



## The Quality of Public-funded Oriented Physical Education Normal Students' Cultivate in Guangdong Province

Yan Jun<sup>1</sup> and Panya Sungkawadee<sup>2</sup>

Faculty of Sports Science and Technology, Bangkokthonburi University, Thailand

<sup>1</sup>E-mail: 137162566@qq.com, ORCID ID: <https://orcid.org/0000-0001-6791-012X>

<sup>2</sup>E-mail: Panyasnu@gmail.com, ORCID ID: <https://orcid.org/0009-0009-5996-5812>

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### Abstract

**Background and Aim:** Guangdong Province in February 2018 the province-wide launch of the Guangdong "new teacher training" construction implementation programs, used to improve the rural music, physical education, and art teacher structure imbalance of the status quo. This research aim was to avoid the risks of the cultivation of public-funded oriented physical education normal students in Guangdong Province in all phases of the cultivation process.

**Materials and Methods:** This study was to study the motivation for applying public-funded oriented physical education to normal students in Guangdong Province, the indicator system for the development of rural feeling, and the factors influencing the willingness to comply. Analyze software programs were used to analyze the data collected from 462 public-funded oriented physical education normal students. Researchers use self-administered questionnaires and analyze descriptive statistics and exploratory factor analysis. Use the Delphi method and hierarchical analysis, with the first 2 rounds used to determine the indicator system and the third round used to calculate the weights of each indicator.

**The result:** (1) By the discriminant validity analysis shown the value of the factors influencing were 0.921 (Teacher's Love), 0.8800 (Self-awareness), 0.789 (Career Benefits), and 0.819 (Policy dividends). (2) By combining the results of the first and second rounds of expert questionnaires, the final evaluation index system for public-funded oriented physical education normal students' sentiments towards local teaching was determined to consist of 4 primary indicators, 10 secondary indicators, and 30 tertiary indicators.

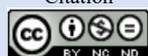
**Conclusion:** The factors influencing the motivation for applying for public-funded oriented physical education for normal students include four factors: Policy dividends, Career Benefits, Self-awareness, and Teacher's Love. Rural feeling can be used as a mediating variable to influence the effect value of learning engagement and willingness to comply, School Climate can be used as a moderating variable to regulate the relationship between learning engagement and Rural feeling, as well as learning engagement and willingness to comply. In particular, when the School Climate tends to be 'local', the effect of learning engagement on Rural feelings and willingness to comply is greater.

**Keywords:** Public-funded Oriented; Physical Education Normal Students; Quality of Cultivate

### Introduction

The economic, resource, and environmental differences between China's provinces are significant, and the disparity in resources within some provinces is also highly visible. For example, Guangdong Province is a developed province in China's economy, but there is a serious imbalance in the development of basic education within the province. This is reflected in the shortage and low quality of teachers in the less developed areas (rural areas) of Guangdong Province, particularly in the shortage of physical education teachers in rural schools. To solve the problem of teacher shortage and quality due to regional differences, In 2007 China's Ministry of Education launched a public-funded normal students education program in six universities, which exempts normal students who apply for admission from tuition and accommodation fees during their university years and receive corresponding subsidies while enjoying the corresponding rights normal students must commit themselves to primary and secondary education for more than 10 years after graduation, and public-funded graduate normal students who work in urban schools should first serve for two years in schools in rural areas.

In 2018, the Chinese Ministry of Education issued a document requiring provincial education administrations to implement policies on the number and training of public-funded normal students, and each province can formulate corresponding "targeted admission" policies according to its own needs, to alleviate the shortage of teachers in physical education, music and art subjects in rural schools in the province. Guangdong Province has set up a public-funded targeted physical education normal





students' program to address the shortage of physical education teachers in rural areas of north-eastern and western Guangdong. The Guangdong enrollment policy not only specifies the policy benefits that students enjoy, such as exemption from tuition fees and accommodation fees, and a living allowance of RMB 800 per month for 10 months a year, but also stipulates that after graduation, students must obey the arrangements of the planned source and go to schools in the targeted area to the service agreement is no less than six years. Guangdong Province began recruiting public-funded oriented normal students in 2018 and has enrolled five classes of public-funded oriented normal students by 2022. The first class of public-funded oriented physical education normal students graduated in July 2022 and have already entered the workforce. The quality of the cultivation of Guangdong's public-funded oriented physical education for normal students is a matter of concern for the future development of physical education in Guangdong's rural schools.

For rural areas, the lack of transportation combined with the distance from administrative centers has led to a lack of supervision and guidance of school sports in rural areas, making the level of physical fitness of young people significantly lower than in urban areas; at a Meso level, this is related to the level of teaching competence of school physical education teachers and the rationality of teaching methods (Dong, 2022), This is especially difficult for physical education teachers in rural schools where there is a lack of physical education teaching venues and equipment.

As mentioned above, This research takes the quality of pre-service cultivation of public-funded oriented physical education normal students in Guangdong Province as the object of investigation and conducts an in-depth study on the Motivation for applying Rural feelings, and Willingness to comply with this group according to the special characteristics of public-funded oriented physical education normal students, and by Influences factors of motivation for applying, an index system for the development of Rural feeling, and analyzing the internal mechanisms affecting Willingness to comply, the study ensures that the educational objectives of public-funded oriented physical education normal students of Guangdong Province of "going, staying and teaching well" are achieved, and provides Guangdong wisdom and experience for the high-quality development of rural physical education teachers.

## Objectives

1. To study the factors influencing the Motivation for applying of public-funded oriented physical education to normal students in Guangdong Province China.
2. To construct an index system of Rural feeling for public-funded oriented physical education normal students in Guangdong Province China.
3. To relate the relationship between factors affecting the willingness to comply with public-funded oriented physical education on normal students.

## Literature Review

This research focusing on the pre-service teacher training stage examines the quality guarantee system of public-funded oriented physical education normal students in Guangdong Province. Through combing, the theories and literature that are appropriate to this study will be discussed in the following:

### 1. The basic concept of rural school sports

With the accelerated urbanization of China, a large amount of quality resources has been pouring into cities, driving the rapid development of the quality of life of urban residents. The development of urban sports has become an important element that distinguishes cities from the countryside; at the same time, there has been a proliferation of studies based on concepts related to urban sports and rural sports, because, the conceptual study of urban sports or rural sports helps us to clarify the essential characteristics and inherent differences between the two. Among them, several authors have defined the concept of rural sport. For example, Zeng L., et al. (2004) consider rural sports as various sports activities carried out in the rural geographical area with the rural population as the main participants and rural sports consist of rural competitive sports, rural school sports, and rural mass sports (Zeng L., & Deng Y.T., 2004); Guo Jinxiu et al. (2007) explain the concept of "village sports" (2007) explained the concept of "village sports", he believed that village sports refer to the villagers as





the main body in the rural village environment, for health, leisure, and recreation, and it is an important part of rural sports (Guo X.J., & Yu C.G., 2007); other scholars believe that rural sports, in terms of administrative areas, refers to In the vast rural areas below the county level, its main participants are farmers, and it is a group activity that strengthens physical fitness, prospers culture, and ultimately promotes the physical and mental health of residents (Xu D.F., 2008). It can be seen that many scholars have interpreted the connotation, function, and value of rural sports, which lays the theoretical foundation for the screening and training of publicly funded directed physical education teacher trainees in this study.

## 2. The current situation of rural school sports development

The current situation of school physical education teachers. At present, there are a total of about 510,000 physical education teachers in China and 407,500 physical education teachers in compulsory education schools. In terms of the current teacher ratio, 4.5% of the total number of teachers in China support the teaching of 10%-11% of physical education classes in compulsory education (Cui, Z.X. & Zhang, X.F., 2013); it should be noted that the professionalism of physical education teachers in China shows a "horse-trading" effect, and the development of physical education teachers is uneven between the east, mid-west, and urban/rural areas. It should be noted that the professionalism of physical education teachers in China has a "Matthew" effect and that the development of physical education teachers is uneven between the East, mid-west, and urban/rural areas. (Wang, Y. P. & Zhou, S. P., 2018). It is pointed out that the age distribution of rural primary school teachers is unreasonable and fewer teachers with bachelor's degrees or above stay in school (An, X.M. & Cao, X.M., 2017), most rural physical education teachers are not motivated to work and lack professional enthusiasm (Fei, X.L., 2019), and the teaching process of rural physical education teachers is based on experienced teaching without solid basic skills (Wang, J.S, 2018). Rural schools in Colorado, USA, and concluded that physical education teachers have a high workload, low pay, and little training; Iserbyt (2017) argued that teachers should achieve mobility transformation to ensure equity in rural education and better academic exchange between teachers, using teaching pressure in practice to continuously improve professionalism.

## 3. Public-funded oriented normal students

Rural physical education teachers, also known as rural physical education teachers, are physical education teachers who work in rural, township, and village schools below the county level, mainly responsible for teaching physical education courses and managing students' lives. The work of rural physical education teachers is characterized by the creation of teaching equipment, as the difference between urban and rural areas, due to the underdeveloped economic construction, rural physical education facilities are backward and the lack of teaching equipment is serious, self-creation of physical education equipment has become In May 2007, the State Council decided to implement free education for teacher-training students at teacher-training universities directly under the Ministry of Education, and after nearly ten years of implementation and experience, in 2018 the Ministry of Education issued the Action Plan for the Revitalization of Teacher Education (2018-2020), which renamed the 'free In 2018, the Ministry of Education issued the Action Plan for the Revitalization of Teacher Education (2018-2020), which renamed "free teacher training students" as " Public-funded oriented students " and provided systematic and comprehensive regulations on the policy of publicly-funded teacher training students at the Ministry's teacher training universities, while at the same time requiring provincial governments to implement policies on the number of public-funded teacher training students and their training by provincial education administrations according to their own circumstances. The Public-funded oriented physical education Normal students program serves rural schools and is an important complement to rural physical education teachers, the "initial state" of rural physical education teachers.

## 4. Studies related to Motivation for applying

Wang, K. (2017) used 800 free teacher-training students from four institutions in the Xinjiang Uygur Autonomous Region with the qualification of enrolling free teacher-training students as the research subjects and found that: social motivation was the highest among free teacher-training students in Xinjiang, and there differences in gender, ethnicity, family location, and family economic situation; motivation for enrollment was significantly related to study status, with personal characteristics



motivation, social motivation, and study attitude being the most correlated. The study found that: Motivation for applying and study status were significantly correlated, with personal characteristics, social motivation, and study attitudes having the strongest correlation; Motivation for applying and professional interest were significantly correlated, with personal characteristics and professional interest having the strongest correlation (Xie, 2010).

Xie, and Lina (2010) used a closed-ended questionnaire and found through data analysis that the largest number of people chose economic reasons, while only 20.83% chose to be in the aspiration of teachers; According to Li (2011), there are three main motivations for free teacher training students to apply for the program: "two exemptions and one subsidy", "realizing the ideal of teaching", and "job security", and there is a significant positive correlation between these three motivations (Li, 2011). Wang, Z., Xiao, Y., & Wang, Y. (2016) used a self-made questionnaire on the motivation and career aspirations of provincial teacher-training students in Hebei province to find that the primary reason for free teacher-training students to choose free teacher-training education was "job security" rather than "liking the teaching profession", so the proportion of these free teacher-training students willing to teach in rural primary and secondary schools was very low.

##### **5. A study on the factors influencing the willingness to comply of public-funded normal students**

From a study of 1,879 current public-funded normal students that 50% of public-funded normal students chose to pursue a long-term career in teaching. Feng Wanzhen et al. (2011) found that 49.2% of 678 public-funded normal students would pursue a career in teaching, in 2016 she used 524 public-funded normal students majoring in English as the subjects of her study. The results of the study revealed that parents influence the willingness of public-funded normal students to teach, and are essentially attracted by the preferential policies of public-funded education. Wang, F.P. (2012) used 1160 public-funded normal students from Southwest University as the study participants. The findings showed that the willingness of public-funded normal students to teach was influenced by the career development space of their workplace and the province in which they interacted. An analysis of the literature reveals that there are both intrinsic and extrinsic factors that have influenced the willingness of public-funded normal student candidates to teach. The main intrinsic factors suggested by academics are the perception of the teaching profession, satisfaction with the policy, their integrity, and the problem of relocation of lovers. Extrinsic factors include teacher status, salary, survival, and, personal development. Individual differences may also affect the desire to teach.

In summary, the results of the above theoretical and documentary research have provided the intellectual guarantee for the successful development of this study. However, at the same time, there is little research on monitoring and guaranteeing the quality of public-funded normal students based on a regional, systematic, and disciplinary approach. As the first batch of public-funded oriented normal students has graduated, it is useful to examine the quality of publicly-funded oriented physical education normal students at this time to deepen the understanding and clarify the rationale. At the same time, the study on the quality of training of public-funded oriented physical education normal students is a fundamental initiative to practice "building moral character", a deep reflection on the primary issue of education in our province of "whom to train, what to train and how to train", and a deeper reflection on the requirements of the new situation.

### **Conceptual Framework**

The research title "The Quality of Public-funded Oriented Physical Education Normal Students' Cultivate in Guangdong Province" was designed as follows

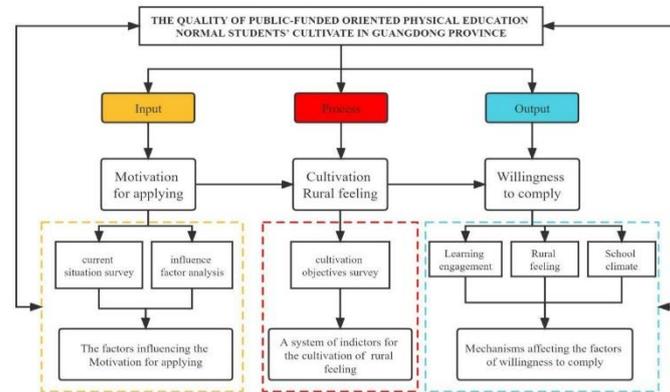


Figure 1 Conceptual Framework

## Methodology

### Population and Sample Size

This study selected 7 universities in Guangdong province as the investigating institutions, and as of 2022, a total of 1040 public-funded oriented physical education normal students have been enrolled in the seven universities, of which 200 public-funded oriented physical education normal students have graduated and entered the workforce. To this end, this study surveyed public-funded oriented physical education normal students enrolled at the seven universities. A total of 495 questionnaires were returned through questionnaire distribution, with 462 valid questionnaires. For this reason, the sample size of this study was 462 public-funded oriented physical education normal students.

### Research tools

#### 1. Questionnaire form:

(1) Factors influencing the motivation for applying physical education to normal students. This study first summarized the factors influencing the motivation for applying to public-funded oriented physical education normal students using an interview outline and questionnaire survey and compiled the "Public-funded oriented the questionnaire on factors influencing the motivation for applying of PE normal students to apply for the examination. All the questions in the questionnaire passed the IOC test and the Cronbach test.

(2) Develop the Willingness to Perform Questionnaire for public-funded oriented physical education normal students. This study initially summarized and condensed the Rural feeling cultivation index system for public-funded oriented physical education normal students through the methods of interview outline and literature, and later used the Delphi method to screen the constructed indexes. All the indicators listed for the development of local sentiment passed the IOC test and the Cronbach test.

(3) Develop the Learning Engagement Questionnaire for public-funded oriented physical education to normal students. The questionnaire method was used to develop the Learning Engagement Questionnaire for public-funded oriented physical education normal students. All questions in the questionnaire passed the IOC test and Cronbach a test.

(4) Develop the Campus Climate Questionnaire for public-funded oriented physical education normal students. The questionnaire method was used to develop the Campus Climate Questionnaire for public-funded oriented physical education normal students. All questions in the questionnaire passed the IOC test and Cronbach test.

#### 2. Interview form and literature: to screen the constructed indexes.

All the questions in the questionnaire passed the IOC test and Cronbach's test.

### Data collection

1. On factors influencing motivation to apply data collection: Self-compiled "Questionnaire on Motivation for applying of Public-funded Oriented Physical Education normal students", which consisted of 28 questions, was distributed electronically to the Public-funded Oriented Physical Education normal students of the seven normal universities, and the length of answering this



questionnaire was about 5 minutes.

**2. The construction of the rural feeling indicator data collection:** Through literature review and expert interviews, indicators of vernacular sentiment for public-funded oriented physical education normal students were drafted and designed into an electronic questionnaire. Fifteen experts were invited to score the designed indicators (2 rounds of testing were conducted) to determine the final indicators.

**3. On factors affecting willingness to comply data collection:** Drawing on the reference of mature scales and taking into account the characteristics of the public-funded oriented physical education normal students, we compiled our own "Learning Engagement Scale for public-funded oriented physical education normal students", "Rural feeling Scale for public-funded oriented physical education normal students", "School climate Scale for public-funded oriented physical education normal students", and "Willingness to comply of public-funded oriented physical education normal students", which were distributed to public-funded oriented physical education normal students of the seven normal universities through electronic questionnaires.

### Data Analysis

1. To analyze the factors influencing the motivation for applying to public-funded oriented physical education for normal students, the data for the study came from 462 valid questionnaires collected. Using exploratory factor analysis, the following criteria were followed to eliminate the measures one by one: (1) Factor loadings with values less than 0.5 or cross-loadings greater than 0.5 after rotation; (2) Overall project correlation coefficient below 0.4; (3) Significant inconsistency with factor connotations within the same measurement factor.

2. The construction of rural feeling indicators is analyzed using the Delphi method, for the screening of indicators will be selected M, CV, and W coefficients for determination, this process takes place over 2 rounds. in which the expert rating of the indicators of the M value is greater than 3.5, the CV value is less than 0.25, and the closer the value of W is to 1, the more will be left, and vice versa will be deleted.

3. By recovering 462 questionnaires filled in by the public-funded oriented physical education normal students and using the process3.5 plug-in in SPSS software, we tested the interaction mechanism of the public-funded oriented physical education normal students' learning engagement, rural feeling, school climate, and willingness to comply.

## Results

### 1. The Factors influencing the Motivation for applying to public-funded oriented physical education for normal students in Guangdong Province

There is a common factor for the 28 question items compiled, which is suitable for exploratory factor analysis. After multiple rounds of factor analysis, 10 question items were removed one by one, resulting in a dimensional structure with 18 question items and 4 factors. As shown in Table 1. Factor 1 was named "Teacher's Love", Factor 2 was named "Self-awareness", Factor 3 was named "Policy dividends", and factor 4 was named "Career Benefits".

**Table 1** Exploratory factor analysis results(N=462)

Item	Factor1	Factor2	Factor3	Factor4
Row22	0.733			
Row23	0.815			
Row24	0.853			
Row25	0.825			
Row26	0.833			
Row3		0.693		
Row17		0.756		
Row18		0.740		
Row19		0.734		
Row20		0.645		





Item	Factor1	Factor2	Factor3	Factor4
Row2			0.542	
Row10			0.885	
Row11			0.847	
Row13			0.847	
Row1				0.526
Row6				0.734
Row7				0.757
Row8				0.729
Initial Eigenvalues	5.329	3.633	3.324	3.085
Cumulative%	27.574	19.121	17.495	16.236
Extraction Sums of Squared Loading%	27.574	46.695	64.19	80.426
Cronbach's a	0.956	0.943	0.885	0.859

CFA was used to re-test the factors influencing the motivation for applying public-funded oriented physical education to normal students. The fit of the four indicator models constructed for the 18 question items selected for this study was judged, and it is now generally accepted that CFI, TLI, and RMSEA are statistically better fitting indices in nature, As shown in Figure 1,  $\chi^2/df=2.76$  CFI=0.948 TLI=0.938 GFI=0.826 RMSEA=0.08, referring to the model fit was good.

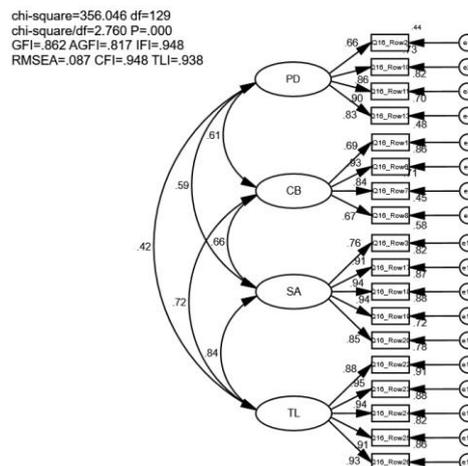


Figure 2 Model fit

The test of the discriminant validity of the 4 factors is mainly based on the comparison of the average extracted variance (AVE) proposed by Kline with the squared value of the correlation coefficient between the variables, if the AVE of a variable is greater than the squared value of the correlation coefficient between that variable and the corresponding other variables, then it indicates good discriminant validity between the 4 factors. The discriminant validity between the four factors is by the validation criteria proposed by Kline. As seen in table 2.

Table 2 Results of discriminant validity analysis (N=231)

Dimension	Teacher's Love	Self-awareness	Career Benefits	Policy dividends
Teacher's Love	<b>0.921</b>			
Self-awareness	0.836	<b>0.880</b>		
Career Benefits	0.721	0.661	<b>0.789</b>	
Policy dividends	0.422	0.591	0.608	<b>0.819</b>



## 2. Index system for the cultivation of Rural feeling among public-funded oriented physical education normal students in Guangdong Province

**2.1 Round 1 Indicator Screening:** Based on the relevant domestic and international information, the empirical pre-selected evaluation indicators were selected according to the basic framework and establishment principles of the index system for the cultivation of rural feeling, including 4 primary indicators, 8 secondary indicators, and 32 tertiary indicators. Regarding the retained and deleted indicators: 15 were distributed through the recall of the Round 1 questionnaire and 12 were returned, a return rate of 80%. the mean scores of the 4 Level 1 indicators (personal level, family level, school level, and social level) and the 8 Level 2 indicators were all greater than 4, with a perfect score rate greater than 20%, Cr values distributed between 0.71 and 1.0, and the coefficient of variation (CV) was less than 0.25, with a W of 0.24 ( $p < 0.01$ ). Among the three levels of indicators, C12 and C23 were deleted. Through consultation with experts, it was found that C12 was deleted because the content of the indicator reflected more personal background information and did not fit well with the connotation of "family environment"; C23 was deleted because the expression of this question was too macro and not sufficiently related to other questions.

**2.1 Round 2 Indicator Screening:** The results of the first round of the expert survey were consolidated, and the indicators were further streamlined and improved through literature review and focus group discussions to design the second round of the expert survey questionnaire. The importance of each indicator was evaluated according to the five-point Likert scale, and the "expert positivity coefficient", "expert opinion concentration" and "expert coordination coefficient" were calculated as the basis for selecting indicators. In the second round, 16 questionnaires were distributed and 15 were returned, with a return rate of 93%. Table 2 shows: the concentration of experts' opinions was greater than 4, with a full score of over 60%; the authority coefficient of experts ranged from 0.81 to 1.0; the CV value of each indicator in the expert coordination coefficient ranged from 0.00 to 0.22, with a W of 0.35 ( $p < 0.01$ ). By combining the results of the first and second rounds of expert questionnaires, the final evaluation index system for public-funded oriented physical education normal students' sentiments towards local teaching was determined to consist of 4 primary indicators, 10 secondary indicators, and 30 tertiary indicators. The specific indicator system is shown in Table 2.

**Table 2** Analysis of the results of the 2 rounds of correspondence (N=15)

Results of the 2 rounds of correspondence	M	SD	CV
<b>Level 1 indicators</b>			
Personal level A1	4.91	0.30	0.06
Family level A2	4.64	0.92	0.20
School Level A3	4.55	0.52	0.11
Social Level A4	4.55	0.82	0.18
<b>Level 2 indicators</b>			
Know Country B1	4.55	0.52	0.11
Love Country B2	4.55	0.69	0.15
Staying Country B3	4.45	0.69	0.15
Family environment B4	4.36	0.81	0.19
Family culture B5	4.45	0.69	0.15
Family support B6	4.64	0.67	0.15
Education content B7	4.55	0.35	0.08
Cultivation mechanisms B8	4.66	0.34	0.07
Social atmosphere B9	4.64	0.67	0.15
National policy B10	4.91	0.30	0.06
<b>Level 3 indicators</b>			
Talk to others about the culture and environment of their hometown C1	4.00	0.89	0.22



<b>Results of the 2 rounds of correspondence</b>	<b>M</b>	<b>SD</b>	<b>CV</b>
Familiarize yourself with the customs and traditions of your hometown C2	4.18	0.75	0.18
Understanding the vernacular culture of your hometown C3	4.18	0.87	0.21
Often expressing praise for the countryside to family and friends C4	4.27	0.90	0.21
Wants to be rooted in the countryside and devote himself to rural education C5	4.55	0.82	0.18
Proud to have grown up in the countryside C6	4.00	0.89	0.22
Yearning for country life C7	4.18	0.98	0.23
A sense of longing and fondness for friends and things back home C8	4.09	0.94	0.23
Visit home during Chinese New Year, festivals, or other times C9	4.09	0.83	0.20
Nostalgia for the customs and products of home C10	3.91	0.94	0.24
Family members working as teachers C11	4.00	0.77	0.19
Relatives and friends living in the countryside C12	4.00	0.77	0.19
Family members with a strong sense of vernacular C13	4.45	0.69	0.15
Children do not travel far; they need to return to their parent's C14	4.27	0.79	0.18
Focus on developing a love of home and country in your life C15	4.45	0.69	0.15
Parents and friends support a return to teaching C16	4.73	0.47	0.10
The school regularly organizes regional village cultural festivals C17	4.36	0.81	0.19
Teaching (promoting) rural revitalizations in general or in class C18	4.55	0.69	0.15
The school focuses on integrating knowledge of local culture with classroom knowledge C19	4.73	0.47	0.10
Schools develop targeted training programs C20	4.91	0.30	0.06
Collaborative training with rural schools C21	4.73	0.65	0.14
Develop a quality assurance mechanism for rural teacher training students C22	4.91	0.30	0.06
Focus on equity in urban and rural Education C23	4.91	0.30	0.06
Focus on priority development of rural teachers C24	4.82	0.60	0.13
Focus on the social status and well-being of rural teachers C25	4.91	0.30	0.06
It's an honor to return home to teach C26	4.64	0.67	0.15
Always concerned about the living conditions of rural teachers C27	4.91	0.30	0.06
Local policy support for rural teachers C28	5.00	0.00	0.00
Rural teachers' salaries, benefits, and living conditions improved C29	5.00	0.00	0.00
Sound legislation to protect the rights and interests of rural teachers C30	4.91	0.30	0.06



### 3. The mechanisms inherent in the factors that influence the Willingness to comply with public-funded oriented physical education normal students

In this study, the reliability of the latent variables was tested using composite reliability. The factor loadings of the measurement items for the variables of learning engagement, rural feeling, school climate, and willingness to comply were all greater than 0.5, and the CR values of the composite reliability were all higher than 0.7, indicating the high internal consistency of the measurement items. The average variance extracted (AVE) indicates how much of the variance explained by the latent variables comes from measurement error; the larger the AVE, the greater the variance explained by the latent variables, and the smaller the measurement error, and the ideal standard of average variance extracted is above 0.50. The AVE values of the four variables in this study were all greater than 0.50. This represents good topic convergent validity of the individual latent variables. Differential validity is defined as a low degree of correlation or a significant difference between the traits represented by each latent variable. If the AVE open root value of each latent variable is greater than the correlation coefficient between that latent variable and the other latent variables, this indicates good discriminant validity between the dimensions. The AVE open-root values of all four variables in this study were greater than the correlation coefficients between them and the other latent variables, indicating good discriminant validity among the variables.

Descriptive statistics and correlation analyses were conducted on the main research variables before examining the mechanisms that influence the study commitment of public-funded oriented physical education normal students on their willingness to comply in Guangdong Province. The means, standard deviations, and correlation coefficients of the variables there were significant positive correlations between rural feeling and learning engagement ( $r=0.68$ ,  $p<0.01$ ), school climate ( $r=0.31$ ,  $p<0.01$ ), and willingness to comply ( $r=0.49$ ,  $p<0.01$ ); significant positive correlations between school climate and learning engagement ( $r=0.33$ ,  $p<0.01$ ), There was a significant negative correlation between school climate and willingness to comply ( $r=-0.48$ ,  $P<0.01$ ) and a significant positive correlation between learning engagement and willingness to comply ( $r=0.39$ ,  $P<0.01$ ). This provided the basis for the subsequent path relationship test.

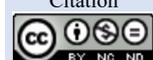
#### 3.1 The relationship between learning engagement and willingness to comply: the mediation of rural feeling

Firstly, using the study commitment of public-funded oriented physical education normal students as the independent variable and the willingness to comply as the dependent variable, a direct effect model was developed by using grade, gender, academic achievement, mother's education level and father's occupational attributes as control variables through the above analysis.

**Table 3** Tests for intermediate effects

Variables	Equation 1 (Willingness to comply)				Equation 2 (Rural Feeling)				Equation 3 (Willingness to comply)			
	$\beta$	SE	t	p	$\beta$	SE	t	p	$\beta$	SE	t	p
Constant	3.11	0.26	11.75	0.00	1.90	0.23	8.14	0.00	2.59	0.27	9.42	0.00
Learning engagement	0.33	0.05	6.48	0.00	0.58	0.04	12.75	0.00	0.17	0.05	3.02	0.00
Rural Feeling									0.27	0.05	5.26	0.00
Grade	0.03	0.03	1.12	0.26	0.01	0.02	0.56	0.57	0.03	0.03	1.12	0.26
Gender	-0.25	0.06	-4.00	0.00	-0.22	0.05	-3.88	0.00	-0.25	0.06	-4.00	0.00
Achievements	-0.00	0.03	-0.27	0.78	-0.01	0.02	-0.56	0.57	-0.00	0.03	-0.27	0.78
Mother's education level	-0.08	0.06	-1.32	0.18	-0.12	0.05	-2.18	0.02	-0.08	0.06	-1.32	0.18
Father's occupation	-0.06	0.09	-0.62	0.53	0.02	0.08	0.28	0.77	-0.06	0.09	-0.62	0.53
$R^2=0.13$ F (6,455) =12.25 P<0.00				$R^2=0.29$ F (6,455) =31.49 P<0.00				$R^2=0.18$ F (7,454) =15.07 P<0.00				

As shown in equation 1, there is a positive relationship between learning engagement and





willingness to comply among public-funded oriented physical education normal students ( $\beta=0.33$ ,  $t=6.481$ ,  $p<0.001$ ). The 95% confidence interval is [0.234,0.438], which does not contain 0. Therefore, the study input can positively influence the willingness to comply of the public-funded oriented physical education normal students. The results are shown in Equation 2 and Equation 3 in Table 3. The study commitment of the public-funded oriented physical education normal students positively influenced the level of rural feeling ( $\beta=0.583$ ,  $t=12.758$ ,  $p<0.001$ ), while the level of rural feeling also positively influenced the performance intention of the public-funded oriented physical education normal students ( $\beta=0.272$ ,  $t=5.26$ ,  $p<0.001$ ), thus it can be seen that rural feeling plays a mediating role in the relationship between study commitment and performance intention of the public-funded oriented physical education normal students. The mediating role in the relationship between study commitment and willingness to comply was partially mediated.

**3.2 Moderating effects of school climate on learning engagement, rural feeling, and willingness to comply:** The moderating effect of school climate was then verified on the rural feeling mediation model. The results of the test are shown in Table 4.

**Table 4 Intermediary model tests with moderation**

Variables	Equation4 (Rural Feeling)				Equation5(Willingness to comply)			
	$\beta$	SE	t	p	$\beta$	SE	t	p
Constant	-1.00	0.51	-1.95	0.05	4.19	0.59	7.09	0.00
Learning engagement	1.18	0.12	9.54	0.00	-0.24	0.15	-1.54	0.12
school climate	0.91	0.16	5.50	0.00	-0.57	0.19	-2.92	0.00
Rural Feeling					0.33	0.05	6.12	0.00
Learning engagement*school climate	-0.19	0.04	-4.61	0.00	0.12	0.05	2.56	0.01
Grade	0.00	0.02	0.16	0.87	0.03	0.03	1.21	0.22
Gender	-0.19	0.05	-3.47	0.00	-0.26	0.06	-4.16	0.00
Achievement	0.00	0.01	0.38	0.70	0.01	0.01	0.92	0.35
Mother's education level	-0.10	0.05	-1.78	0.07	-0.09	0.06	-1.42	0.15
Father's occupation	0.01	0.08	0.17	0.86	-0.06	0.09	-0.63	0.52
$R^2=0.36$ F (8,453) =32.38, P<0.00				$R^2=0.21$ F (9,452) =13.40, P<0.00				

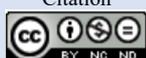
As seen in equation 4, the moderating effect of school climate on the effect of learning engagement on rural feeling (the first half of the path) was significant ( $\beta=-0.196$ ,  $t=-4.619$ ,  $p<0.001$ ). As seen in equation 5, the moderating effect of school climate on the effect of learning engagement on willingness to comply was significant ( $\beta=0.128$ ,  $t=2.563$ ,  $p<0.001$ ). In summary, school climate not only moderates the effect of learning engagement on willingness to comply for public-funded oriented normal students but also moderates the predictive effect of learning engagement on rural feeling.

#### 4. Determine the quality of the tool from the value of IOC

In this research, all questionnaires developed will be tested for reliability and validity using analysis software. Only when the reliability and validity values are within the statistically prescribed limits will they be used. The reliability test in the developed questionnaire was conducted using the IOC and Cronbach 'a coefficient test.  $IOC>0.5$ , A Cronbach 'a coefficient  $> 0.7$  indicates good reliability of the questionnaire. The validity of the questionnaire was tested using the structural validity test.  $KMO > 0.5$  in the structural validity indicates that the sample size is adequate;  $Sig.< 0.05$  indicates that the test of sphericity is met and suitable for factor analysis. Meanwhile, validation factor analysis was used to test the model fit, where the judgment criteria were:  $c2/df<3$ ,  $GFI, AGFI, CFI>0.8$ ,  $RMSEA<0.08$ .

#### Conclusion

1. The factors influencing the motivation for applying to public-funded oriented physical education for normal students include four factors: Policy dividends, Career Benefits, Self-awareness, and Teacher's Love.





2. The Delphi method was used to construct an index system for the cultivation of rural feeling among public-funded oriented physical education normal students, which was finally determined to contain 4 primary indicators, 10 secondary indicators, and 30 tertiary indicators.

3. Rural feeling can be used as a mediating variable to influence the effect value of learning engagement and willingness to comply, School Climate can be used as a moderating variable to regulate the relationship between learning engagement and Rural feeling, as well as learning engagement and willingness to comply. In particular, when the School Climate tends to be 'local', the effect of learning engagement on Rural feelings and willingness to comply is greater.

## Discussion

**1. Discussion of the factors influencing the motivation for applying to public-funded oriented physical education normal students:** The motivations of the public-funded oriented physical education normal students in Guangdong Province included: Policy dividends, Career Benefits, Self-awareness, and Teacher's Love. Among them, policy dividends and Career Benefits are external motives, which are reflected in external characteristics such as social incentives, others' opinions, and employment; self-perception and teacher sentiment are internal motives. There are commonalities and differences in the factors affecting the motivation of public-funded oriented physical education normal students compared with that of ordinary physical education normal students. The commonality is reflected in the fact that there is no significant difference between the motivation and attitude of public-funded oriented physical education normal students and ordinary physical education normal students, and there is no widespread occurrence of the phenomena of low motivation and improper attitude toward learning that the outside world is worried about (Cai, W., & Zhao, Y., 2015); The "difference" is mainly manifested as follows: compared with the ordinary physical education normal students choose to apply for normal students mostly from the love of the teaching profession, while the public-funded oriented physical education normal students groups have "graduation is employment" bonus, in the current difficult employment environment for college students in China, the motivation to apply for the examination is very easy to be influenced by it.

To this end, to stimulate students' external social incentive motivation, thus transforming into internal personality motivation. On the one hand, from the policy, the policy before enrollment organization, informs the relevant interest groups of the purpose of the implementation of the policy.

**2. Discussion on the indicator system of rural feeling for public-funded oriented physical education normal students:** In recent years, the construction of China's rural teachers' team, while continuing to enhance the attractiveness of the profession, has bid farewell to the overall number of shortages and academic qualifications to meet the standards of the epithetical development, and the center of gravity is being optimized to the structural optimization, professional upgrading and stimulating the vitality of the connotative development (Zhao, M., & Xie, A., 2021). The indicator system for the cultivation of local sentiment of public-funded oriented physical education normal students in Guangdong Province consists of 4 first-level indicators, 10 second-level indicators, and 30 third-level indicators. The first-level indicators include "school level, personal level, family level, and social level". This shows that the development of a sense of locality is influenced by the school, the individual, the family, and the society. The impact on the school level is reflected in the fact that colleges and universities are generally less motivated to promote the reform of the training model for public-funded oriented physical education normal students, and are more accustomed to following the previous training model, which emphasizes the "universality of basic education" and ignores the "promotion of practical experience in the training of rural teachers" (Wang, X., Che, L., & Xu, J., 2018). Cultivation of public-funded oriented physical education normal students at the school level in Guangdong Province: generalization of training objectives and "lack of attention to local culture" in the curriculum (Yan, J., & Chen, C., 2022). At the individual and family levels, students' personal life experiences and family environment have a significant impact on teacher trainees' learning, living and working attitudes, and character development. It is an important prerequisite for the development of a sense of the countryside.

In this regard, the cultivation of rural sentiments of the public-funded oriented physical education



normal students can be started from three aspects: firstly, the source of students should be strictly controlled, according to the traffic and location within the county, the plots should be subdivided, the enrolment quotas should be allocated first, and then the enrolment of students should be set close to the post, and then the county should be considered as a coordinator; secondly, the cultivation should be strictly controlled, the education authority and the training institutions of the public-funded oriented physical education normal students need to do a good job of making a good plan in advance, and the curriculum should be designed with the schools that may be employed in future, Thirdly, the education authorities and the public-funded oriented physical education normal colleges need to make plans in advance and work together with the potential future schools to design curricula, teaching and management programs, so as to truly train students.

**3. Discussion on the willingness to comply with public-funded oriented physical education normal students:** This study found that the willingness to comply with public-funded oriented physical education normal students in Guangdong Province was influenced by learning engagement, rural feeling, and school climate. argued that good family support, school nurturing, native feeling, and social environment can positively influence the convergence of the results of teacher trainees' willingness to perform in the countryside (Tian, Y., & Ding, Y., 2018). To this end, the school atmosphere should be created to vigorously build up a community of public-funded oriented physical education normal students, because the community is an important area for the growth of public-funded oriented physical education normal students, which helps to deepen the rational cognition of the beliefs of education, cultivate positive educational emotions, develop a firm sense of native land, and ultimately reach the fulfillment of the contract to teach. To this end, in professional teaching, schools can encourage teachers to adopt more interactive teaching methods to stimulate students' professional interest based on their role models in the professional field and to promote students' transformation of rational professional cognition into positive professional learning behaviors through teachers' teaching by example, to enhance students' commitment to their studies and their willingness to comply.

## Recommendation

### 1. Practice Recommendations

1.1 Introducing a multivariate assessment to evaluate the motivation of public-funded oriented PE normal students to apply.

1.2 To highlight the attributes of "orientation" cultivating, to raise the status of rural feeling in education, and to strengthen the rural cultural roots of students' roots in the local community. Develop targeted cultivating programs and offer a variety of rural courses.

1.3 Attaching importance to the creation of a school climate to enable public-funded oriented physical education normal students to adapt to the cultural life of rural schools as early as possible.

### 2. Policy Recommendations

2.1 Building a "trinity" of government, universities, and villages to cultivate a risk prevention and control system.

2.2 Dynamically monitoring the cultivating of public-funded targeted normal students and improving the entry and exit mechanism.

2.3 Promoting the synergy of all parties involved in rural education and the sustainability of the cultural capital of public-funded oriented physical education teachers.

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