ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202108_4(8).0069

Teaching Status and Reform of Specialized Basic Courses for Professional Master Degree Candidates

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Abstract

This paper analyzes Master degree candidates (2015-2019) academic achievements on their diploma courses in Xi 'an University of Posts and Telecommunications, and finds that there exists a high rate of failure on students' specialized basic courses. Further research indicates that the number and proportion of professional Master degree candidates (PMDC) who fail in their courses are more prominent than those of academic Master degree candidates (AMDC), and the average score of specialized basic courses is also lower than that of academic Master degree candidates. The causes of this situation are researched in detail, and corresponding measures are put forward.

Keywords

Postgraduates; Academic achievements; Professional Master degree; Classified training mechanism.

1. Introduction

With deepening the postgraduates comprehensive education reform, the enrollment ratio of professional postgraduates is increasing year by year, and the training scale is expanding rapidly. It has become the main way to train high-level applied talents. Centering around the main line of "service demand and quality improvement", people strive to construct the training mode and evaluation mechanism in line with the law of professional Master degree education, and vigorously improve the quality of professional Master degree education [1]. In the whole process of postgraduate education and training, course learning is one of the key links, and it is an important way for postgraduates to master solid theoretical knowledge. It affects the quality of postgraduates education. Course examination is an important means to ensure the quality of course learning. This paper investigates and analyzes the current teaching situation of professional Master degree candidates.

2. Data Sources

At present, there are two main data sources for studying the academic performance of college students, one is questionnaire, the other is the score management system. In the data of this project, academic achievements before 2017 are collected from the Cultivation Department of the Graduate School over the years, and those after 2018 are collected from postgraduate education management system in the University. Before the year 2016, only full-time students are included, and those after 2017, both full-time and part-time students are covered. Also some data come from questionnaires, interviews with postgraduates and their teachers, and investigation in author's daily work.

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3. Data Analysis

The diploma courses examinations are generally carried out by closed-book written form, which is relatively objective. However, the result is generally the main basis for evaluating the excellence , so this paper mainly analyzes the academic achievements of diploma courses. Data were integrated and statistically analyzed by Excel and SPSS23 software.

Based on the analysis of the failure of diploma courses for five consecutive years from the year 2015 to 2019, it is found that the main courses that are prone to fail are specialized basic courses, namely mathematics and English. As all postgraduates are required to take master's English as required course, actually the number of taking that course is indeed large, the failure rate is relatively low. In general, courses with a large number of students are prone to fail, which is consistent with the research conclusion that most postgraduates tend to have a class size of 30 students and do not favour the larger class [2].Further analysis shows that among engineering postgraduates, there is a big gap between the academic achievement of professional Master degree candidates (PMDC) and academic Master degree candidates (AMDC).

Table 1. Comparison of the fails between academic Master degree and professional Master degree candidates

grade	Academic Master Degree Candidates (AMDC)			Professional Master Degree Candidates (PMDC)		
	frequency	total number	percentage	frequency	total number	percentage
2015	40	210	19%	41	154	26.7%
2016	38	210	18.09%	31	163	19%
2017	38	215	17.7%	66	288	22.9%
2018	16	216	7.4%	47	357	13.1%
2019	20	238	8.4%	57	390	14.6%

Table 1 shows the comparison of the fails between academic Master degree and professional Master degree candidates from the year 2015 to 2019. It can be found from the table that the number of academic Master degree candidates failing in diploma courses is generally declining, while the number of professional Master degree candidates failing is rising rapidly. On the whole, the number of professional Master degree candidates failing in diploma courses is higher than that of academic Master degree candidates. And regardless of any grades the proportion of professional Master degree candidates diploma courses failed is far higher than academic Master degree candidates.

Table 2. Comparison of average academic achievements between AMDC and PMDC

grade	Numerical Analysis		Stochastic Processes		Matrix Theory		Optimization Algorithm	
	AMDC	PMDC	AMDC	PMDC	AMDC	PMDC	AMDC	PMDC
2015	84.69	85.47	72.31	62.84	80.34	76.58	81.91	80.65
2016	73.66	79.46	67.87	65.4	76.83	73.56	84.6	84.38
2017	81.07	63.17	72.59	69.75	74.01	70.35	73.23	72.75
2018	91.75	80	76.74	71.09	81.72	76.47	84.68	84.23
2019	86.31	78.74	78.54	70.77	76.31	72.86	80.42	77.22

Numerical Analysis, Stochastic Processes, Matrix Theory and Optimization Algorithm in the specialized basic courses are analyzed emphatically. Table 2 shows the comparison of the average academic achievements on maths between academic Master degree and professional Master degree candidates from 2015 to 2019. It can be found that the average score of

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professional Master degree candidates in Numerical Analysis from 2015 and 2016 is higher than that of academic Master degree candidates, while the average score of professional Master degree candidates in other years is lower than that of academic Master degree candidates. On the whole, the average score of professional Master degree candidates is lower than that of academic Master degree candidates.

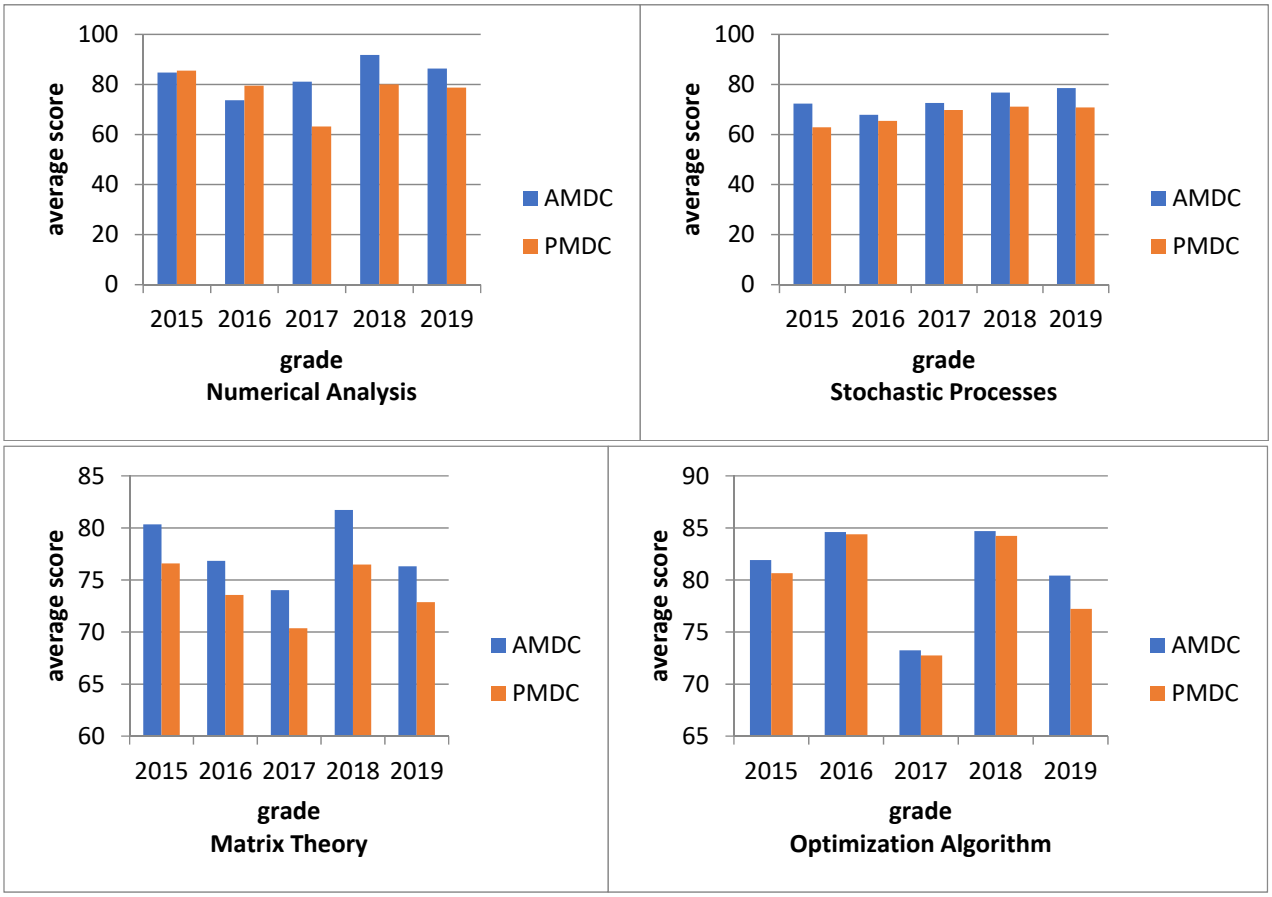

Figure 1. Comparison of average scores between AMDC and PMDC

Figure 1 is a comparison of the average academic achievements between academic Master degree and professional Master degree candidates from 2015 to 2019. It can be found from the figure that, except for the Numerical Analysis from 2015 and 2016, the average score of professional Master degree candidates is always lower than that of academic Master degree candidates, no matter what specialized basic courses or academic years.

In general, both the number and proportion of professional Master degree candidates failing in diploma courses are higher than those of academic Master degree candidates. The average academic performance of professional Master degree candidates in specialized basic courses was lower than that of academic Master degree candidates. Further investigation shows that most engineering colleges and universities in Xi 'an have the same problems.

4. Cause Analysis

With the deepening of the reform of the educational system in colleges and universities, teachers in colleges and universities tend to attach more importance to research than to teaching, resulting in second-rate teaching in first-class universities and a decline in teaching quality to a certain extent [3]. However, it has another reason that the diploma course

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achievements of professional Master degree candidates is inferior to those of academic Master degree candidates.

4.1. Failure to Recognize the Importance of Professional Master Degrees

For schools, teachers and students, the importance of professional Master degree candidates training and course learning is not fully understood. From the perspective of schools, the professional Master degree curriculum is mostly derived from academic Master degree curriculum and lacks the training characteristics of professional Master degree [4]. From the perspective of teachers, professional Master degree just changes name instead of promoting the classified training. From the perspective of students, influenced by history and cultural tradition, professional Master degree is still the "second best" choice for most people [5], and they do not pay enough attention to professional Master degree ideologically. On the one hand, some students are forced to choose a professional Master degree for they do not do well in the exam, and they are not interested in the major and courses. Through interviewing some teachers and students, one of the main factors for students to fail is lack of interest. On the other hand, they pay more attention to practical exercises than to theoretical courses. It indicates that some postgraduates do not attach much importance to basic courses, neither listen to teachers carefully or even do not attend classes. However, they are busy with various affairs and do not allocate their time reasonably. Students who failed don't want to take the exam with the excuse that they are working on the project when they retake the course.

4.2. Unreasonable Training Scheme

The pattern of classified development of postgraduate students has been formed, but there still exists assimilation that some training institutions still cannot get rid of the routine of academic degree in the training of professional degrees. The training program applies the academic degree of the same discipline, which does not reflect the characteristics of professional degree, and is not closely combined with the specialty, industry and school characteristics. Students are not interested in specialized basic courses. Teaching syllabus is not so accurate, and textbooks on professional degree and academic degree are the same version. What's more, teaching standard and examination mode and content are all the same. According to the analysis of the questionnaires and interviews with some teachers, it is indicated that professional learning needs is the first factor to postgraduate training program, the recommendation from seniors the second factor, and students interests and basic knowledge the third factor.

4.3. Undifferentiated Teaching Content

The classified training propgrams should be developed, the integration of science and education should be deepen to cultivate knowledge innovation capability of academic Master degree postgraduates, and the integration of production and education should be strengthen to cultivate practical innovation competence of professional Master degree postgraduates. The teaching content of specialized basic courses should not be the same due to the different training objectives of professional degrees and academic degrees. Different professional categories based on their own characteristics result in different cultivation. The existing large-class teaching without distinguishing the teaching contents must be difficult to meet the actual needs. The difficulty and standard of the examination should be unified, but the content of the examination and evaluation should be different according to the discipline.

5. Measures and Suggestions

The training goal of C9 University Alliance is to cultivate the innovative ability of postgraduates, promote the classified training of postgraduates, and deepen the reform of graduate training mechanism [6]. Adhere to innovation-led, educators should comprehensively improve

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student's innovation, continue to improve the classified graduate training system, and constantly deepen the reform of graduate training mode.

5.1. Correctly Understand Classification Culture

To adapt to national policies and the change of graduates training pattern, the reform of professional degree graduate training should be promoted. With postgraduates' vocational demand and their practical ability as the focus, it adheres to the integration of theory and practice, research and application. Universities should improve the quality evaluation mechanism of the joint training of industry and education, and strengthen the connection between talent training and the employment needs of industrial enterprises, enhancing their innovation ability.

In addition, they should stress the quality of teaching and required textbooks. In order to strengthen teaching materials construction, teaching materials should be standardized. It is of great significance to single out the excellent textbook, create excellent demonstration courses, and timely introduce excellent curriculum resources from overseas and online.

5.2. Scientifically Formulate Training Programs

The curriculum requirements should be strictly implemented. According to the specific discipline background and professional qualifications, the characteristics of professional Master degree curriculum should be highlighted, and training programs and curriculum syllabus should be scientifically and reasonably formulated. Mentors should guide students to know the importance of specialized basic courses, cultivate their interests based on characteristics of each discipline and students personal development in the long run.

Zhang Zhihong et al believe that scientific learning attitude can effectively improve academic performance [7]. At the beginning of postgraduate enrollment, in view of the actual situation that the source of postgraduates is complicated, colleges, counselors and supervisors should make full use of every opportunity to do a good job in the entrance education, guide the postgraduates to realize the identity change, correct their learning attitude, pay attention to the course learning and learning method.

5.3. Reasonably Classifying the Teaching Content

As is known that basic courses are important, but not all postgraduates know it. Teachers of specialized basic courses should make students realize the importance and practicability of this course and help them to overcome the negative feelings such as the uselessness of specialized basic courses. Specifically, according to the specific characteristics of academic Master degree and professional Master degree candidates, different teaching methods should be adopted according to requirements. Not only the theoretical knowledge, but also the practical cases should be interspersed in the teaching process, so as to achieve the combination of learning and application and constantly improve the consciousness of learning and strengthen independent learning. Teachers should do a good job in targeted education in a variety of ways according to different universities, majors, education level and student origins, so as to make the postgraduates do a good job in the review of preparatory courses.

5.4. Constantly Deepen the Reform of Examinations

Educators should strengthen the classified training of academic degree and professional degree postgraduates to deepen the reform of graduate training and constantly explore the scientific evaluation on specialized basic courses for academic degree and professional degree postgraduates. The reform is to attach importance to the process assessment of teaching and learning, which is to combine closed-book exams, open- book exams and report together. Therefore, it is conducive to evaluate students' learning, to assist them a correct attitude towards learning, and to objectively and accurately check learning and teaching effect. At the

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same time, the reform of curriculum assessment will promote and guide the reform of curriculum teaching organization, teaching content and teaching methods, highlight the cultivation of comprehensive ability and guide students to study independently in order to improve the teaching quality.

Students academic achievement consists of general performance, examination and the course report. Among them, teachers adopt the closed-book examination to check students' leaning to strengthen their basic knowledge then make up the lack of knowledge for individuals. While the open-book examination on applied module is to make students understood, grasp the basic concepts and methods. Course report is adopted on numerical calculation method module to train students' computer programming ability when dealing with practical application problems. General performance is determined by students' attendance and class performance.

Acknowledgments

This paper was funded by Postgraduate Education Reform Project of Xi 'an University of Posts and Telecommunications in 2019 "Academic Achievements Analysis of Specialized Basic Courses of Postgraduate Based on Data Mining Technology"(YJGJ201945).

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