Compilation and Investigation of the Questionnaire on the Training Quality of the Graduates of the Armed Police Colleges

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Abstract: Military Colleges are the main places to cultivate military talents. The quality of graduates from military Colleges directly affects the development of strengthening the army. Based on the evaluation index system of talent training quality of undergraduate students in Military academy and the functional characteristics of the armed police force, this article compiles an other-report questionnaire on the training quality of graduates and a questionnaire self-evaluation questionnaire of graduates from military Colleges. Both questionnaires are scored on a seven-point scale. Then the research use these measurement tools to collect the data of 170 grass-roots army managers and 190 graduates of Officers College of PAP. The results show that: 1. The reliability and validity of the other evaluation questionnaire and the Self-Evaluation Questionnaire can be used as effective tools to evaluate the training quality of military Colleges graduates. 2. The grass-roots managers consider that the evaluation of Ideological and political is the highest of the all dimensions in training quality of Officers College of PAP. The satisfaction degree of quality assurance and teaching effect is the highest from the perspective of graduates of Officers College of PAP.

1. Introduction

Education evaluation and education quality evaluation are important means to ensure the quality of higher education, and they have become important indicators to promote the reform of higher education. The quality assessment of talent training can provide scientific information for talent training feedback. The evaluation results of higher education in the United States are used as a reference for the government's decision-making, which affects the development of higher education institutions to varying degrees [1]. Australia's assessment occupies an important position. The quality management of vocational education implements the national qualification framework. Under the guidance of the national qualification framework, each state has formulated its own state quality system in combination with the actual situation of the state [2]. In recent research of China, Zhang Lei conducted research and analysis on the graduate students who had filled the position of automobile platoon leader, and his results were applied to the quality evaluation of military transportation professionals training organized by the Military Commission [3].

Although different countries have different evaluation index systems and weights, the indicators can still be classified into the higher education personnel training function, knowledge innovation function and social service function [4]. The development of quality evaluation system for talent training in foreign universities has developed for a hundred years. In recent years, the system has mainly shown the characteristics of diversification of evaluation topics and internationalization of evaluation organizations [3]. However, China's work on the quality of talent training is currently focused on the model construction of higher education talent training evaluation system. Due to the different responsibilities of military personnel under different military types and different positions, the cadets trained by military academies are quite different in terms of training objects, training objectives, training directions, and training methods.

Therefore, it is often difficult to generalize the research on the quality of cadet training in military academies, and it is necessary to make detailed divisions according to various indicators.

For example, the training objects can be divided into non-commissioned officers[5], undergraduate students[6], and postgraduate students[7][8]. The training mode involves new training

methods such as 'co-training and splitting'[9], and the training direction involves science, engineering and technology [6], clinical medicine[7], ideological and political education [10]. However, in the current quality tracking research on military academies graduates, there are few data related to armed police academies. Therefore, it is necessary to further explore the quality of the armed police military academy and whether the training of students meets the actual needs of the grassroots. This research refers to the research of Li Si [6], based on the evaluation index system for the quality of undergraduate students in military academies, combined with the functional characteristics of the armed police, and initially formed a questionnaire on the cultivation quality of graduated students and a self-assessment questionnaire on the cultivation quality of graduated Colleges. The questionnaires use the seven-point scoring method.

2. Research Design

2.1 Research Methods

Questionnaire method is used in this study. Two sets of questionnaires are designed with managers and graduates as the evaluation subjects, and the quality tracking survey is carried out by means of self-evaluation and other evaluation to obtain the comprehensive performance of graduates at the grass-roots level. The first-level index of the questionnaire is designed as follows: ideology and politics, science and culture, military base, professional business, first appointment, physical and mental quality. The first-level indicators of the self-evaluation questionnaire on the training quality of graduates are designed as follows: educational ideology and leadership, teaching construction and reform innovation, quality assurance and teaching effect.

2.2 Research Objects

This paper evaluates the training quality of graduates of armed police Colleges by means of self-evaluation and other evaluation. The teaching ability evaluation questionnaire is completed by the grass-roots management personnel, and the self-evaluation questionnaire is completed by the graduates of Officers College of PAP. A total of 170 grass-roots army managers are surveyed, including 105 with military experience of 5-9 years and 67 with military experience of 10-20 years. 190 students graduated from Officers College of PAP participated in the self-assessment questionnaire, including 71 with military experience of 5-9 years and 44 with military experience of 10-20 years.

2.3 Research Hypothesis

The first hypothesis is that the questionnaire on the cultivation quality of graduated students would have good reliability and validity.

The second hypothesis is that the quality of graduates trained by Officers College of PAP is above average.

3. Preparation of Training Quality Questionnaire for Graduates

3.1 Graduate Training Quality Questionnaire

3.1.1 Confirmatory Factor Analysis

In this study, confirmatory factor analysis (CFA) (see Figure 1) was used to evaluate the validity of the training quality questionnaire of graduates [11].

In confirmatory factor analysis, the factor load is the standardized path coefficient, which represents the direct influence of common factors on observation variables. From the value of factor load, we can understand the relative importance of each measured variable to potential variables. The larger its value, the more effectively the observed variable reflects the dimension it is trying to measure. In this study, we use the six dimensions as latent variables and the question as observed variables to perform confirmatory factor analysis, as shown in Table 1. The results show that the loading coefficients of each item factor are all >0.45, which proves that the corresponding items of

the six factors are consistent with the initial assumptions. The items A1-A7, A8-A15, A16-A19, A20-A23, A24-A29, and A30-34 can better reflect the ideology and politics, science and culture, military base, professional business, first appointment, physical and mental quality. The result shows that the six-factor model is desirable.
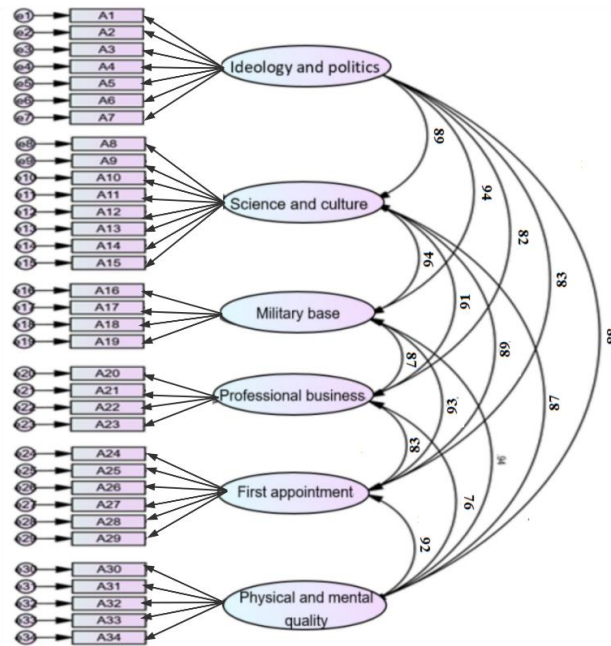

Fig.1 Confirmatory Factor Analysis Model of the Other-Report Questionnaire of Graduates' Training Quality

Table 1 Factor Analysis of the Other-Report Questionnaire of Graduates' Training Quality

load factor					
Item	ideology and politics	science and culture	military base	professional business	first appointment	physical and mental quality
A1	0.744					
A2	0.756					
A3	0.676					
A4	0.823					
A5	0.876					
A6	0.75					
A7	0.736					
A8		0.839				
A9		0.723				
A10		0.71				
A11		0.835				
A12		0.849				
A13		0.877				
A14		0.825				
A15		0.753				
A16			0.783			
A17			0.822			
A18			0.764			
A19			0.824			
A20				0.818		
A21				0.837		
A22				0.901		
A23				0.886		
A24					0.824	
A25					0.868	
A26					0.785	
A27					0.847	
A28					0.889	
A29					0.847	
A30						0.82
A31						0.769
A32						0.716
A33						0.811
A34						0.853

The chi-square degree of freedom ratio is a statistic that directly tests the similarity between the sample covariance matrix and the estimated covariance matrix, and its theoretical expected value is generally 2 to 3. The absolute fitness index adopts the root mean square error of approximation (RMSEA), and RMSEA≤0.1 indicates that the fit is reasonable.

The value of Non-Normed-fit Index (NNFI), goodness-of-fit index (GFI), comparative fit index (CFI), and incremental fit index (IFI) are usually between 0 and 1. And the result is better if the value is larger [11]. When their value is greater than 0.90, the model is considered to have a good degree of fit. The model analysis results in Table 2 show that the chi-square degree of freedom ratio (χ^2/df) is 1.851, which is lower than 3, indicating that the model is acceptable. The values of NNFI, CFI, and IFI were 0.835, 0.852, 0.854, respectively, indicating that the fit was average, while the GFI value was 0.616, which did not reach the good fit index. The results of this study show that the model fits generally in general, and should be further optimized in follow-up studies.

Table 2 Goodness of Fit Index of Other-Report Questionnaire Model (Using the First Test Data)

χ^2/df	RMSEA	NNFI	GFI	CFI	IFI	NFI
1.851	0.099	0.835	0.616	0.852	0.854	0.726

It can be seen from Table 3 that the Average Variance Extracted (AVE) values corresponding to the six dimensions of the questionnaire are all greater than 0.5, and the Construct Reliability (CR) is all greater than 0.7, which means that the data in this analysis has good convergent validity.

Table 3 Ave and Cr Indexes of Other-Report Questionnaire Model

	AVE	CR
ideology and politics	0.584	0.907
science and culture	0.636	0.933
military base	0.637	0.874
professional business	0.737	0.917
first appointment	0.707	0.935
physical and mental quality	0.630	0.894

3.1.2 Reliability Analysis

Through the statistical analysis of the preliminary test results, the reliability test of the 34 items of the graduate student training quality questionnaire and other questionnaires is shown in Table 4. The Cronbach α coefficient of the total table is 0.979, and the Cronbach α coefficient of each dimension is between 0.871 and 0.934. The statistical results all show that the questionnaire has good reliability and meets the psychometric standard.

Table 4 the Reliability Of Other -Report Questionnaire

Dimension	Cronbach's alpha	Item
General questionnaire	0.979	34
ideology and politics	0.904	7
science and culture	0.931	8
military base	0.871	4
professional business	0.915	4
first appointment	0.934	6
physical and mental quality	0.896	5

3.2 Questionnaire for Self-Evaluation of Graduated College Training Quality by Graduates

3.2.1 Confirmatory Factor Analysis

The confirmatory factor analysis results of the initial measurement show that the load factor of factor B4 is 0.282, factor B6 is 0.339, factor B14 is -0.332, factor B16 is 0.271, factor B24 is 0.175. Because of the low value (less than 0.4), which means the relationship between the item and the latent variable is weak, these 5 items are removed. The adjusted model is shown in Figure 2.
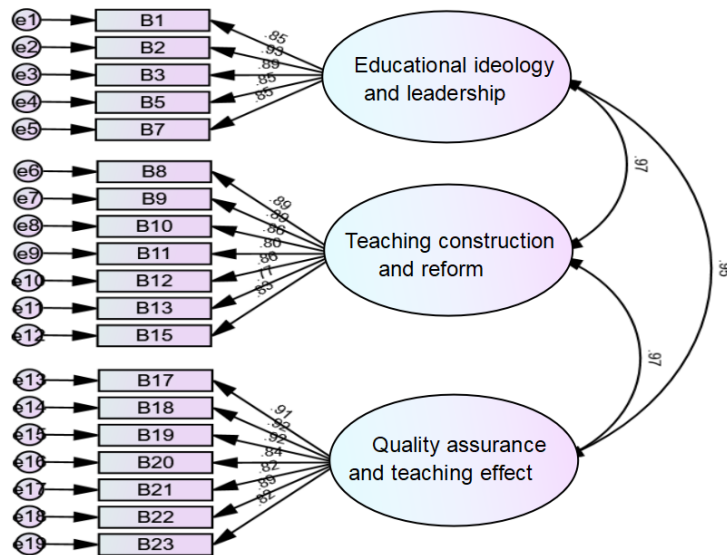
Fig.2 Confirmatory Factor Analysis Model of the Self-Report Questionnaire of Graduates' Training Quality

The adjusted factor loading coefficients are shown in Table 5. The data shows that B1, B2, B3, B5, B7 can better reflect the dimensions of educational ideology and leadership, B8, B9, B10, B11, B12, B13, B15 can better reflect the dimensions of teaching construction and reform innovation, B17- B23 can better reflect the dimensions of quality assurance and teaching effect, proving that the 3-factor model is desirable.

Table 5 Factor Analysis of the Self-Report Questionnaire of Graduates' Training Quality

load factor			
Item	educational ideology and leadership	teaching construction and reform innovation	quality assurance and teaching effect
B1	0.921		
B2	0.933		
B3	0.855		
B5	0.877		
B7	0.798		
B8		0.876	
B9		0.884	
B10		0.835	
B11		0.8	
B12		0.843	
B13		0.713	
B15		0.752	
B17			0.807
B18			0.86
B19			0.772
B20			0.816
B21			0.87
B22			0.866
B23			0.744

The model fitting index results in Table 6 show that the chi-square degree of freedom ratio χ^2/df is 3.063, which is slightly higher than 3; the RMSEA value is 0.104, which is slightly higher than 0.1; the GFI value is 0.770, which does not reach the good fit index [12]. The values of NNFI, CFI, and IFI were 0.907, 0.919, and 0.919, respectively, which reached the standard of good fit. The results of this study show that the model fitting is general, and there is a gap between some indicators and good indicators. The questionnaire can be modified in the follow-up study to better meet the standards.

Table 6 Goodness of Fit Index of Self-Report Questionnaire Model

χ²/df	RMSEA	NNFI	GFI	CFI	IFI	NFI
3.063	0.104	0.907	0.770	0.919	0.919	0.884

Table 7 shows that the AVE values corresponding to the three factors are all greater than 0.5, and the CR values are all greater than 0.7, which means that the data of this analysis has good aggregation (convergence) validity.

Table 7 Ave and Cr Indexes of Self-Report Questionnaire Model

	AVE	CR
Educational Ideology And Leadership	0.800	0.941
Teaching Construction And Reform Innovation	0.663	0.940
Quality Assurance And Teaching Effect	0.677	0.936

3.2.2 Reliability Analysis

Through the statistical analysis of the preliminary test results, the Cronbach α coefficient test was performed on the 19 items of the graduated College training quality self-evaluation questionnaire after the items were deleted. The results are shown in Table 8. The Cronbach alpha coefficient of the total questionnaire was 0.980, and the Cronbach alpha coefficients of all dimensions were higher than 0.9. The statistical results all show that the questionnaire has good reliability and meets the psychometric standard.

Table 8 the Reliability of Self-Report Questionnaire

Dimension	Cronbach Alpha	Item
Total Questionnaire	0.980	19
Educational Ideology And Leadership	0.939	5
Teaching Construction And Reform Innovation	0.946	7
Quality Assurance And Teaching Effect	0.958	7

4. Questionnaire Measurement Results

4.1 The Other-Report Questionnaire of Graduates' Training Quality

It can be seen from Table 9 that the descriptive statistical results of managers believe that: the grassroots managers believe that the soldiers trained in our College are at a medium level in terms of ideology and politics, military base, first appointment, and physical and mental quality, which are higher than the median. Among them, the quality of ideological and political is the most excellent. However, further improvement is needed in terms of science and culture and professional business capabilities.

Table 9 Descriptive Statistics of the Other-Report Questionnaire of Graduates' Training Quality (m±Sd)

ideology and politics	science and culture	military base	professional business	first appointment	physical and mental quality
5.302±0.967	4.722±0.981	5.115±0.880	4.701±1.048	5.021±0.852	5.162±0.914

4.2 The Self-Report Questionnaire of Graduates' Training Quality

Table 10 Descriptive Statistics of the Self-Report Questionnaire of Graduates' Training Quality (m±Sd)

Educational Ideology And Leadership	Teaching Construction And Reform Innovation	Quality Assurance And Teaching Effect
5.177±1.153	5.330±0.816	5.436±1.019

It can be seen from table 10 that the satisfaction of graduates of our College with training quality is at the upper middle level in three factors: educational ideology and leadership, teaching construction and reform and innovation, quality assurance and teaching effect, among which the score of quality assurance and teaching effect is the highest. However, there still needs further

progress in educational ideology and leadership.

5. Analysis and Discussion

At present, the number of researches on the quality of graduates of the armed police academies is limited, and there is a lack of scientific and effective measurement questionnaires to evaluate the level of education and training of the armed police academies. Based on previous researches, in order to develop accurate and comprehensive measurement tools, the questionnaire in this research was compiled by combining other-evaluation and self-evaluation questionnaires.

The other-report Questionnaire based on the evaluation from grass-roots military management personnel of subordinate armed police academy graduates in the grass-roots work. The questionnaire is established in six dimensions, ideology and politics, science and culture, military base, professional business, first appointment, physical and mental quality. After the formal questionnaire was tested, a confirmatory factor analysis was performed on the data, and the results were basically consistent with the prior theoretical ideas, confirming that the six-dimensional model of his assessment questionnaire has a high degree of acceptance. The results of confirmatory factor analysis show that the fitting indicators of the model basically meet the standard, which means the structural validity is basically qualified. In terms of reliability analysis, the overall Cronbach alpha coefficient of the questionnaire he rated was 0.978, and the half-reliability was 0.961. The six dimensions have good internal consistency with the overall questionnaire, which shows that the questionnaire has good reliability.

Questionnaire for self-evaluation of graduated College training quality by graduates has three dimensions, which are educational ideology and leadership, teaching construction and reform innovation and quality assurance and teaching effect.

According to the results of data analysis, we deleted few items. The final model and the initial theoretical model of the questionnaire had basically the same factor structure, and the fitting index basically met the requirements, which indicating that the validity of the final questionnaire basically met the standard. In terms of reliability analysis, the three dimensions of the self-assessment questionnaire and the overall Cronbach alpha coefficient are between 0.939 and 0.958, indicating that the questionnaire has high reliability.

Therefore, the comprehensive analysis results show that both the self-evaluation questionnaire and the other-report questionnaire meet the requirements of surveying, which can be used as effective tools for evaluating the quality of military academies.

The descriptive statistical analysis of the results of the formal survey of the questionnaire shows that the grassroots managers believe that the quality of the trainees trained by the Officers College of PAP is basically at a medium level, and the ideological and political aspects are the strongest. The degree of College satisfaction from the graduates of Officers College of PAP is above the middle level in all three dimensions. And the satisfaction with quality assurance and teaching effect is the highest.

6. Conclusion

Both the self-report Questionnaire of Graduates' Training Quality and the other-report Questionnaire of Graduates' Training Quality meet the requirements of surveying, which can be used as effective tools for evaluating the quality of military academies.

This research takes g the graduates of Officers College of PAP as the object of investigation. The results show that grassroots managers consider that the quality of the training by Officers College of PAP is basically at a medium level, with excellent ideological and political performance. The degree of College satisfaction from the graduates of Officers College of PAP is above the middle level in all three dimensions. And the satisfaction with quality assurance and teaching effect is the highest.

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