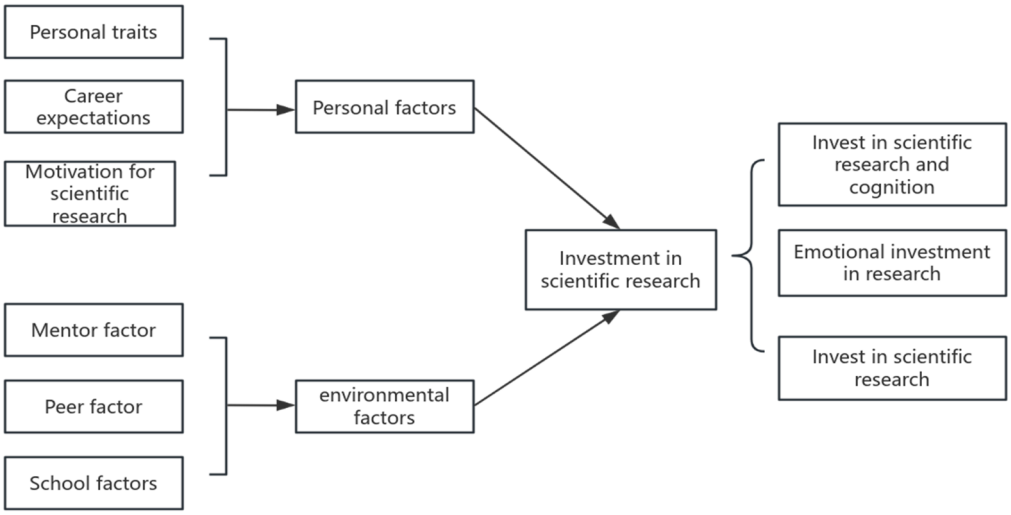

Figure 2. The mechanism model of the impact of employment anxiety on scientific research investment of master's students

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Theoretical saturation is an important credential to guarantee the validity of the model and to ensure the scientificity and accuracy of the model. It means that by coding the collected data, no new theories will be produced and no new theoretical categories will appear. This paper passed the saturation test by recoding and testing the reserved text data, and no new codes and categories were generated.

5. The Study Found

Cho's research defines employment anxiety as the anxiety of graduating students about the uncertainty of the future due to the worry of difficulty in obtaining job opportunities. This anxiety is an emotional state in a specific situation, which may lead to uneasy psychological changes and adverse physiological reactions [10]. Through interviews, it was found that this anxiety is common among master's students, and the psychological and physiological changes indirectly affect their scientific research investment.

5.1. The negative impact of employment anxiety on scientific research investment

Employment anxiety has a significant negative impact on the research input of master students, which is mainly reflected in time allocation, psychological state and behavioral performance.

In terms of time allocation, many graduate students reduce the time they invest in scientific research because they are worried about employment after graduation, and instead participate in competitions and obtain certificates in order to increase their employment competitiveness. For example, one respondent expressed this anxiety: "If you feel high employment anxiety, you will reduce the time and energy for scientific research and transfer 2/3 of your time and energy to employment" (A06).

In terms of psychological state, employment anxiety causes graduate students to doubt their scientific research ability and reduce their self-confidence in scientific research. "When I see that my classmates around me are not only making rapid academic progress, but also better than me in interpersonal communication, I am more anxious and doubt whether I am really suitable for academic research" (A05).

In terms of behavioral performance, some graduate students have a resistance to scientific research due to anxiety, lose interest in scientific research, and miss the opportunity to communicate with their peers. As one respondent said: "My roommate often goes to meetings, but I feel that I don't have time at all. It's better to study more and graduate smoothly" (A02).

5.2. The positive impact of moderate employment anxiety on scientific research investment

Some postgraduate students suggested that moderate anxiety can promote investment in scientific research. One interviewee mentioned, "Moderate employment anxiety can promote investment in scientific research, because it will not cause too much psychological pressure, and you can think about what kind of job you want, which will make you have goals and motivation when doing scientific research." (A07). Therefore, employment anxiety has a negative impact, but to a certain extent it can also have a positive effect on the research investment of postgraduate students, mainly in the three aspects of motivation stimulation, clear goals and self-improvement.

Employment anxiety can be transformed into clear goals and motivation, stimulating students' initiative and investment in scientific research. For example, one interviewee mentioned, "If the classmates around me have scientific research achievements, it will stimulate me to increase my investment. If the employer has requirements for academic achievements, it will push me to meet the requirements and increase my investment in scientific research" (A04). This clarity

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of goals not only increases their attention to scientific research, but also strengthens their determination to achieve these goals.

At the same time, employment anxiety has also become a source of motivation for students to actively engage in scientific research activities. They are willing to invest more time and energy to improve their academic level and employment competitiveness. As one interviewee shared, "It shortens entertainment time and increases motivation to learn" (A06).

In addition, employment anxiety also prompts students to improve themselves to cope with future workplace challenges. They actively learn new knowledge and skills by participating in scientific research projects and academic activities to improve their market competitiveness. One respondent pointed out, "Employment anxiety makes me realize my shortcomings, and it will spur me to learn and improve myself, and arrange my time more reasonably. Anxiety will make me increase my investment and urge me to speed up the progress of my scientific research work" (A04).

6. Conclusions and Countermeasures

The study found that two dimensions caused the impact of employment anxiety on scientific research investment, namely personal internal factors and environmental external factors. Among personal factors, the individual's scientific research interests, employment pressure and academic mentality have an impact on it. Among external factors, the tutor's guidance style and teacher-student communication have an impact on the graduate student's psychology; among school factors, the school's graduation requirements, the academic support and employment support provided, and the involution among classmates will affect the graduate student's mentality and scientific research behavior. Under the joint effect of these two dimensions, the time and energy invested in scientific research by master's students will be reduced, but moderate employment anxiety will have a positive effect on graduate students' scientific research investment behavior. Therefore, the following is proposed to address the issue of master's students' employment anxiety on scientific research investment:

6.1. At the individual level: alleviate employment anxiety and cultivate enthusiasm for scientific research

Master's students should actively cultivate their interest and enthusiasm in scientific research to improve their employment competitiveness and increase their interest in scientific research by participating in scientific research projects and academic conferences. At the same time, graduate students should take the initiative to assess their employ ability, identify their strengths and weaknesses, and improve their abilities in a targeted manner.

6.2. Tutor level: Improve personalized guidance and provide career planning

Tutors are the "first responsible persons" for graduate training, and assume the responsibilities of improving the ideological and political quality of graduate students, cultivating their academic innovation ability, and helping graduate students cope with academic and employment pressure.At present, the tutor responsibility system is generally practiced, and the tutor should not be limited to academic guidance when guiding students, but should provide personalized guidance to meet the needs of different graduate students and help them develop appropriate career development plans.

6.3. Peer level: Promote peer support and jointly cope with employment anxiety

Peer-to-peer support and interaction are equally important to alleviate employment anxiety and increase investment in research. Graduate students can discuss academic experience on a daily basis by establishing a group to share, and those who have the same time can make an

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appointment to study together; Everyone has their own view of employment and understanding of different positions, and they discuss and share employment information and analyze the employment status of different positions, which can not only reduce the pressure of personal employment, but also promote scientific research cooperation and knowledge exchange.

6.4. At the school level: strengthen employment development services and optimize academic support

Schools should strengthen employment education services to alleviate graduate students' employment anxiety by providing more resources. This includes the provision of personalized career guidance, career development planning, and the introduction of multiple school-recruited companies. Schools should also optimize academic support services, such as dissertation guidance, the opening of Level 4 and 6 courses, and public elective courses on research methods.

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