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A STUDY ON THE RELATIONSHIP BETWEEN PSYCHOLOGICAL CAPITAL AND WORK ENGAGEMENT OF PRIVATE UNIVERSITY TEACHERS

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Abstract: Teachers' work engagement not only affects their own work performance and professional development, but also affects the quality of school education and the healthy growth of students. To explore whether psychological capital is an important predictor of work engagement on private university teachers, the present study mainly studies the relationship between the core construct of psychological capital and work engagement. Many empirical studies have shown that psychological capital consisting of four core structures such as self-efficacy, hope, resilience and optimism to be related to a variety of employee behavior and performance outcomes. This study has been conducted by a sample (N = 288 responses) of full-time teachers from a private university. The research results show that mean score of psychological capital 93.04 with a standard deviation of 10.44, and mean score of overall work engagement is 65.43 with a standard deviation of 10.45. Both are at relatively high level. Pearson correlation coefficient is .797 that shows a positive correlation between psychological capital and work engagement. Regression analysis coefficient ($R=.797$, $R^2=.635$, $p=0.000$) indicates psychological capital is an important predictor of work engagement.

Keywords: Psychological Capital (Psycap), Work Engagement, Private University Teachers.

Introduction

Colleges and universities are social organizations for cultivating high-level talents, and teachers in colleges and universities bear the important task of cultivating talents in colleges and universities. Whether teachers can play a role is a key factor which affects the education level. Their performance determines the quality of talent in colleges and universities (Wang & Zhang, 2019). Teachers' work engagement not only affects teacher's work performance, but also affects the quality of school talent cultivation. Improving the work efficiency of teachers and promoting the quality of teaching is the inevitable choice for schools to respond to the social needs (Mao & Xie, 2013). As an important part of Chinese common colleges and universities, private colleges and universities play an important role in personnel training. Different from the running system of public colleges and universities, the running time of private colleges and universities is relatively short, which results in a relatively weak faculty. For private colleges and universities, quantity and quality of students has always been the key to the survival of them, and teaching staff construction is an important issue affecting its quality development (Lou, 2020). The outstanding problem in the construction of teachers in private colleges is the working state and performance of the existing team (Jiang & Tong, 2013). Therefore, it is of great significance to conduct in-depth study on the work involvement of teachers in private colleges and universities

Since Luthans (Luthans, 2002) introduced the concept of psychological capital into organizational behavior and began to systematically study it, psychological capital has gradually become a hot topic of human resource management research. Luthans et al. (2004) further point out that psychological capital is a synergistic set of “who you are” and “who you will become”. Its synergistic set with human capital, social capital and economic capital can effectively promote the development of organizations (Luthans, & Youssef, 2004). Numerous studies have proved that developing psychological capital can effectively change the attitude and behavior of employees (Baluku et al. 2020; Larson & Luthans 2006), improve employees’ performance (Luthans et al., 2005; Luthans et al., 2007), and has a great role in promoting the development of the organization. Therefore, psychological capital is an indispensable dynamic resource for organizational development. How to develop psychological capital, fully tap the psychological potential of employees and create higher organizational performance and competitive advantage has become a new concern of modern human resource management.

With the rise and development of positive psychology and positive organizational behavior, the effect of positive psychological ability on organizational performance has been widely concerned and studied. Work engagement is thought to be a positive personal state that leads to positive outcomes related with work (Seligman & Csikszentmihalyi, 2000), which has gradually become a new focus in the field of human resource management. Many studies have indicated that work engagement has a significant positive effect on employees’ work attitude and organizational performance. Engaged employees can better performance in their role-task due to their strong dedication and concentration to work activities, (Christian et al., 2011). Work engagement can improve organizational performance and enhance organizational competitiveness (Costantini et al. (2017). Therefore, it is of particularly importance to attach attention to study employees’ work engagement in the fierce competition.

Research Objectives

In recent years, many research teams have explored the interaction between psychological capital and work engagement from different perspectives, most of which support the hypothesis that psychological capital can indeed predict and improve work engagement. (Paek et al., 2015; Costantini et al., 2017; Karatepe et al., 2017; Kang & Busser, 2018). However, these studies mainly focus on the study population in the commercial setting, but may pay very limited attention in the educational setting. The results are not entirely generalizable. There is clearly a need to extend the context of this research to new populations in order to increase the generality of current findings (Joo et al., 2016). Following the results of previous studies of psychological capital and work engagement and previous researchers' recommendations, this research gave particular attention to the role that each one of four recognized psychological resources such as efficacy, optimism, hope, and resiliency as well as overall PsyCap play in work engagement on teachers of private universities, aiming to obtain new data to add to the research literature on this topic. At the same time, it is also hoped that this study can provide some reference for the management department of private universities to grasp the psychological development and work involvement dynamics of private university teachers and strengthen the construction of private university teachers. Therefore, research objective of this paper's is as follows: 1. Determine the relationship between psychological capital and work engagement of teachers in a private university.

Literature Reviews

1. Psychological Capital

Drawing from the work of positive psychology (Seligman & Csikszentmihalyi, 2000), Luthans et al. (2002) coined the term "psychological capital" (PsyCap) and defined it as a personal resource beyond social capital and human capital. In the light of Luthans, Youssef, and Avolio (2007), psychological capital is a positively oriented higher-order construct, which includes the following characteristics: (1) being confident of one's ability to undertake the tasks and make necessary efforts to accomplish the challenging tasks successful; (2) sticking to goals and redirect the path to the goals if necessary in order to achieve success; (3) being positive and optimistic about current situation or future success; (4)having ability to sustain, bounce back and even beyond to achieve success even in the face of adversity.

2. Work Engagement

Work engagement, originated from concepts of positive psychology, is defined as a positive, fulfilling, work-related state of mind which has the characteristics of vigor, absorption and dedication. (Schaufeli et al., 2002, Schaufeli& Bakker，2004). Vigor means being energetic and resilient at work, persevering and making continuous efforts even when encountering difficulties. Dedication is being able to dedicate yourself to your work and contribute your passion and energy to it. The characteristic of absorption is being so absorbed in the work that the time passes so quickly. Once you get into work, it's hard to get away from it (Schaufeli et al., 2002，Bakker et al., 2008). The essence of work engagement is also about how do employees approach their work (Bakker et al., 2008)

3. Psychological Capital and Work Engagement

Interactions of PsyCap and work engagement have been found in the previous literature. For instance, the study conducted by Costantini et al. (2017) in a sample of 54 Italian public health employees showed correlation between psychological capital and work engagement is positive significantly, and work engagement increased with the increase of psychological capital; a research of 362 U.S. resort workers made by Kang & Busser (2018) revealed psychological capital were critical to elevating employee work engagement; a study carried out by Joo et al. (2016) in a sample of 599 Korean conglomerate knowledge workers confirmed PsyCap positively affected work engagement; a survey of 312 staff coming from hotels showed that work engagement is a positive consequence of PsyCap (Paek et al.2015). Although the above studies separately explored psychological capital's impact on work engagement and have found that psychological capital has a significant positive correlation with work engagement, they were all conducted in commercial organizations, and there is little empirical research on the comprehensive and dynamic relationships between these key topics in educational organizations currently. Prior to this study, it was not known whether or to what extent psychological capital predicted work engagement of teachers in private universities. Consequently, the hypotheses are as follows:

H1: Psychological capital will significantly predict work engagement of teachers in private university.

Methodology

1. Hypothesized Model

According to literature review, the psychological capital will be likely influence teachers' psychological capital directly. Figure 1 displays the hypothesized research model to be tested.

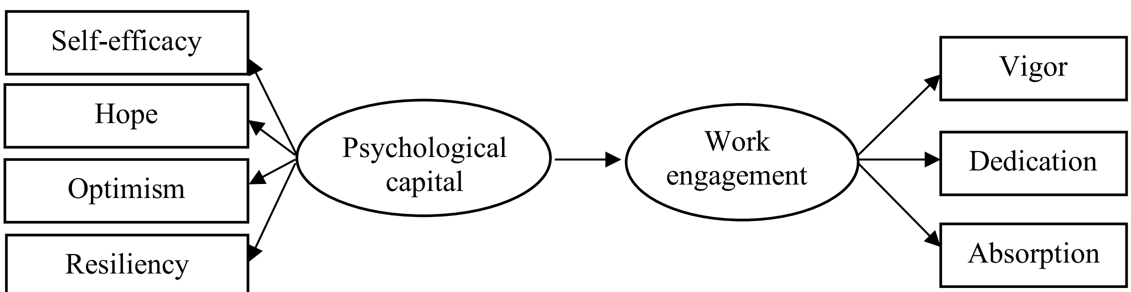

Figure 1: Hypothesized Research Model

2. Sample and Data Collection

The target population of this study was full-time teachers from eight schools (Business School, Foreign Language School, Music School, Art & Design School, Information Technology & Engineering School, International Education School, Chinese Language & Law School, Physical

Education School) of Hunan University of International Economics, a large private university with about 30,000 students and 900 teachers in Hunan province. The research invited 290 full time teachers as research participants. They all completed this electronic survey via the internet-based survey interface: www.wjx.cn. The questionnaire includes three parts; the first part explains the purpose of research to the teachers who will respond to the questionnaire and assures them of strict confidentiality; the second part investigates the demographic data such as gender, age, educational background and so on; the third part measures the formal questionnaires in research project.

3. Measurement

Well-established, reliable and valid scales were used to capture the data. The items are anchored on a Likert scale which ranged from totally disagree (coded 1) to totally agree (coded 5). To measure psychological capital, PCQ-24 was employed. Based on the measures of self-efficacy (Parker, 1998), hope (Snyder, et al., 1996), resilience (Wagnild & Young, 1993) and optimism (Scheier & Carver, 1985). Luthans et al. (2007) developed PsyCap Questionnaire (PCQ). The questionnaire contains a total 24 items in four dimensions, of which three items are scored in reverse. Some examples items are "I feel confident in representing my work area in meetings with management" (self-efficacy); "At the present time, I am energetically pursuing my work goals" (hope); "I usually manage difficulties one way or another at work" (resiliency); "I always look on the bright side of thins regarding my job" (optimism). Previous studies have demonstrated the PCQ scale has a reliable validity. (Luthans, Avolio, et al., 2007, Luthans, Youssef & Avolio, 2007,). To measure work engagement, UWES-17 was employed. UWES-17, constructed by Schaufeli (2002), is a scale consisting of three subscales (vigor, dedication, absorption) and a total of 17 items (UWES; Schaufeli et al., 2002). Previous studies have showed acceptable internal consistency among these three subscales. The UWES-17 has been demonstrated with satisfactory psychometric properties in many counties). The Chinese version of the UWES in this study has been proved with a factorial validity in previous study. The Cronbach's alphas are .767 (vigor), .735 (dedication) and .753 (absorption) respectively (Zhang &Gan, 2005). Some examples items are: "At my work, I feel bursting with energy" (vigor); "I am enthusiastic about my job" (dedication); and Time flies when I am working" (absorption).

Results

After receiving all raw data from www.wjx.cn and removing incomplete responses and outliers, the final sample for data analysis was 288. The data were converted by EXCEL and analyzed with IBM Social Science (SPSS) version 25. Descriptive statistics and inferential statistical analysis were used in this study. The inferential statistics comprised the analysis of reliability, Pearson correlations, ANOVA and general regression. Of the 288 teachers surveyed, 72.60% were female and 27.40% were male. The breakdown of gender showed that the proportion of female teachers participating in the study was much higher than that of male teachers. The male-female ratio is similar to that of this university as a whole. More than half of the teachers are married (72.9%). Teachers with children accounted for 72.9% of the total participants. The age of the respondents ranged from 21 to 60, and 31.20% of them were 31-40 years old. All had between 1 and 30 years of work experience, with 41.9% having 16 years or more. 89.60% reported having a master's degree. A detailed profile is summarized in Table 1.

Table 1: Respondents' Profiles (n = 288)

Demographic Variables	Categories	Number	Percentage
Gender	Male	79	27.4
	Female	209	72.6
Age	21-25	25	8.7
	26-30	39	13.5
	31-35	35	12.2
	36-40	75	26.0
	41-45	79	27.4
	46-50	25	8.7
	50-	10	3.5
Marital status	Single	66	22.9
	Married	210	72.9
	Divorced	11	3.8
	Widowed	1	0.3
Children status	No children	80	27.8
	Having children	208	72.2
Educational level	Bachelor's degree	15	5.2
	Master's degree	258	89.6
	Doctorate	15	5.2
Professional qualification	Primary	79	27.4
	Intermediate grade	137	47.6
	Associate professor	66	22.9
	Professor	6	2.1
Years of teaching	Under 2 years	71	24.7
	2-5 years	20	6.9
	6-10 years	25	8.7
	11-15 years	51	17.7
	16-20 years	72	25.0
	21-25 years	37	12.8
	26-30 years	9	3.1
	31 years or more	3	1.0
Semester courses	One	106	36.8
	Two	156	54.2
	Three	22	7.6
	Four or more	4	1.4
Teaching time per week	4 classes or less	20	6.9
	5-8 classes	63	21.9
	9-12 classes	171	59.4
	13-16 classes	32	11.1
	17 classes or more	2	0.7
Monthly salary	3000 or less	1	0.3
	3000-6000	211	73.3
	6000-9000	69	24.0
	9000 or more	7	2.4
Total		288	100

Cronbach's Alpha is one of the statistical measures that are widely used to study the reliability or internal consistency of the variables (Taber, 2018). PCQ-24 and UWES-17 have been selected in the study due to their considerably high reliability scores and popular use. In this study, Cronbach's alpha of PCQ-24 is tested to be very reliable and acceptable (.906). The Cronbach's alpha of its four dimensions of Self-efficacy, Hope, Resilience and Optimism were .858, .869, .644, .601 respectively. But it is worth noting that among the four subscales, the reliability of Resilience and Optimism is not high. Although .6 Cronbach's alpha was considered as reasonable (Peterson, 1994; Slater, 1995), resilience and optimism in this study must be interpreted with some caution. The Cronbach's alpha of overall UWES-17 measure was very high at .955. The Cronbach's alpha of its dimension of Vigor, Dedication and Absorption were .895, .903, .896 respectively. Overall, the study's reliability coefficient is almost consistent with previous studies which suggested these instruments are reliable instruments. Therefore, our results showed that both scales were quite reliable. Reliabilities of scales (Cronbach's alpha) are provided in Table 2.

Table 2: Cronbach Alpha for The Scales

Variable	Number of items	α
Psychological capital	24	.906
Efficacy	6	.858
Hope	6	.869
Resilience	6	.644
Optimism	6	.601
Work engagement	17	.955
vigor	6	.895
dedication	5	.903
absorption	6	.896

Differences in demographic variables were examined by T-tests and ANOVA. The statistics showed that age (p=.029), marital status (p=.017), children status (p=.006), professional qualification (p=.012), years of teaching (p=.022) have significant relation to teachers' work engagement. In this study, work engagement of private university teachers shows significant differences in age groups. Work engagement was higher for 21-25 years old teachers (M=69.0) than for other age groups. The work engagement level of teachers aged 31-40 in the middle is relatively low, and the work engagement level of teachers over 50 (M=63.7) is the lowest. Marital and child status were also linked to work engagement. Single teachers (M=95.9, M=68.5) and divorced teachers (M=97.1, M=69.5) had higher work engagement than married teachers (M=64.2) and teachers having no children (M=68.1) seemed to have slightly stronger work engagement than did teachers having children (M=64.4). From the point of view of professional title, the work devotion of teachers with professor title (M=68.8) is higher than that of teachers with other professional qualifications, and teachers with the title of intermediate grade have the lowest score in work engagement. There are also some differences in the overall level of private college teachers' work involvement with different teaching years. The level of work engagement of teachers with teaching experience of less than 2 years is significantly higher than that of other teachers. The scores from high to low are as follows: Under 2 years(M=68.3), 2-5 years(M=68.1), 26-30 years (M=67.0), 6-10 years (M=65.2), 16-20 years (M=65.1), 21-25 years (M=65.0), 31 years or more (M=63.7), 11-15 years (M=61.0). Descriptive analysis of the demographic variables is provided table 3.

Table 3: Descriptive Statistics for The Demographic Variables

Demographic Variables	F	P
Gender	3.541	0.061
Age	2.379	0.029
Marital status	3.451	0.017
Children status	7.621	0,006
Educational level	0.027	0.974
Professional qualification	3.736	0,012
Years of teaching	2.390	0.022
Semester courses	0.776	0.508
Teaching time per week	1.662	0.159
Monthly salary	0.489	0.690

With psychological capital as the predictive variable and work engagement as the dependent variable, gender, age, marriage status, children's status, educational level, professional qualification, teaching age, semester courses, teaching time per week, monthly salary as the control variables, this study conducted regression analysis to predict the impact of psychological capital on work engagement so as to test the research questions and hypotheses. The score of psychological Capital scores ranged from 36.00 to 120.00, with the Mean is 93.04 and the Standard deviation is 10.44. The score of Self-Efficacy ranged from 6.00 to 30.00, with the Mean is 23.86 and the Standard deviation is 3.56. The score of Hope ranged from 6.00 to 30.00, with the Mean is 23.17 and the Standard deviation is 3.52. The score of Resilience ranged from 10.00 to 30.00, with the Mean is 23.05 and the Standard deviation is 2.92. The score of Optimism ranged from 14.00 to 30.00, with the Mean is 22.42 and the Standard deviation is 2.27. The score of Work Engagement ranged from 17.00 to 85.00, with the Mean is 65.43 and the Standard deviation is 10.45. The above data show that the psychological capital and work engagement of private teachers is at a relatively higher level. Pearson correlation is a common statistic that describes and measures the relationship between variables. As seen in table 4, Pearson correlations (r5 =.797, p <0.01) reported that variable of PsyCap was significantly positively correlated to work engagement. Data showed the correlation between the four dimensions of psychological capital and job involvement from high to low is: Hope (r = .781, P < 0.01) Resilience (r = .700, P < 0.01) optimism (r = .608, P < 0.01) and self-efficacy (r = .606, P < 0.01). This provides additional support for the research hypothesis and provides a comprehensive understanding of the correlation between psychological capital and work engagement. Therefore, teachers with a high level of psychological capital are likely to have a high degree of work engagement.

Table 4: Descriptive Statistics for The Continuous Level Variables

Variables	Max	Min	Mean	SD	R1	R2	R3	R4	R5
1. Self-efficacy	30	6	23.86	3.56					
2. Hope	30	6	23.71	3.52					
3. Resilience	30	10	23.05	2.92					
4. Optimism	30	14	22.42	2.27					
5. PsyCap	120	36	93.04	10.44					
6. Vigor	30	6	22.32	4.06	.567**	.722**	.667**	.540**	.740**
7. Dedication	25	5	19.89	3.19	.598**	.742**	.645**	.618**	.768**
8. Absorption	30	6	23.22	3.98	.530**	.716**	.638**	.546**	.718**
9. Work engagement	85	17	65.43	10.45	.606**	.781**	.700**	.608**	.797**

*p <.05, ** p< .01, ***p < .001.

The findings of the linear regression (see Table 5) were statistically significant. R square is .635, which indicates that the fitting degree of regression line is relatively good. Psychological capital, a predictive variable, can explain 63.5% of the variance in Work Engagement. In other words, 63.5% of the changes in Work Engagement are determined by psychological capital. The final F value of the integrity test of the regression model was 496.707 (p = 0.000 < 0.05), which shows a significant linear relationship between psychological capital and work engagement. The results obtained are the same as those of above statistical test. There was full support for hypothesis which psychological capital of private university teachers will significantly predict their work engagement. Psychological capital is a significant factor influencing work engagement. This means that an increase in psychological capital is consistent with an increase in work engagement.

Table 5: Model Summary for The Prediction of Total Work Engagement

Model	R	R Square	Adjusted R Square	F	Sig.
1	.797[a]	0.635	0.633	496.707	.000[b]

[a]. Dependent Variable: work engagement

[b]. Predictors: (Constant), Psychological Capital

Discussions

The relationship between psychological capital and work engagement of teachers in private university shows similar results to previous studies. The overall PsyCap is significantly positively correlated with work engagement of teachers on the whole, and the dimensions of these two variables are also significantly positively correlated. Further regression analysis results show that the PsyCap level of private university teachers has a significant prediction of their work engagement. That is to say, the work engagement of private university teachers is greatly affected by the level of psychological capital. Teachers with high level of psychological capital often show more energy and good mental toughness (vigor) in their work, and they have a higher sense of identity and strong dedication in their work, so that they can devote themselves to their work (absorption) more happily. Therefore, the higher the psychological capital level of teachers is, the higher their job involvement level is. This result is also consistent with previous studies (Paek et al., 2015; Joo et al., 2016, pp. 1130-1131; Costantini et al., 2017; Kang & Busser, 2018)

Conclusions

This study adopts random sampling method, and the samples are only from a private university in Hunan Province. Generalization of research results may be affected by geographical limitations (Ritchie et al., 2013). It may result in insufficient sample quantity and insufficient diversity of levels. These disadvantages may affect the extension of research results to a certain extent. Therefore, in order to improve the generalizability of the study in the future, the sample number should be diversified, and some of the most representative private colleges and universities should be selected to issue questionnaires based on the overall distribution of private universities across the country. Due to the limitation of time, only network questionnaire is used to explore the psychological capital and work engagement of teachers in one private university. Although lots of data information can be obtained in a very limited time, the results of the questionnaire and data analysis in the later period will be affected by the subjective factors and preferences of respondents. Therefore, a variety of methods should be reasonably used in the future relevant research to improve the depth and accuracy of the research, so as to better understand the essence of the relationship between the psychological capital and work engagement.

Despite some limitations in data collection methods and sample size, the results of current research revealed psychological capital is a very important factor in enhancing teachers' work engagement. The result of the relationship between psychological capital and work engagement is consistent with previous studies by other researchers, which seems to be applicable not only to business environment but also to educational environment. Theoretically, the study will enrich the literature on psychological capital in particular from the perspective of educational context. This finding that PsyCap was the significant predictor for teachers' engagement may also provide practical implications for administrators in private university and educational authorities. Psychological capital can be developed (Luthans, Avey & Patera, 2008), and it is a set of personal resources which lead to increased work engagement (Costantini et al., 2017). That is to say, the higher the psychological capital is, the higher the intrinsic motivation will be, the more likely employees will perform at work with greater energy, dedication, and absorption to their work, which leads to employee productivity, lower absenteeism and lower turnover (Joo et al., 2016). So administrators of private universities and educational authorities can improve teacher' work engagement through targeted development of psychological capital.

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HOW STUDENTS FAVOR SPIRITUALITY AND WELL-BEING: A STUDY OF STUDENT LEARNING ENGAGEMENT BASED ON SELF-DETERMINATION THEORY

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Abstract: There are few studies related to learning place spirituality among college students. Based on self-determined motivation theory, this study investigates the influential relationships among learning place spirituality, organizational citizenship behavior, learning engagement among college students, and the mediating role of well-being. Data from 604 Chinese university students were collected through a questionnaire and analyzed by the tool of SEM techniques. techniques. The results showed that: Learning Place Spirituality had a positive influence on well-being (cognitive well-being, subjective well-being, health well-being, and social well-being), organizational citizenship behavior, and learning engagement of college students. Well-being positively affects college students' Organizational Citizenship Behavior (OCBs) and Learning Engagement. OCBs positively influences learning engagement. This study provides an empirical basis for influencing the impact of spirituality in learning places, well-being, and learning engagement of college students. It provides a theoretical basis for college students to pay attention to cultivating their learning spirituality consciousness and enhancing learning engagement; it also provides an essential reference for education management and teachers to enhance college students' well-being and organize citizenship behavior.

Keywords: Learning Place Spirituality, Well-being, College Students' Organizational Citizenship Behavior (OCBs), Learning Engagement.

1. Introduction

College students' well-being is essential for their self-growth and the whole society. Nevertheless, the world is in a period of ongoing outbreaks, and there is growing proof of the pervasive effects of new coronaviruses on the mental health of individuals, both now and in the future (Holmes et al., 2020), with the epidemic changing the way students learn and their level of engagement. Some researchers have calculated that the college and young people between 9.1% between 53.6% around the world have suffered from stress due to the pandemic or otherwise (Cao et al., 2020; Liu et al., 2020), resulting in low well-being among college students during their studies. Previous research on the well-being of off-college students has focused on mental health interventions and treatments for stress and anxiety reduction, thus enhancing the subjective well-being of college students (Lattie et al., 2019). To promote the well-being of students and reduce their anxiety and depression, universities and educational administrators are making multiple efforts (Tsaur et al., 2020). Few previous studies examine the effect of well-being organizational citizenship behaviors on learning engagement among college students; for example, Lavy & Littman-Ovadia (2017) emphasized encouraging individuals to have good OCB, it suggested that learning engagement acts as an intermediary. In addition, there is an active association in organizational citizenship behavior and Mental well-being among the student of college (Naami & Hashemi, 2020).

There has been increasing topic interest in spirituality to researchers in the last decade, and it has been a hot topic in human resource management research in recent years. However, some researchers believe that this concept has not been thoroughly studied (Duchon & Plowman, 2005), and it lies in its infancy stage of rigorous investigation (Supriyanto, Ekowati & Maghfuroh, 2020). The spirituality of the learning place is gradually being taken into account by researchers, and it has been suggested that the spirituality of the learning place has a significant relationship with learning engagement, well-being, and other aspects (Pandey, Gupta & Gupta, 2019). There have been previous studies of spirituality in learning places on learning engagement. However, this is the scarcity of epidemiological and even less research that includes well-being and organizational citizenship behaviors as mediating variables (Du et al., 2020). Kuh argues that the core element of educational quality is students' commitment to learning, which he succinctly defines as "the amount of time and effort that students devote to activities with an educational purpose" (Kuh, 2001). Therefore, learning engagement is gaining more and more attention from researchers to measure education in a school and is a critical factor in student learning. However, previous research on learning engagement has focused on analyzing the factors influencing learning engagement and strategies to enhance it (Petillion & McNeil, 2020), and not much research measured the relationship between well-being and organizational citizenship behavior.

This researcher believes that spirituality in learning places is the most critical factor in evaluating the degree of association between individuals and organizations and influencing college students' well-being, organizational citizenship behavior, and learning engagement. Focusing on college students' learning spirituality and well-being is essentially a focus on individual perceptual ability, and focusing on college students' organizational citizenship behavior and learning engagement is essentially a focus on individual behavior. Based on the theory of self-determination, the study of spirituality, well-being, organizational citizenship behavior, and learning engagement of college students' learning place as a whole can more comprehensively study the correlation of college students' perceptual ability and behavioral ability to provide a reference for schools and educational management departments to enhance college students' Learning Place Spirituality Well-being, OCBs, and Learning Engagement.

2. Literature Reviews

2.1 Learning Place Spirituality (LPS)

Spirituality is a science that studies favorable inner factors. It is widely recognized as providing for the enhancement of human prosperity. Spirituality is essential to learning, particularly during adulthood (Tisdell, 2008). It also cultivates the quality of willingness to help others. At present, there is an increasing focus on spiritual relevance and application, especially in the decision-making process of leaders (Koenig, 2008). However, previous findings have generally focused on the investigation of learning outcomes on Xi outcomes, and these studies have reported a lack of depth in explaining learners' experiences, such as how their thoughts, feelings, and behaviors develop (Gilliland, 2015; Tishelman et al., 2008) among others.

Schneiders (1989) suggest that spirituality in the workplace involves

● finding one's ultimate life purpose,

● building strong connections with work peer and others things that connects with t works.

● maintaining alignment (or congruence) about one's core beliefs and the organization's values.

Spirituality can exist embodied in the workplace without putting pressure on individuals to embrace a particular belief or perspective. Spirituality in the workplace has gained much momentum as a motivator for achieving organizational and personal outcomes. As a result, its findings have been extensively studied to measure the results of individual work outcomes. McCormick (1994) argues that employees have an inner life that nourishes and is nourished by the meaningful work that occurs in the workplace. It is crucial to recognize workplace spirituality (George et al., 2000); Therefore, it is a significant recognition to gain the concept of spirituality.

This researcher relies on Schneiders (1989) to argue that spirituality in the learning place can be translated from spirituality in the workplace, as students strive to find their own learning goals, make strong connections with those involved in learning, such as teachers and students, and align themselves with the values of the school in their core beliefs (Williams-Reade, Lobo & Gutierrez, 2019).

2.2 Well-being (WB)

For thousands of years, Welling-being has been a topic of philosophical and religious people. In the academic field of philosophy, Well-being was defined by Aristotle and Confucius. Famous people such as Confucius and Buddha measured an extraordinary life by defining it (Diener et al., 2020). More recently, behavioral scientists, on the other hand, observe those things that make people through their lives in both active and negative ways. Thus, Scientists studying subjective well-being do not preconceive what people themselves would consider a good life but rather are based on the study participants' self-perceived criteria (Diener, Oishi & Tay, 2018). The subjective well-being perspective argues that well-being is an individual's emotional experience and cognitive assessment related to learning and includes dimensions such as emotional well-being and learning satisfaction (Lampropoulou, 2018). However, the current academic discussion on the connotation and dimensional structure of individual learning well-being is still diverse, and there is no fully developed consensus. Over the past two decades or so, research in the field of positive psychology has accumulated considerable evidence emphasizing the importance of building individuals' well-being in various essential life domains, such as mental health, longevity, and work-related outcomes (Kansky, 2017), Well-being (WB) is defined as "person's evaluation of their own lives, which is judged, including life satisfaction, feelings, moods and emotions" (Diener & Chan, 2011). Therefore, it is an ultimate life goal and an essential resource for promoting mental health and sustainable living through a spiral (i.e., Well-being leads to more Well-being) (Carmona–Halty et al., 2019; Diener, Thapa & Tay, 2020; Fredrickson, 2013).

Based on the existing conceptual definition of individual learning well-being (Hauff, Felfe & Klug, 2020) and on the principle of effectively integrating research from both well-being perspectives, this study defines college students' Well-being as the total improvement quality of student experience and learning efficiency. It proposes that it includes Learning Concentration (learning focus), Life Satisfaction, Healthy Well-being, and Social Well-being. Of these, Learning Concentration reflects students' emotional experiences related to learning, which is in line with research on subjective well-being perspectives (Brouwers, 2020). Life Satisfaction reflects students' feelings of competence and acceptance related to learning, mainly in terms of learning satisfaction, consistent with the psychological well-being perspective (Greenier, Derakhshan & Fathi, 2021) that focuses on meaning and purpose, personal growth, and self-acceptance in work. It corresponds to the study of the subjective well-being perspective (Conley et al., 2020), which emphasizes the cognitive assessment related to learning life; Social Well-Being reflects the quality of social relationships of employees in the learning environment, which corresponds to the study of the psychological well-being perspective (Davis, Love & Fares, 2019), which emphasizes the cognitive assessment related to learning life. Studies from the well-being perspective (Gao & McLellan, 2018) emphasize environmental navigating and rapport with others in learning.

Based on the above theoretical constructs and based on relevant OECD (2020) studies (Hashiguchi, 2020), this researcher developed a set of reliable and valid four-dimensional measurement scales of college students' Well-being and clarified the dimensional structure of Chinese college students' Well-being in order to provide the concept of college students' Well-being as operable basic research in subsequent studies.

2.3 College Student Organization Citizenship Behavior (Ocbs)

Based on the above theoretical constructs and based on relevant OECD (2020) studies (Hashiguchi, 2020), this researcher developed a set of reliable and valid four-dimensional measurement scales of college students' Well-being and clarified the dimensional structure of Chinese college students' Well-being in order to provide the concept of college students' Well-being as operable basic research in subsequent studies. OCB is defined as voluntary behaviors of individuals that enhance the organization's performance, although the organization's formal compensation system does not define these behaviors. Based on previous research, Dennis W. Organ formally introduced the concept of "organizational citizenship behavior" (Organ, 1988): behaviors that employees engage in spontaneously, which isn't explicitly or directly recognized in the Organize a formal compensation system; however, it is beneficial to the functioning and efficiency of the organization as a whole. The total. OCB refers to individual behaviors that are not directly or explicitly recognized in the formal reward system, but that contribute to the efficient and effective functioning of the organization in general (Organ, Podsakoff & MacKenzie, 2005). Therefore, it is an essential factor that OCB influences organizational performance. Some scholars have introduced OCB theory to education when studying in school organizations through educational practices to test, modify and give new meaning to the theory of organizational citizenship behavior (Bogler & Somech, 2019). The OCB of student leaders consists of six dimensions: identification with the school, assistance to fellow students, no trouble for profit, separation of public and private interests, dedication to the law, and self-enrichment (LeBlanc, 2014).

Previous studies on organizational citizenship behavior have mainly focused on corporate employees, with a few studies on the development of college student clubs as organizational citizenship behavior and relatively few studies involving the relationship among Well-being, OCB, and learning engagement. In this study, OCBs were conducted, and scales were developed according to Jiing-Lih Fath et al. (2004) in four dimensions: individual level, team level, organizational level, and social level.

2.4 Learning Engagement (LE)

Engagement in learning is a theme which receives extensive attention in educational psychology in recent years, and students' learning gains, behaviors, and achievements while in school are primarily dependent on individual engagement in learning. For example, students with high engagement in learning usually mark active participation in discussions in class, have a strong interest in learning and a solid motivation to achieve, have a solid ability to work with others, and exhibit good personal behavior. In contrast, students with low engagement levels have low academic expectations, perform poorly academically, experience negative emotion, for example, anxiety, boredom, and exhibit disruptive behaviors (Lin, Hung & Chen, 2019), therefore, how to enhance students' engagement in learning is an essential issue in current education.

Jung & Lee (2018) argued three dimensions in learning engagement: behavioral engagement, affective engagement, and cognitive engagement. Learning Engagement refers to learners' observable behaviors and engagement in learning activities during the learning process and includes both cognitive and affective engagement. Cognitive engagement is the metacognitive strategies and learning strategies that learners demonstrate in the face of complex learning content; affective engagement refers to the emotional experiences and reactions that learners show to teachers, peers, etc. It has been shown that learning engagement can effectively predict learners' learning process, learning outcomes, and development levels (Hamane, 2014; Lee, 2014). Likewise, existing research has shown that learning input effectively predicts learners' learning processes, outcomes, and developmental levels (Hamane, 2014; Lee, 2014).

In the existing studies, not many studies have been conducted on the learning engagement of college students, and this researcher used Jung & Lee's (2018) three dimensions of learning engagement as a basis to develop a learning engagement scale that fits college students.

2.4.1 The relationship between Learning Place Spirituality and Well-Being

Spirituality and well-being are both perceptions that are internal to the individual and have some impact on behavior. Some scholars define *Spirituality* as "the fundamental sense of an individual's connection to others and the universe" (Chawla, 2014). It is a value of a holistic sense Daniel, 2015) (or meaning at work. Spiritual meaning at work means that individuals find more profound meaning, realize their dreams, feel l about their work, express their inner world by seeking meaningful work, and contribute to others (Ashmos & Duchon, 2000). Previous research has argued that achieving personal fulfillment or spiritual growth in the learning place refers to "personal hope, person's awareness worth, connection with others" (Ashmos & Duchon, 2000). In the learning place, Spirituality in the inner life dimension is where people live more meaningful and productive external lives in a healthier internal way. Therefore, recognizing and acknowledging workplace spirituality is mainly expressed in the individual life dimension where a person accepts mindful and spiritual people, so the higher the Spirituality of the learning place, the better the individual feels internal. Manning (2019) (concluded from interviews with 64 older adults that older adults rely on Spirituality (Spirituality) to overcome difficulties and thus enhance well-being and organizational citizenship behaviors. Singh et al. (2016) (proposed that Spirituality in learning places gained some impetus, usually related to themes such as tolerance, patience, and interconnectedness with students and faculty and that Spirituality in learning places enhances students' cultural identity and sense of belonging, thus enhancing individual well-being. Inspiration is an individual's sense of wholeness and connection to others in learning life and falls within the scope of positive consciousness, so it is consistent with a perception of the individual well-being. Therefore, Spirituality's level in learning places also affects individual well-being.

Synthesizing the above literature, this researcher proposes the following hypothesis:

H1: Spirituality in learning places is positively related to well-being.

2.4.2 The Relationship Between Learning Place Spirituality and Ocbs

The organization indirectly recognizes organizational citizenship behavior as individual voluntary behavior and encourages effective and efficient organizational functioning. Sani & Ekowati (2019) (Sani & Ekowati, 2019). Surveyed 150 Islamic employees and found that workplace spirituality influences job performance: higher workplace spirituality, better the organizational citizenship behavior and the better the job performance; conversely, lower workplace spirituality, lower the organizational citizenship behavior and the poorer the job performance. Indyra et al. (2021) found a positive correlation between spirituality in the workplace and job performance through a study of 231 nurses in McCarthy. Nurses' OCB is based on the dimensions of meaningful work, sense of community, and alignment with organizational values. In the past decade, more and more researchers have begun to explore the impact of spirituality in organizations. Fox, Webster & Casper (2018) through an investigation of 115 employees' relationships with their supervisors, concluded that spirituality in the workplace was significantly related to organizational citizenship behaviors and job performance through psychological capital. Similarly, the higher the spirituality of the learning place, the higher the individual voluntary behavior in the environment where college students learn. One of the most important manifestations of the spirituality of the learning place is the degree of association with others, with the organization, and the individual's responsible behavior. The higher the spirituality of the individual's learning place, the more pronounced the organizational citizenship behavior will be, and similarly, if the individual does not have the spirituality of the learning place and does not lie in the individual's behavior in the organization or the degree of association with the organization, then the lower the individual's OCB will be.

Synthesizing the above literature, this researcher proposes that:

H2: Spirituality of learning place has a positive relationship to OCBs.

2.4.3 The Relationship Learning Place Spirituality and Learning Engagement

There are three main dimensions of spirituality in college students' learning places: individual efforts to find learning goals, strong connections with faculty and students, and alignment of one's beliefs with school values. As Khari & Sinha (2018) found: in the face of increasing competition and organizational concerns about cost-effectiveness that require self-learning in organizations, employees' spiritual experiences in the workplace influence their attitudes toward learning and, in turn, their engagement in learning. Whelan (2019) considered the importance of contemporary teaching and learning approaches to spirituality in healthcare practice, argues that spirituality is a standard of good practice, and suggests that spirituality in the workplace facilitates medical students' learning about healthcare. Spirituality in the workplace reduces staff turnover and increases staff satisfaction and work engagement (Singh et al., 2020). Similarly, when college students are given ample opportunities to develop in a positive environment and do challenging tasks, they feel empowered and interested in students. They find ways to enhance their learning, change their learning methods, etc. This enhances learning engagement.

Synthesizing the above literature, this researcher proposes the following hypothesis:

H3: Learning Place Spirituality positively impacts learning engagement.

2.4.4 The Relationship between Well-being and OCBs

According to Organ's definition of well-being, this researcher classifies college students' well-being into cognitive well-being (mainly in learning concentration), subjective well-being (mainly in life satisfaction), health well-being (Healthy well-being), and social well-being). Well-being plays an essential role in one's growth and behavior. Psychologists have investigated the impact of organizational citizenship behavior on individuals and concluded that kindness makes people happier, more energetic, and more energetic. All Well-being enhances individual, organizational citizenship behavior (Kerulis,2018). For many years, positive psychology has agreed that individual well-being enhances individual motivation to work and take the initiative to complete tasks outside of work. Positive psychology suggests relying on workers' strengths to balance individual achievement and organizational goals; Belleville, Dubreuil & Courcy (2020) found a positive relationship between workplace well-being and employees' spirituality and organizational citizenship behavior (OCB) through their study. Wang, Xu & Ma (2021) proposed a positive relationship between employee well-being and organizational citizenship behavior based on resource conservation theory (COR). Individuals who have a sense of inner Well-being in their study or life will be more energetic and more willing to give more beneficial behaviors to the organization. In turn, when individuals have higher organizational citizenship behaviors, the organization will recognize individuals more for their efforts and give more recognition, enhancing individual Well-being.

Synthesizing the above literature, this researcher proposes the following hypothesis:

H4: Well-being is positively related to organizational citizenship behaviors of college students

2.4.5 The Relationship between Well-being and Learning Engagement

Well-being can be defined as an individual's feeling of positive emotions at work or in life （Warr, 1987). Marescaux, De Winne & Forrier (2019) found through a study of the three dimensions of employee well-being that increased individual well-being facilitates employees to be more focused on their work, thus enhancing performance. There is a strong instinct in the individual to learn and actively assimilate knowledge and cultural practices (Rogoff, 2003; Ryan & Deci 2000), and the higher the Well-being, the better the learning status, the higher the learning engagement. Prasoon & Chaturvedi

(2016) reviewed earlier research in the area of life satisfaction literature and proposed that life satisfaction is the basis for the experience of positive emotions in individuals and shows a positive correlation with learning engagement. Butt et al. (2020) concluded that learning engagement was significantly positively thought to be related to life satisfaction, positive emotions and significantly negatively related to negative emotions. That is to say, the higher the students' evaluation and experience of life, the more confident they are in improving their abilities and task completion, resulting in higher engagement in learning. College students' minds are still maturing, and their hearts more influence their behaviors. If an individual feels a sense of Well-being from social recognition and psychological well-being, it will produce mental pleasure, and thus a better state of learning and life for the individual College students' minds are still maturing, and their inner activities influence their behaviors. If individuals feel a sense of Well-being from social recognition and psychological well-being, this will result in mental pleasure and a better state of learning and life. Inner well-being facilitates individuals to take steps to enhance their learning-related behaviors.

Based on the above literature, this researcher proposes the following hypothesis:

H5: Well-being has a positive relationship with learning engagement

2.4.6 The Relationship Between Ocbs and Learning Engagement

Organizational citizenship behaviors are not prescribed by the organization but are done additionally by employees and contribute to the organization. Organizational citizenship behaviors of college students are behaviors in which students are motivated to complete their studies, have good relationships with faculty and students, and have different goals, and such behaviors contribute to students' learning and life (Shaaban, 2018). Engagement in learning refers to students' behavioral, affection, and cognitive engagement in their learning. Both are individual behaviors, but OCBs has still relationship to learning engagement. For example, Rurkkhum & Bartlett (2012) found a functional relationship between employer engagement and each component of OCB by studying 522 employers in Thailand, with this relationship being most substantial in the civic virtue’s component of OCB. Alsheikh (2020) argued that individual willingness to learn mediates the learning climate and organizational citizenship behavior (OCB) and that individual proactive behavior promotes a willingness to engage in learning. It is shown that there is a functional correlation between proactive personality, OCB, and work engagement (Zaman & Bilal, 2021). The main task of college students is to complete learning tasks, and individuals who have high organizational citizenship behaviors will always find ways to do other things that enhance the learning efficiency children do, such as improving learning methods and increasing the degree of engagement in learning.

Based on the above literature, this researcher proposes the following hypothesis:

H6: There is a positive relationship between organizational citizenship behavior and learning engagement among college students.

Since there is relatively little research in the literature on learning place spirituality, well-being, organizational citizenship behavior, and learning engagement, this study constructs a structural equation modeling of the assumptions of the learning spirituality, well-being, and organizational citizenship behavior of college students on learning engagement based on the above theoretical assumptions (Figure 1)

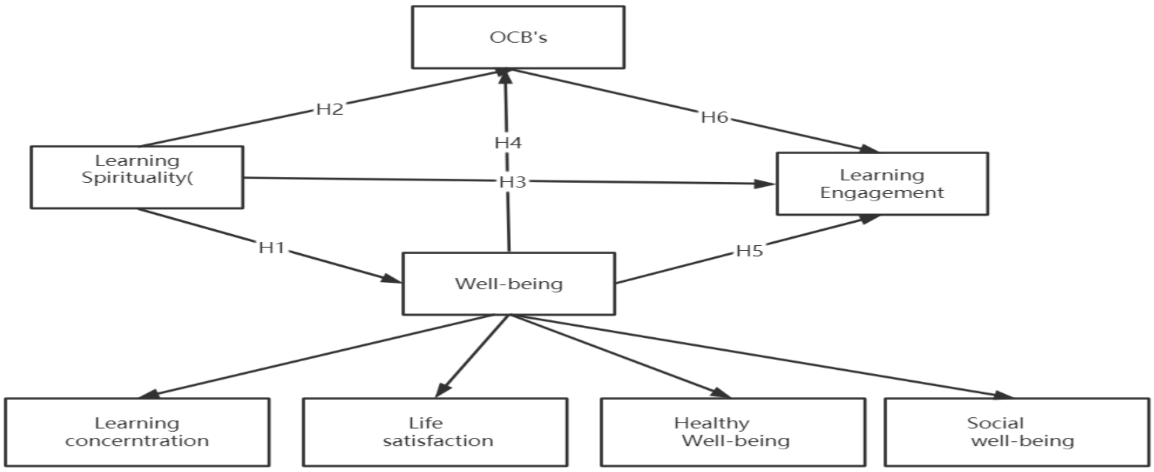

Figure 1: Conceptual Framework of the Study

3. Methodology

3.1 Data Collection

We used the questionnaire survey conducted by the Questionnaire Star website. The professional questionnaire survey website is Questionnaire Star in China. The researcher designed and then distributed the questionnaires through an internet connection or two-dimensional code. The questionnaire was divided into two parts, the first section was the questionnaire part, and the other was demographic variables such as gender, and so on. The population of this study was college students in Henan universities. The questionnaires were distributed from March 8 to March 9, 2022. A total of 640 questionnaires were collected, 604 of which were valid. The respondents' demographic information is shown in Table 1 to clarify the composition of the sample.

The core model was designed for this study based on a correlation structure used In previous literature reviews. All items shown in this questionnaire were developed based on the literature reviews and pre-validation scale. Statistical experts strictly validated the questionnaire. Thus, it was appropriately confirmed to the validity of the questionnaire. This study used the IP addresses of intelligent communication devices to screen duplicate samples and removed unusable questionnaires that had been filled out for too short a time or had duplicate values. Moreover, above measures, a sample of 604 was measured, which improved the power and robustness of the statistical analysis.

Table 1: Demographic Characteristics of the Participants

Measure	Item	Frequency	Percentage (%)
Gender	Male	297	55%
	Female	243	45%
Place of Birth	Urban	135	25%
	Rural	378	70%
	Suburban	27	5%
Your Profession	Science and Engineering	378	70%
	Arts and History	108	20%
	Art and Sports	54	10%
Your Monthly Family Income	Less Than RMB 3000	146	27%
	RMB 3,000-5,999	233	43%
	RMB 6,000-9,999	97	18%
	RMB 10,000-14,999	32	6.0%
	More Than RMB 15,000	32	6.0%

3.2 Research Instruments

All scales used in this study were Likert scales with 7 points, (1 = ""strongly disagree"", 7 = ""strongly agree"".

Learning Place Spirituality dependence scale was made by Deb et al. (2020). To accommodate the purpose of this study, the present investigators modified the previous scales, replacing the term "Working Place Spirituality" with "Learning Place Spirituality" in each title. There were 11 items.(Cronbach's α = 0.971, rho_A=0.971, Composite Reliability=0.974, AVE=0.777).

The questionnaire was divided into subheadings to ensure a concise and accurate description of the results. There are four dimensions of Well-being, which were measured with 17 items. Example items included: "I can consider complex learning problems," "I feel calm and relaxed," "I do not usually feel tired and exhausted," The school can provide me with academic support," and so on. A higher score means a more serious case of Well-being. The 17items were measured (Cronbach's α = 0.952, rho_A=0.954, Composite Reliability=0.957, AVE=0.570).

OCBs were used to measure the college student OCB developed by Jiang-Lih Fath et(2000). The scale consists of 11 items; Example items included: "I will take the initiative to do the work that is required of me," "I am willing to take on extra work responsibilities," "I am willing to help my classmates to solve their work problems," "I take the initiative to make suggestions that are beneficial to my studies and the development of the class," and so on. The 11 items were measured(Cronbach's α = 0.957, rho_A=0.958, Composite Reliability=0.963, AVE=0.724).

The Learning Engagement Scale developed by Reeve & Tseng (2011) assessed using four items; example items included: "I would like to take the initiative to analyze the problem" I would like to learn effectively," and so on. The 4 items were measured (Cronbach's α = 0.959, rho_A=0.959, Composite Reliability=0.970, AVE=0.891)

3.3 Data Analysis

This study uses least squares (PLS) analysis and estimation, taking two validation stages. Confidence and validity analysis and validation of structural model path coefficients and explanatory power. Data validation was performed to confirm the reliability and validity of the variables to verify the relationship between them (Anderson & Gerbing, 1988; Hulland, 1999). PLS is suitable for establishing relationships between variables and can handle model building and measurement items (Petter, Straub & Rai, 2007).In addition, PLS is suitable for handling relationships between variables in anomalous data distributions because of its relaxed requirements for normality and randomness of variables (Chin & Newsted, 1999). The present study investigated the relationship between learning place spirituality, well-being, OCBs, and learning engagement; however, in the past literature, many items were included in each dimension. Therefore, PLS is more suitable for this study than other SEM analysis methods. It can better investigate the relationship between variables and reduce measurement error. Majchrzak et al. (2005) suggest that there should be at least 5 to 10 times the sample size as the maximum number of model paths. In the present study, the sample size was 604, and the maximum number of paths was 4, which meets the recommended criteria and is, therefore, suitable for analysis by PLS.

This research was measured by Smart-PLS (Version 3.0) developed by Sarstedt and Cheah (2019).

4. Result

4.1 Outer Model and Scale Validation

The relevant tests for the external model include four components: reliability, consistency, validity, and validity of each topic. First, the reliability of the questions is tested with the corresponding loadings. Factor loadings show how specific questions can be measured, with a threshold of 0.6 indicating that they are reliable (Black & Babin, 2019). The composite reliability of each construct is shown in Table 2. All composite reliability (CR) values for each of the constructs are more significant than 0.7 (Chin, 1998), which indicates the internal consistency of the constructs.

Table 2: Reliability and AVE of the Outer Model

Variables	Second-order Variables	Cronbach'sα	Rho. A	Composite Reliability	AVE
Learning Place Spirituality		0.957	0.958	0.963	0.724
	Learning Concentration	0.913	0.915	0.939	0.793
	Life Satisfaction	0.936	0.937	0.952	0.798
Well-Being	Healthy Well-being	0.858	0.865	0.904	0.703
	Healthy Well-being	0.871	0.871	0.912	0.722
OCBs		0.957	0.958	0.963	0.742
Learning Engagement		0.959	0.959	0.970	0.891

Each question was measured using factor loadings and validity, with AVE indicators >0.5 for each construct, implying good validity of the variables. (Fornell & Larcker, 1981). The results AVE of the potential variables for each construct in Table 4 ranged from 0.703 to 0.891, indicating good validity for this study.

Discriminant validity tests measure the degree of discrimination between the measured variables and different constructs. The heteroscedasticity ratio (HTMT) was indicated based on a multi-trait-multi-method matrix of correlations. Therefore, in this study, the HTMT test proposed by Henseler et al. (2015) was used, and the value of HTMT assessed the discriminant validity. Discriminant validity is not a severe problem when the value of HTMT is lower than 0.90 (Gold et al., 2001), but as shown in Table 3, the values of HTMT between all constructs were lower than 0.90, which indicates that the discriminant validity of this study is promising.

Table 3: Results of Discriminant Validity by HTMT

Factors	OCBs	LPS	WB	LE
OCBs	0.851			
LPS	0.794	0.881		
WB	0.762	0.680	0.755	
LE	0.762	0.841	0.635	0.944

Note: LSP=Learning Place Spirituality; WB=Well-Being;
OCBs=student organization citizenship behavior; LE=Learning engagement

4.2 Inner Model and Hypotheses Testing

The researcher used the internal model PLS analysis to test the hypotheses in this research. The path coefficients represent the strength and direction of the relationship of the variables to observe the causal relationship between the variables and the underlying variables. However, the R-square value refers to the dependent variable and represents the model's predictive power. This estimation is done by resampling the data, and the estimates are more accurate than the LIMIT approximation (Purvis, Gittleman, Cowlishaw & Mace, 2000).

Table 4: Summary of Inner Model Results

Hypothesis	Path Coefficient	T-Value	Result
H1: LSP → WB	0.326	4.912***	Supported
H2: LSP→ OCBs	0.429	5.310***	Supported
H3: LSP → LE	0.627	8.996 ***	Supported
H4: WB → OCBs	0.274	4.111***	Supported
H5: WB →LE	0.007	0.154	Supported
H6: OCBs → LE	0.265	4.073***	Supported

Note 1: LSP=Learning Place Spirituality; WB=Well-Being;

OCBs=student organization citizenship behavior; LE=Learning engagement

Note 2: * p-value < 0.05; ** p-value < 0.01; *** p-value < 0.001.

Note 3: Number of bootstrap samples = 5000

From the data related to Table 5 and Figure 2, it can be seen that learning place spirituality has a positive and significant effect on well-being and OCBs, supporting H1 and H2 (LSP → WB: β = 0.326, t-value = 4.912; LSP→ OCBs: β = 0,429, t-value = 5.310). So, Learning Place Spirituality has positive relationship on Well-Being and student organization citizenship behavior; H3, H4,H5, H6(LSP → LE: β = 0.627, t-value = 8.996; WB → OCBs : β = 0.274, t-value = 4.111; OCBs → LE:β = 0.265, t-value = 4.073) , meaning that this four groups of coefficients show that there is an obvious positive relationship between the two variables.

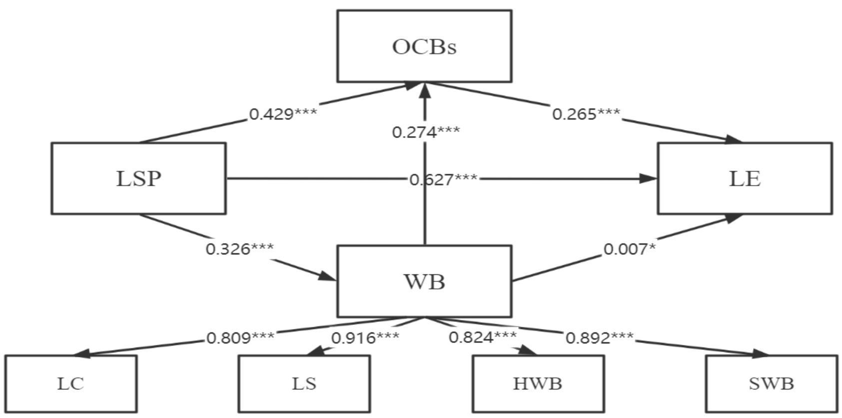

Figure 2: Standardized Path Coefficients and Significance of Inner Model

4.3 Testing of Mediation Effects

This researcher did a mediation analysis with the following data. The test results are tabulated in Table 5.

Table 5: Specific Indirect Effect

Relationship	Original Sample (O)	T-Statistics	P Values
LSP -> WB -> LE	0.002	0.144	0.000
LSP -> OCBs -> LE	0.330	4.426	0.000
SLP -> WB -> OCBs-> LE	0.068	3.812	0.000

5. Discussions

Spirituality plays an essential role in an individual's life and learning, and spirituality in learning places plays a vital role in college students' engagement in learning. This study explores the influence of spirituality in learning places on learning engagement based on a self-determination perspective. The four dimensions of well-being and organizational citizenship behaviors of college students were incorporated into this relationship to elucidate potential mechanisms. Taken together, the findings of this study reveal the relationship between external behavior (i.e., organizational citizenship behavior) as a continuum and the need to create conditions to meet the individual's inherent psychological needs (well-being) in order to facilitate the transformation of external perceptions (learning place spirituality) to a more integrated form of behavior (learning engagement). This study understands the current status of college students' well-being and organizational citizenship behavior. It investigates the influence of learning place spirituality on learning engagement, which also has practical implications for enhancing college students' well-being, organizational citizenship behavior, and learning engagement.

5.1 Theoretical Implications

Firstly, the results found that spirituality in the learning place positively influences learning engagement based on self-determination theory, and Well-being and organizational citizenship behavior mediated this process as mediating variables, and H1, H2, and H3 hold. It was consistent with the results of previous studies (Nalipay, King & Cai, 2020). The results support the idea that was learning place spirituality influences Well-being, OCBs, and Learning Engagement.

Moreover, previous researchers have argued that individual Well-being has a positive relation to OCB and work engagement (Muzaki & Anggraeni, 2020; Lee, 2014). while some researchers have also argued that the resilience of the well-being (WB) component (i.e., life satisfaction and emotional balance) mediates organizational citizenship behavior and work engagement (Paul et al., 2019). H4 and H5 hold for the positive relationship between the four dimensions of well-being and organizational citizenship behavior among college students in our study, consistent with our hypothesis and the literature. Several researchers have also suggested that OCB is positively related to employer engagement and job performance (Sugianingrat, 2019; Zia et al., 2021). It is consistent with hypothesis 6 proposed in this study that organizational citizenship behavior of college students is positively related to learning engagement. The relationship among Well-being, OCB, and Learning Engagement, H4, H5, and H6 hold based on self-determination theory.

Eventually, SWs and OCBs mediate between Learning Place Spirituality and Learning Engagement. No hypothesis was explicitly stated about the mediating relationship in this study, but relevant data analysis was done. The data analysis related to this study reveals that spirituality in learning places has a positive relationship to organizational citizenship through well-being; in other words, Well-being mediates the relationship between Learning Places Spirituality and OCBs, which are consistent with the findings of Byunet et al. (2020). Furthermore, the data analysis also shows that spirituality in learning places can play a role in learning through Well-being on learning through engagement, with a t-value of the path of 2.851, and Well-being plays a mediating role in spirituality, organizational citizenship behavior, and learning engagement in learning places, which is consistent with the partial results of Höge et al. (2020). Finally, spirituality in learning places positively influences learning engagement through the role of OCBs, which is consistent with previous results in the HRM literature on spirituality.

5.2 Practical Implications

The model proposed in the current study has several implications for college students to enhance their engagement in learning:

- College students are in an important period of self-body and mind development and life view formation, and it is important to pay attention to inspire college students' Learning Place Spirituality, enhance well-being, and OCBs.
- The inspiration for society: college students' values are being formed and are vulnerable to external factors. Therefore, we call on the relevant educational management authorities to pay attention to the differences in students' inspiration for learning and guide them to recognize their strengths and weaknesses and take measures to enhance students' Well-being.
- To the school: the university period is a critical period for the formation of college students' values, and the school, as the main unit of education for college students, needs to guide college students to participate in clubs and handle the relationship with teachers and classmates to promote students' sense of responsibility and Well-being, and also guide college students to establish the consciousness of serving the country and others to strengthen their sense of responsibility and dedication..
- For the students themselves they need to learn to recognize the differences in their personalities and learning spirituality, identify their strengths and weaknesses, enhance their inner Well-being, establish responsibility for their country and society, enhance their commitment to learning, and

enrich their growth with knowledge in order to become more useful more quickly.

5.3 Limitations and Future Research

The limitations of the research are manifested in four ways. First, we collected data from Chinese university students. Given the worldwide research on college students' well-being, organizational citizenship behaviors, and learning engagement, data based on one country are limited in their ability to understand this global phenomenon. Therefore, researchers could conduct comparative studies on learning engagement across countries in the future. Second, owing to the cross-sectional nature of the survey data, we could not confirm the existence of a causal relationship between the examined variables. Therefore, we suggest that researchers add a longitudinal design to collect data to test the causal effects assumed in the model. Next, there are limitations in the data from the questionnaire survey, which is only the self-perception of the respondents at a particular stage, and there may be differences in the results at different stages, as well as the fact that the questionnaire survey only reflects the self-understanding of the respondents, which may be very different from the actual situation, thus generating research bias (Annoni, 2021). Finally, future studies can use objective data and increase the interview and expert identification sessions so that the results are closer to the actual situation. Moreover, the group in this study was college students, which is a limited scope of the study population, and future studies may use stratified sampling to recruit a larger sample of different age groups to further explore the study of spirituality in learning places on different groups in terms of well-being, organizational citizenship behavior, and engagement in learning.

6. Conclusions

In conclusion, the present study assessed associations between Learning Engagement and two behaviors (i.e., SW and OCB) among Chinese university students. With SW as a mediator between Learning Place Spirituality, OCB, and Learning Engagement. Our study contributed to the extant research in several ways. Firstly, our research explained the relationship of learning place spirituality on We-being, OCBs, and Learning Engagement, based on self-determination theory, and uses Smart-PLS3.0 to derive the relationship coefficients of the relevant variables and obtain a model. It provided a theoretical basis for the study of spirituality in the socio-educational part, school administrators and teachers, and students themselves in the learning place, and also provides an actionable method for enhancing students' learning engagement.

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A STUDY ON THE PRESCHOOL TEACHERS' OCCUPATIONAL STRESS IN YUEXIU DISTRICT, GUANGZHOU, CHINA

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Abstract: This study mainly aimed to explore occupational stress of preschool teachers in Guangzhou City and compare occupational stress on different teaching grades, incomes and ages, a questionnaire was administered to a random sample of 100 kindergarten teachers from one public kindergarten, one private kindergarten, one international kindergarten and one community kindergarten in Guangzhou, China. A total of 100 questionnaires were distributed and 92 valid questionnaires were returned, with a return rate of 92%. The results show that the current kindergarten teachers in Guangzhou are at an intermediate level. There was no significant difference in occupational stress among kindergarten teachers of different teaching grades, but the occupational stress of junior class teachers was slightly higher than that of teachers of other teaching grades. There were significant differences in occupational stress among teachers of different incomes and ages, with occupational stress increasing with age and income. Explained by Karasek's (1979) demand-control theory, with little change in the level of job control, job demands increase and with them job stress, and teachers in junior classes have higher job demands than other classes, so leading to high levels of occupational stress, and although experienced teachers are given higher pay packages, they are given more job demands and job responsibilities, leading to Older, more experienced teachers working under more pressure.

Keywords: Preschool Teacher, Occupational Stress, Guangzhou, China.

Introduction

Early studies show that the mental health status of preschool teachers is mostly in a good or better state, and the occupational stress of preschool teachers and the mental health problems caused by it are at a low level. (Thomason & La Paro, 2013). However, in the last decade, more and more literature has shown that preschool teachers show symptoms of depression, anxiety and other mental health problems. Literature of the same period also mentioned that the professional pressure level of preschool teachers has been rising. A Google Scholar search for "occupational stress of preschool teachers" found 7,300 search results in 2021 alone. These search results about occupational stress and resignation of preschool teachers came from all countries in the world. Obviously, the occupational stress of preschool teachers and a series of problems caused by stress have become international research topics, and the research on this topic has been increasing in various countries (Prosen & Smrtnik, 2019; Troman & Woods,2001; Wang, et al., 2015) is sufficient to prove the universality and severity of the problem of occupational stress among preschool teachers. But in the world, the academic circle only pays attention to the phenomenon that the professional pressure of preschool teachers is rising, and few people pay attention to what kind of changes are taking place in the structure of the professional pressure of preschool teachers (Spilt, et al., 2012).

Kaiser et al. (1993) noted that managing student behaviors was the most stressful task for early childhood teachers, lack of psychological support for teachers in kindergartens. Research from the same period also supports the issue of relationships, for example when teachers perceive a lack of communication and social support (Goelman & Guo,1998) and poor collaboration and communication with colleagues (Kenyon et al, 2014) as a source of occupational stress for teachers. Newly recruited early childhood teachers who have undergone a bachelor or specialist education in preschool education and have certain teaching philosophies are new to the profession and want to prove themselves quickly through their work, but the actual work content is often too simple and trivial, and it is momentarily difficult to apply the only appropriate philosophies learned in school to gain recognition for their teaching, thus causing psychological stress.

According to the statistics of the Ministry of Education, PRC, in 2012, there were 181,000 kindergartens in China, with 36.858 million children and 1.4779 million full-time kindergarten teachers, with a student-teacher ratio of 20.2 to 1(Ministry of Education, PRC, 2013). In 2015, China had 224,000 kindergartens with 42.648 million children in them (Ministry of Education, PRC, 2016). By 2019, there were 281,000 kindergartens nationwide, with 47.139 million children in kindergartens. There were 2.763 million full-time preschool teachers, with a student-to-teacher ratio of 15.9∶1(Ministry of Education, PRC, 2020). The student-to-teacher ratio has been on a downward trend during this decade. In the process of declining student-to-teacher ratio, the educational background structure of full-time kindergarten teachers in China has changed greatly. The number of people with a college degree or above increased significantly, while the number of people with a high school degree or below decreased. At the same time, the requirements for preschool education are changing a lot. Current preschool education reform focuses on standardized practices, academic results, and accountability.

There is a large body of literature examining occupational stress among early childhood teachers, but most researchers have studied the sources of occupational stress and the factors influencing occupational stress among early childhood teachers; many studies in the literature have concluded that young novice teachers have greater occupational stress than experienced teachers who have been in the profession for many years; for example, Wang (2006) selected 410 early childhood teachers from Shanxi, Chongqing and Anhui as the subjects of his study; between the ages of 21 and 25 were significantly more stressed than other ages in terms of student factors, role factors, environment and external treatment; those within five years of teaching experience were more stressed in terms of external expectations and personal competence than teachers of other teaching ages. However, contrary findings have also been suggested in the literature. Čecho et al. (2019) studied the level of occupational stress among Slovenian early childhood teachers, who concluded that kindergarten teachers aged 45 and older with more than 20 years of experience perceived themselves to be treated unfairly by their leaders more often in their job performance evaluations and had greater occupational stress.

Guangzhou is the capital city of Guangdong Province, but there is a lack of research on the occupational stress of preschool teachers in this area. Only Rao and Wang (2009) conducted a survey on occupational pressure of in-service teachers in more than 30 kindergartens in The Pearl River Delta region of China and found that 42.57% of preschool teachers thought their work pressure was high or high. Yu (2012) studied 300 private kindergarten teachers in Guangzhou and found that more than 90% of the surveyed teachers were under great pressure, mainly from too many activities, too many inspections and too fast changes in teaching forms.

Is there a correlation between age of occupational stress? Do older kindergarten teachers work longer and have more experience, and does more experience mean higher earnings, and is occupational stress correlated with teaching age and earnings? These are the questions that will be explored in this thesis.

Research Objectives

1) To compare the preschool teachers’ occupational stress between the new and experienced teachers.
2) To compare the preschool teachers' occupational stress according to their teaching grades.
3) To compare the preschool teachers' occupational stress according to their income.
4) To compare the preschool teachers' occupational stress according to their age.
5) To determine the correlation between age, income, teaching grades, and occupational stress.

Literature Reviews

Definition of Occupational Stress

In the literature, teacher's profession pressure was described as "as a result of some aspects of job of teaching, the teachers' negative emotions, such as tension, depression, anxiety, anger, and depression of experience"(Brown & Uehara, 1999). Shi (2002) thought that occupational stress can be regarded as a response to challenging events, also can be regarded as a stimulus for the demand of individual variables, it can also be thought that occupational stress is a threat to individual form of working environment variable, or individual can't disposal of a realistic demand. Lazarus (1978), a famous psychologist, defined occupational stress in his interaction theory: stress occurs when the demands of the environment exceed one's ability and available resources, and jeopardize one's psychological balance and the harmony and integrity of life pace.

Job Requirements -- Control Theory

Karasek (1979) put forward the work requirement -- control mode. In his opinion, there are two key factors in work activities: job requirement and job control, which jointly affect work pressure. Job requirement refers to the workload of employees in the work situation and the difficulty of completing the job, namely the pressure source, while job control refers to the extent to which employees can exert influence on their own behavior. One of the basic assumptions of this theory is that high work demands and low work control lead to high work stress. Due to lack of experience, new teachers have lower level of work control than experienced teachers, while managers may put higher work requirements on experienced teachers due to rich experience. Therefore, it is speculated that new teachers and experienced teachers may have different feelings of occupational pressure.

Present Situation of Preschool Teachers' Occupational Pressure

Occupational pressure is a problem that is paid special attention to in current organization management. With the increasing competition and the accelerating pace of social work and life, people feel more and more pressure in organizational life, especially for preschool teachers, work pressure is more prominent. So many kindergartens are actively by organization intervention and encourage teachers individual coping way to alleviate the pressure of the current work, and to make organization pressure intervention policy and teachers' individual coping styles more effectively, must clear before preschool teachers' perceptions of job stress from what aspect, namely working pressure sources problem.

Clipa and Bogheam (2015) based on the survey of 150 kindergarten teachers in Romania showed that 42.0% were "very stressed" and 86% had intermediate to advanced stress levels. Madini (2005) studied the occupational stress of preschool teachers in Saudi Arabia. The results showed that more than 90 percent of respondents said kindergarten teachers were either moderately or very stressed. Similarly, occupational pressure of preschool teachers in China is not low. Wang (2020) investigated the occupational stress of 260 preschool teachers in Jiangsu Province, China, and found that the occupational stress of preschool teachers in Jiangsu province was widespread and high, and the level of occupational stress of teachers with more than 5 years of teaching experience was higher than that of new teachers. Li (2013) studied 322 preschool teachers in Shandong Province, China, and found that preschool teachers with 3-5 years of service, 30 to 40 years of age and 40 to 50 students in class had the greatest occupational stress. This is basically consistent with the conclusions of Wuhu, Anhui and Beijing studies (Lai, 2011; Wang et al., 2014). A study by Jiang (2017) found that from 2002 and 2011 to 2016, professional pressure of teachers in basic education (including some kindergarten teachers) gradually increased and their professional social respect decreased.

Factors Influencing Preschool Teachers' Occupational Stress

Previous studies on preschool teachers' occupational stressors focuses on parents and children; At the same time, other factors are also important sources of preschool teachers' professional pressure, including social status, evaluation and assessment, salary, personal growth, teaching work and so on. Scholars generally discuss the occupational stress of preschool teachers from three aspects: social factors, family factors and kindergarten factors (You & Zhang, 2021). Some researchers explored the occupational stress, mental health of Iranian English teachers. The study subjects were 325 English teachers (138 novice and 187 experienced). The researchers tested the participants on occupational stress and then conducted semi-structured interviews with 20 teachers. Data analysis shows that their occupational stress depends largely on various institutional and socio-economic factors (Nazari & Oghyanous, 2021). Ryan et al (2016) noted the pressure brought by income, believing that income level is one of the sources of professional pressure for teachers. Income level directly affects teachers' emotions and indirectly affects children's classroom behaviors.

Herman et al. (2018) studied 121 teachers' control over their work and their levels of occupational stress and found that teachers generally reported high levels of occupational stress and average levels of control over their work. Only 7% of teachers reported having good control over their work. Li (2015) noted that early childhood teachers had poor control over their work time, with 58.0% of the early childhood teachers she studied believing that they could not arrange their time to do what they wanted to do at will, and that they had to deal with various ad hoc inspections, etc., in addition to their normal teaching work every day.

Marriage and educational are also important factors that influence preschool teacher occupation pressure. Rentzou's research shows that preschool teachers with higher educational background experience less pressure; The working pressure of married preschool teachers is slightly higher than that of unmarried preschool teachers (Rentzou,2012). But Li and Zhang 's research shows that there is no significant difference between different marital status and educational background in kindergarten teachers' overall feeling of work pressure (Li & Zhang.,2019).

Ways to Relieve Occupational Stress

Yao et al (2021) studied 539 nurses in Beijing, China, on how to relieve occupational stress of female nurses. She laid equal emphasis on psychological support and organizational support and emphasized the importance of vocational education. Huang et al. (2021) conducted a questionnaire survey with 625 medical workers in China as the research objects, and the interviewees claimed that providing skills training could effectively relieve their occupational pressure. Yang (2019) proposed in his paper on teachers' occupational stress response that preschool teachers should have correct ways to relieve pressure, such as taking physical exercise and actively seeking help from colleagues and friends. Most of the literatures on how to relieve occupational stress take medical staff as the research object, and there are few literatures on preschool teachers as the research object. We have not found literatures on preschool teachers in Guangzhou.

Methodology

Population

The study was conducted from April to July 2021 in Yuexiu District, Guangzhou, Guangdong Province, China. The survey covers 1 public kindergarten, 1 large private kindergarten, 1 international kindergarten and 1 junior community kindergarten. Random sampling method was adopted to select one teacher from each class of each kindergarten as a sample. The total number of in-service kindergarten teachers was 100, among which 8 teachers dropped out of the test, and the remaining 92 completed the test, with a questionnaire recovery rate of 92%.

Instrument

The scale used in this thesis is the Occupational Stress Questionnaire for Kindergarten Teachers developed by Alatan and Liu (2014), The scale used in this paper is the Occupational Stress Questionnaire for Kindergarten Teachers developed by Alatan and Liu (2014). Based on Kyriacou and Sutcliffe's (1978) model of teacher occupational stress, they conducted in-depth interviews with 35 front-line kindergarten teachers and obtained 58 projects reflecting the occupational stress of kindergarten teachers. After preliminary screening, 41 items were selected. Forty-one items were evaluated and screened by Delphi method. After three rounds of screening by 10 experts, 22 projects were selected. According to exploratory factor analysis, the KMO value of 271 preschool teachers was 0.770, and the approximate Bartlett's sphericity test was 771.050. The retest reliability of the questionnaire was 0.915, and the Cronbach αcoefficient between 18 items was 0.907, which showed high internal consistency reliability. This scale is divided into four dimensions: job difficulty and challenges, job responsibilities and rewards, management system and career development, and job intensity. The full questionnaire was scored on a five-point Likert scale, with no stress assigned a score of 1; mild stress assigned a score of 2; moderate stress assigned a score of 3; high stress assigned a score of 4; and extreme stress assigned a score of 5. Higher scores indicate greater perceived stress in that dimension; lower scores indicate less perceived stress in that dimension. A sample of 100 subjects was administered. The same questionnaire was administered separately to new teachers and experienced teachers, and the Cronbach coefficients for the total questionnaire were 0.870 and 0.840, with KMO of 0.856 and 0.796, respectively, indicating high reliability. All data obtained were statistically and analytically analyzed using spss26. The reliability of the scale was tested to be good for both new and experienced teachers.

Table 1: Interpretation for the Scale and Level of Preschool Teachers Occupational Stress Perceptions

Perceptions	Score	Scale	Interpretation
No Stress	1	1.00-1.50	Very Low
Mild Stress	2	1.51-2.50	Low
Moderate Stress	3	2.51-3.50	Moderate
High Stress	4	3.51-4.50	High
Extreme Stress	5	4.51-5.00	Very high

Results

Research Objective One: Determine the Overall Difference of Occupational Stress between New Teachers and Experienced Teachers

The first research objective is to determine the overall difference of occupational stress between new teachers and experienced teachers, including job difficulty and challenges, job responsibilities and rewards, job intensity, management system and career development. The researchers compared teachers' occupational stress between new preschool teachers (Group 1) and veteran experienced teachers (Group 2). The occupational stress scores of the two groups of teachers were subjected to independent samples t-tests to obtain Table 2:

Table 2: Occupational Stress Group Statistics (N=92)

Items	Teacher Group	Mean	SD	t
Job Difficulty and Challenges	New	2.95	1.993	-3.34**
	Experienced	3.75	1.742	
Job Responsibilities and Rewards	New	3	1.174	-3.99**
	Experienced	4.04	0.797	
Job intensity	New	2.91	0.834	-3.76**
	Experienced	3.93	0.728	
Management System and Career Development	New	3.01	0.868	-3.35**
	Experienced	4.01	0.868	
Total	New	2.97	4.128	-4.21**
	Experienced	3.89	3.406	
		3.42		9.16

** p is significant at 0.01 level, * p is significant at 0.05 level

As can be seen in Table 2, there is a significant difference in the mean values of the two groups of teachers' perceptions of occupational stress. Comparison of the means shows that job difficulty and challenge stress is 2.97 for new teachers and 3.89 for experienced teachers, while the mean of the 92 data is 3.42.

Research Objective Two: To Compare the Preschool Teachers' Occupational Stress According to Their Teaching Grades

The second research objective is to compare the preschool teachers' occupational stress according to their teaching grades. In this study, junior-class teachers were set as group 1, middle-class teachers as group 2, and senior-class teachers as group 3 to calculate the average value, the occupational stress of preschool teachers with different classes is determined as follows:

Table 3: Preschool Teachers' Occupational Stress According to Their Teaching Grades (N=92)

Items	N	Mean	SD	Interpretation
Junior-class	28	3.59	0.405	High
Middle-class	40	3.40	5.537	Moderate
Senior-class	24	3.27	5.537	Moderate
Total	92	3.43	0.509	Moderate

As seen from Table 3, the occupational pressure of junior-class teachers is 3.59, which is a high level, while the pressure level of preschool teachers in other classes is medium. The pressure of different teachers was analyzed by ANOVA in Table 4.

Table 4: Analysis of Occupational Stress Variance by Different Teaching Grades

	Sum of Squares	df	Mean Square	F	Sig
Between Groups	425.55	2	212.775	2.627	0.078
Within Groups	7207.929	89	80.988		
Total	7633.478	91			

As can be seen from Table 4, the significance of occupational stress among teachers in different classes is 0.078, indicating that the difference in occupational stress among teachers in different classes is not significant. Combining this with Table 3, it can be concluded that the occupational stress of teachers in the junior class is slightly more stressful than that of teachers in other classes of children, but there is no significant difference in the occupational stress of teachers in different classes.

Research Objective Three: To Compare the Preschool Teachers' Occupational Stress According to Their Income

The third research objective is to compare the preschool teachers' occupational stress according to their salary levels. In this study, teachers earning less than RMB 4,000 per month were set as group 1, teachers earning RMB 4,001-5,000 per month were set as group 2 and teachers earning more than

RMB 5,001 per month were set as group 3, and the mean values of teachers' stress in different groups were calculated.

Table 5: Preschool Teachers' Occupational Stress According to Their Income (N=92)

Items	N	Mean	SD	Interpretation
Less than 4000	36	2.96	0.224	Moderate
4001-5000	16	3.39	0.552	Moderate
More than 5000	40	3.86	0.23	High
Total	92	3.43	0.509	Moderate

Table 5 shows that the occupational stress of early childhood teachers earning more than RMB 5,000 per month is 3.86, which is at a high level of stress. the mean occupational stress of teachers earning less than RMB 4,000 is 2.96, which is less stressful than that of teachers at higher income levels. An analysis of variance (ANOVA) on the stress of teachers with different incomes yielded Table 6.

Table 6: Analysis of Occupational Stress Variance by Different Income

	Sum of Squares	df	Mean Square	F	Sig
Between Groups	4976.902	2	2488.451	83.368	0.000
Within Groups	2656.576	89	29.849		
Total	7633.478	91			

As can be seen from Table 6, the significance of occupational stress for teachers at different income levels is 0.000, indicating that there are significant differences in occupational stress for teachers at different income levels. Thus, the researcher continued to use the Post Hoc Tests to recheck the significant value of different income levels, the results showed that the significant differences of the different income levels.

Table7: Multiple Comparison of Occupational Stress According to Their Income (n=92)

Income (I)	Income (I)	Mean Difference (I-J)	Sig
Less than 4000	4001-5000	-7.757*	.000
	More than 5000	-16.194*	.000
4001-5000	More than 5000	-8.437*	.000

* p is significant at 0.05 level

Combined with Table 5, it can be concluded that the occupational stress of teachers earning more than RMB 5,000 is significantly higher than the occupational stress of early childhood teachers earning less than RMB 5,000.

Research Objective Four: To Compare the Preschool Teachers' Occupational Stress According to Their Ages

The fourth research objective is to compare the preschool teachers' occupational stress according to their age. In this study, teachers under the age of 30 were set as the first group, teachers between the ages of 31 and 40 were set as the second group, and teachers over the age of 41 were set as the third group, and the mean values of stress were calculated for the different groups.

Table 8: Preschool Teachers' Occupational Stress According to Their Ages (N=92)

Items	N	Mean	SD	Interpretation
Less Than 30	36	2.93	0.248	Moderate
31-40 years Old	27	3.55	0.409	High
More Than 41	29	3.92	0.162	High
Total	92	3.43	0.509	Moderate

Table 8 shows that the occupational stress of early childhood teachers under the age of 30 is 2.93, which is a moderate level of stress, while the occupational stress of early childhood teachers over the age of 30 is 3.55 and that of early childhood teachers over the age of 40 is 3.92 at a high level of stress. The occupational stress level of teachers tends to increase with age. An analysis of variance (ANOVA) on the stress of teachers with different age yielded Table 8.

Table 9: Analysis of Occupational Stress Variance by Different Ages

	Sum of Squares	df	Mean Square	F	Sig
Between Groups	5294.049	2	2647.024	100.702	0.000
Within Groups	2339.429	89	26.286		
Total	7633.478	91			

Table 9 shows that the significance of occupational stress for teachers at different income levels is 0.000, indicating that there is a significant difference in occupational stress for teachers at different ages. Therefore, the researcher proceeded to re-test the significance of different age groups using Post Hoc test. Based on the Post Hoc Scheffe test shown in Table 10 below, the results showed significant differences between the different age groups. Combining this with Table 8, it can be concluded that there are significant differences in the occupational stress levels of teachers under 30, 31-40 and over 40, with teachers over 40 having higher levels of occupational stress than those of early childhood teachers under 30.

Table10: Multiple Comparison of Occupational Stress According to Their Income (n=92)

Age (I)	Age (I)	Mean Difference (I-J)	Sig.
Less than 30	31-40years old	-11.157*	0.000
	More than 41	-17.815*	0.000
31-40years old	More than 41	-6.658*	0.000

* p is significant at 0.05 level

Research Objective five: To Determine the Correlation between the Teachers' Age, Income, Teaching Grades and Occupational Stress

The fifth research objective is to determine the correlation between teachers' age, income, working years and occupational stress. Pearson correlation analysis is conducted for age, income, working years and occupational stress of the two groups of teachers, and Table 10 was obtained:

Table 11: Correlation Between Age, Income, Teaching Grades and Occupational Stress

Items		Age	Income	Teaching Grade	Occupational Stress
Age	Pearson Correlation	1	.743**	-0.186	.773**
	Sig.（Two Tails）		0	0.077	0
	N	92	92	92	92
Income	Pearson Correlation	.743**	1	-.271**	.779**
	Sig.（Two Tails）	0		0.009	0
	N	92	92	92	92
Teaching Grades	Pearson Correlation	-0.186	-.271**	1	-.234*
	Sig.（Two Tails）	0.077	0.009		0.025
	N	92	92	92	92
Occupational Stress	Pearson Correlation	.773**	.779**	-.234*	1
	Sig.（Two Tails）	0	0	0.025	
	N	92	92	92	92

** at 0.01 Level (Two-Tailed), The Correlation Was Significant.
* at 0.05 level (two-tailed), the correlation was significant.

As can be seen from Table 9, the correlation coefficient between occupational stress and age is 0.773, the correlation coefficient with income is 0.779 and the correlation coefficient with teaching grade is -0.234, indicating that occupational stress is significantly positively correlated with age and negatively correlated with teaching grades.

Another finding is that the correlation coefficient between income and teaching grades is -0.271, significant 0.009, significant negative correlation; the correlation coefficient between teacher age and teaching grades is -0.186, significant 0.077, also negative correlation, but not significant correlation.

Discussions

Occupational Stress of Preschool Teachers in Guangzhou

According to the research results, the average occupational stress of 92 teachers surveyed by the questionnaire was 3.42, belonging to the medium level of stress. This data is slightly different from the occupational stress of kindergarten teachers measured by Wang (2020) using the self-compiled occupational stress questionnaire. In Wang's study, preschool teachers are at a high level of occupational stress. Wang's results are similar to Clipa and Bogheam's (2015). In this study, the score of occupational stress of new teachers was 2.97, and that of experienced teachers was 3.89, indicating that the occupational stress level of new teachers was significantly lower than that of experienced teachers.

The Preschool Teachers' Occupational Stress According to Their Teaching Grades

The results of this study showed that there were differences in occupational stress among early childhood teachers at different teaching grades levels, but the differences were not significant. The results of this study differ from the findings of Doss et al. (2017) and, in their study, there were significant differences in occupational stress among teachers at different teaching grades levels. The data from this study showed a decreasing trend in teachers' occupational stress from the younger to the older classrooms. It is presumed that the occupational stress of early childhood teachers has decreased due to the increase in self-management skills as the children get older.

The Preschool Teachers' Occupational Stress According to Their Incomes

From the results of the study, it can be learnt that the occupational stress of early childhood teachers tends to increase with income, with teachers earning less than $3,000 per month having the least occupational stress and teachers earning more than $5,000 per month having the most occupational stress, this study is contrary to the findings of Ryan et al.(2016) who concluded that teachers with low income have more occupational stress, this study Based on the interviews with teachers, it can be understood that teachers with higher incomes tend to have more responsibilities and relatively heavier workloads, so income is positively correlated with stress.

The Preschool Teachers' Occupational Stress According to Their Ages

The results of the study show that teachers' occupational stress is at a high level above the age of 30 and that the occupational stress of early childhood teachers increases with age and age, a finding that is partially identical to that of Čecho et al. (2019), who concluded that kindergarten teachers aged 45 and above with more than 20 years of experience have the highest occupational stress. In many earlier studies, researchers have identified age as a factor influencing teachers' occupational stress (Bobbitt et al., 1994; Boe et al., 1998) As age increases, early childhood teachers have to deal with work, family and other stressors at the same time, and teachers over the age of 40 experience a decrease in physical strength, but not a concomitant decrease in all aspects of stress. Therefore, teachers over the age of 40 experience the highest levels of occupational stress. Another reason is that older teachers have more work experience and parents are more willing to communicate with them, but these exchanges take up more of teachers' time and their working hours have to be extended.

Correlation between Age, Income, Teaching Grade and Occupational Stress

According to the research results, the correlation coefficient between occupational stress and income is 0.773, that between age and occupational stress is 0.779, and that between occupational stress and teaching grades is -0.234, This finding is the same as that of Ryan et al (2016), who also concluded that income was associated with occupational stress in their study. However, the study by Ryan et al (2016) did not focus on the relationship between age and years of work and occupational stress. New teachers have limited control over their work due to their inexperience, and leaders do not give novice teachers as much as they should, earning lower levels of income than experienced teachers. As teachers gain experience, their earnings increase, but leaders place higher demands on them, which leads to high levels of stress, a phenomenon that can be explained by the demand-control theory.

Now temporarily not found teaching grades children with occupational stress related research results, but in an interview on teachers can know, young children's age increases, the self-control ability also increases, the pressure of the teachers' classroom management and teaching it will ease, and could be judged from the statistical data, preschool teachers' negative correlation of age and teaching grades, income also negatively related to the teaching grades, It is assumed that younger classes are often managed by experienced teachers. The findings have implications for kindergarten administrators and suggest that junior classes should be managed by experienced teachers. Even so, the professional pressures on teachers in small classes remain the highest. This can be explained by the findings of Krauss et al. (2014), who found that younger children have greater separation anxiety and are more prone to crying or reacting indifferently. Teachers need to divert extra energy from their work to care for these young children, who pose more occupational stress to teachers.

Conclusions

This research examined the relationship between early childhood teachers' age, income, teaching grades level and occupational stress. The results show that early childhood teachers' occupational stress is positively correlated with age and income and negatively correlated with teaching grades level, and we know from interviews with early childhood teachers that as age increases, teaching experience increases, parents are more willing to interact with experienced teachers, and teachers' working hours invariably increase, which makes experienced early childhood teachers feel Professional pressure is high, and also as income increases, early childhood teachers' are given more responsibility and they feel higher levels of professional pressure. There were also calls from teachers for managers to balance teaching resources and for novice teachers to receive more support and assistance. This thesis focuses on the relationship between teaching grades level and occupational stress.

The findings called for kindergarten managers to allocate kindergarten resources rationally and create a good working environment for teachers. Prior to this, there is little literature examining teaching grades level and occupational stress among early childhood teachers, and this study may provide some assistance to kindergarten administrators in the hope that they can better allocate resources to reduce teachers' work stress and create a good working environment for early childhood teachers.

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2022年初美国COVID-19疫情短期预测分析

SHORT-TERM FORECAST ANALYSIS OF COVID-19 IN THE UNITED STATES IN 2022

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摘要：利用实时更新的全球COVID-19疫情数据，对美国2022年初COVID-19疫情进行短期预测。方法：基于IBM SPSS软件的指数平滑法和ARIMA模型建立建模。2022年1月1日到1月31日单日新增确诊人数和单日新增确诊死亡人数为已知数据，未来一周为预测数据。结果显示：采用指数平滑Winters加法模型可以拟合单日新增确诊病例和单日新增死亡病例，拟合模型稳健。单日新增确诊人数和单日新增死亡人数的拟合参数分别为正态化的BIC为24.424和13.043，预测值与观测值基本吻合。结论：两个模型可以很好的预测美国COVID-19短期传播的趋势，对当前疫情防控有很强的指导意义。

关键词： COVID-19，指数平滑法，短期，预测。

Abstract: Using real-time updated global COVID-19 epidemic data, we conducted a short-term forecast analysis of the COVID-19 epidemic in the United States in early 2022. Methods: Exponential smoothing method and ARIMA model were used to establish modeling based on IBM SPSS software. The numbers of new daily confirmed cases and new daily deaths from January 1 to January 31, 2022 were modeled, and the data for the next five days were predicted and analyzed. Results: Winters model can be used to effectively fit the newly confirmed cases and newly killed cases on a single day, and the fitting model is robust. The fitting parameters of new daily diagnoses and new daily deaths were Normal BIC of 24.424 and 13.043, respectively. The predicted value is basically consistent with the observed value. Conclusions: The two models can well predict the short-term trend of COVID-19 transmission in the United States, which has strong guiding significance for the current epidemic prevention and control guidance.

Keywords: COVID – 19, Smoothing Method, Short-Term, Forecasting.

引言

自 2020 年初发现 COVID-19 以来，COVID-19 疫情很快席卷全球。它对全世界的经济造成的破坏力和冲击力，远远超出人们的想象。国际货币金融组织 2020 年 10 月份发布的《世界经济展望》预测，2020 年全球经济将萎缩 4.4%，发达经济体将萎缩 5.8%，新兴经济体将萎缩 3.3%，2020 年超过 95%的国家人均收入预计出现负增长。是“二战以来最严重的经济衰退”，也是 1870 年以来人均产出下降的经济体数量最多的一年。截止 2022 年 3 月 5 日全球疫情累计确诊超过 4.0 亿例，累计死亡人数超过 600 万例。官方实时统计数据截至北京时间 2022 年 3 月 5 日，美国累计确诊超过 9000 万例，累计死亡病例超过 98 万例。按七天平均数计算，报告病例最多的前 5 个国家分别是美国、印度、巴西、法国、英国，这 5 个国家的新增病例约占全球所有新增病例的 37%左右。目前 COVID-19 疫情在全世界的流行远未结束。

研究目的

（1）根据美国的单日新增确诊病例和单日新增死亡病例数据是否可以建模预测？

（2）如果能够预测，什么是COVID-19疫情预测的最佳模型；

（3）对预测的模型精度分析和残差分析；

（4）本研究结果对当前的COVID-19疫情防控具有一定的指导意义。

文献综述

鉴于形势所迫，国内外许多学者将研究重点放在COVID-19疫情的建模和预测上，旨在为控制 COVID-19 提供理论依据和政府决策提供参考。谢旺等(2020)报道了 2020 年 1 月份美国 COVID-19 累计确诊人数的 ARIMA 模型。结果显示，疫情数据经过 2 阶差分后构成的 ARIMA (0,2,0)模型是最佳的拟合模型。Fang 等（2020) 使用 R 统计软件对 2020 年 1 月至 5 月俄罗斯的 COVID-19 流行数据建模，结果显示，累计确诊人数和累计死亡人数模型 ARIMA（2,2,1）和 ARIMA（3,2,0）可以有效的预测趋势。Yousaf 等 (2020) 根据美国 NIH 的数据，使用 ARIMA 模型对巴基斯坦的 COVID-19 累计确诊病例和累计死亡人数进行了预测，结果显示 2020 年 5 月份新增确诊人数将会增加 2.7 倍以上，提醒政府官员应采取必要的措施来控制疫情传播。李凤英等 (2020) 采用 2020 年 1 月至 3 月的 COVID-19 累计确诊人数数据为样本资料，基于 ARIMA 模型对湖北省和北京市的疫情建模预测，结果显示，无论是湖北省还是北京市可以用 ARIMA（1,1,1）模型对疫情趋势进行预测，预测值与观测值基本吻合，该模型预测能力稳健。林德双

等 (2020) 利用实时更新的全球 COVID-19 疫情数据，基于 K-均值聚类法将世界各国疫情汇总后归为 6 大类，并建立模型对中国疫情进行预测，预测精度高达 99%。

研究方法

1. 数据来源和特征

本文数据来自美国官方通报和国内权威媒体（如百度 APP 疫情实时大数据报告）。疫情数据日期采用北京标准时间。每天数据更新时间，国外疫情数据因追踪、汇总、核实、确定的需要，与本国官方的发布时间比较有一定的延迟。2022 年 1 月份美国 COVID-19 数据资料见表 1。由原始数据绘制的双轴图见图 1。数据特征：（1）美国 2022 年 1 月 1 日至 2022 年 1 月 31 日单日新增确诊人数（以下简称：日增确诊）和单日新增死亡人数（以下简称：日增死亡）。预测数据是 2022 年 2 月 1 日至 2022 年 2 月 5 日的日增确诊和日增死亡人数；（2）美国日增确诊和日增死亡指标都是属于时间间隔相等的时点时间序列，各个指标值的大小与时点间隔长短没有直接关系，每个数据是每天每一时间节点登记的数据，相邻的两个数据值相加没有实际的意义。（3）这两个时间序列都是非平稳，没有明显趋势，但是有一定短期周期波动的时间序列数据，提示建模前需要进行平稳化处理和定义时间序列的周期。

表 1：美国日增确诊和日增死亡原始数据

日期	星期	周期	日增确诊	日增死亡	日期	星期	周期	日增确诊	日增死亡
2022/1/1	6	1	443677	1160	2022/1/17	1	4	331250	415
2022/1/2	7	2	168019	257	2022/1/18	2	4	637607	783
2022/1/3	1	2	277656	246	2022/1/19	3	4	1133864	2893
2022/1/4	2	2	989012	1477	2022/1/20	4	4	1041346	3736
2022/1/5	3	2	916000	2590	2022/1/21	5	4	736512	2927
2022/1/6	4	2	757999	2137	2022/1/22	6	4	849717	3740
2022/1/7	5	2	758930	2231	2022/1/23	7	5	333978	980
2022/1/8	6	2	900310	2503	2022/1/24	1	5	197374	574
2022/1/9	7	3	483602	700	2022/1/25	2	5	1032759	2398
2022/1/10	1	3	309002	310	2022/1/26	3	5	490495	3285
2022/1/11	2	3	1398242	1980	2022/1/27	4	5	727218	3800
2022/1/12	3	3	729604	2560	2022/1/28	5	5	521941	3516
2022/1/13	4	3	968533	5316	2022/1/29	6	5	573058	3465
2022/1/14	5	3	877066	2321	2022/1/30	7	6	209720	1200
2022/1/15	6	3	973060	2874	2022/1/31	1	6	96954	329
2022/1/16	7	4	454748	1063					

2. 统计假设和理论基础

统计假设：（1）观测日期为 2022 年 1 月 1 日到 2022 年 1 月 31 日，观测指标日增确诊和日增死亡人数。2 月 1 日和 2 月 5 日的数据为未来预测的数据；（2）该数据没有明显的趋

势，有一定的周期性波动和白噪音干扰；（3）该数据适合指数平滑法和 ARIMA 模型。（4）本文只涉及到时间序列分析中的时域分析。数据建模采用 IBM SPSS 25.0 统计软件。

理论基础：指数平滑法和 ARIMA 模型广泛应用于 COVID-19（林德双等，2020）。SPSS 中指数平滑法时间序列建模器中有 3 种季节性模型类型可以选择：简单季节性、Winters 可加性和 Winters 可乘性。ARIMA 模型：适用于各种复杂多变的时间序列分析，它关注的重点是观测值随时间变量发展变化的规律，建模的主要目的用于预测。一般来说 ARIMA 模型需要通过绘制自相关图（ACF）和偏自相关图（PACF）来求出相关的 6 个参数，如果是非季节性模型则需要 3 个参数，自回归的阶 p、差分的阶 d 和移动平均的阶 q。如果是具有周期性波动的序列，还要求出和季节性有关的 3 个参数。只有定义了波动周期后，季节性参数设置栏才会生效。ARIMA 模型的字母标识为 ARIMA（p,d,q）（P,D,Q）s（其中 s 为周期数）。模型的评估：本文采用的拟合优度指标包括：平稳的 R 方、R 方、均方根误差（RMSE）、平均绝对误差百分比（MAPE）、平均绝对误差（MAE）和标准化的 BIC。另外，增加了残差分析分析，检验回代数据的拟合效果（Behl, R.& Mishra, 2020）。

3. 建模方法

遵循简化、快速和实用的建模原则，采用 SPSS 的专家建模器模块。专家建模器的模型中有 3 个选项，所有模型、仅限指数平滑模型和仅限 ARIMA 模型。本文选择后两项，专家建模器的主要功能是当用户不知道某一时间序列的模型特征时，系统自动识别并在已有的模型中给出最佳拟合模型（朱星宇和陈勇强，2010）。

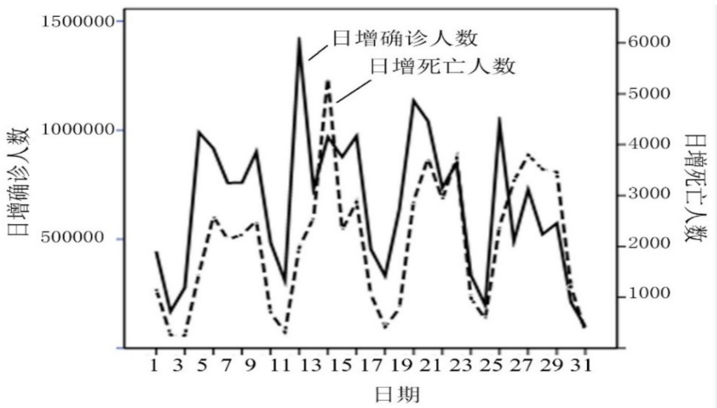

图 1: 美国 2022 年 1 月份日增确诊和日增死亡人数序列图

4. 时间序列数据的预处理

预处理的目的，使分析的序列特征更加清晰，利于选择要分析的模型。另外，使数据满足周期波动的特殊要求。

（1）相关性分析，首先采用 Pearson 双变量相关分析，结果显示：两个指标之间的相关系数=0.635，P<0.01。说明两个指标高度相关，可以采用相似的方法进行时间序列预处理（李昕和张明明，2015）。（2）平稳化处理，日增确诊和日增死亡人数时间序列属于非平稳的时间序列，需要进行平滑或差分处理。数据平稳性识别的有效方法是通过自相关图（ACF）和偏相关图（PACF）。以日增确诊数据为样本进行识别，见图 2A、B。ACF 结果显示没有通常的截尾现象或逐渐衰退，而是在延迟 7 天或 7 天的倍数处有明显的上升趋势，这是时间序列具有周期性波动的典型特征，提示用户可以考虑指数平滑法或 ARIMA 模型（薛薇，2013）。一次季节差分后的 ACF 和 PACF 见图 2C、D。两者大致在 95%的置信区间内，说明模型拟合效果良好。（3）定义时间变量，让内部程序识别它的时间顺序，尤其是具有周期波动的模型，必须使用 SPSS 软件内定的时间变量（宇传华，2007）。本文选择“定义日期”，个案为“星期、日”，表示以星期为周期，以日为间隔时间。第一个个案为星期选择 1，日选择 7，表示起始时间是 2022 年 1 月 1 日星期六。SPSS 内定的标识为：第一个周期的最后一天（第 7 天）是星期六。以此类推，2022 年 1 月 31 日为第 6 个星期的第 2 天为星期一。预测数据：2022 年 2 月 1 日为第 6 个星期的第 3 天，为星期二（见表 1）。

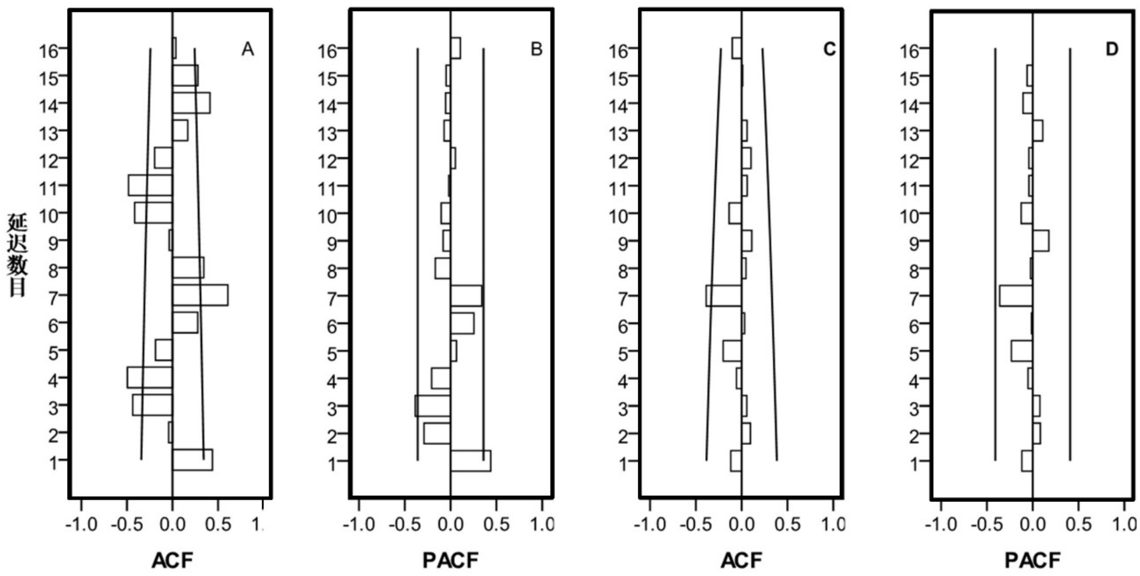

图 2：日增死亡人数（A，B）和日增死亡人数（C，D）ACF 和 PACF

研究结果

1. 日增确诊人数建模和预测

采用 SPSS 分析创建模型步骤，打开时间序列建模器对话框，在方法选项中选择“专家建模器”，模型类型分别选择指数平滑法和 ARIMA 模型，SPSS 软件从内置的众多模型中选出两个最佳模型。分别是指数平滑条件下 Winters 加法模型和 ARIMA(0,1,0)(1,1,0)模型，模型的

周期数是 7。两个模型的主要拟合参数见表 2。从 R 方和正态化的 BIC 的参数来看，模型 1（Winters 加法）优于模型 2（ARIMA (0,1,0) (1,1,0)）。从 ARIMA 模型的拟合参数来看该模型属于具有周期性的非平稳时间序列。模型 1 和模型 2 的拟合曲线和置信区间见图 3。结果显示：（1）两个模型的预测结果和置信区间不同；（2）模型 1（Winters 加法）对未来 5 日的预测趋势是下降的，模型 2ARIMA 对未来 5 日的预测趋势基本上是水平的；（3）模型 2 的预测周期数比原始数据的周期少了一个。

表 2：模型 1 和模型 2 的拟合参数

模型	平稳 R 方	R 方	RMSE	MAPE	MAE	正态化 BIC
模型 1	0.843	0.748	170426.458	24.735	117616.222	24.424
模型 2	0.613	0.353	273614.747	32.247	187500.092	25.175

模型 1 和模型 2 预测未来 5 日单日新增确诊人数残差对比表见表 3，两个模型预测未来 5 日美国日增确诊残差图见图 3。模型 1 第一个日期的 4 个数据分别是置信上限、预测值、观测值和置信下限，图 3 计算方法如下。模型 1 置信上限=置信上限-预测值=1085788-736685=349103。模型 1 预测值=0。模型 1 残差=观测值-预测值=644139-736685=-92546。模型 1 置信下限=置信下限-预测值=387582-736685=-349103。实证检验结果显示模型 1 的拟合效果较好，预测值与观测值基本吻合，相对误差较小，观测值都位于 95%置信区间之内。

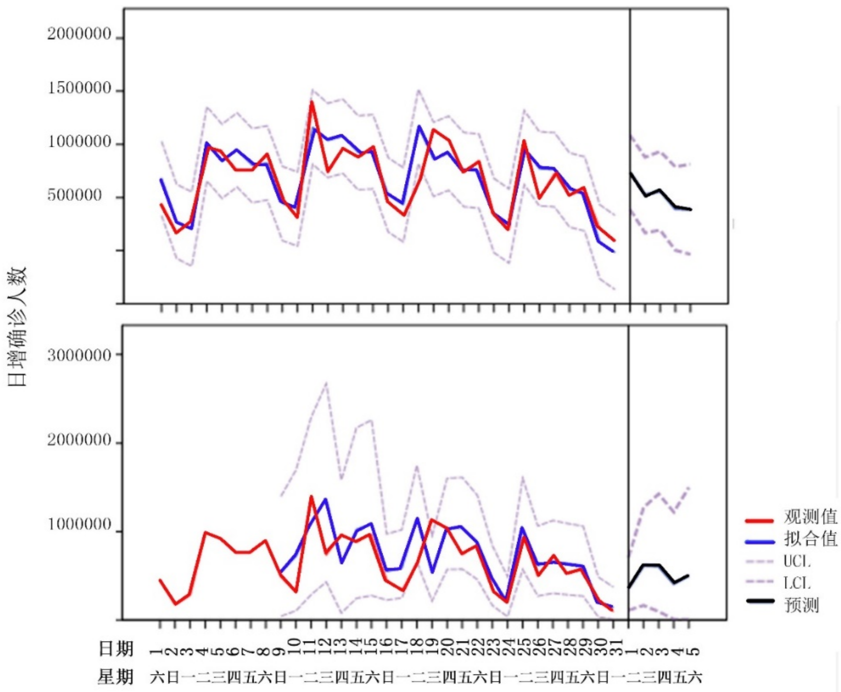

图 3: 模型 1 和模型 2 预测未来 5 日日增确诊人数残差图

表 3: 预测未来 5 日日增确诊观测值和预测值对比表

模型	日期	观测值	预测值	置信上限	置信下限	相对误差（%）	残差
模型 1	2 月 1 日	644139	736685	1085788	387582	0.1436	-92546
	2 月 2 日	293987	523294	879374	167213	0.7799	-229307
	2 月 3 日	366088	563117	933119	193115	0.5382	-197029
	2 月 4 日	268122	396510	788995	4025	0.4788	-128388
	2 月 5 日	351809	389344	813691	-35003	0.1066	-37535
模型 2	2 月 1 日	644139	358172	707672	108943	0.4439	285967
	2 月 2 日	293987	617707	1271990	163964	1.1011	-323720
	2 月 3 日	366088	609476	1424740	95022	0.6648	-243388
	2 月 4 日	268122	412848	1220018	6758	0.5397	-144726
	2 月 5 日	351809	501963	1498682	6594	0.4268	-150154

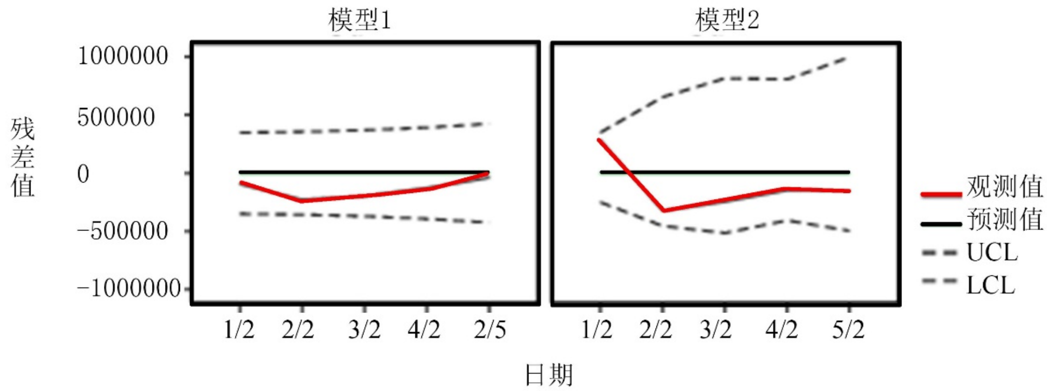

图 4: 模型 1 和模型 2 预测未来 5 日单日新增确诊人数残差图

2. 日增死亡人数建模和预测

在“专家建模器”条件下，分别选择指数平滑法和 ARIMA 模型，SPSS 软件推荐出两个最佳模型（模型 3 和模型 4）。模型 3 是指数平滑条件下 Winters 加法模型。模型 4 为 ARIMA(0,0,0)(0,1,0)模型，模型的周期数是 7。模型 3 和模型 4 的主要拟合参数见表 4。从平稳 R 方和正态化的 BIC 的参数来看，模型 3 略优于模型 4。从 ARIMA 模型的拟合参数来看该模型属于具有周期性的平稳型时间序列。模型 3 和模型 4 的拟合曲线和置信区间见图 5。

结果显示：（1）两个模型的预测结果和置信区间不同；（2）模型 3（Winters 加法）对未来 5 日日增死亡的预测趋势是上下波动，模型 4 的 ARIMA 模型，对未来 5 日的预测趋势略微上升；（3）ARIMA 模型的预测周期比原始数据少了一个周期，波动的振幅更大一些（图 5）。

模型 3 和模型 4 预测未来 5 日的日增死亡观测值和预测值对比表见表 4，预测未来 5 日的日增死亡残差图见图 5。实证检验结果显示模型 3 的拟合效果明显优于模型 4，与理论拟合

结果一致（表 4）。可以看出预测值与实际观测值基本吻合，相对误差较小，观测值都位于置信区间之内，拟合效度较好。

表 4: 模型 3 和模型 4 的拟合参数

模型	平稳 R 方	R 方	RMSE	MAPE	MAE	正态化 BIC
模型 3	0.837	0.825	575.495	40.680	389.034	13.043
模型 4	-2.2E-016	0.295	1163.875	40.035	770.997	14.251

讨论

1. 模型的选择

本文采用了SPSS的专家建模器作为日增确诊和日增死亡的拟合模型。其基本思路是借助专家建模器的功能和优势从指数平滑法和ARIMA模型选择出来最佳的拟合模型。现在一般提到时间序列分析，从统计学原理上都是指ARIMA模型。理论上可以证明所有的指数平滑模型，包括非季节性和季节性模型，其实就是ARIMA的一种特殊形式。只要是指数平滑法能做的AIRMA几乎都能做（宇传华，2007）。本文结果显示：专家建模器选择的模型不失为最佳的预测模型之一。

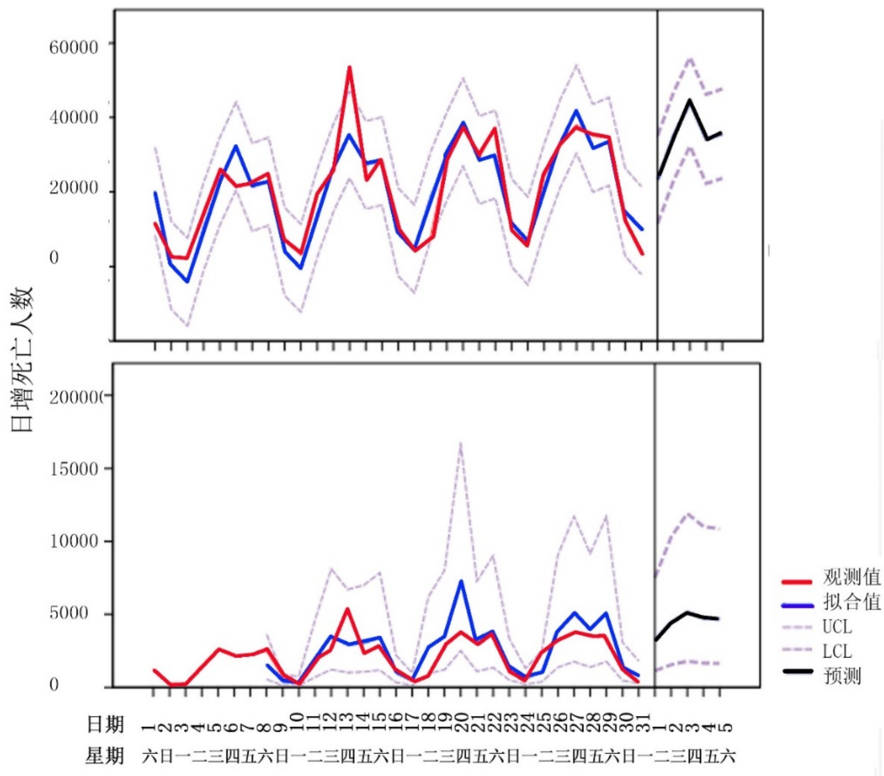

图 5： 模型 3（上）和模型 4（下）的拟合曲线和置信区间

表 5：两个模型预测未来 5 日的日增死亡观测值和预测值

模型	日期	观测值	预测值	置信上限	置信下限	相对误差（%）	残差
模型 3	2 月 1 日	2914	2335	3514	1156	0.1986	579
	2 月 2 日	3820	3507	4692	2323	0.0819	313
	2 月 3 日	3676	4423	5612	3233	0.2032	-747
	2 月 4 日	3229	3424	4619	2229	0.0603	-195
	2 月 5 日	3737	3567	4768	2367	0.0454	170
模型 4	2 月 1 日	2914	3237	7519	1130	0.1108	-323
	2 月 2 日	3820	4434	10300	1547	0.1607	-614
	2 月 3 日	3676	5129	11914	1790	0.3952	-1453
	2 月 4 日	3229	4746	11024	1656	0.4698	-1517
	2 月 5 日	3737	4677	10864	1632	0.2515	-940

本研究选择日增确诊和日增死亡作为研究指标主要原因是：（1）以前的研究资料大多数指标都是集中在累计确诊和累计死亡人数，相对来说这些指标的单调和平稳的，一般都没有周期性波动，模型相对简单（张文彤，2007）。本文尝试采用日增确诊和日增死亡两个COVID-19指标；（2）以前的研究资料采用的方法多是ARIMA模型，采用指数平滑法较少，一般认为ARIMA模型优于指数平滑模型（卢普庆，2020）。本文尝试采用指数平滑法和ARIMA模型同时建模，并比较不同模型的优劣。（3）以前的研究资料很少采用SPSS的“专家建模器”运行模块。

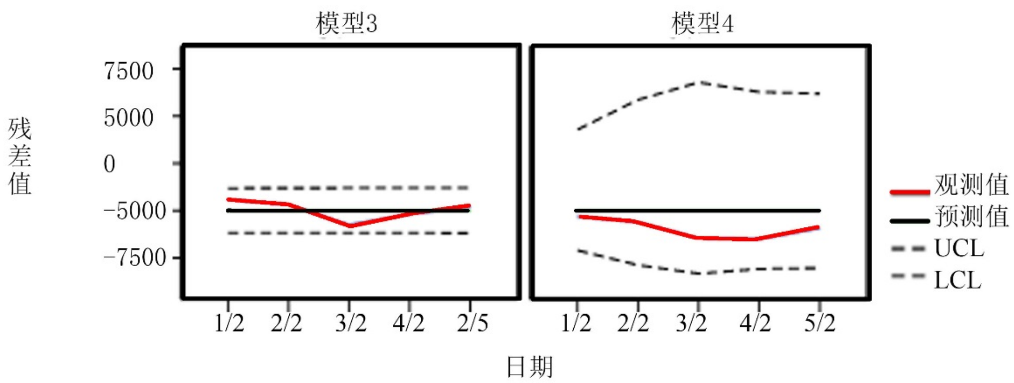

图 6：模型 3 和模型 4 预测未来 5 日日增死亡人数残差图

2. 结果解释

（1）选择SPSS的专家建模器实际上是专家帮助选择是用指数平滑模型还是ARIMA模

型，不管模型有多么复杂，整体上拟合的效果并不差。（2）普遍认为ARIMA模型可以代替指数平滑模型，本数据实证分析结果证明指数平滑模型比ARIMA模型并不差，两个案例日增确诊和日增死亡的拟合结果都是指数平滑模型优于ARIMA模型。为什么指数平滑法（Winters加法）要优于ARIMA模型？分析原因一个因素是短期预测模型，ARIMA在建模时要比指数平滑模型少了一个周期，所能利用的原始数据信息相对减少。二是从统计学理论上来看Winters加法模型可能更适合具有一定趋势和季节性的短期时间序列。（3）整体上美国日增死亡模型拟合要优于日增确诊模型，分析可能有2个原因。一是日增死亡数列周期波动相对稳定和规则。二是日增死亡数列与日增确诊数列的数量级别不同，见表1。（4）美国日增确诊人数和日增死亡人数为什么会出现周期变动？本结果显示以一星期7天为基本周期，周一是季节指数的较低，周三到周五较高，可能原因是周六周日是周末，是非工作日，可能导致收集、审核、汇总数据有些滞后。比较美国和法国的日增死亡人数的趋势，可以看出有相同的规律。而位于亚洲的印度和日本的日增死亡人数的趋势就没有这样的规律，见图7。

3. 模型的运用

Winters加法模型的一般形式为：

$$f_{t+m} = (S_t + b_t m) I_{t-l+m}$$

其中f_{t+m}是时间t+m的平滑值，本文就是时间m日的预测值。S_t是时间t的平滑值，b_t是描述趋势的平滑值，是单位时间两个相邻平滑值之差。I_{t-l+m}预测值前一周期相应的季节指数，例如，计算2022年2月1日（周二）的预测值，需要用到7天前2022年1月25日（星期二）的季节指数（薛薇，2013）。上式中的l表示周期的长度，本文周期是7天。实际计算过程还要复杂一些，因为SPSS输出结果中并不会直接给出这些参数，而是给出了3个初始参数。3个初始参数又分别称为平滑参数α、趋势参数γ和季节参数β（张文彤，2007）。有了3个初始参数代入Winters加法模型一般形式就可以计算出各个时间的预测值。

$$S_t = \alpha S_{t-1} + (1-\alpha)(S_{t-1} + b_{t-1})$$

$$b_t = \gamma(S_t - S_{t-1}) + (1-\gamma) b_{t-1}$$

$$I_t = \beta \frac{y_t}{S_t} + (1-\beta) I_{t-l}$$

运用“专家建模器”模块对美国两个COVID-19指标日增确诊和日增死亡5日数据进行回代验证，结果显示，在美国回代验证结果的相对误差大小不超过1.0%。在2022年2月1日到2月5日日增确诊人数平均384829人，日增死亡人数平均3475人，按照现在发展趋势，美国日增确诊和日增死亡人数仍在高位，见图4和图6。提示美国政府应加大疫情管控力度和有效治疗手

段，尽量控制这两个指标。

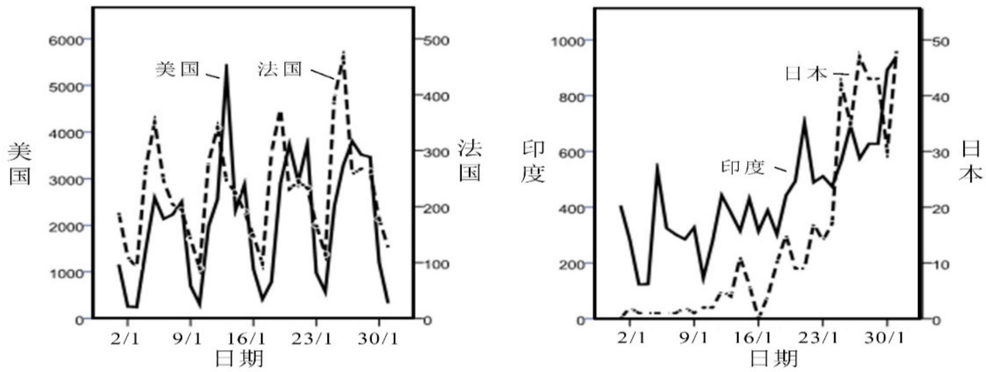

图 7：美国和法国（左）、印度和日本（右）日增死亡人数的趋势图对比

4. 不足之处

本研究存在着不足之处：（1）文本选择的Winters加法模型适用的范围有一定局限性，主要适用于短期数据的预测（薛薇，2013）。（2）当有季节变动时时间序列分析时SPSS基本要求至少要有4个完整周期数据，本文数据正好只有4个完整的星期，所以总的周期数目有些偏少是下限（卢普庆，2020）。如果能收集到更多的数据，模型拟合的效果会得到改善。（3）残差分析结果显示：总体上预测值要大于观测值（见图5和图7），说明拟合模型有一定的偏差，结果提示可能还有其它的模型存在，只不过是更复杂的模型罢了。还可以选择其它的ARIMA模型进行尝试（刘忠典和黎燕宁，2021）。

总结

运用 SPSS 的“专家建模器”可以对美国 2022 年 2 月 1 日-2 月 5 日的日增确诊和日增死亡数据建模预测，该模型有显著的理论意义和应用价值。结果提示，2022 年初，美国不管是单日新增确诊人数还是单日新增死亡人数仍然没有得到有效的控制。有上升的趋势。如果需要缓解疫情压力，需要政府采取或调整严格的防控措施。

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应用型本科院校大学新生心理健康调查分析及对策研究

SURVEY ANALYSIS AND COUNTERMEASURES RESEARCH ON MENTAL HEALTH OF UNIVERSITY FRESHMEN IN APPLIED UNDERGRADUATE COLLEGES

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摘要：SCL-90症状自评量表、UPI大学生心理健康调查表和PHQ-9抑郁症筛查量表，本研以中国河南7所应用型本科高校7533名2021级新生进行心理健康测评。从统计结果来看，2021级新生整体心理健康水平良好，但是也存在部分学生有不同程度的心理困扰。基于研究结果，对此提出相应的可实施对策，来进一步提升大学生心理健康教育的针对性和有效性，帮助学生建立心理健康意识，提高大学生的心理健康水平。

关键词： 大学新生，心理健康，调查分析，对策。

Abstract: SCL-90 symptom self-rating scale, UPI college student mental health questionnaire, and PHQ-9 depression screening scale, this study assessed the mental health of 7533 first-year students of class 2021 in seven applied for undergraduate colleges and universities in Henan, China. From the statistical results, the overall psychological health level of the class of 2021 freshmen is good, but some students have different degrees of psychological distress. Based on the study results, corresponding implementable countermeasures are proposed. To improve further the relevance and effectiveness of mental health education for college students, help students establish mental health awareness and improve the mental health level of college students.

Keywords: Freshmen in University, Mental Health, Survey Analysis, Countermeasures.

引言

大学是人生转折的关键时期，这一阶段对于“00”后的成长与发展发挥着举足轻重的作用。随着社会的不断进步，心理健康受到了更多的关注，尤其是大学新生这一特殊群体。在这关键时期，新环境的适应、生活方式与学习方式的变化、人际环境的改变等，这些对于他们来说都是巨大的挑战，在一定程度上会引起各种的心理压力，这也会引发一系列的心理问题，影响他们的心理健康状况[1]。因此，大学新生入学的心理测评尤为重要，这对于进一步加强和规范大学生心理健康教育系列工作，改善和提升大学生的心理健康状况，全面实现心理育人具有重大意义(Greenberg, 2020)。通过心理健康测评，我们可以全面了解新生入学后的整体心理健康状况，及时建立新生心理健康档案，对于新生中心理适应不良的人群给予重点关注，并积极开展关注、回访、跟踪、辅导工作，共同帮助学生摆脱成长中的烦恼，促进其身心健康发展。为了解大学新生整体心理健康状况以期提升大学新生的心理健康水平，并为接下来开展大学生心理健康教育工作提供相关依据，现以河南某高校大学新生为研究对象开展研究。

1 调查对象与方法

1.1 调查对象

本次调查对象为河南 7 所应用型本科高校 2021 级新生，其中大一新生 7533 人，2021 级专升本新生 3473 人。大一新生 SCL-90 和 UPI 量表有效被试 7367 人，有效测评比率为 97.80%。PHQ-9 量表有效被试 7384 人，有效测评比为 98.02%。参加 SCL-90 和 UPI 量表测评学生的详细信息见表 1，参加 PHQ-9 量表测评学生的详细信息见表 2。专升本新生 SCL-90 和 UPI 量表有效被试 3412 人，有效测评比率为 98.24%。PHQ-9 量表有效被试 3423 人，有效测评比为 98.56%。参加 SCL-90 和 UPI 量表测评学生的详细信息见表 3，参加 PHQ-9 量表测评学生的详细信息见表 4。

表 1：各校大一新生参加心理测评人数的具体分布（SCL-90 和 UPI）

单位	测评总人数	校总人数	未测人数	未测比例
高校 1	1844	1854	10	0.54%
高校 2	1548	1624	76	4.68%
高校 3	1853	1914	61	3.19%
高校 4	1884	1898	14	0.74%
高校 5	238	243	5	2.06%
总计	7367	7533	166	2.20%

表 2：各院大一新生参加心理测评人数的具体分布（PHQ-9）

单位	测评总人数	校总人数	未测人数	未测比例
高校 1	1845	1854	9	0.49%
高校 2	1559	1624	65	4.00%
高校 3	1862	1914	52	2.72%
高校 4	1877	1898	21	1.11%
高校 5	241	243	2	0.82%
总计	7384	7533	149	1.98%

表 3：各学院专升本新生参加心理测评人数的具体分布（SCL-90 和 UPI）

单位	测评总人数	校总人数	未测人数	未测比例
高校 6	1418	1442	24	1.66%
高校 7	1088	1101	13	1.18%
高校 5	906	930	24	2.58%
总计	3412	3473	61	1.76%

表 4：各学院专升本新生参加心理测评人数的具体分布（PHQ-9）

单位	测评总人数	校总人数	未测人数	未测比例
高校 6	1419	1442	23	1.60%
高校 7	1088	1101	13	1.18%
高校 5	916	930	14	1.51%
总计	3423	3473	50	1.44%

1.2 调查工具

本次调查采用了症状自评量表（SCL-90），大学生心理健康调查表（UPI）和抑郁症筛查量表（PHQ-9）等三种工具，从多种维度来调查大学新生的心理健康状况。

1.2.1 SCL-90 症状自评量表

SCL-90 是世界上著名的心理健康测试量表之一，它从感觉、情感、思维、意识、行为及生活习惯、人际关系、饮食睡眠等多种角度，评定一个人是否有某种心理症状及其严重程度如何。与其他的自评量表（如 SDS、SAS 等）相比，该量表具有容量大、反映症状丰富、更能

准确刻画受测者的自觉症状特性等优点[2]。SCL-90 作为一种适用面广、包含病理心理症状项目多的自评量表，在临床上发挥着不可替代的作用，是一种十分有效的评定工具。该量表有 10 个因子，分别是躯体化、强迫症状、人际关系敏感、抑郁、焦虑、敌对、恐怖、偏执、精神病性、其他等，每一个因子反映出被测者某一方面的情况。该量表采用 5 级评分（1～5 级）：1=从无，2=轻度，3=中度，4=相当重，5=严重。测试时要求被试回答所有 90 个项目，限定回答近一周的体验，凭感觉尽快完成答题。

1.2.2 UPI 学生心理健康调查表

UPI 是为早期发现治疗有心理问题的学生而编制的大学生心理健康检查表，以了解学生中神经症、精神分裂症以及其他各种学生的烦恼、迷惘、不满、冲突等状况的简易问卷[3]。第 25 题“想轻生”能够有效筛查学生的心理问题，本文用该题作为学生心理预警的一个标准。

1.2.3 PHQ-9 抑郁症筛查量表

PHQ-9 的量表条目来自于 DSM-IV（诊断与统计手册：精神障碍（第四版））抑郁症的诊断标准。量表内容简单，可操作性强，可作为抑郁症筛查及其严重程度的评估。项目 1，项目 4 和项目 9 作为核心项目，项目 1 和项目 4 任意一题得分＞1，项目 9 得分≥1 或总分≥10 即被纳入心理预警，其中项目 1 和项目 4 代表抑郁的核心症状，项目 9 代表自伤意念。

1.3 调查方法

本次调查是在固定时间、班级主教室内进行网上集体测评。测评前对新生辅导员和校学生会工作人员进行了软件操作及相关指导语的培训，所有主试人员有统一指导语。测试数据采用 SPSS for windows20.0 进行分析处理。

2 调查结果分析与讨论

2.1 SCL-90 量表和 UPI 量表整体预警结果

综合 SCL－90、UPI 两份量表的筛选，满足如下三个条件：（1）仅测试 SCL－90 量表的，则任一因子 3 分以上的人员被预警；（2）仅测试 UPI 量表的，则 UPI 总分〉=25，或第 25 题做肯定回答，或 UPI 辅助分〉=2 的人员被预警；（3）同时测试 SCL－90 量表与 UPI 量表的，则同时满足 SCL－90 预警条件和 UPI 预警条件的，或 UPI 第 25 题做肯定回答的人员被预警。检出大一新生预警学生 587 人，检出比率为 7.97%，具体结果见表 5。检出专升本新生预警学生 61 人，检出比率为 1.79%，具体结果见表 6。从结果来看，河南高校 21 级新生整体心理健

康水平良好，部分同学存在不同程度的心理困扰，大一新生和专升本新生分别检测出 7.97%和1.79%的学生有心理问题，需要密切关注。

表 5：各校大一新生 SCL-90 量表和 UPI 量表整体预警的结果

单位	检出人数	测评总人数	总比例
高校 1	163	1844	8.84%
高校 2	187	1548	12.08%
高校 3	107	1853	5.77%
高校 4	105	1884	5.57%
高校 5	25	238	10.50%
总计	587	7367	7.97%

表 6：各学校专升本新生 SCL-90 量表和 UPI 量表整体预警的结果

单位	检出人数	测评总人数	总比例
高校 6	13	1418	0.92%
高校 7	29	1088	2.67%
高校 5	19	906	2.10%
总计	61	3412	1.79%

2.2 UPI 量表检出的有轻生念头的学生分布情况

根据学生所做 UPI 量表第 25 题回答“是”的结果筛选，检出 255 名大一新生有轻生念头，检出比率为 3.46%，具体结果见表 7。检出 27 名专升本新生有轻生念头，检出比率为0.79%，具体结果见表 8。从结果来看，高校 2 检测出有轻生念头的学生比率最高，这一结果要高度重视，需要学校尽早干预。

表 7：各校大一新生 UPI 量表中“想轻生”的学生分布表

单位	“想轻生”总人数	测评总人数	总比例
高校 1	66	1844	3.58%
高校 2	94	1548	6.07%
高校 3	39	1853	2.11%
高校 4	48	1884	2.55%
高校 5	8	238	3.36%
总计	255	7367	3.46%

表 8：各学校专升本新生 UPI 量表中“想轻生”的学生分布表

单位	“想轻生”总人数	测评总人数	总比例
高校 6	6	1418	0.42%
高校 7	12	1082	1.11%
高校 5	9	915	0.98%
总计	27	3415	0.79%

2.3 PHQ-9 量表检出的各校各因子预警结果

根据学生所做 PHQ-9 量表项目 1，项目 4 任意一题得分＞1，项目 9≥1，或总分≥10 进行筛选，总分表现为心理问题倾向较严重者检出大一新生 677 人，检出比率为 9.17%；在项目 1（做什么事都没兴趣，没意思）抑郁核心症状上检出大一新生 475 人，检出比率为 6.43%；项目 4（常感到很疲倦，没劲）抑郁核心症状上检出大一新生 524 人，检出比率为 7.10%；项目 9（有不如一死了之的念头，或想怎样伤害自己一下）自伤念头上检出大一新生 989 人，检出比率为 13.39%。具体结果见表 9。总分表现为心理问题倾向较严重者检出专升本新生 112 人，检出比率为 3.27%；在项目 1（做什么事都没兴趣，没意思）抑郁核心症状上检出专升本新生 112 人，检出比率为 3.27%；项目 4（常感到很疲倦，没劲）抑郁核心症状上检出专升本新生 106 人，检出比率为 3.10%；项目 9（有不如一死了之的念头，或想怎样伤害自己一下）自伤念头上检出专升本新生 135 人，检出比率为 3.94%。具体结果见表 10。从结果来看，高校 2 和高校 5 在总分、项目 1，项目 4、项目 9 检出比率均偏高，说明这两个学校新生存在患抑郁症的风险较高，需要及时采取措施。

表 9：高校大一新生各因子预警的结果

单位	测评总人数	总分	项目 1	项目 4	项目 9
高校 1	1845	174 9.43%	100 5.42%	127 6.88%	262 14.20%
高校 2	1559	243 15.59%	167 10.71%	184 11.80%	282 18.09%
高校 3	1862	97 5.21%	88 4.73%	82 4.40%	176 9.45%
高校 4	1877	136 7.25%	101 5.38%	114 6.07%	230 12.25%
高校 5	241	27 11.20%	19 7.88%	17 7.05%	39 16.18%
总计	7384	677 9.17%	475 6.43%	524 7.10%	989 13.39%

表 10：高校专升本新生各因子预警的结果

单位	测评总人数	总分	项目 1	项目 4	项目 9
高校 6	1419	30 2. 11%	36 2. 54%	27 1. 90%	41 2. 89%
高校 7	1088	46 4. 23%	41 3. 77%	45 4. 14%	53 4. 87%
高校 8	916	36 3. 93%	35 3. 82%	34 3. 71%	41 4. 48%
总计	3423	112 3. 27%	112 3. 27%	106 3. 10%	135 3. 94%

3. 大学新生心理健康工作的建议及对策

从统计结果来看，大一生整体心理健康水平良好，部分同学存在不同程度的心理困扰。结合本次测评结果及各校学生的实际情况，建议从以下几方面逐步完善心理健康教育工作方法，强化大学生心理健康教育，帮助学生建立心理健康意识，共同提高全校大学生的心理健康水平。

3.1 强化认识，重视和完善心理测评回访制度

心理回访是在心理普测基础上进行的有针对性、结构化的访谈，旨在有效了解学生当前的心理状态，进一步甄别有心理危机和心理困扰的学生，以进行及时处理和干预。需要强化认识，重视并完善心理测评回访制度。本次测评采用症状自评量表（SCL-90），大学生心理健康调查表（UPI）和抑郁症筛查量表（PHQ-9）进行筛查，心理健康教育中心对测评结果进行分析、整理，并将重点关注学生名单反馈至各校团学工作负责人和二级心理辅导站负责人。各辅导员根据名单信息开展约谈，并填写心理健康普查后重点关注学生约谈反馈表，完成后由二级心理辅导站统一上报至各校心理健康教育中心。谈话过程中若发现需要重点关注或者进行紧急干预的学生，可以及时联系心理健康教育中心老师，做好危机干预工作(Liu, et al., 2020)。

回访过程中，辅导员老师对名单上的预警学生应采取无条件积极关注的管理方式，根据心理测评结果进行简单的个体访谈，了解学生入校的适应情况、目前遇到的困难和心理困扰，并结合学生实际积极寻找解决方案，深度了解和确认回访学生的心理健康状况。另外，对预警学生名单要做好保密，防止因为出现预警而造成二次心理伤害。在遵循学生自愿原则基础上，辅导员老师和二级心理辅导站负责人初步评估，给需要二次评估的学生提出建议，建议其到心理健康教育中心参加回访，进一步甄别心理问题学生。如学生拒绝参加回访，辅导员老师随时

关注这些学生的心理动态和行为方式，发现特殊情况及时和心理中心老师联系，对于到心理中心二次评估的学生，心理中心要把特殊情况及时和辅导员老师联系反馈，如果评估认为学生处于心理疾病范畴，应建议家长带领学生去专业医院鉴别诊断，同时辅导员采用积极方式保障家长到校之前学生的人身安全。

3.2 加大力度，宣传和普及新生心理健康普查测评

新生心理健康普查，旨在了解新生的整体心理健康状况，并在此基础上提供相应的心理健康教育服务，对存在潜在问题的特殊学生给予积极关注，并在此基础上提供专业的心理咨询服务。新生心理健康状况普查测评是一次很好的宣传心理健康教育系列工作的机会。但是，目前仅有极少数学校的少量班级在新生入学教育中进行了心理健康知识的普及和宣传，大部分学生对心理健康普查工作缺乏系统的认知和了解，测评活动的宣传力度明显不够。

心理健康普查测评以及心理健康教育工作是在整个高等教育思路与模式转型过程中分量很重的基础性工作，心理健康普查测评不仅是了解学生心理动态的重要途径，更是新学年各个学校心理健康教育工作的开端。通过心理普测，一方面加强了对学生心理健康教育知识的宣传，帮助学生树立了心理健康意识；另一方面学校也获得了科学、真实、有效的心理测评数据，为今后心理健康教育工作的开展指明了方向、奠定了坚实的基础。因此，应该不断完善心理健康普查测评的基本工作制度，不断提高心理健康教育系列工作的开展质量，不断提高同学们的心理健康水平和综合素质，共同为学校全体学生的心理健康保驾护航。

日后工作中，我们应该以新生心理健康普查测评为契机，加大对心理健康知识的普及和宣传力度，帮助学生全面了解心理健康系列知识，提升其心理健康水平。比如，学校可以在新生军训期间，开展不同主题的心理健康知识系列讲座、组织以新生班级为单位的素质拓展活动等。在此基础上，再进行心理健康普查，可以减少学生的心理顾虑，提升学生的积极参与度，从而提高心理健康普查结果的有效性。

3.3 完善机制，建设大学生心理问题医疗保障绿色通道

为进一步完善各个校的心理健康普查工作机制，学校仍需不断建立健全大学生心理问题医疗保障的绿色通道。心理健康普查结果出来后，经辅导员老师初步访谈、心理健康教育中心二次评估，初步判断学生可能存在非常严重的心理问题或心理障碍，需要进行心理治疗或住院治疗时，应及时告知学生去专科医院就诊，进行全面系统的医学检查，必要时配合药物治疗，以免病情加重。此时，就需要在学校建立畅通的大学生心理问题医疗机制，心理健康教育中心

可与校外医院精神科或精神卫生机构确立明确的转诊制度，使学生能够顺利地转诊就医，做进一步的诊断和治疗，从而有效保障学生的后续学习和生活。

3.4 开设新生家长课堂，提升家校沟通质量

有研究者认为，影响大学生心理健康的因素是多重的，不仅有自身因素，还与个体所生活的综合环境有关，如学校、家庭等(Lattie et al., 2022)。从以往咨询案例来看，大学生群体所暴露出的心理问题并非完全是大学生自身造成的，很多问题是个体受家庭高期望值、家庭教养方式等家庭因素影响而积累、潜伏下来的。在大学这个特定的学习、生活环境中，问题逐渐暴露出来，严重影响大学学习和生活。因此，改善家庭的心理环境，提高父母的心理素质，对其进行心理健康知识普及教育尤为重要，使他们懂得教育要遵循孩子心理发展的规律和特点，对孩子进行适时适当的教育。

实践证明，学生的心理健康教育工作，离不开家庭的支持和配合。因此，改善家庭的心理环境，提高父母的心理素质，对其进行心理健康知识普及教育尤为重要。鉴于大学生成长与家庭氛围的特殊关系，学校应加强与家长之间的沟通。辅导员老师根据学生在校期间的表现情况，与家长积极沟通，加强家校联系的频率和效率，共同分析学生问题的原因，同家长一起制定心理健康教育的目标和实施方案。对此，各校可以在新生入学后，面向家长，开展不同形式的线上、线下心理健康微课堂，主要和家长讨论如何有效帮助孩子尽快适应大学生活、如何理解心理健康对于学生未来发展的意义等，真正关心学生、爱护学生的家庭定会积极参与，共助孩子成长。新生家长微课堂不仅会成为普及大学生心理健康教育的窗口，也会成为家校沟通的重要渠道。同时，引导家长树立正确的教育理念，提高对学生心理的了解和认识，掌握科学的教育方法，形成良好的家庭教育氛围，促进大学生心理的健康发展(Eisenberg et al., 2018)。

3.5 健全框架，构建四级心理健康教育体系

进一步建立健全各校大学生心理健康教育工作体系，推进大学生心理健康教育工作科学化、规范化建设，各校要健全心理健康教育体系的框架，构建“学校—书院/学院—班级—宿舍”大学生心理健康教育工作四级网络体系，具体内容可以是：各书院/学院以宿舍为单位，每个宿舍选拔 1 名学生担任宿舍心理健康教育信息员，开展宿舍心理健康教育与宣传活动，主动关心宿舍同学，积极倾听，发现有心理异常的同学第一时间向班级心理委员和辅导员报告，每周上报给班级心理委员。各书院/学院以班级为单位，每个班级选拔 1 名学生担任心理委员，为所在班级宣传普及心理健康知识，开展丰富多彩的心理健康教育活动，了解班级学生的心理

动态，根据实际情况每月及时填写班级心理健康动态报告记录，每月定期由二级心理辅导站汇总上报，若发现有心理异常的学生，及时向辅导员或心理健康教育中心汇报。

各校书院或学院成立心理健康教育工作领导小组，可由负责学生工作的党总支副书记任组长，辅导员为成员。各校书院或学院心理健康教育工作领导小组设立二级心理辅导站，负责本书院或学院日常学生心理健康教育工作，积极配合心理健康教育中心开展包括新生心理健康后续约谈工作、每月预警学生约谈工作等，并为本院心理预警库学生建立心理健康档案。这样一来，学校就形成了既有明确分工，又能通力合作的心理健康教育运行机制，对学生心理问题能做到及早发现，尽早干预并有效解决，建立有效的校园心理支持系统，促进学生身心健康成长。

3.6 转变思路，建设多维的心理健康教育教师队伍

心理健康教育教师队伍的稳定和发展，对提升全体学生心理健康素质起着不可替代的重要作用。队伍健全，力量多维是心理健康教育教师队伍建设的终极目标(Liu et al., 2020)比如，一所学校校当前有 10 位专职教师从事大学生心理健康教育工作，各位老师各有擅长领域，统筹负责全校新生的大学生心理健康教育课程教学、心理咨询、心理健康系列主题活动的组织与开展等工作。在日常工作中，各位老师始终坚持不断更新心理健康专业知识、不断提升教学、心理咨询服务及活动开展的技能水平，共同为提高学校大学生的心理健康素质教育工作贡献自己的力.

3.7 预防大于治疗，创建和谐的心理健康教育环境

心理健康教育环境主要是校园文化环境、教育教学活动以及师生关系等能够对大学生心理形成影响的校内环境，具有潜移默化的教育功能，和谐校园环境对促进大学生心理健康水平的提高有积极的催化作用（Moreno et al., 2020）。大一新生刚入学，需要一段时间的适应过程，这段时间学生的情绪波动比较大。在新生心理健康普查测评工作中，不难发现虽然同学们的整体心理健康状况是比较稳定的，绝大多数同学心理健康状况是良好的，但是心理健康教育工作的重点是要做到预防大于治疗。因此，如果学校的心理健康教育中心可以将有效整合各书院或学院及职能部门的力量与资源，构建“学校—书院/学院—班级—宿舍”心理健康教育工作四级网络体系，帮助学生建立强大的校园心理支持系统，时常了解学生的心理动态，对学生心理问题做到及早发现，尽早干预并有效解决，那么就可以减少心理问题的发生(Lattie, Lipson & Eisenberg, 2019)。另外，可以举办形式多样的活动，心理健康教育中心定期举办有针对性的、形式多样的心理健康知识普及和宣传活动，着眼于学生的健康发展，在各色主题活

动中丰富学生校园文化生活，如心理健康月活动、春季心理危机排查活动、心理话剧大赛和心理健康周活动等，让学生在特色活动中，感受健康、积极、向上的校园文化氛围，培养兴趣爱好，增强心理能量，塑造积极心态。

心理健康教育是大学生素质教育的重要环节，也是大学生思想政治教育工作的重要任务，所以加强大学生心理健康教育具有非常重要的意义。许多成功人士除了具有扎实的知识素养和较强的专业能力之外，不可缺少的就是他们的良好心理素质。而事业失败的人，大部分会挫折耐受力不高，遇到困难轻易后退，经受不起挫折和困难。所以，不断加强大学生心理健康教育工作，提高大学生的心理素质、政治素质和适应社会的能力，可以为社会培养更多综合性的高素质人才。

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不同强度的体育舞蹈课程对大学生骨代谢标志物的影响

THE INFLUENCE OF DIFFERENT INTENSITY SPORTS DANCE COURSES ON BONE METABOLISM MARKERS OF COLLEGE STUDENTS

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摘要：文章通过探究一次性不同强度的体育舞蹈课程对普通大学生骨代谢生化标志物的影响，以便为学校公体课程的开展提供参考。文章基于方便抽样的原则，随机选取普通大学生 100 名（平均年龄为 22.02±1.37 岁），随机分为 4 组，每组 25 人，分别对各组进行 90min 的不同强度的体育舞蹈运动干预，课程内容主要为华尔兹，其中 A 组的运动强度为心率 100-120 次/min，B 组为 120-140 次/min，C 组为 140-160 次/min，D 组为 160-180 次/min，分别测量各组运动前后血液中的血钙、25(OH)D、PTH、PINP 和 β-CTX。研究结果发现，与运动前比较，运动后的 B 组、C 组和 D 组的血钙和 PTH 水平均明显增加（P 值均<0.05），而各组的 25(OH)D 水平均无明显变化（P 值均>0.05），B 组和 C 组的 PINP 水平均明显下降（P 值均<0.05），而 C 组和 D 组的 β-CTX 水平均明显升高（P 值均<0.05），这提示 C 组存在着 PINP 和 β-CTX 的交叉作用。在心率为 120-180 次/min 的范围内血钙和 PTH 水平是随着运动强度的加大而持续升高的，在 120-160 次/min 的范围内 PINP 水平是随着运动强度的加大而持续下降的，在 140-180 次/min 的范围内 β-CTX 水平是随着运动强度的加大而持续升高的（以上 P 值均<0.05）。文章的结论认为运动强度为心率 120-140 次/min 的体育舞蹈课程能够促进骨形成，160-180 次/min 时会导致骨量丢失，而 140-160 次/min 时骨形成和骨吸收在同时进行，是否能够增进骨健康还有待进一步研究，因此建议体育舞蹈公体课程在促进大学生骨健康时的运动强度应设置为心率 120-140 次/min。

关键词： 运动强度，体育舞蹈课程，大学生，骨代谢生化标志物

Abstract: To explore the effects of one-time sports dance courses on the biochemical markers of bone metabolism of ordinary college students in order to provide reference for the development of school physical education courses. The method of this study based on the principle of convenient sampling ,100 college students (average age was 22.02±1.37 years old) were randomly selected. The exercise intensity of A group was heart rate 100-120 beats/min, B group was 120-140 beats/min, C group was 160-160 beats/min, D group was 160-180 beats/min, blood calcium ,25(OH) D, PTH, PINP and β-CTX were measured before and after exercise respectively. The result of the study as follows, compared with before exercise, the blood calcium and PTH levels in B, C and D groups increased significantly ($P<0.05$), and the PINP levels in B and C groups decreased significantly ($P<0.05$), and the β-CTX levels in C and D groups were significantly increased ($P<0.05$), this suggests that C group has a cross effect of PINP and β-CTX. The level of blood calcium and PTH in the range of heart rate of 120-180 beats/min is increasing with the increase of exercise intensity, the PINP level in the range of 120-160 beats/min is decreasing with the increase of exercise intensity, and the level in the range of 140-180 beats/min is increasing with the increase of exercise intensity ($P<0.05$).The paper concludes that heart rate 120-140 beats/min can promote bone formation,160-180 beats/ min can lead to bone loss, and 140-160 beats/ min bone formation and bone resorption at the same time, whether it can improve bone health remains to be further studied. Therefore, it is suggested that the exercise intensity in promoting bone health should be set to heart rate 120-140 beats/min.

Keywords: Exercise Intensity, Sports Dance Course, College Students, Biochemical Markers of Bone Metabolism.

引言

目前中国正在进行健康中国建设，学校卫生与健康教育的研究也日益成为中国社会关注的热点。学校在促进师生健康的诸多手段中，体育活动或者体育课程的科学开展显得尤为重要。研究表明青年时期所形成的峰值骨量对于预防老年性骨质疏松症有着至关重要的作用（Li et al.， 2019），而体育运动能够促进人体骨密度的增加（Chen, 2018），但是运动对骨密度的改善作用受到运动项目、强度、频率、锻炼时长等诸多因素的影响（Ma et al.， 2018；Wang, 2018；Lan et al.，2018）。大学生是国家的未来、民族的希望，引导他们达到较高的峰值骨量，这对缓解中国老龄化社会的医疗压力和促进健康中国建设有着重要意义。目前中国普通大学生的公体课程往往每周开展 1 次，每次 90 分钟，持续时间大概 16-20 周，而研究表明运动能够引起骨密度的增加至少需要 1 年以上的时间 （Shen，2008），还有研究认为延长运动时间以及完善运动负荷结构能够提高运动对骨密度的干预效果（Zhu et al.，2016）。因此如何在这有限的学时内最大限度的促进大学生的骨健康?这对运动强度这一要素来说显得尤

为重要。基于此，本研究探究一次性不同强度的体育舞蹈课程对普通大学生骨代谢生化标志物的影响，以便为中国高校学校体育课程的开展提供参考。

1 研究对象与方法

1.1 研究对象

基于方便抽样的原则，2021 年 5 月在郑州工商学院随机选取大三非体育专业学生共计 100 名作为受试对象，平均年龄为 22.02±1.37，其性别和民族不限。受试对象的纳入标准：（1）身体健康状况良好，近期无任何疾病者；（2）无骨代谢异常病史者；（3）在大一或大二期间学习过体育舞蹈公体课程者，或者有体育舞蹈运动经历者；（4）身体质量指数（BMI）正常者（18.5kg/m2≤BMI≤23.9kg/m2）（Wang & Gao, 2017）；（5）安静时心率在 75±15 次/min 者；（6）对实验过程知情且积极配合者。以受试对象的骨代谢生化标志物为研究对象，主要包括：(1)一般生化标志物：血钙；（2）骨代谢调控激素：25-羟基维生素 D（25(OH)D），甲状旁腺素（PTH）；（3）骨转换标志物：骨形成标志物：Ⅰ型前胶原氨基末端前肽（PINP），骨吸收标志物：Ⅰ型胶原羧基端肽交联(β-CTX)。

1.2 BMI 和安静时心率的测量

采用电子身高体重计对受试对象的身高体重进行测量，测量时要求受试对象赤足、着短裤和背心。运用 BMI=体重（kg）身高（m）的平方，计算出每位受试者的 BMI。采用芬兰 POLAR 公司生产的心率遥测仪 V800 对受试对象 5 分钟内的安静心率进行监测。

1.3 运动方案的实施

将受试对象随机分为 4 组，每组 25 人，分别以 A、B、C、D 进行命名。以华尔兹运动为主要干预手段，分别对这 4 组受试对象实施不同运动强度的目标心率干预，分别为 A 组 100-120 次/min，B 组 120-140 次/min，C 组 140-160 次/min，D 组 160-180 次/min。采用 POLAR-V800 心率遥测仪对运动时的即刻心率进行监测。目标心率时运动强度是通过在体育舞蹈教师的带领下增加练习的强度和密度获得的，如果学生的即刻心率超过目标心率，可以通过放缓动作甚至休息来进行调整。在运动干预过程测试人员对每一个受试对象运动的即刻心率随时监控并提醒，每个受试对象也可以都通过该仪器的腕表显示屏进行随时观察。要求受试对象要不定时地观察自己是否符合目标心率要求，测试人要也要不断提醒不符合目标心率的受试者。如果一个受试者在应达到目标心率的时段内，有持续 5min 时间没有达到目标心率，则该受试对象

的相关数据视为无效。整个运动干预时间持续 90min，这也是一次体育课程的时长。前 20min 为安静心率向目标心率的过度时段，这对应体育课程的准备活动阶段。随后进入到目标心率运动时段，持续时间为 60min，这对应体育课程的巅峰阶段。最后进行 10min 的放松练习，这对应体育课程的整理活动阶段。

1.4 实验数据的测量

每次运动干预结束后，立即采集受试对象肘静脉血 5ml 并送至郑州大学内分泌重点实验室，采用离子选择电极法测定血钙，采用化学发光法测量 25(OH)D、PTH、PINP 和 β-CTX，以上生化指标均由相同技术人员严格按照仪器和试剂盒的操作流程及实验室质量控制标准来完成测量，采用相同试剂盒也进行了组内和组间检验。25(OH)D 的组内和组间的变异系数（CV）分别为 6%和 8%，最小可测值（MMV）为 9.3 nmol/L；PTH 的组内和组间的 CV 分别为 2%和 4%，MMV 为 1.1 pg/ml；PINP 的组内和组间的 CV 分别为 3%和 5%，MMV 为 4.5 pg/ml；β-CTX 的组内和组间的 CV 分别为 2%和 3%，MMV 为 0.01pg/ml。

1.5 统计分析

采用 SPSS20.0 软件对实验所得数据进行统计学分析。骨代谢指标在实验前后的比较采用 Paired-Sample Test，各组运动前骨代谢指标的齐同性采用 One-Way ANOVE，骨代谢指标在运动前后的差值在不同组间的两两比较采用 Independent-Sample Test。

2 研究结果

结果显示，与运动前比较，运动后的 B 组、C 组和 D 组的血钙和 PTH 水平均明显增加（P 值均<0.05），而 A 组、B 组、C 组和 D 组的 25(OH)D 水平均无明显变化（P 值均>0.05），B 组和 C 组的 PINP 水平均明显下降（P 值均<0.05），而 C 组和 D 组的 β-CTX 水平均明显升高（P 值均<0.05），这提示 C 组存在着 PINP 和 β-CTX 的交叉作用。见表 1、表 2、表 3 和表 4。

表 1：A 组受试者在运动前后骨代谢标志物的比较

	血钙（mmol/L）	25(OH)D (nmol/L)	PTH (pg/ml)	PINP (ng/ml)	β-CTX (ng/ml)
运动前（n=25）	2.36±0.24	22.45±7.18	3.49±0.37	48.12±27.01	0.36±0.02
运动后（n=25）	2.48±0.37	23.19±8.26	4.58±0.41	53.24±29.35	0.48±0.03

表 2：B 组受试者在运动前后骨代谢标志物的比较

	血钙 (mmol/L)	25(OH)D (nmol/L)	PTH (pg/ml)	PINP (ng/ml)	β-CTX (ng/ml)
运动前（n=25）	2.34±0.33	21.78±6.54	3.47±0.30	47.95±29.12	0.36±0.03
运动后（n=25）	2.50±0.38*	22.56±7.20	5.99±0.44*	60.08±32.41*	0.50±0.04

*:P<0.05 vs 运动前

表 3：C 组受试者在运动前后骨代谢标志物的比较

	血钙 (mmol/L)	25(OH)D (nmol/L)	PTH (pg/ml)	PINP (ng/ml)	β-CTX (ng/ml)
运动前（n=25）	2.38±0.31	22.09±8.14	3.48±0.36	48.09±27.15	0.37±0.04
运动后（n=25）	2.55±0.40*	22.92±7.68	6.49±0.52**	58.21±31.29*	0.55±0.04*

*:P<0.05， **: P<0.01 vs 运动前

表 4：D 组受试者在运动前后骨代谢标志物的比较

	血钙 (mmol/L)	25(OH)D (nmol/L)	PTH (pg/ml)	PINP (ng/ml)	β-CTX (ng/ml)
运动前（n=25）	2.39±0.34	22.45±6.81	3.48±0.35	48.51±28.24	0.36±0.03
运动后（n=25）	2.58±0.39**	23.15±7.19	5.78±0.49*	57.47±32.04	0.60±0.06**

*:P<0.05 ,**:P<0.01 vs 运动前

为了进一步明确不同运动强度的体育舞蹈运动对大学生骨代谢生化标志物的影响幅度和趋势，本研究对运动前各组的各骨代谢指标进行了方差分析，结果表明骨代谢指标在不同组之间均无明显差异，这说明不同组别的受试对象在运动前各骨代谢指标具有齐同性。本研究计算出运动前后各骨代谢指标的差值，公式：X=运动后-运动前，由于 A 组大学生在运动前后各骨代谢指标的差异均无统计意义，故 A 组不参与比较，同时 25(OH)D 在不同组运动前后的差异也均无统计意义，故该指标也不参与比较，因此对 X1（血钙的差值）、X2（PTH 的差值）、X3（PINP 的差值）和 X4（β-CTX 的差值）进行在 B 组、C 组和 D 组之间的两两比较。由于 D 组的 PINP 在运动前后的差异无统计学意义，因此 D 组的 PINP 不再参与比较，同时由于 B 组的β-CTX 在运动前后的差异无统计学意义，因此 B 组的 β-CTX 也不参与比较。结果显示：在目标心率 120-180 次/min 的运动强度干预下血钙差值和 PTH 差值在各组之间的差异均有统计学意

义（P 值均<0.05），且 t 值均为负值，这说明随着运动强度的增加大学生血钙和 PTH 的分泌量是持续增加的；PINP 的差值在 B 组和 C 组之间的差异有统计学意义（P 值<0.05），且 t 值为正值，这说明在目标心率 120-160 次/min 时大学生 PINP 的代谢量会随着运动强度的增加而下降；β-CTX 的差值在 C 组和 D 组之间的差异有统计学意义（P 值<0.05），且 t 值为负值，这说明在目标心率 140-180 次/min 时大学生 β-CTX 的代谢量会随着运动强度的增加而升高。见表 5。

表 5：各组受试者在运动前后骨代谢标志物变化幅度的比较

	X1(mmol/L)		X2(pg/ml)		X3(ng/ml)		X4(ng/ml)	
	t	P	t	P	t	P	t	P
B 组 VS C组	-1.957	0.036	-2.227	0.018	1.904	0.035	------	------
B 组 VS D组	-2.305	0.024	-2.635	0.007	------	------	------	------
C组 VS D组	-1.871	0.041	-2.206	0.027	------	------	-3.024	0.004

3 讨论

人体血液中的钙往往以两种形式存在，一种是游离的钙离子，一种是和血浆白蛋白等形成的结合钙，前者能够对人体产生直接的生理作用，比如凝血效应、动作电位的传导和肌肉的收缩等，后者能够调节并维持血液中钙离子的动态平衡。影响人体血钙的因素有很多，比如激素（25(OH)D、PTH、CT 等）、药物（抗肿瘤的药物、抗惊厥的药物等）、营养、物理刺激（Lai,2019）和身体活动等，其中运动对人体血钙的影响的研究已经比较成熟了，目前普遍认为人体在运动中的血钙水平与运动负荷呈正比(Ljunghall et al.,1984;Bouassida et al.,2003;Zhang & Wang,2007)。本研究也发现随着运动强度的增加，大学生的血钙分泌量也持续增加。国内有关一次性运动对血钙水平影响的研究较少，仅有的研究也能证实了这一点，赵仁清等（2013）研究发现 1h 中等强度功率自行车运动能够显著提高男性大学生的血钙水平。目前有些研究发现长期进行某项运动还会引起血钙水平的下降，比如尹海滨（2013）对常年练习武术桩功的老年人和不参加体育活动的老年人的血钙水平进行了比较，结果发现习练桩功组的血钙水平显著低于对照组。还有李燕燕等（2008）的研究发现运动可促进骨组织对血钙利用，进而造成人体血钙水平的下降，以上研究结果之所以与本研究结果不同主要是因为人体的血钙水平在运动中或者运动后的 24h 仍然存在着变化，在不同时段进行测量就会产生不同的结果。血钙的分泌量随着运动强度的增加而持续升高的原因可能是对运动环境的产生的积极适应，因为强度越高的运动，肌肉收缩速度和力量就越大，也就需要更多的钙离子，同时 PTH 的升高也会升高血钙水平，这都预示着骨骼正处在高的代谢水平上。

250HD 作为骨代谢的调控激素，主要是通过促进肠道钙吸收，进而促进新形成的骨样组织组织矿化，来增加骨密度的，同时当血钙正常时，又会反馈抑制 PTH 的分泌，阻止钙从骨中动员出来，当血钙过高时，又会刺激甲状腺 c 细胞，产生降钙素，进而降低血钙，因此 250HD 对调节血钙和调控骨代谢有着及其重要的生理作用。目前测量血清 250HD 的含量日益得到重视，此指标也是反映人体内 250HD 储备的最好指标（Liao et al.,2014）。影响体内 250HD 含量的主要因素是合理膳食和紫外线照射(Luo et al.,2017)。目前有关运动对人体 250HD 影响的研究报道较少，仅有的研究也是长期运动对 250HD 影响，比如伍先明等(2019)发现常规治疗基础上附加运动干预会显著性地提高骨质疏松症患者的 250HD 水平。本研究发现一次性的体育舞蹈运动对人体 250HD 含量的影响无明显的作用，虽然暂时无法和其他研究进行相互印证，但也从一个方面预示着一次性运动对血钙的影响主要通过 PTH 来调节的。

PTH 是由甲状旁腺分泌的直链肽，其主要功能是调节全身的钙平衡，其作用的靶器官主要是骨骼，它不仅能够促进骨吸收，也有促进骨形成的作用，但总的效应表现为升高血钙和降低血磷（Levin et al.,2007），其最终是通过肾脏排出体外的。现有研究表明长期的高强度的运动能够促进运动个体 PTH 的持续释放，进而造成机体内 PTH 水平的升高，而长期的中等强度的运动能够降低体内的 PTH 水平(Cheng & Wu,2006;Ljunghall,1998)，但是国内外对于一次性运动对人体 PTH 影响研究鲜有报道。本研究发现随着体育舞蹈运动强度的增加大学生 PTH 分泌量呈上升趋势，这和赵仁清等的中等强度 1h 功率自行车运动对男性大学生 PTH 的影响结果是一致的，华川等(2012)的研究也证实这一点，其研究发现官兵们一次性力竭运动后的 PTH 水平是显著性升高的。造成本研究结果的原因：（1）可能是机体对于一次性运动产生的一种应激发应，机体通过大量分泌 PTH 来提高血钙水平，进而增强人体机能来应对不同强度的运动刺激；（2）也可能由于强度过大的运动对肾脏的排泄功能造成了影响，进而减少了 PTH 排泄，表现为随着运动强度的增加大学生体内的 PTH 水平持续升高。

在诸多人体骨代谢指标中骨转换标志物是了解骨代谢情况证据质量分级较高的指标，其最能够直接反映骨细胞活性与骨基质代谢水平(Chen et al.,2015)。骨转换标志物分为骨形成标志物和骨吸收标志物两大类。前者是反映成骨细胞活性与骨形成状态的直接或间接产物，比如成骨细胞的Ⅰ型前胶原在骨形成时被分泌到细胞外，并裂解为 PINP；后者是破骨细胞分泌的或代谢的骨组织产物，它们能够反映破骨细胞活性与骨吸收情况的，比如破骨细胞的Ⅰ型胶原在赖氨酰氧化酶催化下会降解释放出 β-CTX，因此 PINP 和 β-CTX 是能够反映骨形成和骨吸收情况的重要指标。本研究发现目标心率为 120-180 次/min 时体育舞蹈运动能够加速骨代谢，具体表现为目标心率 120-140 次/min 的体育舞蹈运动主要促进骨形成，目标心率为 160-180 次/min 的体育舞蹈运动主要促进骨吸收，而目标心率为 140-160 次/min 的体育舞蹈运动时

存在着 PINP 和 β-CTX 的交叉作用，也就是骨形成和骨吸收在同时进行，具体哪个方面占主要作用？这有待于进一步的研究，但是能够确定的是在此运动强度下骨形成的力度是下降，而骨吸收的力度却是增加的。虽然国内外对于一次性运动对 PINP 和 β-CTX 影响的研究不多，但是本研究结果和长期以来形成的共识是吻合的，也就是中等强度能够增加骨密度，而高强度运动不仅不能增加骨密度，还会造成骨密度的下降。

综上所述，一次性的目标心率为 120-180 次/min 时体育舞蹈运动能够增强大学生的骨代谢，表现为血钙、PTH、PINP 和 β-CTX 的显著性的升高。一次性的体育舞蹈运动对大学生的 25OHD 水平无显著性影响。一次性的目标心率 120-140 次/min 的体育舞蹈运动能够促进骨形成，目标心率为 160-180 次/min 的体育舞蹈运动能够导致骨量丢失，而目标心率为 140-160 次/min 时骨形成和骨吸收在同时进行，因此建议体育舞蹈公体课程在促进大学生骨健康时的运动强度阈值为心率 120-140 次/min，但是在目标心率为 140-160 次/min 时骨形成和骨吸收哪个占优势？这有待于进一步的研究。

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河南省理科职前教师 TPACK 能力现状分析及提升策略研究

ANALYSIS OF THE CURRENT SITUATION OF TPACK ABILITY OF PRE-SERVICE TEACHERS OF SCIENCE IN HENAN PROVINCE AND RESEARCH ON IMPROVEMENT STRATEGIES

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摘要：随着信息技术的飞速发展，教育面临越来越多的问题和挑战。信息技术的进步促进教育领域的变革，教育信息化的概念应用而生，教育信息化成为必然趋势。在教育信息化的背景下，迫切要求提高教师的知识结构与信息化技术整合应用的能力。学科教学知识整合技术直接影响教师自身教学能力、学科知识整合能力和多学科融合教学能力的发展。本研究基于 TPACK 理论框架知识，对河南省理科职前教师进行了 TPACK 能力现状的问卷调查。并对职前教师 TPACK 理论框架下的七个维度知识水平进行描述性统计分析，进而了解职前教师教学能力发展过程中存在的问题并设计出提升策略，旨在为当地教育事业的发展提供理论参考。

关键词：TPACK，理科职前教师，现状分析，提升策略。

Abstract: With the rapid development of information technology, education is facing more and more problems and challenges. The progress of information technology promotes the reform in the field of education and the concept of educational informatization comes into being. The education informationization becomes the inevitable trend. Under the background of education informationization, it is urgent to improve the ability of teachers to integrate their knowledge structure with information technology. Pedagogical content knowledge integration technology directly affects the development of teachers' teaching ability, subject knowledge integration ability and multidisciplinary integration teaching ability. Based on the theoretical framework of TPACK knowledge, this study conducted a questionnaire survey on the current situation of TPACK ability of pre-service science teachers in Henan Province. It also conducts a descriptive statistical analysis of the seven dimensions of knowledge level of pre-service teachers under the framework of TPACK theory, so as to understand the problems existing in the development of pre-service teachers' teaching ability and design improvement strategies, aiming to provide theoretical reference for the development of local education.

Keywords: TPACK, Pre-Service Teachers, Current Situation Analysis, Improvement Strategy.

1 引言

1.1 研究背景

在互联网快速发展的今天，社会需要越来越多高质量的人才，而人才培养的主要输出来源在学校，利用传统教育教学模式，培养出符合当今社会需要的高质量人才，显然已经不符合当下教育信息化发展的趋势。为推动教育信息化升级，中国教育部发布的《教育信息化十年发展规划（2011－2020 年）》中，明确提出了推进信息技术与教学整合的任务，要求利用信息技术开展教学，提高信息化教学水平，促进教师专业发展。袁智强（2008）通过调查发现：高中最新版数学教材已经引入了科学计算器、图形计算器、自由软件“Scilab”，有的教材还引入了国产优秀软件“Z+Z 超级画板，还有的教材介绍了常用的“Excel”。教师 TPACK 能力是信息时代教师专业知识的核心，是教师信息技术应用能力的知识基础，它直接影响职前教师信息技术应用能力的水平与发展。对于 TPACK 的研究将有利于提高职前教师掌握和运用信息技术的能力。除在职教师外，目前毕业生尤其是师范院校的毕业生是未来教师的主力军。如何培养理科职前教师？他们应具备哪些教学能力才能更好的完成教育教学工作？现已成为了近年来专业化发展研究的重要领域。因此，了解职前理科教师 TPACK 能力现状意义重大。

笔者在查阅大量相关文献和资料的基础上，发现目前我国学者对某区域职前教师的研究较少，且多集中于对在职教师发展现状普遍意义上，内容较少、过于笼统、重理论、少实践。河南省是我国的教育大省，生源多，科学地测量省内职前教师的发展现状，并有效设计提高教师专业素养的路径，不仅为河南省职前教师发展提供新的模式，也可对全国其他地区教师教育发展做出典范，具有代表性的意义。

1.2 研究意义

随着信息技术迅猛发展，学科教学知识整合技术目前已成为教师必备的专业知识结构素养。本研究以河南省部分高校应届本科和研究生为例，调查了理科职前教师的 TPACK 能力现状，对存在的问题进行深入分析，有利于了解河南省理科职前教师在培养学科知识领域和现代化教育信息技术整合中存在的问题，对于提升河南省理科职前教师 TPACK 的能力具有实践意义和理论意义。本研究测试出河南省理科职前教师 TPACK 能力的实际水平，拓宽了提升理科职前教师专业化水平的路径，丰富了 TPACK 的本土化研究，为地域内理科职前教师教育 TPACK 研究提供了新思路。通过地域性的专项调查能够有效发现河南省理科职前教师整合学科知识与教育教学信息化能力问题，借鉴国内外 TPACK 的培养模式，充分考虑本土化的影响因素，填补河南省职前理科教师 TPACK 能力调查研究的空白，因地制宜地提出符合本省人才培养的理论方案，为相关论文研究奠定基础。

1.3 研究目的

本研究以河南省的部分高校理科毕业生为研究对象，目的是了解目前理科职前教师整合技术的学科教学知识的现状及存在的问题。其次，根据现状分析得出的结论，从职前理科教师专业发展角度出发，为理科职前教师提高自身 TPACK 能力水平，给出针对性的意见和建议，同时为河南省内的理科职前教师培养提供参考。

2 文献综述

2.1 TPACK的概念及内涵

随着 21 世纪科技时代的迅速发展，教师信息化的相关研究逐渐成为热点的话题。国内外的教育研究者分别从职前教师和在职教师的学科知识结构、教学法知识、信息技术应用和实践等方面展开深入的研究。舒尔曼（1986）在 PCK (Pedagogical Content Knowledge ）的著名著作中提出 PCK 为教师职业的独特特征，教师将学科领域知识与适当的教学方法相结合，可便于学习者理解相关的问题，并提出了学科教学法知识理论以描述教师应具备的知识结构。Niess（2005）用 TPCK 这个术语来代替技术增强的 PCK，利用这个概念研究技术整合项目是如何发挥学生和教师在课堂实践中对技术的使用以及影响因素，并增加了技术知识 (TK)作为教师职业中不可或缺的一部分，将 TPCK 描述为“学科知识的发展与技术的发展和教学知识的整合”。

TPACK 是 Technological Pedagogical Content Knowledge 的缩写，即整合技术的学科教学知识，是美国学者 Koehler 和 Mishra（2006） 在舒尔曼（Shulman）学科教学知识 PCK 理论的基础上提出的。根据 Koehler 和 Mishra 的 TPACK 理论，TPACK 包含七个元素，即：三个核心要素，学科内容知识(Content Knowledge, CK)、技术知识(Technological Konwledge, TK)和教学法知识(Pedagogical Knowledge ,PK)；四个复合要素，学科教学知识(Pedagogical Content Knowledge, PCK)、整合技术的教学法知识(Technological Pedagogical Knowledge, TPK)、整合技术的学科内容知识(Technological Content Knowledge, TCK)、整合技术的学科教学法知识(TPACK)。从 2005 年开始，国内外学者对 TPACK 展开了大量的理论和实践研究，何克抗(2021) 介绍了 TPACK 的产生背景、内涵与特征，认为 TPACK 不仅要将学科知识内容和教学法进行整合，同时也要将最前沿的信息技术融入到教学之中，以达成知识和技术相结合的新模式，并提出了该模式教学实施的有效途径。郝宁 (2009) 等对 TPACK 框架的内涵进行详细阐述，并提出使用问题解决法帮助教师获得框架知识。李艳（2009）在 21 世纪学习国际论坛概述中从技术的角度对 TPACK 理论框架及组成元素进行了阐述，包含信息通讯技术、虚拟现实技术在中小学课堂中的应用、电子化学习、移动学习等相关主题。当然不同的学者见解不同，从对其具体的表述来看，不同的研究结论和表述方式都存在相同的理论基础，对 TPACK 的含义和框架结构表述基本一致。本研究认为 TPACK 是三个核心要素和四个复合要素的相互融合，各要素之间具有复杂性，是一种综合性的知识，突出强调信息技术的重要性及其对学科知识、教学法知识的影响。注重教师教学信息化整合技术和智能信息技术应用的发展。

2.2 国内外的相关研究

2.2.1 国外的相关研究

Niess（2011），认为 TPACK 的发展需要四个核心组成部分：在特定学科教学中纳入技术的总体概念、该学科的理解、思考和学习的知识、课程知识、整合学习和教学中的技术的特定学科的课程材料等。Jang（2010）以电子白板为研究视点，深入剖析电子白板的应用和教师的 TPACK 水平，分析其间存在的关系，提出在职教师 TPACK 水平提高的方法。 Koehler & Mishra（2006）和 Koehler（2007）应用设计学习技术在教师教育和硕士学生中开发 TPACK，他们合作将线下真实课堂转化为在线课程等。Graham（2009） 以 TPACK 框架为视角，让职前教师完成所设计的某学科与信息技术应用相关的任务，全过程关注职前教师在实际学科教学中如何认识信息技术及如何做出运用信息技术的决定，通过对被试者进行开放式问卷调查来发现职前教师的 TPACK 能力水平的变化，从而研究如何提升职前教师学科课程与信息技术整合

的能力。Wilson, M. L（2020）采用随机效应模型对 3271 名职前教师进行 meta 分析，就教师教育课程、教师职前知识而言， 指出职前教师的课程设计特征和学习质量特征均无统计学意义。Santos, J. M（2021）通过对当地公办学校的职前教师和导师进行访谈发现，职前教师的 TPACK 应用主要受 TPK 和 TCK 的影响，确立了将科技融入课堂的替代方法。

综上所述，国外对教师 TPACK 能力从影响因素、培养模式及策略等方面展开研究，研究内容涉及课程设计、影响因素等，早期（2005 年-2007 年）以质性研究为主，后期（从 2008-至今）以量化和混合研究为主，国外的研究成果为我国开展相关方面的研究提供了基础，国外的实践经验对我国对 TPACK 的研究有一定的借鉴意义。

2.2.2 国内的相关研究

相比于国外，国内学者对 TPACK 的研究起步较晚，最初国内对 TPACK 的研究主要是对国外 TPACK 概念框架的引进、介绍、梳理以及未来趋势的预测，且研究的内容较少，但随着这几年 TPACK 的发展和教学现实需要来看，我国对 TPACK 的研究成果逐渐呈上升趋势。

从文献主题来看，总体上对师范生和各个教学段从幼儿园教师到高校教师 TPACK 都有涉猎，内容上多集中在教师专业发展、职前教师、教师教育、信息技术、信息技术与课程整合、教学课程设计上，而对 TPACK 能力影响因素和模式开发或区域性发展的研究较少。对在职教师而言，大部分研究中其影响因素多为政策、学校支持，职业培训，自我效能、性别、教龄、职称、学校层级等。在信息化教学意向层面，卢胜利（2011）等学者从学校和教师两方面提出以 TPACK 为理论基础指导职业教师 TPACK 的能力培养体系，并认为对教师培养进行改革学校应将学科教学课程与 TPACK 理论相融合。秦伟 等人（2013）对中学教师整合技术的学科教学法知识（TPACK）能力进行研究，提出教师应当具备与 TPACK 相关的七种能力素养，分别是 TPK 素养、TCK 素养、PCK 素养、TPACK 素养、主导与调控素养、境脉创设素养以及技术整合素养。卢强（2008）等人从当下社会发展对师范生的教学技能要求分析并发现教育培养中存在的问题，提出构建师范生的教学技能培养策略模型需要以认识弹性理论的方法。吴焕庆（2017）指出教师 TPACK 发展应积极参与设计、实施技术整合的课程。袁智强（2013）概括了教师 TPACK 发展的路径，包括设计学习、运用学习活动类型、课例研究基于微格教学。李鑫（2018）主要以学者 Mishra 和 Kohler 的 TPACK 框架为理论依据，借鉴该领域较有影响的测量问卷（《施密特问卷》和《阿尚波特问卷》），编制《高中生物教师 TPACK 调查问卷》。

综合国内外的研究，TPACK 不仅仅是一种整合了信息技术的全新学科教学知识，还逐渐发展成为一种能将信息技术融于各学科教学过程有效整合的全新可操作模式。遗憾的是国内关于教师 TPACK 能力的研究内容偏少，大多只是对 TPACK 能力的概念结构进行阐述，或是

引进国外相关的理论，也或是结合 TPACK 框架探讨教师教育素养方向的研究，但对地方区域性职前教师培养方面的研究较少。

3 研究方法

3.1 数据来源与样本信息

本研究的对象为中国河南省 430 名 2022 年 7 月即将毕业的应届理科学生，其中本科应届生 413 名，研究生 17 名。本研究采用了随机抽样的方式，涉及河南省 4 所高校。在学校层面，每个学校会随机抽取 110 名学生，抽取学生时会考虑学生性别、专业、学历及所属学校等变量。本次调查共发出调查问卷 440 份，回收的有效问卷 430 份，有效回收率达到 97.7%。如表 1 所示，本研究统计了不同性别、专业、学历及所属学校类型的学生分布，保证研究的样本具有一定的代表性和多样性，有利于描述出理科职前教师群体的整体情况。

表 1：职前理科教师基本信息描述性统计分析

名称	选项	频数	百分比(%)	累积百分比(%)
性别	男	62	14.42	14.42
	女	368	85.58	100.00
学历	本科	413	96.05	96.05
	研究生	17	3.95	100.00
专业是否为师范专业	师范	287	66.74	66.74
	非师范	143	33.26	100.00
教授的学科	数学	102	23.37	23.37
	物理	99	23.02	46.39
	化学	121	28.13	74.52
	生物	108	25.11	100.00
入职前是否曾系统学习过提升信息化教学相关能力的课程	是	234	54.42	54.42
	否	196	45.58	100.00
合计		430	100.0	100.0

由表 1 可知，本次问卷调查对象中，理科职前教师主要为女性，其中男性占比只有 14.42%，说明目前教师行业从业者以女性为主，男女比例显著失调。从学历情况来看，理科职前教师主要为本科，研究生学历占比较低，仅有 3.95%，说明理科职前教师学历分布不均。此外，调查结果还发现，职前教师大多数来自于师范专业，其中非师范专业占比 33.26%，说明教师行业人群来源相对广泛。对于入职前是否学习信息化教学相关课程的调查分析显示，54.42%的职前教师进行相关学习，而有 45.58%的毕业生没有进行信息化教学课程的学习，这说明，目前的高校理科职前教师中，有相对较多的人并不重视信息化教学能力的提升。

多重响应用于多选题分析，分析多选题各项的选择比例情况等。共涉及到两个名词，分别是响应率和普及率，响应率用于对比各个选项的相对选择比例情况，普及率用于某项的选择普及情况，二者的区别在于被除数不一样。（比如在本研究中有 430 个样本，平均每个样本选择 5 项，则总 430 个样本共选择了 2150 个选项。以及对于某个选项共有 300 个样本选择，则响应=300/2150=13.95%； 普及率=300/430=69.7%）

表 2：响应率和普及率汇总表格

项目	响应		普及率
	n	响应率	（n=430）
电子白板、数字化教学平台、实物投影、	333	14.03%	77.44%
手机、平板电脑、光盘、计算机	382	16.09%	88.84%
挂图、模型等实物	178	7.50%	41.40%
课件、教案或资源库、电子图书馆、电子期刊、微课	339	14.28%	78.84%
百度、Google 等搜索技术、迅雷等下载技术	289	12.17%	67.21%
社交平台(如博客、微博等)、在线交流工具(如 QQ、微信等)、文件传输工具(如电子邮箱、网盘等)	277	11.67%	64.42%
课件制作工具(如 PPT、FOCUSKY)、文字处理技术(如 Word、WPS)、思维导图软件	312	13.14%	72.56%
数据处理软件(如 Excel)，Flash、Photoshop、美图秀秀等素材处理软件	226	9.52%	52.56%
其他	38	1.60%	8.84%
汇总	2374	100%	552.09%

拟合优度检验： χ^2=331.050 p=0.001

如表 2 所示，分析被测者在工作中会应用信息工具的响应率情况可知，选择手机、平板电脑、光盘、计算机作为主要教学信息工具相对较高；选择挂图、模型等实物的的比例较低。选择其他各种信息工具的占比处于中等水平，且分布较为均匀。说明随着科技的进步，信息化手段的多元化，越来越多的教师能够将各种信息工具应用到教学中。

针对多选题各选项选择比例分布是否均匀,使用卡方拟合优度检验进行分析。从上表可知，拟合优度检验呈现出显著性 (chi=331.050，p=0.001<0.05)，意味着各项的选择比例具有明显差异性，可通过响应率或普及率具体对比差异性。具体来看，电子白板、数字化教学平台、实物投影, 手机、平板电脑、光盘、计算机, 课件、教案或资源库、电子图书馆、电子期刊、微课, 百度、Google 等搜索技术、迅雷等下载技术课件制作工具(如 PPT、FOCUSKY)、文字处理技术(如 Word、WPS)、思维导图软件共 5 项的响应率和普及率明显较高。

3.2 研究工具

本研究使用网络在线问卷进行调查，问卷由基本信息、自我诊断量表两部分组成。基本信息部分涵盖 6 个问题。包括性别、专业、学历和信息化教学的掌握情况，统计职前教师所

接触到的信息技术相关内容。自我诊断部分包括两方面，一方面从 TK（技术知识）、CK（学科内容知识）、PK(教学法知识)、PCK（学科教学法知识、TCK(整合技术的学科内容知识)、TPK（整合技术的教学法知识）、TPACK(整合技术的学科教学知识)七个方面展开，每个方面设置 5-6 个问题，共 39 题。选项设置 5 个等级 A、B、C、D、E 对应非常同意、同意、一般、不同意、非常不同意。根据选项选择符合自身情况的答案，以此了解学生 TPACK 能力的现状。另一方面主要从提升教师信息化教学能力的影响因素、学习方式和学习内容设置 3 个问题，每个问题包含若干选项，从选项中可以获取目前需要规避影响河南省职前理科教师 TPACK 能力的主要因素，有效提升其信息化教学能力的最好方式和需要加强学习的主要方向。

3.3 数据分析法

本研究所采用的数据分析方法主要分为描述性统计分析、多重响应分析。使用的软件为 SPSS 22.0。描述性统计分析部分主要进行了对总体的性别、专业、学历和所属学校类型的均值和标准差计算。

4 研究设计

本研究共四部分，首先对各维度来源进行阐述并初步形成预调研问卷，其次通过该预测试对问卷进行修订与验证，以便形成正式问卷，接着对研究中的数据来源和正式测试的样本信息进行介绍，最后基于调研数据对所使用的正式问卷进行信效度分析。

4.1 变量的测量

一般情况，实证研究中调查问卷的形成主要分为自行设计和直接沿用现有问卷两种方式，后者的好处是问卷已经被大量研究所验证，因此具有较高的信效度和认可度；而前者却能更好地符合不同情况的具体研究，进而为个性化研究的需要服务。经过综合考量，本研究直接引用现有的成熟问卷，而对教师信息化教学能力的影响因素的测量则采用直接沿用和自行设计相结合的形式，即综合多份现有成熟问卷， 并多番征询相关专家意见，进而修订形成本研究问卷。此外，为探究教师背景因素对各变量的影响，变量的测量也包括了教师的人口统计学信息。

4.1.1 教师人口统计学变量的测量

本研究测量的教师人口统计学变量包括教师的性别、学历、是否为师范专业、教授的学科、入职前是否曾系统学习过提升信息化教学相关能力的课程以及工作或学习中会用到哪些

信息技术等六个方面，前五项采用单项选择，第六项采用多项选择的方式收集数据信息，共计6个题项。

4.1.2 教师 TPACK 相关知识的测量

由综述可知，目前对于教师 TPACK 相关知识的测量，有很大一部分直接运用了李鑫编订的《教师 TPACK 问卷》，该问卷结合中国本土文化特点，参考了施密特问卷不仅考虑到了国内组织情境的独特性，且各维度的 Cronbach’s α 系数均处于 0.8 以上。

4.2 信效度分析

4.2.1 信度分析

要诊断量表的可靠度和有效度，还须展开信度检验。即测验结果的可靠性、稳定性或测量的一致性程度。由于该研究对职前教师所使用的是问卷调查，在问卷中突出了第三部分的李克特量表。所以采用的方法是李克特量表常用的内部一致性信度检验。以条目之间的联系程度对信度做出估计，通常用 Cronbach's Alpha 系数来间接表示，α 系数取值越高，代表信度越高。量表各维度的信度检验的结果如表 3 所示，河南理科职前教师 TPACK 量表中七个维度的 Cronbach α 系数值分布范围 0.895 到 0.920，均在 0.8 以上，说明本问卷可靠，具有良好的内部一致性。

表 3：TPACK 的七个维度信度分析

名称	校正项总计相关性(CITC)	α 系数	Cronbach α 系数
TK	0.582	0.920	
CK	0.689	0.908	
PK	0.718	0.905	
TCK	0.810	0.895	0.915
PCK	0.799	0.896	
TPK	0.811	0.895	
TPACK	0.799	0.896	

标准化 Cronbach α 系数：0.917

4.2.2 效度分析

效度是指量表调查结果呈现的某种结构与测量值之间的对照程度。通常为了获得较高的结构效度，需要对问卷进行探索性因子分析（FA）。在评估了内容效度之后，需要判断笔者对本问卷第二部分量表的七个维度是否适宜做因子分析。量表各维度的 KMO 检验与巴特利特（Bartlett’s）球形检验的结果如表 4 所示。从表 4 的数据可以发现，河南理科职前教师

TPACK 量表中七个维度的 KMO 值分布范围 0.672 到 0.877，大部分（除了 TK）均在 0.7 以上。整体来说七个维度的数据是较为理想的，比较适合做探索性因子分析。整体KMO值为0.902，KMO 值大于 0.8，研究数据非常适合提取信息，从侧面反应出效度很好。

表 4：KMO 检验与巴特利特（Bartlett's）球形检验结果

名称	因子载荷系数	共同度(公因子方差)
	因子 1	
TK	0.672	0.451
CK	0.770	0.592
PK	0.794	0.631
PCK	0.866	0.749
TCK	0.874	0.763
TPK	0.877	0.768
TPACK	0.865	0.749
特征根值(旋转前)	4.704	-
方差解释率%(旋转前)	67.201%	-
累积方差解释率%(旋转前)	67.201%	-
特征根值(旋转后)	4.704	-
方差解释率%(旋转后)	67.201%	-
累积方差解释率%(旋转后)	67.201%	-
KMO 值	0.929	-
巴特球形值	1976.159	-
df	21	-
p 值	0.000	-

表 5：TPACK 现状描述性统计分析

名称	样本数	最小值	最大值	平均值	标准差	中位数
TK	430	1.000	5.000	2.456	0.785	3.000
CK	430	1.000	5.000	2.484	0.747	3.000
PK	430	1.000	5.000	2.205	0.706	2.000
PCK	430	1.000	5.000	2.344	0.756	2.000
TCK	430	1.000	5.000	2.251	0.691	2.000
TPK	430	1.000	5.000	2.251	0.688	2.000
TPACK	430	1.000	5.000	2.288	0.693	2.000

通过对430名理科职前教师的问卷调查，综合被测者 TPACK 各项得分情况，结果如上表所示，由表5可知，目前河南省理科职前教师 TPACK 的总体水平处于中等偏下，其中TK和CK均值较高，这说明现今职前教师的技术知识和学科知识储备较好。其中，PK均值仅为2.205，根据李克特量表的五点计分法，5分是最高分，3分为理论上的均值，说明当前职前教师的教学

法知识水平较低，这可能是因为职前教师缺乏相关的教学经验。

5 研究结果

根据本研究问卷调查数据分析结果，笔者对当前理科职前教师的TPACK现状做出以下总结：首先河南理科职前教师的对信息化教学相关课程的学习较少。其次，多重响应分析结果显示，对于教学中信息工具的选择上存在显著的差异。具体来看，电子白板、数字化教学平台、实物投影、手机、平板电脑、光盘、计算机, 课件、教案或资源库、电子图书馆、电子期刊、微课, 百度、Google等搜索技术、迅雷等下载技术课件制作工具(如PPT、FOCUSKY)、文字处理技术(如Word、WPS)、思维导图软件共5项的响应率和普及率明显较高。

根据各个维度的描述性统计分析结果显示，河南理科职前理科教师的TPACK总体水平处于中等偏下水平，其中对技术知识和学科知识的掌握较好，但是对于PK教学法知识的掌握尚有欠缺，这说明学校对职前教师的培养注重理论而缺乏实践。

6 总结与讨论

本研究主要是在研究结果的基础上，对应提出提升职前理科教师 TPACK 能力的建议，最后阐述研究存在的不足与展望。

6.1 提升职前理科教师 TPACK 能力的建议

（一）增强自主学习意识，积极参与教学实践

职前教师应该增强主动学习意识，积极主动参加教学实践，从而提升自身整合技术的学科教学知识。在长期的教学实践中得到生成和发展。所以教师要更新教学观念，采用不同的方式和手段来对知识进行呈现，进而营造生动有趣的课堂，进而提升教学效果。

（二）优化职前教育的课程，促进课程结构的完善

从本研究结果来看职前教师信息化教学相关课程的学习较少，而目前师范院校所开设的教育类课程主要是教育史和教育理论，现代教育技术课程更是欠缺，授课模式一般是大班授课，很难顾及到学科特点，不利于职前教师 TPACK 技能的提升。所以大学阶段应开足教育类相关课程，不仅课程齐全，兼顾到教育技术、教学技能等相关课程，还应增加上述课时比例，完善课程结构，为职前教师 TPACK 技能的提升奠定基础。

（三）加强教学技能培训，提升信息化教学水平

经研究发现职前教师的学科教学法能力普遍偏低。而现代技术和新媒体的应用发展使得传统教学技术内涵发生了巨大的变化，对于职前教师必备的教学技能提出了新的要求。因此，

加强教学技能培训就显得非常重要，从培训形式上来看可以丰富培训形式，尤其是后疫情时代，可采用线上线下相结合的方式助力教师信息化教学技能的提升，从培训内容来看，采用信息通讯技术+学科的模式，与具体学科相结合，针对不同学科融入与具体学科相结合的信息技术以提升教师信息化教学水平。

6.2 研究存在的不足

本研究主要调查了河南省职前教师实际具备的TPACK能力，了解了河南省职前教师实际具备的TPACK能力水平，以设计出提升河南省职前教师 TPACK 能力的方案。研究从问题的聚焦、问卷的设计与修改以及方案的提出等都力求做到规范，但是限于客观条件，还存在一定的局限性，样本的收集还不是足够丰富；研究方法相对单一。后续的研究将扩大研究范围，注重研究方法的多元化。

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A STUDY ON ECOLOGICAL CHAIN CONSTRUCTION OF UNIVERSITY INNOVATION ENTREPRENEURSHIP EDUCATION BASED ON MULTIPLE SYNERGY

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Abstract: Accelerating innovation and entrepreneurship education reform in an all-round way and cultivating students' innovation consciousness and entrepreneurship ability are the realistic demands for China to build an innovative country and adapt to the new pattern of dual-cycle development. Taking innovation and entrepreneurship education in application-oriented universities as an example, with the gradual deepening of innovation and entrepreneurship education, some deep-seated problems, such as the lack of synergy in innovation and entrepreneurship education elements, the lack of systematic curriculum, the mismatch between teachers and practical needs, and the unreasonable practice environment, have gradually become prominent. It is necessary to explore and construct the guarantee mechanism of innovation and entrepreneurship education based on the multiple cooperation of "government, schools and enterprises" according to the theory of education ecology and the theory of collaborative development. At the same time, innovative measures such as "curriculum integration, external introduction and internal training, resource integration" should be combined to improve the curriculum system, enhance teachers' abilities, strengthen the practice environment, and create a good ecological system of innovation and entrepreneurship education in an all-round way, so as to help application-oriented colleges and universities cultivate innovative, compound and application-oriented talents.

Keywords: Multiple Synergy, Ecological Chain, Innovation and Entrepreneurship Education.

1. Introduction

Since China put forward the strategic goal of "deepening the reform of innovation and entrepreneurship education in colleges and universities" in May 2015, the domestic innovation and entrepreneurship education system has been fully expanded from point to point, and a comprehensive innovation and entrepreneurship education ecological system has been established integrating graduate, undergraduate and vocational education. A coordinated development mechanism has been basically formed, which features state policy guidance, independent practice by universities, and extensive public participation, providing a basic guarantee for the full implementation of innovation and entrepreneurship education.

As an important base for innovation and entrepreneurship education, application-oriented universities shoulder the responsibility of deepening education and teaching reform and cultivating innovative talents, as well as the mission of scientific and technological achievements innovation and major development strategy research. The quality and research capacity of innovation and entrepreneurship education in some application-oriented universities in China still fall far short of the strategic goal of building an innovative country. The reason is that the ecological system of innovation and entrepreneurship education in application-oriented colleges and universities is unbalanced, and there are bottlenecks such as insufficient innovation ability, unfocused superior resources, rigid curriculum system, uneven teaching staff and lack of practical conditions.

Therefore, it is necessary to explore the ecological law of innovation and entrepreneurship education system in applied colleges and universities based on the operation mechanism of symbiosis and evolution of the educational ecosystem as a logical starting point. It is necessary to combine the theory of ecology of education with the theory of collaborative development, and put forward some innovative measures such as constructing the ecological chain of innovation and entrepreneurship education, so as to optimize the allocation of social public and educational resources in order to guide applied universities to deepen innovation and entrepreneurship education reform and innovation practice, to provide theoretical reference for applied universities, relevant government departments and researchers in this field.

2. Problems Highlighted in The Operation of Innovation and Entrepreneurship Education

2.1 The Elements of Innovation and Entrepreneurship Education Lack Synergy

With the proposal of the strategic goal of building an innovative country in China, the characteristics of the collaborative and innovative era are gradually highlighted, and the demand for innovative and entrepreneurial talents is also increasing. Innovation and entrepreneurship education, as an important hub to maintain the deep integration between applied universities and the society across fields and industries, still has prominent problems such as incoordination, inadaptability and mismatching of various elements, which hinder the effective realization of complementary resources among various elements and lead to the disconnection between innovation and entrepreneurship education and social needs. In the process of students receiving innovation and entrepreneurship education, the government, industry and enterprises and other relevant parties do not provide relevant theoretical or practical environment and other factors to support. However, the comprehensive promotion of innovation and entrepreneurship education in applied universities needs the collaborative participation of all subjects, but in reality, there are outstanding problems such as insufficient collaborative consciousness and unbalanced collaborative power.

2.2 The Courses of Innovation and Entrepreneurship Education Are Not Systematic

The reasonable setting of curriculum system is an important carrier to ensure the effective implementation of innovation and entrepreneurship education, and also a key link element to construct the ecological chain of innovation and entrepreneurship education. At present, the design of innovation and entrepreneurship curriculum system in applied universities in China focuses more on the teaching of basic knowledge and skills of innovation and entrepreneurship, which tends to cause students' rigid thinking and make it difficult for students to apply theoretical knowledge of innovation and entrepreneurship into practical activities of innovation and entrepreneurship.

2.3 The Teacher Team of Innovation and Entrepreneurship Education Is Not Matched

With the comprehensive development of innovation and entrepreneurship education, the demand for innovation and entrepreneurship education teachers in applied universities is gradually increasing. The role of the ecological chain of innovation and entrepreneurship education is to ensure a reasonable match between teacher resources and student needs. However, in the actual operation process, there is still a mismatch between the supply and demand of teacher resources and student needs in some application-oriented universities, which hinders the efficient operation of innovation and entrepreneurship education. Although The State Council issued relevant policy documents, requiring to strengthen the construction of innovation and entrepreneurship teachers, update their teaching concepts and enrich teaching methods, innovation and entrepreneurship teachers are limited by their learning structure, theoretical level and practical ability, which makes it difficult to meet the demands of rapid growth of innovation and entrepreneurship education in the short term. As one of the important factors in the ecological chain of innovation and entrepreneurship education, teachers are the main influencing factors of students' innovation and entrepreneurship education.

2.4 The Practice Platform of Innovation and Entrepreneurship Education Is Not Perfect

As an important foundation and carrier of innovation and entrepreneurship education in application-oriented colleges and universities, the construction of innovation and entrepreneurship education practice platform is an important hub for the construction of innovation and entrepreneurship education ecological chain, which provides a basic guarantee for the smooth implementation of innovation and entrepreneurship curriculum system, the improvement of students' innovation and entrepreneurship practice ability and the transformation of innovation and entrepreneurship achievements. At present, there are still some innovation and entrepreneurship practice platforms in applied universities in China with imperfect construction, which makes it difficult to ensure the full implementation of the practice and education mechanism. As a result, innovation and entrepreneurship practice and achievements are out of step with market demand, and it is difficult to meet the needs of economic development, and the transformation efficiency of innovation and entrepreneurship achievements is not high.

3. The Functions and Advantages of The Ecological Chain of Innovation and Entrepreneurship Education

The ecological chain of innovation and entrepreneurship education refers to a new ecological system established by various influencing factors through resource sharing, benefit coexistence, risk sharing and collaborative governance when innovation and entrepreneurship education has developed to a certain extent. The system is conducive to solving the outstanding problems such as the lack of coordination between "government, schools and enterprises", the one-sided talent training system, and the scattered educational resources. It is an important measure to comprehensively build a new operation mechanism of innovation and entrepreneurship education, optimize the resource allocation of "government, schools and enterprises", and break the barriers between the influencing factors of innovation and entrepreneurship education. Compared to the traditional education mode, the construction of a new ecological system of innovation and entrepreneurship education, which is highly valued by the government, fully invested by colleges and universities, and actively participated by industry and enterprises, will have significant advantages in promoting the reform and innovation of innovation and entrepreneurship education and teaching mode in China's applied colleges and universities, comprehensively improving teaching quality, and promoting sustainable economic development.

3.1 The Ecological Chain of Innovation and Entrepreneurship Education Can Improve the System of Innovation and Entrepreneurship Education

With the economic transformation and the reform and development of higher education, innovation and entrepreneurship education has gradually become a new mode of education in the new era, and also become an important breakthrough of education and teaching reform. By building an ecological system of innovation and entrepreneurship education in applied universities, and breaking the practical problems such as poor communication among influencing factors and shirking responsibilities in the traditional innovation and entrepreneurship education model, innovation mechanisms such as co-existence of interests and co-sharing of risks are established to ensure that the participants continuously improve the level, field and efficiency of cooperation and form a highly efficient and systematic innovation and entrepreneurship talent training system. It plays a positive role in promoting the integration of professional knowledge into the whole process of talent training, stimulating students' subjective initiative, improving students' innovation consciousness and entrepreneurial ability.

3.2 The Ecological Chain of Innovation and Entrepreneurship Education Is Conducive to Improving the Quality of Innovation and Entrepreneurship Education

With the proposal of "double First-class" and "double High" construction goals in China, and innovation and entrepreneurship education as an important assessment content, the quality of education and teaching has gradually become an important focus of teaching reform. By building an ecological system of innovation and entrepreneurship education in applied universities, breaking the prominent problems of disconnection between talent training standards and regional economic and industrial development needs in traditional innovation and entrepreneurship education, application-oriented universities should be encouraged to be closely integrated into regional economic development, to carry out targeted reform and innovation in the mode of innovation and entrepreneurship education, and ensure that students' innovation consciousness and entrepreneurship ability are suited to the needs of regional industrial structure and the overall strategic goals of the country. It plays a positive role in improving the employment and entrepreneurship rate of graduates and promoting the overall improvement of the quality of innovation and entrepreneurship education.

3.3 The Ecological Chain of Innovation and Entrepreneurship Education Promotes Coordinated Development of Regional Economy

With the proposed strategic goals of coordinated development of Beijing-Tianjin-Hebei, Yangtze River Delta, Guangdong-Hong Kong-Macao and other regions in China, the coordinated development of regional education is also facing new opportunities and challenges. Accelerating the establishment of a more effective new mechanism of regional coordinated development of education can scientifically respond to the new requirements and new goals of regional coordinated development for innovation and entrepreneurship education reform. By building an ecological system of innovation and entrepreneurship education in applied universities, and breaking the traditional shallow cooperation mode in innovation and entrepreneurship education, which is dominated by government administrative power, blindly promoted by colleges and universities, and passively participated by industry and enterprises, the collaborative mechanism of resources of regional governments, colleges and universities, industry and enterprises and innovative practice education mode are established to form a high-quality education resource education community. It can help cultivate innovative talents in line with the demands of regional development, improve students' innovation consciousness and entrepreneurial ability, and indirectly promote the coordinated development of regional economy.

4. Theoretical Basis and Internal Mechanism of Ecological Chain Construction of Innovation and Entrepreneurship Education

4.1 Theoretical Basis of Ecological Chain Construction of Innovation and Entrepreneurship Education

4.1.1 Ecological theory of education

The ecological theory of education originated in western countries, which is a borderline subject proposed by Professor Lawrence Kreming, president of Columbia Teachers College in the United States, combining the multi-disciplinary theories of ecology, sociology, psychology and so on. It was first openly applied to the society in the book Public Education in 1976. Innovation and entrepreneurship education is an important education mode in the process of China's education development and the construction of an innovative country. Its effective implementation is subject to the influence of factors of the education ecosystem, including the government, universities, industries and enterprises, teaching mode, curriculum system, practical conditions and other factors. As an important theoretical basis for studying the ecological balance of education and analyzing the mutual promotion and influence between education and related influencing factors, the ecological theory of education plays an important role in promoting the balanced development of educational ecosystem. Therefore, how to ensure the harmonious symbiosis and coordinated development among all influencing factors in the education ecosystem has become an important research topic of the balanced development of the education ecosystem, and scholars at home and abroad have also carried out research. For example, foreign scholars put forward the concepts of six elements of entrepreneurship ecology (i.e. market, policy, financing, human capital, culture and other aspects) and innovation ecology. Chinese scholars put forward that the educational ecosystem is a system environment with N-dimensional space and participation of multiple subjects. It is a theoretical framework for re-analyzing and constructing education based on the holistic, systematic and balanced view, which plays a role in the coordinated development of innovation and entrepreneurship education. It can be seen that the theory of ecology of education plays a positive role in the construction of ecological chain of innovation and entrepreneurship education in applied universities. It has important theoretical and practical value for seeking and expanding the appropriate development balance among the influencing factors of innovation and entrepreneurship education and improving the survival ability and value-added ability among each other.

4.1.2 Synergetic development theory

Synergetic development theory was also originated from western countries in the early stage.

It is a theoretical system proposed by Professor Haken combining multiple theories such as system theory, cybernetics and mutation theory. In 1976, he clearly stated related concepts of synergetic theory for the first time in Introduction to Synergetic Theory. Compared with the ecological theory of education, the synergetic development theory pays more attention to the innovation of management mode, and its core idea is the coordination and cooperative development among multiple subjects, realizing the integration of resources and elements, and ensuring the maximization of benefits between each other. Innovation and entrepreneurship education, as an education mode with the joint participation of government, universities, industry and enterprises and the joint influence of teachers, teaching mode, curriculum system, practical conditions and other factors, cannot be separated from the collaborative promotion of different subjects and influencing factors. Therefore, how to effectively promote the formation of overall synergistic effect among all subjects and influencing factors in the operation of innovation and entrepreneurship education, and promote the benign and leapfrog development of innovation and entrepreneurship education has become an important research content of innovation mechanism and mode of innovation and entrepreneurship education in universities at home and abroad. For example, foreign scholars put forward "interdisciplinary innovative education curriculum" and "interdisciplinary education" to cultivate innovative and entrepreneurial talents and realize complementary advantages among teaching teams. Chinese scholars put forward that collaborative development is an important way to promote the comprehensive development of innovation and entrepreneurship education by effectively realizing the docking, integration and utilization of complementary resources such as universities, government departments, enterprises, industries, markets and innovation parks. Therefore, the rational construction of a new mechanism for synergetic development of innovation and entrepreneurship education in application-oriented universities and the establishment of a consortium integrating the government, universities and industrial enterprises play a positive role in promoting collaborative construction and realizing resource complementarity.

4.2 Internal Mechanism of Ecological Chain Construction of Innovation and Entrepreneurship Education

Innovation and entrepreneurship education is an important way to cultivate innovative, compound and applied talents in application-oriented colleges and universities. The internal mechanism of ecological chain construction of innovation and entrepreneurship education in application-oriented colleges and universities should focus on the establishment of collaborative mechanism of all participants, innovation and reform of curriculum system, improvement of practical ability of teachers and innovation of industry-education integration mechanism. At the government level, according to the development needs of innovation and entrepreneurship education, guide policies, support policies, preferential policies, subsidies, etc., give full play to their macro-control means, and guide industrial enterprises to participate in the innovation mechanism construction of innovation and entrepreneurship education ecological chain，which ensures the efficient integration of superior resources between colleges and universities, industries and enterprises, effectively form a collaborative mechanism of "government, schools and enterprises", and promote the organic integration of entrepreneurship education, innovation and entrepreneurship competition, and innovation and entrepreneurship practice. At the college level, according to the innovative entrepreneurial education development needs, high quality actively promote innovation entrepreneurship education course system, teachers and practical platform for innovation, entrepreneurship education ecosystem impact factor performance will ensure the professional knowledge through the startup form into realistic productivity, indeed improve students creative consciousness and ability. At the level of industry and enterprise, according to the needs of regional economy and industrial transformation and upgrading, actively participate in the establishment of innovation mechanism of ecological chain of innovation and entrepreneurship education, provide students with practical resources of innovation and entrepreneurship education such as practical posts, entrepreneurial places and practical instructors, and ensure that innovation and entrepreneurship education can provide accurate products or services according to market demand. Indeed, we should promote the deep integration of the ecological chain and industrial chain of innovation and entrepreneurship education, and promote the transformation and industrialization of innovation and entrepreneurship achievements.

5. Innovation Mode of Ecological Chain of Innovation and Entrepreneurship Education

The construction of the ecological system of innovation and entrepreneurship education is a complex and systematic project involving multi-subjects, multi-factors and multi-level. Establishing a sound management system of innovation and entrepreneurship education is the basic guarantee to ensure the effective implementation of innovation and entrepreneurship education. Based on the analysis of the participants and influencing factors in the ecological chain construction of innovation and entrepreneurship education in applied colleges and universities, it is found that the whole ecological circle can be demonstrated as an ecological system in which "government, schools and enterprises" co-exist and are affected by the curriculum system, teachers and practice platform.

5.1 "Government, Schools and Enterprises" Cooperate in Innovation to Innovate the Guarantee Mechanism of Entrepreneurship Education

By clarifying the specific links between the government, universities and industries and enterprises, the implementation guarantee mechanism of innovation and entrepreneurship education in application-oriented universities should be constantly innovated to ensure the maximization of synergistic benefits between them and promote the coordinated development of innovation and entrepreneurship talent supply and market demand. First, government departments should strengthen policy supply and support. It is suggested that local governments, where conditions permit, enact laws and regulations on innovation and entrepreneurship education to clarify the powers, responsibilities and obligations of the government, universities, industries and enterprises. Second, colleges and universities themselves should strengthen connotation construction. To give full play to the main role of innovation and entrepreneurship education, the government and industrial enterprises have jointly set up a professional steering committee for innovation and entrepreneurship education and established entrepreneurship colleges and other carriers of innovation and entrepreneurship education, thus enhancing the industrial service and innovation capacity of universities and colleges. Thirdly, industrial enterprises should actively participate in the construction of collaborative education mechanism. Enterprises are encouraged to set up business incubators, maker centers and other carriers of innovation and entrepreneurship achievement transformation based on their own industrial advantages, so as to provide channels for students to experience and practice innovation and entrepreneurship education.

5.2 "Integration of Courses and Competitions" to Build A Cascade Innovation and Entrepreneurship Education Curriculum System

A sound curriculum system is an important carrier for the smooth implementation of innovation and entrepreneurship education. Through the "integration of courses and competitions", innovation and entrepreneurship education and professional education can be coordinated to promote, which helps students at different levels to acquire due innovation and entrepreneurship knowledge. First, we will fully implement general education in innovation and entrepreneurship. To implement the nationwide education on innovation and entrepreneurship, general courses such as "Foundation of Entrepreneurship and Innovation" and "Introduction to Entrepreneurship for College Students" are offered to all college students to ensure that students master the basic knowledge of innovation and entrepreneurship and comprehensively enhance their awareness of innovation and entrepreneurship. Second, focus on the construction of courses for innovation and entrepreneurship. In order to further promote the comprehensive integration of innovation and entrepreneurship education and professional education, the characteristic courses of innovation and entrepreneurship specialty are designed by classification to ensure that the ecological system of innovation and entrepreneurship education is integrated into professional disciplines. Third, we will strengthen the practice of innovation and entrepreneurship. For student teams willing to transform their innovation and entrepreneurship achievements, we encourage them to participate in innovation and entrepreneurship competitions such as the "Internet Plus" College Student Innovation and Entrepreneurship Competition and the "Innovation Youth" China Youth Innovation and Entrepreneurship Competition, so as to promote learning and training through competition.

5.3 "Introducing from Outside and Cultivating from Inside" to Build A High-Level Teaching Staff for Innovation and Entrepreneurship Education

It is necessary to set up a new mechanism of "introducing and fostering innovation and entrepreneurship teachers" to promote the virtuous cycle development of innovation and entrepreneurship education, guided by national development orientation, industrial overall planning and innovation and entrepreneurship education reform and development, and aimed at improving the quality of innovation and entrepreneurship education. First, pay attention to the training of professional knowledge and practical ability of innovation and entrepreneurship of existing full-time teachers. We will give full play to the synergistic advantages of government, schools and enterprises, and encourage existing professional teachers to comprehensively improve their professional knowledge of innovation and entrepreneurship through short-term study visits at home and abroad or education upgrading. The second is to strengthen part-time teachers outside the school. We will introduce outstanding entrepreneurs, entrepreneurs, managers, skilled craftsmen and outstanding alumni from industrial enterprises, or introduce policy advisers, financial and legal experts from government departments to provide service support, so as to enrich the ranks of innovation and entrepreneurship teachers. Third, establish a classified training mechanism for innovative and entrepreneurial teachers, and adopt differentiated training policies for different types of innovative and entrepreneurial teachers.

5.4 "Resource Integration" to Build A Collaborative Practice Platform for Innovation and Entrepreneurship Education

It is necessary to gather the diversified resources of the government, universities, industries and enterprises through "resource integration", and achieve the maximum resource efficiency and social benefits of the ecological chain of innovation and entrepreneurship education through the coordinated promotion of "government, schools, enterprises". First, continue to strengthen the construction of innovation and entrepreneurship practice platforms in universities. Local governments are encouraged to give preferential policies to application-oriented universities in the identification of makerspaces and business incubation bases. Second, expand off-campus innovation and entrepreneurship practice platforms and encourage local governments to guide market-based makers' Spaces and business incubation bases by standardizing the conditions for establishing such Spaces or standardizing assessment standards. Third, change the operation idea of innovation and entrepreneurship practice platform in colleges and universities. A market-oriented operation mechanism will be introduced to open the resources of university innovation and entrepreneurship practice platforms to the whole society, and social innovation and entrepreneurship teams will be encouraged to enter the platform.

6. Conclusions

As China enters a new pattern of double-cycle development, innovation and entrepreneurship education is facing new development opportunities and challenges. How to establish the implementation plan of innovation and entrepreneurship education reform in accordance with the pace of The Times has become an important breakthrough in the future education and teaching reform. The theory of education ecology provides theoretical support for the construction of the ecological system of innovation and entrepreneurship education with its systematicness and comprehensiveness, and is an important theoretical basis for the reform and innovation of innovation and entrepreneurship education system in applied universities. Therefore, clarifying the basic principles, fundamental purposes and existing difficulties of the ecological system construction of innovation and entrepreneurship education in applied universities, gathering multiple advantageous resources from the government, universities, industries and enterprises to break down the barrier of "government, schools, enterprises" and building a diversified and collaborative ecological chain of innovation and entrepreneurship education in colleges and universities play a positive role in giving full play to market, capital, technology and talents, stimulating new drivers of innovation and entrepreneurship development, and promoting the reform and innovation of application-oriented universities' innovation and entrepreneurship curriculum system, strengthening the teaching staff and improving practical conditions. It can effectively promote the innovation and entrepreneurship achievements of applied universities to serve regional economic and industrial development, which is of great help to China to accelerate the construction of an innovative country and "double first-class" universities.

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河南高校设计类专业产教融合创新发展研究

A STUDY ON INNOVATION AND DEVELOPMENT OF INDUSTRY-EDUCATION INTEGRATION OF DESIGN MAJORS IN HENAN COLLEGES AND UNIVERSITIES

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摘要：随着我国教育水平的不断提高, 传统教育模式已经不能满足现代教育的发展，新的教育模式慢慢渗透到现代人的心中。产教融合的教育模式不但满足了一些需要实践性学习才能得到的教育，也适用于设计类课程的发展现状。采用针对不同院校，不同专业背景的多种产教融合教育模式，对学生进行新式教育，越来越得到人们的认可。相比传统教学模式，设计类院校和设计类专业，产教融合教育模式，存在艺术为学习的基础，以实用为培养为目标，从而引领社会以的发展的趋势，来提高学生对设计类课程的兴趣和应用能力，进而实现设计类人才的培养。但在许多设计类专业高校的课程教学中还有许多的问题，如缺乏设计类实用型人才、产教融合模式存在不够完善的问题。因此，在河南高校设计类专业的教学中需要采取一些措施达到教学所需要实现的目的。采取多元化模式和学生成果关注等方法进行新式教育的改革。根据“统筹——融合”思路，提升设计类专业教学的教学效果。探索教育模式应该如何满足学科特点，充分发挥学科特长，越来越成为教育届值得深入研究的课题。

关键词：产教融合，设计类专业，教育模式。

Abstract: With the continuous improvement of education level in our country, the traditional education model can no longer meet the development of modern education, and the new education model gradually penetrates into the hearts of modern people. The education model of integration of production and education not only satisfies some education that requires practical learning, but also applies to the development status of design courses. Adopting a variety of integrated education models for different colleges and different professional backgrounds to provide new education to students is more and more recognized by people. Compared with the traditional teaching mode, design colleges and design majors, the integrated education mode of production and education, has art as the basis of learning and practical training as the goal, so as to lead the development trend of society and improve students' understanding of design. Course interest and application ability, and then realize the training of design talents. However, there are still many problems in the course teaching of many design colleges and universities, such as the lack of practical talents for design, and the imperfection of the integration model of production and education. Therefore, some measures need to be taken in the teaching of design majors in Henan colleges and universities to achieve the purpose of teaching. The reform of new education should be carried out by adopting the methods of diversification and student outcomes. According to the idea of "coordination-integration", improve the teaching effect of design professional teaching. Exploring how the educational model should meet the characteristics of the subject and give full play to the specialty of the subject has increasingly become a topic worthy of in-depth study in the education field.

Keywords: Integration of Production and Education, Design Majors, Education Model.

1. 研究背景

以党的十九大精神为指导方向，2017 年 12 月 5 日发布《国务院办公厅关于深化产教融合的若干意见》明确提出:深化产教融合，促进教育链、人才链与产业链、创新链有机衔接，是对新形势下全面提高高校教育质量、扩大高校毕业生就业创业、推进经济转型升级、培育经济发展新动能等具有重要意义。设计类专业是文化创意产业转型省级的切入点之一，对于设计了专业，各高校重视培养艺术设计及应用型人才，让学生在社会后切实感受到自己所学实用、有用。

与传统课堂授课模式有所区别，产教融合教学法主要是在教师的指导下，将设计类专业与社会实践产业紧密联系，用共享、联建、创建等方式，多举措把产业与教学密切结合，促进产业型经济实体发展的同时，学生能够参与劳动体验，学习专业知识并深刻掌握相关实践技能，以达到教学的目的。当然，大部分的高等院校的办学理念是培养新型应用型人才，从而促进经济的发展和毕业生就业问题。首先，培养应用型人才应该作为高校教学工作的重点。完善产教融合的教育模式，建立和加强必要的实践课程教学必不可少，课程教学理念上也要适时进行转变。产教融合的教育模式，作为社会、企业与高校共同发展的课程的一种教学形式，目前许多高校正在试验并在一定程度上得到了的应用。从这些试验成果上看，产教融合教育模式相

对于传统的课堂教学来说，具有明显优势。在此研究背景下，展开以产教融合为对象的相关研究具有一定的社会价值及经济价值。

国外发达国家产教融合起步较早，已经形成了比较成熟的产教融合人才培养模式的基本框架和运行模式。艺术设计专业的产教融合最广为人知的是包豪斯时代的教学，形成了最初的师徒制和工作室制。德国的“双元制”教育是世界教育领域公认的产教协同育人模式的典范之一。“双元制”教育的典型特征是双重主体育人机制。即受教育者具有学生和企业未来员工的双重身份，同时在学校和企业两个场景中学习。受教育者在学校根据教学大纲学习人文素养和专业基础理论知识，在企业根据培训预备员工的岗位要求学习专业核心课程和实践技能，毕业时不仅获得高校颁发的毕业证书，同时取得职业资格证书。由于企业深度参与人才培养过程，高校为企业可以有目的地培养专门人才，受教育者可以真正获得理论和实践的双重教育背景，大大提高了毕业即就业的成功概率。美国的“合作教育”也是一种将专业人才培养中的理论学习和企业实践训练相结合的高等教育策略。1906 年首先在美国的俄亥俄州进行了比较成功的教学实践改革。

中国社会经济发展出现了新业态，随着制造业与服务业融合，工业化与信息化融合。社会及企业对于人才的多样化需要，迫切需要高校根据社会及企业发展的需求，对教学模式及人才培养模式进行改革，在改革的过程中，应该加强与企业的交流与合作，深层次进行产教融合，把课程教育教学的内容与社会所需结合起来，更好地发挥高校教育对产业转型升级的引导作用。设计类创新创意与实践项目的实施相结合，是艺术与技术高度融合的一种形式，也是设计类专业交叉学科的优势。利用创新设计紧密相连产业链和价值链，设计类的学生将知识、艺术、技术及创意转变为新工艺、新产品及新媒介，对制造与服务等行业的提升品质、实现更高价值及降低成本等起到不可估量的作用。随着设计类专业与社会产业发展的紧密结合，设计类专业在产教融合和协同育人的过程中的也出现了很多的问题，例如：教学与实践两张皮、实践表层化、合作的深度与广度不够等。在专业教学中实现产教融合协同育人，将艺术设计类专业人才培养与社会产业需求紧密结合，是目前高等院校亟待思考和研究的课题。

当前，中国正在经历着从“制造”向“创造”、从“速度”向“质量”、从“产品”向“品牌”转变”，这对实施的创新驱动发展战略及推动产业转型升级具有重要战略意义。2015 、2016 、2017 三年国务院和中央教育主管部门连续下发一系列关于“深化产教融”“提高高校对产业转型升级的贡献率”“支持引导企业深度参与高等学校教育教学改革，促进企业需求融入人才培养环节”等重要文件，产教融合已成为促进高等教育健康长远发展，统筹推进教育综合改革的一项重要制度安排。加强创新型人才和技术技能人才培养的一项重要指导方针。

2. 国内外相关研究梳理及动态

Salleha 和 Omar (2013) 提出一种基于产教融合的大学、政府和企业之间产学研互动的成功产学研合作模式。大量的工作强调了大学-工业-高等教育机构的相关性。教育协作局加强合作，向雇主推广毕业生的技能，使他们的行业受惠。学者们关注协作管理和知识形成的各种模型整合社区、大学和企业之间的研究协作活动。在他们提出的模型中，强调了在实现成功的合作中大学、政府和企业相互作用。文章陈述了在第十个马来西亚计划 (2011—2015) 中，政府强调加强产学研合作以及专注于工业附属品的发展变化，以帮助应届毕业生满足不断变化的工业需求。此外，加强学术课程的市场导向，以帮助学生向劳动力市场的过渡，提高学生的整体就业能力。这是一个结构化的标准策略框架。

2019 年 2 月 23 日，中国政府《加快推进教育现代化实施方案（2018—2022 年）》印发，提出 “健全产教融合的办学体制机制，开展国家产教融合建设试点” 。2019 年 3 月，中国国家发展改革委、教育部印发《建设产教融合型企业实施办法(试行)》，对建设产教融合型企业提出了具体的部署。

杨瑾瑜(2020)从国家、学校、企业三个层面阐述了艺术设计类专业产教融合协同育人的意义，分析当前中国艺术设计类专业在产教融合、协同育人教学与实践过程中存在的问题，主要包括教学与实践相脱节，“双师型”师资匮乏，企业参与教学机会较少，实习和实训基地不稳定，并且实训周期较短，学生无法参与企业生产全过程，实践教学的系统性和持续性难以保证。文章探究了艺术设计类专业教育教学改革，探索构建产教融合协同育人的人才培养模式，从培养方案制定、专业课程设置、师资队伍建设、实习实训环节等方面着手，共同促进人才培养供给侧与社会产业需求侧的有机衔接。

从查阅到的文献可以看出，在产教融合的背景下，高校在艺术设计专业在应用型人才培养中存在诸多问题。在产教融合、校企合作的实践大背景之下，艺术设计专业人才培养模式应注重探讨应用型人才培养的途径,提出培养应用型人才的具体措施，主要包括师资、课程体系、实习基地、培养方向和实习环节。

3. 设计类专业产教融合的调查分析

根据研究发现，在众多高校中设计类专业专业较好地开展了产教融合的探索，取得了一些成果。与此同时，高校教师在教学过程中，假期实践专业实践及与教学经验的对比及总结，对校企融合的方式呈现的多元状态，凸显了“教学做一体化”的职业教育理念，但教学过程中在实现产教融合方面上还存在一定的问题。

3.1 设计类应用型人才输出薄弱

在高校课程教学中，教学内容在整个教学过程呈现更多的是知识的输出，对理论知识的讲授所占的比例较大，教师的课程设计中也将大部分时间用在讲授理论知识，学生对课堂的参与度低，处于被动接收理论知识的过程，随着社会及企业对人才的需求，这种授课形式非常不利于设计类课程教学中应用型人才的输出，导致大部分毕业生缺少专业实践能力。根据我国高等院校毕业生近年来的就业情况的调研可知：很多刚毕业的大学生的实践能力与企业所需的实践能力差别较大，无法满足当前岗位要求，从而导致学生转行或者职业的幸福感低。毕业生掌握的“课本知识”与企业所需“实用型”不符，导致企业招聘之后还需要对其进行二次培养，增加用人成本的同时，使企业的招聘过程中，对应届毕业生的轻视或者工资较低，从而导致有一大批毕业生缺乏投入社会实践的能力和勇气，在毕业之后选择进一步提升自己的学历，考取研究生或者是以其他方式继续深造，从而逃避就业（张颖，2020）。提升学历对我国的高端人才的培养有一定程度的益处，但是对于设计类专业教育来说，应用型人才输出的匮乏，导致许多设计类高校毕业生无法及时投入到社会经济发展中来，使得设计类应用型高校人才培养失去了意义。

3.2 传统教学效果不佳

当前，我国高等院校的教学方法多为知识驱动式的模式，更加注重理论知识的讲解，而忽略了实践部分。按照教学的规律和顺序，应当先进行理论知识的学习，然后开展教学内容的实践，但因为部分高校实践教学的场所较落户和师资力量的不足，理论教学的部分较多，实践教学部分较少。对于人文社科方向的内容，这种教育模式具有一定适用性，但假设对于实践性较强的专业，这种的教学模式的弊端就显而易见。特别是对设计类专业来说，理论与实践的学习缺少紧密融合，以致学生的实践能力低下。加之部分高校实践资源匮乏，在课程安排中，缺少科学系统行之有效的策略。学生学习完理论知识部分后，等再进行相应的实践课程，中间已经间隔了很长时间，学生在进行实践课程时，理论课程的内容会出现部分遗忘的情况，无法很好指导实践活动。对于设计类专业专业课程来说，这样的教育模式教学效果欠佳，无法满足人才培养与社会生产的需求。

3.3 教学过程与生产过程对接不完整

当前，高校注重教学过程与生产过程的紧密结合，根据对校企合作过程中调研问卷的结果可知，学校对校企合作的侧重点在于学生可以全过程的了解企业的过程，以满足学生提高自身能力的综合要求，减少学生与市场之间的技术差别，这样以来，学生更有可能找到心仪的

就业单位。人才好不好在于企业的认可度，学校必须更加重视学生综合技术技能的培养；而企业需要的是产生实际经济效益的实习，因此在这个过程中，学校的积极性比企业的积极性高。此外，就设计类专业而言，国内的校企人才培养模式主要是“校中团”和“团中校(团带班)”这两种，尤其是在产教融合形势下，设计类专业的产教融合与人才培养还不够达到要求。

通过对我们发现现在由于设计类行业门槛较低，所以一般的设计人才相对来说比较饱和，但是高水平的设计类专业人才还是比较缺少。所以在实际产教融合教学中，学校和企业应该合力进行培养，寻找合适的弹性双收益的制度，更好的实现产教融合。企业更多侧重于两个方面:一是吸收更多实习生来减轻设计初期的工作劳动，集中体现在-一些体力性的工作岗位;二是挖掘优秀的、具有潜力的艺术专业细胞的人才，为企业存储后备力量。

4. 设计类专业产教融合的启示

从近一年对高职院校杂技表演专业人才培养实地考察看出，产教融合开展情况良好，但是在落实上还不能做到完美。因此，我们要进一步按照《关于深化产教融合的若干意见》开展下一步的工作。

4.1 构建学校和产业“统筹——融合”发展新格局

从社会服务属性的角度，职业教育人才培养的定位在于行业和企业的发展情况，相关性的影响指标涉及招生生源、专业定位、课程设置、教学内容制定、人才培养质量等方面，这些都随着设计类行业与企业对于人才数量和质量的波动而变化，所以加强职业学校与艺术型企业的融合很有必要。

4.2 学校进行多元主体运行模式

要最大限度地引导学校开发产业，参与教育培训。校企双方要在相互自愿的基础上签订合作协议，就人才培养的规格、规模、模式及各自的义务和责任等方面达成一-致， 形成契约关系。学校和企业都需要进行工作的开展。从学校层面：第一，学校的管理者进行企业的访谈，增加与企业的交流，上层的领导做好指挥棒；第二，组织和鼓励专业教师进行专业实践训练，带领学生在一线进行实践；从企业方面：要加强产业与学校之间的利益获得，在一定的经济范围内，创造更多有利于企业和学生共赢的条件与环境。

4.3 指导产业的进度和学生的学习方式

产教融合式教学传统的知识教学相比较，学生会产生学习的兴趣，做到“寓教于乐，

寓学于乐”。在产教融合式教学中，教师的的角色是进行引导，让学生自主探究。但是教师也要对学生参与项目实践的过程进行跟进，详细了解学生的学习过程。学生在学习的过程中，如果遇到问题，教师可以指导学生寻找多种解决方式。适当的情况下，可以进行实际指导，提高学生的学习效率。对于项目导师来说，时刻了解项目进度，督促和管理参与项目的学生，也有必要，采用更加有效的方式和手段，可以使学生按时按质完成学习任务。

4.4 加强对学生成果的关注

产教融合式教学在高校设计类课程教学中普遍应用，高校的设计类产教融合主要目的是提高教学效果，加强应用型艺术人才的培养。在产教融合和式教学的进行过程中，许多教师只关注课堂中气氛的活跃程度，而忽视了学生是学习的主体，忽略了对学生成果的关注。这样就是本末倒置，没有实际的意义。因此，在产教融合教学过程中，河南高校教师首先要建立与本专业实际情况相符的教学理论，不能够单纯地将课本内容进行解读，更要始终关注到学生的学习成果，在教学结束之后，要对学生创作作品的情况进行过程性的评价，对过程中薄弱环节进行再讲解。同时及时引导学生对其创作的作品进行转化和升级，如通过公众号进行作品的宣传评比、参加比赛及应用到企业设计中去，提升学生在学习中注重整个学习周期，从理论到实践再到产生的价值，提升学生的成就感。

4.5“产教融合”办学模式要符合学校办学实际

在“河南文化出圈”的背景下，河南高校设计类课程教学中要在产教融合、校企合作的大背景下，结合当地文化的特点及高校的情况进行更高效的艺术教育工作，进一步加强现有模式的提炼与升级便显得尤为重要。产教融合下的教育模式，学校在人才培养的过程中，结合社会的需求对人才培养进行优化和升级，从课程对接企业，这样学生的课程作业与设计公司就有了一定的联系，部分学生的作品在课程作品中得到引用，这样极大的提高了学生学习的积极性，引起学生学习的兴趣（孙杰, 周桂瑾&徐安林，2018）。同时，在符合学校办学实际下的产教融合模式，更能够结合教育实际，实现设计类人才的培养和教育的目的。

5. 结论

河南设计类课程教育与产业的融合，是我国对高等教育改革中的一项任务。产教融合式教学法是实现教育的一种新型手段。对于设计类课程的教学来说，产教融合起到了很大的作用。同时，经过近 10 年来的努力, 国内高校的设计类专业虽然还未能形成完整的适用于我国的教学体系，但是各个高校陆陆续续开展的产教融合教育模式，积极的探索和研究从未停止。我

国设计类专业的教育资源与师资力量相对发达国家尚存在一定程度的欠缺，教学方法尚有一些不成熟之处, 这些客观条件在一定程度上阻碍了产教融合教育模式的发展, 但许多高校的努力探索，以及部分实验案例，无疑为进行设计教育的教育工作者和相关专业人士提供了一个新的思路和方法。因此，教师在产教融合教学的过程中，要提高对自身的要求，提高对学生的要求，多方考虑、详细计划、严谨分析、开拓创新，共同努力建设完善的项目式教学法，实现满足社会生产需求的设计类专业人才培养的目标。

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教师创新领导与学校组织文化对中国教育的启发

INSPIRATION FROM TEACHERS' INNOVATIVE LEADERSHIP AND SCHOOL ORGANIZATIONAL CULTURE TO CHINA EDUCATION

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摘要：教育是日新月异的产业，学校是这个产业的管理组织；面对现今与未来产生的各种教育问题，教师需要持续努力进行教育改变解决问题以使学生具备足够的能力成为二十一世纪的未来公民；因此，探讨营造合适的学校组织文化和促使教师增权去进行创新改变有其必要性。本文综合归纳近几十年学者于教师创新领导与学校组织文化的研究趋势，包含相关的理论基础、影响的变项、当前研究成果与未来趋势、中国国内现况。希望藉由这些探讨为中国国内教育与研究提供未来的参考方向。

关键词：组织文化，创新领导，小学教师。

Abstract: Education is an industry that is changing every day, and schools are the management organizations of this industry. When the educational problems arising day and day, teachers have to continuous make educational changes to solve these problems and enable students to have sufficient ability to become the citizens in 21st century. Therefore, it is necessary to explore how to create an appropriate school organizational culture and empower teachers to make innovative changes. This paper comprehensively summarizes the research trends on teachers' innovative leadership and school organizational culture in recent. These research trends include the theories background, influence factors, possible interaction, and the current situation in China. Through these trends, we tried to provide the possible directions for domestic education and research of China in future.

Keywords: Organization Culture, Innovative Leadership, Elementary School Teacher.

引言

教师领导源自 1980 年代的管理学理论，近几十年更是受到重视。早期的国际研究在教育环境里的领导权研究，大多偏重单一领导者的领导特质，像是校长的角色或领导风格等的差异影响。接着，随着转型领导理论的崛起，领导典范逐渐转移至组织成员，像是教师、学生、小区、家长等。这样的趋势呈现朝向领导权力下放、每个人都可以是领导者、领导成员的集体贡献而对彼此影响，共同进行更正向的教育实践(practices)与改善；正向的教育实践与改善，即教育改革的产生，也意味着教育的创新，因此，本文以教师创新领导一词，以强调教师领导中改善教育质量的特质。教师创新领导强调的教师领导着重影响力而非角色或正式权威(Anderson & Anderson, 2001; Snoek, Enthoven, Kessels, & Volman, 2017)。 教师领导被概念化为一个创新改变的过程，其中教师是重要的改变治理人(key change agents)与创新的来源(Chew & Andrews, 2010; Snoek et al., 2017)。教师创新领导不仅偏重教师领导里的超越课堂正式角色，还偏重分享实践与发起创新教学改变；与同侪基于共同利益、尊重、信任，进行的合作与非正式的互动、共享、沟通(Baker-Doyle, 2017; Smeets & Ponte, 2009)。然而，与教师创新领导进行的教师领导研究十分有限，因此，本研究亟欲突破此瓶颈，以为教师领导开拓更宽广的研究范围。

学校组织文化的概念源自 Henry(1993)，它意味着学校成员共享的关系、信念、价值与感觉。Muijs & Harris (2006) 认为，学校需要具备一系列条件才能使教师领导获致成功，像是，信任和支持的文化，建立对教师领导清晰且透明的支持结构，强有力的领导权，通常是教师领导权的发起者(originator)和参与创新的专业发展的带头者 (the head)；而这些因素都和经营学校组织文化关系密切。

可是，相较于国外研究所受到的重视，这些潮流对于国内教育界的影响却不大。根据中国国内学者对教师的研究呈现，教师们对教师领导的概念仍普遍低落，对学校组织文化的感受也十分有限 (Song, Hu, & Yang, Li., 2007; Gong, 2011)。由于教师领导与学校组织文化都是近期在教育上新兴的研究议题，二者的共同点都是强调赋权(empower)给组织成员，才能激发组织成员产生高度的内在动机，真心诚意为组织付出。当学校经营能朝这类方向努力，才能真正对教师的创新教学与课程改革造成影响。

为期探讨教师创新领导与学校组织文化对国内教育的启发，以下内容将针对教师创新领导与学校组织文化的定义、理论基础进行说明；再者，探讨影响此二者的可能变项；接着，归纳国际研究成果与趋势；最末，说明国内现况并探讨如何从此二者正向改善国内教育。

1. 教师创新领导与学校组织文化的定义

1.1 教师创新领导

创新是能被市场所接受，而且是具有价值的方法或点子。创新的观念最早则由 Schumpeter (1939) 提出，他认为企业组织经由创新，可使投入资产再创价值。Rogers (1995) 认为创新是一种被个人或机构采用的新观念、新点子、方法或事务。創新是一個過程，對已建立的事物進行更改通過引入一些新的東西來增加對客戶的價值。Robbins & Coulter (2002) 则是认为创新是采用创新点子将其转化为有用的产品服务或工作方法的过程。

领导 (leadership)被认为是个人、群体和环境的个人特质。 它被定义为影响他人去理解和同意那些是需有效率完成的工作，并促进个人和集体努力实现组织共同愿景的过程。Vitello-Cicciu (2003) 将领导力定义为制定共同愿景、分析外部和内部条件，以及，制定和实施领导策略以解决问题与满足组织成员需求。因此，创新领导 (innovative leadership) 是一个通过创新或为解决政治、经济、社会、技术和环境问题以满足人们需求的创新之改变过程。成功的创新领导具备以下三项关键因素:

1.1.1 创新领导的知识

它能影响领导者与下属的关系，帮助他们建立开放沟通和亲密连结的环境。

1.1.2 创新领导所需的才能(talents)、技能(skills)和价值观(values)

具备聪明与有远见的才能使领导者能抉择正确行动并正确行事。领导者也需具备必要技能以知道如何通过缩短任务时间、提高质量和降低做类似事情的风险而更好地做事。价值观则为发展共同愿景提供理由、信念和手段。 同时，指导和激励领导者成功实现愿景。

1.1.3 成为创新领导的意志力 (willpower)

意志力能使创新领导者意欲为自己和组织成为最好与做到最好。它使创新领导者愿意更努力工作、更快乐、具抱负和导致成功。

教师领导的议题在近四十年来备受教育学术界重视，尤其被视为是学校教育创新的重要因素(Ackerman & Mackenzie, 2006; Levenson, 2014)。Guntern (1997) 将创新领导定义为: 透过创新性的行动引入有帮助的架构，进而把行动提升至杰出水平的过程。Puccio、Mance 与 Murdock (2006) 也将创新领导定义为驱动变革的系列技术，其历程是以创新思维为重点，紧密连结领导及创新、善用创新问题解决模式之技术、以促进深思熟虑创新的产生，进而达成组织创新变革的目标。创新领导创新领导力意味着引入新事物，如想法、方法、技术、流程、产品、服务或发现，以解决当前问题并满足人们当前和未来的需求。创新的领导者可以解决当前的问题，着眼于未来。创新领导的领导知识、技能、价值观和才能认识到当前问题的危险并预

测它们对未来的负面影响。他们富有远见，致力于提高人民的经济、政治和社会福祉，保护环境和地球，创造一个公正的社会 (Vitello-Cicciu, 2003) 。

虽然学者们对教师领导仍缺乏一致与清楚的定义，但大家普遍认为教师领导即是超越教师所属教室所发挥的能力及承诺(DiMaggio, 2007； York-Barr & Duke, 2004) 。当前研究对于教师创新领导的定义偏重是经由学校领导成员所建立超越组织界限的社群组合，经由各社群在专业领域知识上的管理，与跨越不同社群文化藩篱的合作，藉由领导风格与影响力展现，以及领导者社群的参与决策型态运作，创发出最适宜且有效的教学策略与实际课程，以达成个人成就与组织目标，塑造组织的核心价值，提升学校效能与永续卓越发展。因此，教师创新领导是一种教师专业发展的历程，其目标在于促进学生、学校行政人员、教师同侪、家长、小区以及校园文化产生积极正向的变革，并进一步达成学校改善(school improvement)的最终目的。

1.2 学校组织文化

最根本的组织文化(organizational culture)定义源自 Schein(1992)，他将其组织文化的定义为:某一群体在学习应付其外在适应的问题与内部之统整问题时，所发展出來的一套 基本假定，由于这些假定运作良好，而被承认是有效的，可传授给组织的新成员，作为知觉、思考和感受上述问题之正确方法。Moorhead & Griffin (1998) 则认为组织文化是一组价值观，这些价值观通常是根深蒂固的，协助组织中的人们了解在组织中哪些行为是可以被接受的，哪些行为是不可被接受的，这些价值观通常透过故事或其他的符号意义而传递。

Henry（1993）将学校组织文化定义为学校组织文化为：学校中的一组共享的关系、信念、价值与感觉，由管理者、工作人员、教师、父母、朋友、学生及其他人所创造的学校意义，其核心是「共享意义」，使学校中的成员知道彼此是互相隸属的。在本研究里学校组织文化将其定义为「藉由与校内外环境的互动与适应中，经过日积月累所形成的有形、无形且为学校成员所共享的产物，并成为每一学校所特有现象，亦是学校成员共同遵守的规范准则。

2.理论基础

2.1 教师创新领导的理论基础

教师创新领导奠基于以下学者们在创新领导和教师领导的理论观点，这些理论如下。

2.1.1 学校本位管理 (school-based management)

Murphy 和 Beck (1995) 认为: 「学校本位管理系基于学校自主自治的前提下，采分享式的决策模式，引导学校发展与变革的经营理念」学校本位管理是教育行政松绑的具体策略，将

集权化的教育行政，转化为分权化的行政管理，强调分权管理、分享决策、自主自治、重视绩效责任，以促进教育革新。

2.1.2 分布式领导 (distributive leadership)

Harris 与 Muijs (2006) 认为教师领导的主要理论架构是分布式领导，合作是教师领导的核心。Harris (2003) 认为分布领导隐含着领导者与追随者的关系与差别变得模糊，意味着校内的分工与任务的分享，所有教师在不同时间可以成为领导者的可能性。

2.1.3 增权赋能(empowerment)

Lightfoot (1986) 指出增权赋能系是指教师拥有自主权、负责任、自由选择和发挥专业权威之机会。Blase 与 Anderson (1995) 认为校长与教师间的关系应该是由权力控制 (power over) 到权力分享 (power with) ，学校领导者付予教师权力，同时也开展教师潜能之历程，有利于教师领导的发展。因此，增权赋能是有助于教师领导的开展，给教师权力及专业自主权，并激发教师的潜能，使教师对于教育工作有意义感及影响力，教师就有权力、能力承担更多的责任。

2.1.4 建构式领导 (constructivist leadership)

该理论由 Lambert(2002) 等人所主张的建构式领导是将学习理论的建构论应用在学校的领导上，强调教育团体的成员都是有意义的建构参与者。建构式领导运用在教育上是将以行政领导者为中心，调整为以被领导者为中心。学校行政领导者所扮演的角色是促进者，而不是发号司令者，学校成员应更为积极主动的参与学校教育事务，并负起部分领导之责，而不是处处仰赖学校行政领导者提供方向与指引。

2.1.5 学习社群 (learning community)

Lieberman 与 Miller (2004) 认为专业社群、学习中心、探询和领导正是教师领导的重要特性。学习社群强调成员之间的平等分享及互惠的关系，进而致力于专业成长， 教师领导也强调其影响力并非完全来自正式职位，而主要是来自专业能力。因此，教师领导基于「学习社群」理论是指一群具有共同学习兴趣或学习目标的教师，经由持续性分享交流、参与学习、相互激励，提升彼此知识、技能或态度，使更有能力领导及承担责任。

2.2 学校组织文化的理论基础

学校组织文化的相关理论多以学者 Schein(1992)和 Ott(1989)提出的组织文化层次为主，兹针对此二人的理论说明如下。

2.2.1 学校组织文化层次

Schein (1992) 把组织文化的内容分为基本假定 (basic assumptions) 、价值观 (espoused values) 、人造器物 (cultural artefacts) 三个层次，并且认为三者间的关系是一层次分明的循环过

程，具有外显及内隐两种类型。由底层的「基本假定」使组织对其环境产生价值判 断，继而产生外在行为(人造器物)；相反的，当行为与组织环境接触后产生的结果，会对原先价值判断产生正向或负向的作用，这项价值将经由内化而转变为基本假设(图 1) 。

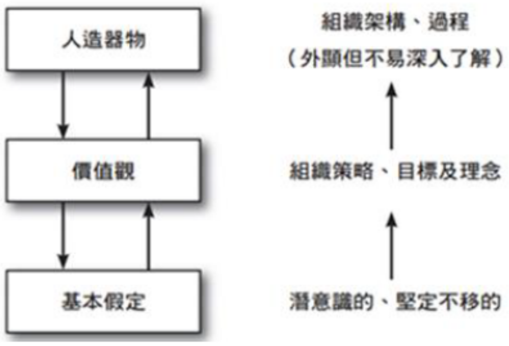

图 1：组织文化的层次(Schein, 1992)

2.2.2 Ott 对组织文化层次之看法

Ott (1989) 将文化分成四个层面，其中除了维持 Schein 的基本假定与价值观两个层面之外，另外将人造器物层面再区分成二个次层面，第一个次层面是人造品与创造 物，包括建筑物、工作环境、企业标帜等；第二个次层面是行为模型 (patterns of behavior) ，包括规范、仪式、典礼等。

综合上述理论，这些层次应用于学校组织文化可分别代表 (1)人造器物:包含学校具体的空间布置、科技产品、文化与口语、艺术创作、日常的惯例、典礼、仪式、语言、宗教、器物、建筑、制度等; (2) 价值观: 包含教师与学校组织团体对于学校事物的取舍标准，而此项价值是由教师与学校组织所共同认同;(3) 基本假定: 包含学校组织成员对其周遭的人、事、物及学校组织本身所持有的一种潜藏信念、意识或假定，以引导学校组织成员的认知、感觉和思考。

3.影响的变项

3.1 影响教师创新领导的变项

当前对于教师创新领导的文献仍是十分有限且尚未有明确且清楚的量测研究；根据前述，教师领导已成当代学校革新与领导理论与实务的主要发展趋势之一。教师是教学的设计者与实施者，因此教师领导具有巨大的教育改革力量(Katzenmeyer & Moller, 2009)。为使教师领导的意义更为明确，Murphy(2005)提出的「教师领导隐含逻辑」(the embedded logic of teacher leadership)予以说明。依据 Murphy 的教师领导隐含逻辑的理念，教师领导包含 1.教学专业化 (professionalization)；2.学校组织的强化 (the strengthening of the school organization) (或学校健

康)；以及 3.增进班级和整个学校的改善 (the promotion of classroom and school improvement)等三个主轴，而这三个主轴彼此联结 且互为关联(图 2 之双箭头即此意涵)，其逻辑架构如图 2。

学者 Geijsel, Sleegers, Stoel, & Krüger (2009) 则利用愿景建立（vision building)、个体考虑(individual consideration)、智力激发(intellectual stimulation) 三种维度来评量教师领导。他们依照这三维度发展的量表，探讨学校领导者对学校发起与拟订的愿景、对个别教师的对待考虑、提供激发教师智力的程度，该量表的选项内容如下表一。

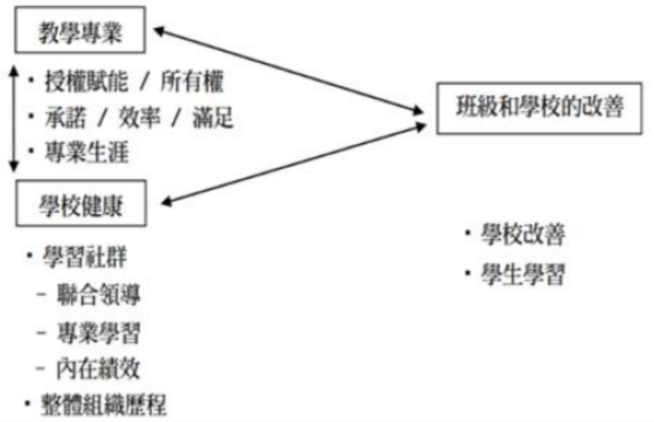

图 2: 教师领导的逻辑架构 (Murphy, 2005)

表 1: 教师领导量表(Geijsel, Sleegers, Stoel, & Krüger, 2009)

维度	选项项目
愿景建立	学校领导者 1. 会尽一切可能机会传达学校愿景给团队、学生、家长与其他人 2. 在决策过程中会明确提及学校目标 3. 会向团队解释在学校愿景与学校董事会、和学校联盟、政府机构间所做出的提议关联 4. 从学校未来愿景趣清楚定义当前问题 5. 会于会议中概述学校未来愿景如何影响现在的学校生活
个体考量	学校领导者会 1. 认真对待个别教师的信念 2. 对教师主动改善教学表示赞赏 3. 认真听取团队成员的想法 4. 帮助教师将教育热忱转为文字
智力激发	学校领导者会 1. 鼓励教师依兴趣尝试新事物 2. 帮助教师反思他们从工作中获得的新经验 3. 鼓励教师寻求与讨论有关学校发展方向的新资料与想法 4. 让个别教师持续参与与他们个别的专业目标有关的讨论 5. 鼓励教师尝试新的教学方法 6. 为教师创造充分机会从事他们的专业发展

此外，关于教师领导的量测研究发展，有些研究者还会参考 Katzenmey 与 Katzenmeyer (2005) 于佛罗里达州专业发展中心 (Professional Development Center；PDC) 发展出「教师领导学校量表」 (Teacher Leadership School Survey；TLSS) 。在该量表中，他们将支持与促进教师领导发展的内涵分为: 发展指引、肯定认同、专业自主、同侪协助、共同参与、开放沟通、有利环境，这七个变量进行探讨。这份问卷同様普遍受到国际学者们重视与应用相关研究上的问卷 (DiMaggio, 2007) 。

由于 Murphy(2005)的研究架构于「学校健康」与「班级和学校的改善」的维度划分具有重迭部分，Geijsel (2009)等发展的教师领导量表偏重测试者对学校校长的想法，由上到下、单一领导者独大的传统领导理论，因此，作者认为若要探讨学校教师的创新领导应以 Katzenmeyer 与 Katzenmeyer (2005)的量表较符合教师创新领导的量测。

3.2 教师创新领导的理论基础

依据前述，组织文化虽可分为人造器物(artifacts)、价值(values)和基本假定(basic assumptions)三个层次(Schein, 1985)；但学者对学校组织文化的真正情境和它涵盖的重要变量，却有着很大的看法差异。像是，早期的研究者曾经提过的变量便为:强调学术成就、纪律取向、团队工作、顾客取向、学校持续改革、学生对学校事务的参与；Cavanaugh & Dellar (1997) 的变量则是: 教师效能、强调学习、同侪、合作、分享计划、转换领导。依据学者们所提出的变量，学校组织文化的研究变量可综合为: 学校创新发展、同僚专业分享、參与权力运作、共创价值愿景与顾客需求取向等五项，兹将各向度的意义分述于下:

3.2.1 学校创新发展

学校是强调适应学校内外环境的革新与改变，以维持内部运作的稳定的组织。学校创新发展，是指学校在面对教育环境的革新与教学态度的改变时，学校是否能以分析、评鉴、实验等的创新方式作为专业成长的工具，并激勵教师勇于接受教育改革的挑战，

积极改进工作绩效，并培养旺盛的企图心。

3.2.2 同僚专业分享

学校是一个依教师成员的专长而分工合作的组织，所以重视教师们的专业知能发展、人际互动、专业互享、发展专业判断等能力。而同僚专业分享，即是指学校中的 教师们与同僚间，是否能相互鼓勵追求专业成长，并樂于共同分享、讨論教学经验及专业知能， 以促进学校的人际关系与同僚气氛。

3.2.3 參与权力运作

现今学校事务的决定权不再专属于行政人员与校长，而是强调团队合作、权力下放、授权与能等观念的时代。參与权力运作是指，学校所有成员对于学校的计划、目标、远景、策略以及家长学生的需求了解的程度，以及參与各项学校事务决策的权力，重视校长

是否能以各种激勵的策略，激发教师们的潜能与承諾的过程，以促进教师们參与学校事务，并朝向学校共同愿景而努力。

3.2.4 共创价值愿景

学校共同愿景是透过学校成员共同计划沟通而产生，它可以传达合作与分享的价值，也可以发展对学校的认同感及努力的目标。价值愿景即是指，学校的共同愿景是透过教师们共同计划与沟通的过程而产生，以协助成员能共同合作计划与分享管理的价值，且积极发展对学校的认同感，建立愿景，成为共享的价值，并落实于日常的事务中。

3.2.5　顾客需求取向

教育环境中的顾客包括外在与内在的顾客，外在的顾客是指学生、家长、社会与社会大众等，内在顾客是指学校中提供服务的人，本研究所指的顾客是 指以学校主要内在顾客为主，即家长与学生。顾客需求取向是指，学校以家长、学生的需求与满意程度为优先的考量，在决策过程中能考量他们的需求和期望，并且建立沟通管道，以倾听他们的声音。

4.当前的研究成果与趋势

4.1 幼儿园至小学情境的混合研究法渐受重视

Nguyen, Harris, & Ng (2019) 针对 2003-2017 年的 150 篇教师领导的研究进行分析，指出教师领导的相关研究在近期受到重视的趋势。他们将有关教师领导的实征研究文章分为 2003-2007、2008-2013、2013-2017 三个阶段，藉由发表实证研究的篇数、方法学的趋势 (methodological pattern) 、研究情境的趋势 (contextual patterns) 进行比较。结果发现发表数量渐增、方法学也由定性(qualitative)研究主导转为定性定量 (mixed method) 并重，研究情境以 K-12 居多，且这些研究的地理位置以北美居多(美国)(一半以上)，亚洲次之。

4.2 学校组织文化受人口变项的影响

根据学校组织文化和教师人口因素变项的相关研究的实证结果可知，性别、年龄、区域、学校位置、学校规模这些变项与学校组织文化的相关性，仍具有不同的研究结果。但在学历、职务、年资则是均与学校组织文化均具显著差异的。

4.3 教师创新领导对教育的影响

正向的教师领导已被证明能提升学生学习、教师教学质量、学校的发展。当 教师被授权以领导发展工作，直接对教与学造成改变，教师创新领导不只是在教室而且是超越教室之外，他们认同教师社群并对其有所贡献，同时影响其他教师一起改进教育措施(Katzenmeyer & Moller, 2001；Frost & Durrant, 2003)。综合教师创新领导的优点可能包括：

4.3.1　增进学习者的学习成效

教师领导者能表现良好的教室领导行为，与学生产生良好的互动，并对课程发展与教学进行创新，同时影响协助其他教师，共同提升学生的学习成果 (Louis, Marks, & Kruse,1996；Silins & Mulford, 2002)。

4.3.2　强化专业成长

当教师领导者亲自示范创新的有效教学，并学习发展教室之外的责任， 与同仁分享教育新知，或协助新进教师，不仅促进自我成长，也协助同仁的专业成长与发展， 进而带动学校成为学习型社群。

4.3.3　改善学校组织文化

有效能的教师领导者，可发挥其影响力，促进学校社群朝向共享式的决定及参与，营造更优质的学校文化与合作的民主气氛。

4.3.4　促进学校革新与效能

教师创新领导是促成学校革新的有效方法，因为他们是教育现场的实务工作者，也是将是最好的实践者与带领者，所有的革新行动若能以由下而上的方式(button-up) 逐渐推展实施，由教师发起带领，较易得到其他同仁的认同与支持(Leithwood, Jantzi, & Steinbach, 1999)。

4.4 学校组织文化对教育的影响

有效能的教师领导者，可发挥其影响力，促进学校社群朝向共享式的决定及 参与，营造更优质的学校组织文化与合作的民主气氛(Katzenmeyer & Moller, 2001；Frost & Durrant, 2003；Wenner & Campbell, 2017)。除了人口因素变项可能会造成学校组织文化的差异，学校组织文化也同样被证实它对教育改变或创新教学，像是，凝聚共识和建立归属，调适变化和引导变革等。兹说明如下:

4.4.1 凝聚共识和建立归属

良好的学校文化，将促使教师、学生、学校行政人员、家长及小区人士对于学校的发展具有认同感，也因为感受到自己与学校同属于生命共同体关系，因此能对学校推动课程改革

的理念与目标产生共识，建立共同努力的愿景，也愿意支持课程改革，并乐意以合作态度解决各种改革的问题。

4.4.2 变化和引导变革

学校文化本身是一开放的组织系统，因此组织成员成员会受到各种外在环境的影响，使学校组织处于不稳定的状态。然而，良好的学校文化能促使学校主动调适迎面而来的变化，并引导学校相关成员能接受变革而非抗拒变革。

4.4.3 激励自信，建立绩效

好的学校文化会鼓励学校相关成员自我 超越、不断成长。藉由教师的专业成长，帮助学生建立学习的信心，学校人员便有更佳的表现绩效。

4.4.4 民主参与，增权益能

学校组织文化能建立一个学习型组织，营造民主、丰富、多元的学校文化，允许组织成员对于各项学校事务拥有民主参与和决策权，并建立成一个学习型社群。

5.国内教师创新领导与学校组织文化的现况

关于教师创新领导的实证研究，Gong(2011)曾对广西那坡县乡村学校为样本进行调查研究，发现广西民族乡村女教师领导力建设存在领导力神话、主体意识缺失、有误的再现、玻璃天花板等问题；亦即仍欠缺偏向较现代的转型领导概念。卢乃桂和陈峥(2007)针对正式(骨干)教师的研究指出，骨干教师们在各种专业发展活动中发挥着重要作用,然而也呈现出精英化、等级制与工具性等特征。此外,由于处处受到行政干预,教师的专业发展充满着功利色彩、被迫与被动(Lo & Cheng，2007)。针对国内学校组织文化的现况，学者曾对中国北京 5255 名教师进行中小学调查。研究结果发现教师们感受到的组织文化会因年资、学校类型而有所差异，像是，年资(教龄) 6-10 年的年资者最不认同，小学教师比中学教师认同度更高，重点学校(key schools)教师比薄弱学校(ordinary schools)教师认同度更高(Song, Hu, & Li, 2007)。

综合上述研究，可发现国内关于学校组织文化和教师创新领导的实证研究仍十分 有限；而研究结果也指出，有关学校组织文化于其他地理位置的调查研究仍十分有限，也因此也难以比较与探讨。至于在教师创新领导方面，研究方法也多采定性方法进行，且研究结果也发现教师领导较偏向早期的交易领导，而非近期的转型领导。

结论

教师领导与学校组织文化都是近几十年在教育上新兴的研究议题。二者的共同点均是强调赋权(empower)给组织成员，而激发组织成员产生高度的内在动机，而愿意为组织付出。

然而，根据国内外研究指出，教师领导或学校组织文化可能深受人口因素变项影响、良好的学校组织文化极具潜能提升教师创新领导的技能。此外，国内多数教师对教师领导的概念仍普遍低落，对学校组织文化也十分有限。因此，营造一个具增进学校组织文化并探讨其与教师创新领导间的互动影响，促使学校组织经营的永续发展，将成为未来确实可行的模范。

建议

虽然组织文化可以协助成员发现他们自己对其所属组织的感受和影响行为，且良好的学校组织文化可能可提升教师创新领导的技能。但是根据前面的文献指出，教师领导研究发展仅为近几十年且对于教师创新领导的研究又极其有限，因此目前有关学校组织文化与教师创新领导的研究探讨并未具太多的实证研究，本文虽预期学校组织文化与教师创新领导者彼此间距正向的互动。但是，由于每个学校组织有其独特的结构、特定的规范和价值观，所发展出的组织文化对教师创新领导的影响究竟为何?是否也能像类似研究所证明的良好的学校组织文化确实能增进学校效能(Evans, 2003)，是对教师创新领导效能的影响，确实是未来仍待解决的研究议题。

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大理大学学前教育专业硕士生培养质量现状调查

A SURVEY ON THE CURRENT SITUATION OF THE TRAINING QUALITY OF EARLY CHILDHOOD EDUCATION MASTER STUDENTS IN DALI UNIVERSITY

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摘要：考察硕士研究生培养质量对于优化硕士生培养方式的意义重大。本文从输入、过程和输出三个维度，明确指标体系进行问卷调查，对大理大学学前教育专业硕士生的培养质量现状进行分析。了解当前地方高校学前教育专业硕士生的具体情况，共回收有效问卷 46 份，发现输入过质量中学生读硕动机最高的职业发展考虑，占比 97.8%；过程质量上，学生投入学习的时间较少，普遍集中在每天 4-6 小时。接受学术训练的方式较为单一，普遍采用听取学术讲座的形式，占比 95.7%；输出质量上看，在获得硕士学位之后大家的职业期望集中于中职、高职、大专院校当中，占比 95.7%，综合素质中“身体素质”培养的满意度较低，从业信心与信念上也反应出了准备不足的具体特征。

关键词：学前教育专业硕士研究生，培养质量，质量评价，地方高校。

Abstract: It is of great significance to investigate the training quality of postgraduates for optimizing the training methods of postgraduates. From the three dimensions of input, process and output, this paper clarifies the indicator system and conducts a questionnaire survey, and analyzes the current situation of the training quality of early childhood education master students in Dali University. Knowing the specific situation of the current master's students majoring in early childhood education in local colleges and universities, a total of 46 valid questionnaires were collected, and it was found that the high-quality middle school students' career development considerations were the most motivated to pursue a master's degree, accounting for 97.8%; In terms of process quality, students devote less time to learning, generally concentrated in 4-6 hours a day. The way of receiving academic training is relatively simple, and the form of listening to academic lectures is generally adopted, accounting for 95.7%; In terms of output quality, after obtaining a master's degree, everyone's career expectations are concentrated in secondary vocational, higher vocational, and tertiary institutions, accounting for 95.7%, in the comprehensive quality, the satisfaction with the cultivation of "physical quality" is relatively low, and the confidence and belief in practitioners also reflect the specific characteristics of insufficient preparation.

Keywords: Master's Degree in Early Childhood Education, Cultivation Quality, Quality Evaluation, Local College.

引言

中国《国家中长期教育改革和发展规划纲要》指出“高等教育发展的核心任务是提高质量”。中国共产党的十九大报告指出：“实现高等教育内涵式发展”。“内涵式发展”的高要求保障硕士生教育质量是必要环节，它引导着学生、教师和硕士生教育的整体发展方向。2017 年，中共教育部、国务院学位委员会印发《学位与研究生教育发展“十三五”规划》指出，“研究生培养是我国高等教育体系的重要组成部分，是高端人才培养的关键环节”。研究生教育改革要继续“坚持以服务需求、提高质量为主线”到 2020 年实现研究生向服务需求、提高质量的内涵式发展转型。目前，搜索国内关于“硕士生教育质量”的文献共有 925 篇，“硕士生培养质量评价”的文献共有 59 篇。具体到“教育学类硕士培养质量”的文献仅有 15 篇且相关研究从 2009 年才开始出现，但均未分专业、分地区对硕士生教育质量进行评价分析，以“学前教育专业硕士生培养质量”为研究要点的文献尚未出现。从 2009 年教育部扩大招收全日制专业学位研究生以来的这 10 余年间我国硕士生教育已发生了显著变化，笔者认为有必要对硕士生特别是结合具体到专业、地方的云南省学前教育专业硕士生培养现状进行具体的调查研究。

研究目的

1. 通过文献梳理，简要了解当前中国硕士生培养质量现状特征及评价趋势。
2. 问卷梳理大理大学学前教育专业硕士生培养质量评价（输入、过程、输出）的现状。

文献综述

笔者通过 EBSCO 总平台、Elsevier SD、Wiley Blackwell、Springer 等数据库的外文资料数据库并辅助“Google”搜索，结合关键词“培养质量”、“质量评价”梳理包括如下方面。

质量培养的风险感知——强调认知在专业发展中的价值

在研究硕士生培养质量之前，我们需要对硕士生培养质量特别是鉴于培养质量的上位概念：教育质量的内涵有所认知。国内外多见的研究是将硕士、博士统称为研究生教育质量来进行感知分析，《中国学位与研究生教育发展战略报告（2002-2010）》中对研究生的“教育质量”进行了界定：研究生教育质量是指研究生教育系统所提供的服务满足社会需要的程度。杨卫（2006）认为，研究生的教育质量应有绝对质量和相对质量之分。其中相对质量就涉及“平均受教育者的社会满意度，即培养质量与社会期待质量的符合程度”。这是中国最初将研究生的教育质量落脚在“培养”的视角。刘康平（2017）提出研究生培养质量指研究生培养院校的教育水平与研究生培养的效果，其主要受研究生培养院校的教育制度、培养内容、培养方法、培养组织形式、培养过程、培养计划、培养的评估与反馈制度的合理程度以及教师的素质、学生的基础、师生参与培养活动的默契程度等因素的影响，最终体现在培养对象的思想境界、学术诚信、科研能力、创新能力、身心健康状况等内容的质量上。逐渐发展至今，教育质量逐渐划分为培养质量和发展质量两个方面，其中发展质量更聚焦在硕士学位获得者毕业 5 年内表现出来的职业发展方面。此结论是基于华盛顿大学研究生教育创新与研究中心 The Center for Innovation and Research in Graduate Education，简称 CIRGE 开展了系列研究。

培养质量和质量评价

基于人本管理的理念，即“学生中心”的管理模式，主要根据人在社会中的作用和对经济活动的深刻理解，把个体地位在管理中突出，实现人本管理。傅冰（2006）认为，人本管理包括两个含义：强调主动性的核心理念，强调人在管理中的主导地位，调动人的主动性和积极性的创造性，并将追求组织资源的过程中以人为本的管理活动作为实现组织的目标，来锻炼意志精神和体力，通过竞争性的生产经营活动，提高人的力量和品格和智力，增强人的超越生存需要体力，从而更全面而自由的发展，这也是管理应该是哲学意义理想。培养质量从学生视角出发是本研究的特别之处，突出学前教育硕士研究生在培养过程中的主体作用，通过探讨学生在输入、过程和输出三个方面的培养质量，来全面探讨学生与学生、教师、学校之间的相互关系，实现培养质量的优化管理。此部分涉及质量高低如何衡量与评定的问题，就培养质量评价指标而言，刘平等（2011）在系列研究中生成了一套完善的培养质量评价指标体系，包含生源素质、培养条件（涵盖科研、师资、学习环境）、教育结构、培养结果四个维度。郭文文等（2017）基于多维数据，与刘平等的研究思路相似，构建了评价框架为生源素质、导师指导、教学管理与培养结果的指标体系，唯一的特殊的是将导师知道纳入了评价问项当中。李圣等（2016）则将质量评价体系串联，基于 PSO-AHP 分析方法的实证研究，形成涵盖生源质量、教

学质量、学位质量与发展质量在内的一套系统化体系，突出了输出的重要性，强调毕业生就业及用人单位评价的质量评定意义。曹晓璐等（2019）则结合硕士点自评估工作以来的相关内容，分析硕士点在研究生培养方面存在点问题和不足，提出重点加强课程建设、师生互动、激励保障制度建设、学位论文监控体系建设等要求。上述学者的研究集中于质量评价指标的探讨，但更关注于评价指标的影响因素而非培养过程与结果的评价。各指标繁复但缺乏界限，质量评价的边界十分模糊。

硕士研究生培养质量、地方高校硕士生培养质量概念与学前教育专业的联系

硕士研究生的培养质量在探讨热议的过程中，目前尚未达成统一概念。可以明确的是，培养质量是教育质量的重要组成部分。《中国学位与硕士研究生教育发展战略报告（2002-2010）》中提及研究生教育质量，“是硕士研究生教育系统所提供的服务满足社会需要的程度”，对培养输出的力度关注巨大。《中华人民共和国高等教育法》中指出高等教育“应当以培养人才为中心，开展教学、科学研究和社会服务，保证教育教学质量达到国家规定的标准”。综合如上本研究认为，输入、过程和输出的三个环节是衡量硕士研究生培养质量中的三维过程，缺一不可。地方高校是我国高等教育的重要组成部分，以立足当地、服务地方社会经济发展为目标，以就读于地方高校的硕士生在全程培养过程中学生的输入、过程和输出培养情况的总和。就上述几个基本概念整合来看，培养质量涉及到三种类型的评价主体：一是制定机构：地方高校：二是培养主体：学前教育专业（教育学类硕士）；三是质量评价一级维度：输入、过程和输出。鉴于本研究即将开展的问卷调查，需要进一步提炼输入、过程和输出的具体维度，具体包括：输入（教育背景、求学动机）、过程（学习与研究投入度、教育经历满意度）、输出（学术成果、个体发展自我评价）共 3 个一级维度，6 个二级维度。以此构成学前教育专业硕士培养的质量的核心评价要素，具体问卷题项由上述 6 个二级维度组成。

研究方法

研究方法服务于研究内容，为保证该调查研究的科学有效，具体采用文献法和问卷法具体完成调查研究。

文献法

培养质量作为教育学理论、管理学理论以及教育管理层面的多维度交叉研究领域。在查阅文献的过程中发现，可以直接参照的具体到教育学这一学科当中来的内容少之又少，培养质量的研究多见于工学、农学及医学层面。通过文献梳理、总结与对比，尝试从中筛选并提炼

地方高校学前教育专业培养质量包含的相关性影响因素，形成各维度内容，并将其设计于调查问卷当中。

问卷法

在学前教育专业硕士生培养质量评价模型构建的基础上设计调查问卷，选取大理大学现在校 46 位学生（全覆盖）为对象进行实证研究，纸质问卷发放 46 份，回收 46 份，回收率为 100%，采用倒入 excel 表格后运用 SPSS26 软件进行数据分析的方式进行分析。了解大理大学学前教育专业硕士生培养输入、过程和输出的质量现状，对评价指标相关性和重要程度进行梳理。

研究结果

个人基本情况

求学背景

此部分在数据分析后共 8 个统计信息，包括性别、年龄、婚否、在读学校、生源地、读硕方式、本科类型和学科背景。基本情况如下：

表 1：大理大学在读学前教育专业硕士生基本情况统计表

信息	性别		年龄		婚否	在读学校	生源地			读硕方式	本科类型	学科背景	
选项	男	女	25 岁以下	26-30 岁	否	大理大学	东部	中部	西部	公开招考	一般高校	本硕一致	本硕不同
频率	1	45	43	3	46	46	10	18	18	46	46	33	13
百分比	2.2%	97.8%	93.5%	6.5%	100%	100%	21.7%	39.1%	39.1%	100%	100%	71.7%	28.3%
合计	100%		100%		100%	100%	100%			100%	100%	100%	

从数据中可以发现，大理大学现在校学生女生居多，占比 97.8%。均为未婚，生源地：东部地区(京、冀、苏、沪、粤、闽等)学生占比 21.7%，中部地区(皖、晋、豫、鄂、湘、赣、蒙等)学生占比 39.1%，西部地区(川、陕、渝、云、疆、藏等)学生占比 39.1%。无东北地区(黑、吉、辽等)学生，且学生集中于中西部地方当中。招考形式均为公开招考，本科类型无“985”、“211”类型高校学生，专业而言本硕一致的占比 71.7%，本硕不一致占比 28.3%。

求学动机

求学动机的分析中共分为三个大方面：一是学生选择读硕的动机；二是学生选择读学前教育专业硕士生的动机；三是学生在硕士研究生学习之前是否有过工作经历的情况。在读硕动机方面：共分为兴趣使然、职业发展考虑、家庭因素影响、同伴因素影响，其中兴趣使然占比 37%、职业发展考虑占比 97.8%、家庭因素影响占比 17.4%、同伴因素影响占比 23.9%。在学

生选择读学前教育专业硕士生的动机方面：共分为兴趣使然、职业发展考虑、家庭因素影响、同伴因素影响、除了幼儿园工作之外更高的职业发展需求，其中兴趣使然占比 45.7%、职业发展考虑占比 63%、家庭因素影响占比 15.2%、同伴因素影响占比 100%、除了幼儿园工作之外更高的职业发展需求占比 34.8%。最后，生在硕士研究生学习之前有过工作经历的有 10 人，占比 21.7%。

硕士生教育经历情况

学习投入情况

在学位培养方式方面，97.8%的学生为全日制培养，2.2%的学生为非全日制培养模式。52.2%的学生体会到在读期间存在经济压力，学习投入的时间统计如下：

表 2：大理大学学前教育专业硕士学习投入时间统计表

学习投入时间	频数	百分比
1-3 小时	13	28.3%
4-6 小时	26	56.5%
7-9 小时	7	15.2%
9 小时以上	0	0.0%

从表 2 中可以看出，学习投入时间集中在每天 4-6 小时，通过电话沟通了解到，大理大学学前教育专业硕士研究生每日课程时间基本在 4 小时，此部分时间为固定学习时间，而自主投入学习的时间较少。

过程训练情况

硕士研究生的培养过程属于学术能力提升的训练阶段，不仅包括能够进行论文研究，学术交流的能力、教学的能力、实践创新的能力等等。学生接受训练的情况如下：

表 3：大理大学学前教育专业硕士教育过程训练情况统计表

过程训练情况	频数	百分比
参加学术讲座	44	95.7%
参加国内学术研究会议	14	30.4%
参加国际学术研究会议	0	0.0%
参加国外访学交流	0	0.0%
参加导师或其它教师的科研项目	18	39.1%
幼儿园实习	36	78.3%
有过学科相关教学经验	22	47.8%
独立申请科研项目	12	26.1%
接受过职业指导相关培训	15	32.6%

通过调查发现，此部分学生未参加过国际学术研究会议以及国外访学交流活动，训练方式主要集中于学术讲座与幼儿园实习，有过学科相关的教学经验的占比 47.8%，独立申请过科研项目的占比 26.1%，接受过职业指导相关培训的占比 32.6%，均占比较低，训练形式相对单一。

教育过程评价情况

笔者采用 Likert Scale7 点量表进行计分，从“非常不同意”到“非常同意”分别 1 到 7 分。共分为课程与教学评价、导师支持评价、管理与服务评价三个方面。统计分析如下：

表 4：大理大学学前教育专业硕士教育过程评价描述性统计分析表

教育过程	N	最小值	最大值	均值	标准差
课程与教学	46	45.5	63.7	54.1304	5.31689
导师支持	46	31	70	59.5652	9.81983
管理与服务	46	60	126	94.9348	17.00771

统计结果表明，整个教育过程当中，管理与服务的满意度最好，其次是课程与教学方面，最后是导师的支持情况。管理与服务的问项中包括学习资源、学术氛围、培养与管理三个维度，学术评价最高的在培养与管理当中。课程与教学中评价最低的集中在“跨学科课程设置的数量能够满足我的需求”、“ 跨学科课程的教学效果令我感到满意”两个跨学科的问项中，标准差分别为：1.427 和 1. 382。导师支持中评价最低的在“导师的指导方式令我感到满意”当中，标准差为 1.238。

硕士生教育输出情况

学术成果情况

通过样本的人口统计学信息了解到，大理大学学前教育专业硕士生没有毕业于“211”、“985”高校的学生，全部来源于一般本科院校。学术成果的情况当中，在读期间已公开发表论文的仅有 3 人，每人 1 篇。获奖情况中，未获得国家级奖项，省部级奖项 1 项，市级奖项 1 项，校级奖项累计 17 项，专利获取 1 项。

自我发展评价情况

调查结果发现，在获得硕士学位之后大家的职业期望集中于中职、高职、大专院校当中，占比 95.7%。民营、三资、私营企业占比最低，没有人选择，详见表 5-5。

表 5：大理大学学前教育专业硕士研究生学位获得后职业期望统计表

职业期望	频数	百分比
国家机关	19	41.3%
国有企业	8	1.7%
高等院校	32	69.6%
民营、三资、私营企业	0	0.0%
中职、高职、大专院校	44	95.7%
科研院所	10	21.7%
幼儿园	12	26.1%
其它事业单位	11	23.9%
自主创业	3	6.5%

期望的就业地点集中在中部地区(皖、晋、豫、鄂、湘、赣、蒙等)和西部地区(川、陕、渝、云、疆、藏等)，这与人口统计学当中的生源地数据有所关联。毕业后的年薪期望则集中在 8-10 万之间，也与就业意向集中的年薪薪资待遇相匹配。

同时笔者也从动机迁移、科研技能、通用技能、综合素质和职前准备几个方面来了解样本的培养输出情况。但更多的是一种培养预测而非培养结论。

表 6：大理大学学前教育专业硕士自我成长情况描述性统计表

自我成长	N	最小值	最大值	均值	标准差
动机迁移	46	17	35	29.0870	4.32988
科研技能	46	24	42	35.3913	4.74449
通用技能	46	25	49	40.7826	5.56941
综合素质	46	8	21	17.6087	2.84002
职前准备	46	18	42	35.1522	5.23224

通过表 5-6 的整体统计分析以及逐一比对，大理大学学前教育专业硕士生对科研技能和通用技能的提升培养更为满意。其中动机迁移中，对“读硕动机改变”、“职业期望发生”和“专业认同感提升”上读硕前后的转变很小标准差分别为 1.346、1.194、1.208。综合素质中对于“身体素质”的满意度较低，标准差为 1.280。职前准备上“硕士生培养能够帮助我做好学术职业准备”、“ 硕士生培养让我有信心能够在毕业后从事期望职业”信心很弱，标准差为 1.119、1.074。

总结

本文主要基于输入-过程-输出三个维度对大理大学学前教育专业硕士的培养现状进行统计分析，结果发现：

1. 在输入质量上呈现求学动机单一：基于职业发展考虑；读硕方式一致：公开招考；本科类型一致：一般高校以及学科背景不一的特征。
2. 在过程质量上呈现学习投入时间较短，过程训练形式单一，对跨学科课程以及导师的指导方面满意度较低。
3. 在输出质量上呈现职业期望集中在中职、高职、大专院校，动机迁移的培养关注度不足，综合素质中“身体素质”培养的满意度较低，从业信心与信念上也反应出了准备不足的具体特征。

讨论

输入质量方面：把控生源从创新复试考核方式入手

目前，中国硕士研究生招考基本采用公开招考的形式，在具体分数线的划分下英语水平、专业基础知识等硬性指标可以得到保障。但生源质量的差异直接影响着过程和输出质量的差异，在研究生复试过程中可考虑更多的专业知识，例如现阶段国家最新的幼儿园相应的规程、指南的了解程度与理论知识体系的理解程度。在甄别生源的基础上“遗忘”笔试成绩，关注学生师风师德、综合素质以及科研潜能等信息的考察，明确面试指标，创新利于人才脱颖而出的复试考核方式。

过程质量方面：以生为本从优化搭建培养过程模式入手

优化培养过程强调的是结构上优化、质量上提高。在研究生教育热度不减，培养规模扩张的同时更应注意过程质量的培优。从学生需求入手，优化硕士生课程结构，整合学科专业课程、跨专业学科课程、学术能力训练课程的资源，实现均衡配置和优化发展。导师方面，强调线上线下相结合、国际国内学术交流相吻合、师生与生生紧密配合的多元指导方式，关注对学生学术研究能力、各类型论文写作及课余生活的全程性指导。

输出质量方面：拓宽职业路径从提升个体内涵式发展入手

对职业路径的认识单一且动机迁移不足是学前教育专业硕士生普遍存在的问题。用人单位和个人需求随着时代的改变不断变迁，不断提升个人综合能力特别是职业准备能力是关键

要素。就学前教育专业而言，更好的深入幼儿园，将自我造就成为实战型、科研型、技能型幼儿园教师是关键。同时，学校也应更好的搭建校园（学校和幼儿园）、校企合作平台，共同优化学前教育专业硕士研究生培养方案，促进硕士生、高校、幼儿园、企业间的良性互动。树立学生发展导向的评价理论，关注学生自我发展动机的迁移与学生综合素质能力的培养。

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探索社团指导活动提升大学生关系领导力的策略

Exploring Strategies of Association Guidance Activities to Enhance Relationship Leadership of College Students

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摘要：回顾国内外高等教育发展的历史，越来越多的高校将培养未来领袖作为一项重要使命。领导力教育已成为大学教育的重要组成部分。更重要的是，它是思想政治教育的基础，是终身发展的合理要求。学生领导力受到社会的广泛关注，相关研究成果蓬勃发展，研究内容不断扩展，学习水平不断提高。然而，立足中国国情，与中国大学生领导力相关的研究却相对较少。此外，实践与研究的分离，缺乏有效的实践活动发展大学生领导力，这也是大学生领导力教育的弊端。本研究探讨社团指导活动和学生关系领导力之间的关系，发现两者之间成正相关，并以此提供三条策略：第一，学校要完善领导力培训体系，定期开展领导力培训课程；第二，社团活动要加强教师的指导作用；第三，社会指导活动要提升学生在社团参与中的主动意识。

关键词：社团指导活动，大学生，关系领导力，策略。

Abstract: Reviewing the history of higher education development at home and abroad, more and more colleges and universities regard training future leaders as an important mission and leadership education has become an important part of university education. More importantly, it is the foundation of ideological and political education and a reasonable requirement for lifelong development. Student leadership has received widespread attention from the society with relevant research results flourished, research content unceasingly expanded and learning levels continuously improved. However, based on China's national conditions, there are relatively few studies related to the leadership of Chinese college students. In addition, the separation of practice and research and the lack of effective practical activities to develop the leadership of college students are also the drawbacks of leadership education for college students. This study explored the relationship between association guidance activities and student relationship leadership, found that there is a positive correlation between the two, and provided three strategies. First, universities should improve the leadership training system and conduct leadership training courses on a regular basis. Second, association activities should strengthen the guiding role of teachers. Third, social guiding activities should enhance students' active awareness in association participation.

Keywords: Association Guidance Activities, College Students, Relationship Leadership, Strategy.

引言

随着全球政治、经济、环境、科技等方面的挑战日益增多，社会和教育的各个领域正在发生深刻的变化。回顾国内外高等教育发展的历史，越来越多的高校将培养未来领袖作为一项重要使命。领导力培养及教育已成为大学职能教育的重要组成部分。高等学校等教育机构有责任帮助学生在职业生涯中获得教育并取得成功。学院和大学还需要培养学生成为未来的领导者，他们可以在工作场所与他人分享领导力。与学生领导力相关的研究有很多，如学校青年领导力发展、药学学生领导力以及中国学生的社会领导力训练（Karagianni & Montgomery,2018; Chan, 2007; Haber & Buckley,2015）。领导力的发展对学生来说至关重要，但他们的参与也受到限制。Correia-Harker(2016)发现影响学生领导力发展的心理因素是动机、能力和自我效能。

在中国，在高等学校等教育机构培养学生领导力是一种新趋势（Xiujuan，2017）。回顾 2017-2018 年中国社会科学引文索引中列出的领先教育期刊的学生领导力，已有 30 多篇关于该主题的研究，其中三分之二是理论文章，只有三分之一是实证研究与西方世界的研究存在一些差异。学生领导力发展始于 19 世纪末至 20 世纪初（Yaoli，2014）。自 2008 年以来，中国出现了关注领导力的新兴研究人员（Haidong，2012 年）。

而郑州市关于民办大学领导力社团组织指导活动的研究并不多，比如邀请老师、学生、同行或外部专家指导学生领导力的发展活动。郑州市（截至 2021 年 10 月）比较少学生关系型领导方面的研究及实践。因此，本研究试图在中国郑州民办大学开展社团组织指导活动，以促进学生的关系领导能力的发展。

研究目的

1. 评估当前郑州工商学院学生关系领导能力水平。
2. 确定社团组织指导活动对郑州工商学院学生关系领导力的影响程度。
3. 提出郑州工商学院学生关系领导能力提升有效策略。

文献综述

1. 大学生领导力理论

自 1990 年代以来，学生领导力已引起教育机构的关注。Eich （2008） 指出，虽然对学生领导力有一些不同的定义，但研究者的观点是一致的。学生参加领导力发展活动，不仅可以提高他们的领导能力，而且丰富他们的知识、阅历。提到教育领导力，人们通常会想到正式职位，而研究表明，领导力对每个利益相关者都至关重要，而不仅仅是领导者。

因意识到领导力对学生的重要性，许多大学等高等教育机构在课程和辅助课程中为学生提供不同的领导力发展计划。Curran & Tillapaugh （2017） 发现大学缺乏足够的框架来描述领导力的实践和目的，同时激励学生成为领导者。领导是一个过程，而不是一个职位。领导力也可以学习和训练（Komives，Lucas & McMahon，2007；Velsor et al.，2010）。如今，领导力正在将领导者转变为伙伴。领导力可以在大学中培养，参加领导力发展活动的学生可以提升他们的技能和知识。在中国，Wu（2014）认为大学生领导力从 1980 年代开始在美国和中国近年来一直在研究，使用定性的方法来分析文献。Weng（2012）认为，社会责任是基于马克思主义和科学社会主义的领导力教育的核心内容。Weng（2013）认为交易型领导、服务型领导、关系型领导和社会变革型领导是最适合大学生的领导类型。Xi（2012）指出，大学生领导力发展对中国的影响在国外流行于 70、80 年代，这也是类似的论点。中国学生领导力教育缺乏系统规划，整体设计共识薄弱。

2. 大学生关系领导力理论

自 70 年代以来出现了多种领导理论，这些理论关注领导者和追随者之间关系的重要性（Marcketti & Kozar，2007）。 Nicholson & Kurucz（2019）认为，要处理更紧迫和复杂的社会、经济和环境问题，需要实践关系型领导。这些关系型领导过程产生的领导力可以是人际的，也可以是集体的（Endres & Weibler，2016）。现代领导方法是在人与人之间建立信任关系，共同实现共同目标。根据 Komives、Owen、Longerbeam、Mainella & Osteen（2005）的说法，关系特征包括合作、道德和道德、可信、真实。这种领导称为关系型领导。由于领导力是一种关系，因此人们应该建立自己的哲学。关系型领导理论将领导力定义为“人们共同尝试实现积极变革的关系和道德过程”（Komives et al.，2007）。当将领导视为一个过程时，关系型领导要素既适用于团队成员，也适用于职位领导。

Komives & Johnson （2009） 为高等教育学生开发了一个学生领导模型，这被称为关系领导模型。这种领导模式有五个要素：

（1）有目的的——要完成一些积极的事情。

（2）包容性——对不同的想法和不同的人开放，寻找股东和利益相关者为变革而合作。

（3）赋权——以充分发挥他们的才能和观点的方式，让所有小组成员参与进来。

（4）合乎道德的——坚持模式和最终价值观，并期望团队成员之间的正直、信任、品格和真实。

（5）以过程为导向——关注团队的规范实践，将人们在社区中协作地聚集在一起，并共享领导职能。

最近对领导关系方法的评论指出，多数研究都忽略了权力考虑(Denis et al.，2010)以及关系领导可能出现的功能失调动态（Endres & Weibler，2016）。一些学者认为，关系型领导必须包含权力分享的相互性。Simpson (2016) 认为，任何使用个人权力或对他人权力的领导观点都不应被视为关系型领导。Endres & Weibler (2016) 还认为，影响力必须出现在共同构建的流程中，才能被视为关系型领导。他们开发了关系型领导的三要素模型，将注意力集中在关系型领导的解放潜力上。他们的框架引起了人们对权力和影响力以及关系型领导的潜在负面后果的关注。他们的模型（关系社会建构主义领导——RSCL）的三个组成部分包括领导机制、领导内容和领导表现。

总之，关系型领导建立在信任和尊重的基础上。它与追随者建立牢固的关系，以及相互适应和学习。满足下属的需求对关系型领导者来说很重要。这种领导适合持续改进团队合作，并允许追随者之间的多样性和稳定性。

3. 大学生社团指导活动

指导是大学生培养领导能力的一项有用活动，教师在指导中发挥着至关重要的作用（Dugan & Komives，2007； Dugan，2011； Black et al.，2014）。指导活动为学生提供了许多实现愿景的机会（McKenzie，2015）。 然而，行动主义中的同伴指导对培养学生的领导能力非常有效（Kezar，et al.，2017）。此外，Johnson & Mincer（2017）发现，领导力课程可以利用大学教师、研究生甚至外部专家作为导师的资源来实现学生的发展收益。

在指导过程中，导师可能被视为朋友、老师、教练、指导支持建议、榜样和接受。这些导师会获得一本领导力指南并为项目做准备。他们帮助学生组织有关领导力和团队合作的会议（Tingle et al.， 2013）。领导力指导意味着同伴、教师和工作人员指导学生。指导是一个社会说服过程，导师通过该过程教授领导知识，可以帮助学生对领导学习充满信心。导师也是学生的榜样，学生会从驾驶中获得很多领导经验（Apesin & Gong，2018）。

社团指导活动是一个设计过程，可以让学生在大学环境中吸引个人注意力。教师指导

是积极领导成果的重要预测因素。除了让教师参与共同的课程领导之外，导师还直接与学生合作，与他们讨论如何与教师建立个人关系（Dugan & Susan，2007）。指导投资了有益的实践，并为学生领导力发展带来了合适的工具（Campbell，2012）。学生接受指导的程度与领导能力绝对相关（Dugan & Harker, 2013）。社团指导在所有社会领导力成果中都很重要（Dugan & Susan，2010）。根据对 2012 年 MSL（多机构领导力研究）洞察报告的回顾，有四种有效的学生领导力发展活动，其中包括辅导。它指出，师徒关系是学生领导能力发展能力的预测指标。导师必须与学生沟通领导力发展。指导可以帮助学生理解领导理论、概念，也可以加强领导认同。 Gatten（2004）发现学生高等教育事务从业者努力促进学生发展。同时导师可以作为朋友帮助学生获得以前的经验。

4. 大学生关系领导力的社团指导活动

学院和大学继续探索在课程和课外活动中培养的机会和经验，以培养本科生的领导技能。Beccei（2015）以性别和种族为背景，探讨了影响大学生参与校园领导力辅导的因素，更好地理解了校园辅导与领导力发展基础之间的关系。文科教育（WNS）是一个多机构组织。他们的纵向数据集包括美国 21 个州的四年制大学。 本研究主要是关于社团领导力辅导与领导力发展的关系。它指出，无论背景和其他经验如何，以社团活动为基础的领导力辅导确实帮助学生发展他们的领导力。在大学中，Barnes（2016）发现一些研究讨论了教师必须如何影响学生领导力的发展。关于大学生领袖的数据，教师的影响是显著的，因为他们充当了榜样、意义产生者、导师，甚至是朋友。研究表明，作为导师的教师对学生关系领导力的发展具有重要影响。研究表明，导师的类型对导师关系没有关键影响（Campbell et al.，2012；Early，2014）。此外，种族和性别动态并不能预测指导关系的成功（Early，2014 年）。Sherry Lynn Early（2020）指出，将包容性导师——门徒动态与关系领导模型的核心要素对于有抱负的领导者来说是不可或缺的。

研究方法

在本研究中，研究者采用定量方法。研究人员将收集有关大学生关系领导力的和关于社团指导活动问卷，进行数据分析。以中国河南省郑州工商学院有实习经验和领导活动的土木工程专业大三的 966 名学生为研究对象，进行发放问卷。根据 Krejcie & Morgan (1970) 的样本大小缩略表，该目标的总样本为 278。本研究的问卷一部分来源于 Komives & Johnson 的关系领导力模型，另一部分是基于社团指导活动定义和概念开发的问卷。本研究中使用的抽样技术是一种方便抽样方法。本研究采用 SPSS25 软件进行数据的统计学处理，包括描述性分析和相

关性分析。

研究结果

研究者对郑州工商学院土木工程专业大三的学生进行了调查，以评估当前学生关系领导力的水平。该调查基于 5 到 1 标准的李克特 5 点量表问卷的相应值来描述他们的行为，解释为 5—非常同意，4—同意，3 一般，2—不同意，1—非常不同意。研究者共发放问卷 500 份，回收问卷 406 份； 问卷回收率为 81.2%； 其中有效问卷 406 份，有效问卷率为 100%。问卷包括两部分；第一部分调查学生的人口统计数据，如性别、年龄等（如表 1 所示），第二部分问卷包括了关系领导力和社团指导活动两个内容。表 1 为学生人口数据的调查。

表 1：学生人口数据的调查

		人数	百分比（%）
性 别	男	303	74.6
	女	103	25.4
年 龄 段	<18	1.2	1.2
	18-20	45.1	45.1
	21-23	51.7	51.7
	>23	2.0	2.0
家长教育程度	高中以下	198	48.8
	高中	144	35.5
	大学	53	13.1
	硕士	2	.5
	博士	9	2.2
家庭类型	单亲家庭	30	7.4
	非单亲家庭	376	92.6

表 2 显示了有目的的相关项目，所有项目均值都是积极的，总平均值为 4.34，说明老师对学生的影响很高，学生对老师有一定的认可度。但项目“我的老师经常表现出来的独特行为，象征其根深蒂固的理念”的标准偏差大于 1，不一定能准确显示该项目的真实性结果。

表 2：与有目的的相关项目的平均得分及标准差 *(n=406)*

	项目	均值	标准偏差	等级
1	21.我的老师提供鼓舞人心的战略目标	4.41	.77	高
2	22.我的老师是鼓舞人心的，能够有效阐明员工任务的重要性来激发他人	4.42	.76	高
3	23.我的老师具有远见;经常为未来提供具有发展可能性的想法	4.41	.77	高
4	24.我的老师能够阐明与经验有关的智力能力。	4.42	.76	高
5	25.我的老师经常表现出来的独特行为，象征其根深蒂固的理念	4.44	1.09	高
	总体	4.34	.74	高

表 3 显示了包容性相关项目，总平均得分为 4.34 分。最高的平均值是“我的老师鼓励尊重差异、重视平等、参与的友好、礼貌的民间对话”。最低的平均值是“我的老师鼓励学生之间的风险决策”。但项目 2 和 5 的标准偏差超过了 1，因此，不能准确的衡量该项目。

表 3: 与包容性相关项目的平均得分及标准差 *(n=406)*

	项目	均值	标准偏差	等级
1	1. 我的老师可以为我和其他人创造专业和个人成长的机会	4.29	.90	高
2	2. 我的老师鼓励学生之间的风险决策	3.92	1.12	高
3	3. 我的老师鼓励尊重差异、重视平等、参与的友好、礼貌的民间对话	4.49	.78	高
4	4. 我的老师随时保持尊重差异并重视公平和参与的态度	4.46	.81	高
5	5. 我的老师承认并让所有内部和外部利益相关者参与建立联盟	4.08	1.06	高
	总体	4.24	.76	高

表 4 显示了赋权相关项目，所有的项目均为正的结果，总平均得分为 4.24 分。这个结果显示老师给学生的相对较大的权利范围，总体来说学生比较认可这个权利。

表 4: 与赋权相关项目的平均得分及标准差 *(n=406)*

	项目	均值	标准偏差	等级
1	6. 我的老师发展他人的专业能力，并促进学生自我领导	4.39	.81	高
2	7. 我的老师通过共享信息来鼓励他人，将学生带入小组过程，并促进个人和小组学习	4.38	.80	高
3	8. 我的老师与学生分享重要任务	4.36	.82	高
4	9. 我的老师认可学生的能力和技能	4.41	.79	高
5	10. 我的老师对学生的贡献表示赞赏	4.43	.79	高
	总体	4.39	.77	高

表 5 显示了合乎道德相关项目，所有项目的总体平均值高于 4.41。最高的平均值有三个都是 4.42；最低的平均值也是 4.41。这说明该项目学生对老师的道德指导还是很认可的。

表 5: 与合乎道德相关项目的平均得分及标准差 *(n=406)*

	项目	均值	标准偏差	等级
1	16. 我的老师通过相互喜欢和尊重来影响他人	4.42	.78	高
2	17. 我的老师的行政方式符合既定标准	4.41	.77	高
3	18. 我的老师积极践行“诚信引领”	4.42	.78	高
4	19. 我的老师在作出决策时考虑到对立观点和他人观点	4.42	.77	高
5	20. 我的老师通过创造机会和责任下放鼓励和共享领导能力	4.41	.77	高
	总体	4.41	.75	高

表 6 是关系领导力的最后一项以过程为导项目。该项目总体平均值为 4.40。这表明郑州工商学院的老师对学生的指导还是比较好的。最高的平均值有两个分别是“我的老师促进个

人发展和对他人的需求作出回应”和“我的老师通过人际交往促进成长，与学生保持联系”。

表 6: 与以过程为导相关项目的平均得分及标准差 *(n=406)*

	项目	均值	标准偏差	等级
1	11. 我的老师走出他/她的个人参考框架，并进入学生的参考框架	4.36	.82	高
2	12. 我的老师对学生和学生干部的需要和感受表示关心	4.41	.77	高
3	13. 我的老师基于价值观、关心和支持建立彼此的联系	4.41	.78	高
4	14. 我的老师促进个人发展和对他人的需求作出回应	4.42	.77	高
5	15. 我的老师通过人际交往促进成长，与学生保持联系	4.42	.78	高
	总体	4.40	.76	高

表 7 是对关系领导力每个维度的描述性分析，总体平均值是 4.36。尤其是“合乎道德”的维度平均值最高 4.41，最低的“包容性”平均值也有 4.24，而且每一项都高于 4.20。

表 7: 关系领导力每个维度的平均得分及标准差 *(n=406)*

	值	均值	标准偏差	等级
1	有目的的	4.34	.74	高
2	包容性	4.24	.76	高
3	赋权	4.39	.77	高
4	合乎道德	4.41	.75	高
5	以过程为导向	4.40	.76	高
	总体	4.36	.72	高

表 8 是关于学生关系领导力的总体指标，总平均值是 4.36。该结果表明，郑州工商学院学生关系领导力发展水平方面表现很好。

表 8: 学生关系领导力总体平均得分及标准差 *(n=406)*

值	样本	均值	标准 偏差	等级
学生关系领导力	406	4.36	.72	高

表 9 为社团指导活动每个项目的指标，总体平均值是 4.21。最高的平均值为 4.32，最低的平均值为 3.97。然而，项目 4 和 7 的标准偏差大于 1，这意味着学生对这两项的选择形成了两种分化。但整体学生认为社团指导活动程度较好。

表 9：与社团指导活动相关项目的平均得分及标准差 *(n=406)*

项目	均值	标准偏差	等级
1. 在这个社团中，人们接近彼此非常容易	4.32	.83	高
2. 在这个社团中，不同部门之间的组织成员在寻求对方帮助时感到舒服，没有不快	4.30	.85	高
3. 在这个社团中，当有需要时，你可以很容易与不同职位级别的人沟通	4.30	.86	高
4. 社团成员不以专业的方式进行工作	3.97	1.17	高
5. 我重视让我能够为社团组织做出贡献的机会	4.29	.87	高
6. 社团活动中成员经常寻找解决疑难问题的新思路	4.28	.88	高
7. 我是社团组织活动的成员	4.02	1.13	高
8. 我积极参与社团组织活动	4.18	.98	高
9. 社团组织成员非常热衷参与完成集体目标和整个组织使命	4.27	.90	高
10. 我经常使重要的组织成员热心参与创新理念	4.21	.92	高
总体	4.21	.82	高

表 10 为社团指导活动与学生关系领导力的相关性分析。从数据分析来看，两个变量之间存在明显的正相关，而且平均值达到了 4.20 以上，说明社团指导活动可以促进学生关系领导力的发展。

表 10：学生关系领导力总体平均得分及标准差 *(n=406)*

	均值	标准 偏差	1	2
1. 学生关系领导力	4.36	.72	1	.835**
2. 社团指导活动	4.21	.82	.835**	1

**. 在 0.01 级别（双尾），相关性显著。

总结

本研究探讨了社团指导活动与大学生关系领导力的关系。我们通过调查问卷了解了学生关系领导力发展的现状和社团指导活动的水平，为我们的研究找到了很好的支持。总体而言，社团指导活动与大学生关系领导力之间呈正相关。

指导是大学生培养领导能力的一项有用活动，教师扮演着导师的重要角色（Dugan & Komives，2007，2010；Dugan, 2011；Black，et al.，2014）。在 Campbell、Smith、Dugan & Komive（2012）的研究中，指导可以预测学生的承诺和自我意识的社会领导能力。此外，教

师的影响是至关重要的，因为他们是榜样、意义的产生者、导师，甚至是朋友。调查结果表明，教师作为导师指导社团活动对学生关系领导力发展具有重要影响。

建议：首先，学校要完善领导力培训体系，定期开展领导力培训课程。基本包括青年马克思主义训练工程、学生骨干培训班、团委每月组织的"青年夜谈"、会议、校际团委、辩论赛等活动；第二，社团活动要加强教师的指导作用。教师可以社团指导活动中，适当地为学生提供讨论社会热点、理论与建设社会实践相结合的机会；努力发现学生的才能，帮助学生发现他们的领导潜力；第三，社会指导活动要提升学生在社团参与中主动意识。学生在社团活动中，可以将专业方向和学习的内容结合起来，在学习领导力的同时发展自己未来的就业方向；第四，学校应提升社会指导活动的质量，为社团指导活动提供相应的物资保障。

讨论

研究价值

这项研究的开展，对于学生而言，社团指导活动有助于提升他们的领导，促使更多人加入社团组织。对教师而言，不仅能引起教师的关注，还能加强教师的指导意识，为学生领导力的发展提供更有力的保障。对于社会而言，大学生掌握关系型领导和师徒关系的知识之后，有助于学生了解如何与他人相处、协调努力、建立承诺，有助于构建和谐社会关系。对于未来的研究人员来说，助于学者们了解社团指导活动和学生关系领导能力的更多细节以及案例从而完善关系型领导的理论体系，进而为未来的研究人员关系型领导的理论研究提供一定的学术基础。

限制和未来的发展方向

虽然本研究进行严格的研究方法和数据收集，但仍有一些限制可以在未来的研究中解决。首先，本研究只是针对河南省民办高校开展，不一定能解释其他地区的一些情况，未来的研究可以选择综合类大学和其他地区的学校开展；第二，因为疫情的原因，本研究采用了在线问卷调查的方式进行，在完全自主的情况下收集数据可能存在数据收集偏差，进而影响结果的外部有效性；第三，本研究的样本量并不是很大，有些单一，未来可能随着样本量的增加，结果会有所不同。

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A STUDY OF RLEATINSHIPS BETWEEN TEACHERS' COMPETENCIES, PROFESSIONAL IDENTITY AND LEVEL OF JOB BURNOUT OF SCHOOL OF EDUCATION AT BAOSHAN UNIVERSITY, YUNNAN, CHINA

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Abstract: Identifying the average level of teacher's professional identity, teacher's competency and burnout level of faculties in School of Education at Baoshan University. 51 participants (Nunder30 = 9; N31-40 = 26; N41-50 = 8; Nover50 = 8) relate to the School of Education competed self-reported questionnaires measuring their teaching competency, level of burnout and status of professional identity. It shows there is a moderate high level of professional identity (MIdentity = 4.16) among the group, intermediate level of teaching competence (MCompetence = 3.73), and acceptable level of job burnout (MEE = 2.63; MDP = 1.94; MPA = 3.62). The personal accomplishment is fairly lower than what was expected. Personality traits of teaching competence is highly related to self-efficacy at a level of .676 ($p<0.01$). Teacher's lecturing skill is positively correlated to self-efficacy at a high level of .709 ($p<0.01$). Emotional exhaustion is negatively related to all sub-variables of teacher's professional identity. However, teachers' emotional recognition is not correlated to ones' depersonalization. It may indicate that one's feelings of competence and successful achievement at work does not affect teachers' feeling of belonging about the occupation. The implication of these analysis is discussed regarding to supporting the profession's teaching competence and to regulate teachers' level of burn out.

Keywords: Teaching Competence, Professional Identity, Job Burnout, Correlations.

Introduction

In the past years, there is a rapid growth in the number of students going to colleges and universities in China. There is an urgent need for highly qualified educators in the higher education system. With an increased student-teacher ratio, employees in higher education system experience tremendous work pressure in past years. As one who works in higher education, the author personally experiences the challenge to balance work with other things in daily live.

90% college teachers experience job burnout in China, 60% of them feel unsatisfied with their work and have had the intention to leave the profession (Shan, 2020). China statistical yearbook shows that Yunnan has the highest student-teacher ratio of 21.34 (CSY, 2020). This hardens the process of teaching. Along with the attention to teacher's well-being, job burnout gains its popularity with the economic growth. More and more people are aware of the importance of one's well-being as a crucial indicator of living quality. Past research has also shown that one's mental health condition may great affects one's professional performance.

Professional identity as a newly recognized factor for teaching outcomes is not well studied recently. There are some studies conducted in China to support perspective teachers' professional identity. The shortage of teacher in Baoshan University has affected employees' working passion, which then may result in a low work efficacy. Teacher, as a generally respected occupation in China, has been always considered to be a stable, noble, well-paid job in Chinese society. However, there is a growing dropout rate in past years (Shan, 2020).

By surfing the online news, there is a great amount news about teachers' behavior, which then result in discussing teacher's identity. The society's view on the occupation has shifted in past years due to the massive amount of negative news. In the field of teacher education, there is a great emphasis on professional identity. In most education system where it trains perspective teachers, course for professional identity is normally part of the curriculum. The impact of professional identity for current employed teachers is revealed in the field. There is a need to understand the indicator for dropout rate in this population.

Professional identity is also reflective aspect of one's view of career choice. Study has shown that teachers who drop out from the profession are those showed most emotional burnout among beginning teachers (Hong, 2010). There is research that found greater competency relates to lower burnout, then to lower dropout (Hong, 2010). Therefore, professional identity improvement/development also relates to greater competency. Education administrators seek to improve the quality of the product, "student". Regardless of the leadership style, the quality of "product" is the eternal goal. By recognizing how job burnout may affect teaching competency, which then may lead to different student outcomes. It is crucial to find out factors affecting teacher's well- being and teaching outcomes.

By review past researches, there are great amount studies on teacher's competency and job burn out particularly within China and Worldwide. Although there are some studies to evaluate perspective teachers' professional identity, there is few studies on teacher's professional identity of current employed teachers, especially among the higher education system. In addition, researches about relationships between these variables are not comprehensive. It is important to bring trainers of perspective teachers into this discussion. This study may fill the gap.

Research Objectives

1. To identify faculty's competence score of School of Education at Baoshan University.
2. To identify faculty's level of job burnout of School of Education at Baoshan University.
3. To identify faculty's professional identity score of School of Education at Baoshan University.
4. To determine the relationship between teaching competence and professional identity.
5. To determine the relationship between teaching competence and the level of job burnout.
6. To determine the relationship between teachers' professional identity and job burnout.

Respectively, our hypotheses are:

H_1. There is a significant negative relationship between job burnout and teaching competence.

H_2. There is a positive relationship between teaching competence and teacher's professional identity.

H_3. There is a negative relationship between teacher's professional identity and level of job burnout.

Literature Reviews

Development of Teaching Competence

The concept of competency was first coined by McClelland in 1973. The release of his article "testing for competence rather than for 'intelligence' brought up a wide attention in the education field (McCelland, 1973). The idea was to measure students' performance with a comprehensive model rather judging them by pure score. He emphasizes the low predicable level of traditional test, such as school record and IQ test in terms of long-term live success (Barret and Depinet, 1991). Whereas competency may consist a variety of qualities in the certain field. In the teaching profession, competency then refers to individual's capability to perform professionally.

From McCelland (1973) to relative current researches, the idea of teaching competency is formed in several different ways with its emphasis at different level. A well-known model, that late attribute to Maslow's hierarchy of needs, is hierarchy of competence, also called 'four stages for learning any new skill (Hasen, 2012). The model defines competence in a high structured way that differentiate level of competence by self-consciousness of learning development.

By reviewing studies, here are several definitions of competency by various researchers: "Hayes (1979): Competences generally include knowledge, motivation, social characteristic and roles, or skills of one person in accordance with the demands of organizations of their clerks. Boyatzis (1982): Competence lies in the individual's capacity which superposes the person's behavior with needed parameters as the results of this adaptation make the organization to hire him. Woodruff (1991):

Competence is a combination of two topics of personal competence and merit at work. Personal merit is a concept which refers to the dimensions of artificial behavior in order to show the competence performance and merit at work depends on the competences of the person in his field. Rankin (2002): A collection of behaviors and skills which people are expected to show in their organization. Industrial Development Organization of United States (2002): Competences are a collection of personal skills related to knowledge and personal specifications which can make competence in people without having practices and related specialized knowledge. Hay group (2012): Measurable characteristics of a person which are related to efficient actions at work, organization and special culture.”

Competent teachers are individuals who guide and direct students’ learning process with valued outcomes. Teaching competence may support students’ physical, intellectual, social, and emotional development (Parimala Fathima, Sasikumar, & Panimalar Roja, 2014). With the consideration of Chinese culture of the equal emphasis on one’s personally traits and academic skills, Tang (2014) conducted study to interview socially recognized educators in China in regarding to competent teachers. Besides the commonly mentioned characteristics above, it is extremely important for teachers in China to have a right intuition. Xu, Ke, & Lee (2016) identifies three aspects of competent teachers: lecturing, which consists content structuring, contextualization; lecture aids and gesturing; Interaction with students which consists checking on understanding of students and answering questions; and classroom management which consists normative, coercive, retreatism, and remunerative. The study (Tang, 2014) concludes that teaching competency may consist requirements of personality traits, good intention with students, rigorous attitude towards teaching, and pursue of research achievement. In the study, Tang (2014) asked respectable, well-known, teachers of reputation to describe their idea of competent teachers. Tang (2014) selects the common words from the interview. Moreover, Tang (2014) established Teaching Competency Scale of Higher Education with four domains. Personality traits measures individual’s modeling, creativity, passion for teaching, dedication, learning ability, intention to ahead, and openness. Intention with students measures individual’s love for students, responsiveness, comprehensive training, supporting students in time, harmonious student-teacher relationship, and actively guiding students. Practical lecturing skills consists rich experience, teaching strategies, classroom management, knowledgeable, and education background. Lastly, Comprehensive research skills refers to one’s academic reputation, academic connection, knowledge of academic dynamics, and scientific and humanistic quality.

Establishment of Job Burnout Questionaries

Job burnouts have been drawn attention from the mass medias years ago due to some news about sudden death during work. Job burnout, also called occupational burnout, means a type of a stress that’s related to one’s work. According to National Center for Biotechnology Information of United

States (NCBI), the term "burnout" was coined and first used by American psychologist Herbert Freudenberg in 1970s. He used the term to describe the consequences of severe stress and high ideals in "helping" professions. NCBI states that there are three major signs of burnout, exhaustion, alienation from (work-related) activities and reduced performance.

The phenomenon was first identified with occupations that involves interactions with people, such as nurse, teachers, and other human services (Cordes and Dougherty, 1993). Before the term come out, people used fatigue and loss of idealism and passion for one's job to describe the same situation.

The relationship people with work may direct affect people's view on the task and the way of dealing with certain tasks. Person experiences burnout may feel stressed, exhausted, withdraw from job, this may result in low production and reduced professional efficacy. The Job Demands-Resources model (Bakker and Demerouti, 2014) clearly presents the relationship between job demands-resources and job performance. Job burnout is a mediator of job demands and job performance and it is negatively related to job performance.

Maslach (1987) reviews past studies and comprehends the term "job burnout" with three major aspects, emotional exhaustion, depersonalization and personal accomplishment. The researcher then later compiles different version of Maslach Burnout Inventory. The MBI-ES consists of 22 items and is a version of the original MBI for use with educators. It was designed for teachers, administrators, other staff members, and volunteers working in any educational setting. This form was formerly known as MBI-Form Ed. The MBI-ES scale is a 7-level frequency self-grading survey formed under Maslach's burnout theoretical framework.

Reviews of Professional Identity

Philosophy of education is a set of principles framing, supporting, and guiding one's professional actions in education. It also reflects what an educator believes about education and teaching. One's philosophy of education may set up one's idea of "what is education for", "what is the role of teacher in the learning process", and "what methods may be used". There are five major philosophies in education, perennialism, essentialism, progressivism, existentialism, and social reconstructionism, each defines teacher's role and the learning process with its fundamental believe in education. These philosophies determine one's philosophical orientations to teaching. Most common model of philosophical orientations to teaching ranges one's believe in learning process from "teacher-centered" to "student-centered". There are researchers conducting studies to define professional identities from emotion, cognition and behavior (Brickson, 2005). Yu (2006) comes from a social perspective to measure teacher's professional identity with 9 domains of sense of acceptance. Wei believes value identity, refers to the understanding of the meaning of teaching and the positive view on the function of teaching, is the core of teacher's professional identity By reviewing past studies, Su

(2016) established valid and reliable Teachers Professional Identity Scale in Institution of Higher Education. The Scale consists 5 domains, behavior inclination, value identity, emotional recognition, satisfaction and self-efficacy. The 5 domains' reliability is 0.911 and the validity is 0.937. Each domain also significantly related to each other. There are total of 23 questions selected to assemble the scale. Each factor consists about 3-5 questions.

Professional Standards and Ethics of Teaching

Professional Code of Ethics is necessary for regulation purpose, it sets standards for professional liability, moral principle, and professional conduct. According to Code of Professional Ethics for Teachers in Institutions of Higher Education (2011) by Ministry of Education of People's Republic China, there are 6 major principles for teaching profession in China, patriotism and observance of law, devotion and love, knowledge impartation and people cultivation, rigorous academic attitude, social services, model for others. Following the 6 principles, the Code of Ethics set up standard requirements for teachers of higher education. The obey of these standards is also considered to be competent in the profession.

The Challenges of Teachers of Higher Education in Yunnan

Yunnan is a province known for great nature views. However, when it comes to education, Yunnan has a lower ranking in the outcomes. Yunnan also has the highest teacher-student ratio of 21.34, the shortage of teachers in the Institution of Higher Education and hard living situations in some areas of Yunnan set an even greater stress and requirement standard for teachers working Yunnan. In China, one of the labels for a well-developed University is whether a University is 985 or 211. There are about 200 '985' and '211' universities in China, and Yunnan has only one. It is a long way to go for higher education in Yunnan, so as teachers of higher education.

Methodology

Research Design

The study is quantitative and relationship research design. Research distributes a questionnaire include four parts of domains, demographic information, Maslach Burnout Inventory- ES (Maslach, 1989), Teaching Competency Scale of Higher Education (Tang, 2014), and Teachers Professional Identity Scale (Su, 2016). Research will conduct three SPSS analysis to determine the correlation between each two variables.

Population

Faculty members of School of Education at Baoshan University.

Sample

There are 33 full-time faculty members at School of Education, 20+ part-time instructors giving lecturing to students periodically. Part-time instructors are employed at other departments of Baoshan University or other local institutions, such as local vocational colleges. Participants are asked to fill out the questionnaire through online link send by researchers. Total of 51 teachers completed questionnaires out of 55+ potential participants.

Research Instrument

The questionnaire consists four parts. Part I will ask participants to fill out information about demographic profiles. Part II will ask participants to answer questions about job burnout. Part III will ask participants to self-rate their teaching competency score through 22 questions. Part IV asks participants to answer 20 questions about professional identity. Validity and Reliability: all scales are available through open-access resources, and all are well studied and published with good Validity and Reliability.

1. Teaching Competency Scale (2014)

Tang's (2014) teaching competency scale of higher education consists four domains to measure teachers' teaching philosophy, attitudes toward students, practical lecturing skills and research representation. These domains are defined as follow with tested reliability and validity.

- Personality Traits defines one's attitude toward the career, including dedications of continuing education, teaching philosophy, devotion, openness, creativity and etc.
- Intention to Students defines as teacher's behaviors interacting with students, including love for students, willingness to support students during hard time, activeness for guiding students, harmonious teacher-student relationship and etc.
- Practical Lecturing Skills defines one's ability delivery academic knowledges, such as rich experiences, teaching strategies, and educational background.
- Research Representation refers to teacher's capability to conduct quality researches, such as academic reputation, academic connections, humanity attainment and etc.

2. Maslach (1981) Burnout Inventory (MBI)

MBI was first develop in 1981 by Christina Maslach and Susan E. Jackson to access one's experience mental well-being that majorly affected by work stages. The study will incorporate the specified version of MBI-educator survey with 22-item. This scale is a 22-item, 7-level frequency, self-rated survey designed for teachers, administrators and other staff members. The three domains are described as below: In this study, we used 5-point scale. Emotional exhaustion and depersonalization are negative statements. Therefore, higher score implies higher burnout level under this sub-scale.

- Emotional Exhaustion measures feelings of being emotionally overextended and exhausted by one's work. Higher scores result in a greater level of job burnout.

- Depersonalization measures an unfeeling and impersonal response toward one's work. Higher scores correspond to a greater experience of burnout.
- Personal Accomplishment measures feelings of competence and successful achievement in one work. Lower scores indicate higher degree of burnout.

3. Teacher's Professional Identity Scale (2016)

Su (2016) worked to design and develop a five-category self-grading scale to understand professional identity of teachers of higher education. By reviewing past researches, Su believes there are five aspects to support one's view on teaching career.

- Behavior Inclination refers to one's subjective predictions of certain teaching-related behaviors.
- Value Identity is a concept of teacher's self-consciousness and experience about the career during the teaching-learning process, it is rather a abstract idea.
- Emotional Recognition defines as teachers' feeling of belonging about the occupation, and positive feelings and experiences towards teaching.
- Satisfaction is the comprehensive evaluation of the work assignments, work environment and working relationships.
- Self-Efficacy defines as teacher's self-evaluation of being able to compete assigned working tasks.

Results

Table 1: Demographic Information

Variables	Value	Frequency	Percentage (%)
Gender	Male	11	21.6
	Female	40	78.4
Age	Under 30	9	17.6
	30-40	26	51.0
	41-50	8	15.7
	Over 50	8	15.7
Years of Work	0-5	16	31.4
	6-10	10	19.6
	11-15	10	19.6
	16-20	6	11.8
	Over 20	9	17.6
Current Position	Class Teaching and Management	18	47.1
	Class Teaching Only	24	17.6
	Management Only	9	35.3
Professional Title	Junior	13	25.5
	Intermediate	16	31.4
	Senior	14	27.5
	None	8	15.7

We used Statistical Software (SPSS 23.0) for data analysis. We conducted Pearson correlation coefficient to understand the relationship between demographic information and presented variables. In summary, participants' gender, current position, and professional title do not necessary correlate to presented variables. However, faculty's age and years of work indicate different level of job burnout, professional identity and teaching competence. For instance, the longer the member works in the field, the higher it rates for lecturing skills ($r = .462$, $p < 0.01$). Years of work also positively relate to emotional recognition ($r = .325$, $p < 0.05$), self-efficacy ($r = .418$, $p< 0.01$), value identity ($r = .376$, $p < 376$), and depersonalization ($r = .284$, $p < 0.01$). Participant's age is an indicator of self-efficacy ($r = .415$, $p < 0.01$), value identity ($r = .356$, $p < 0.05$), and depersonalization ($r = .357$, $p < 0.05$). This may be a consequence of the strong connection between age and years of work.

Table 2: Means, Standard Deviations, And Correlation Coefficients for The Measured Variables

		ER	S	SE	VI	BI	EE	DP	PA	PT	SI	LS	RR
M		4.12	4.37	4.00	4.05	4.24	2.63	1.94	3.62	4.08	4.17	3.60	3.07
(SD)		.68	.53	.64	.68	.49	.67	.60	.60	.58	.58	.70	.68
Identity	ER	-											
	S	.491**	-										
	SE	.442**	.559**	-									
	VI	.514**	.575**	.745**	-								
	BI	.312*	.595**	.623**	.629**	-							
Burnout	EE	-.344*	-.471**	-.491**	-.453**	-.444**	-						
	DP	-.248	-.511**	-.541**	-.538**	-.439**	.672**	-					
	PA	.279*	.662**	.589**	.542**	.500**	-.594**	-.480**	-				
Competence	PT	.356*	.497**	.676**	.597**	.505**	-.466**	-.542**	.561**	-			
	SI	.289*	.511**	.667**	.668**	.487**	-.443*	-.521**	.577**	.782**	-		
	LS	.449**	.458**	.709**	.674**	.524**	-.414**	-.408*	.476**	.665**	.767**	-	
	RR	.355*	.253	.581**	.533**	.343*	-.333*	-.358**	.401**	.536**	.557**	.625**	-

Notes. *Correlation is significant at 0.05 level; **Correlation is significant at 0.01 level (2-tailed); M mean; SD standard deviation; ER Emotional Recognition; S Satisfaction; SE Self-Efficacy; VI Value Identity; BI Behavior Inclination; EE Emotional Exhaustion; DP Depersonalization; PA Personal Accomplishments; PT Personality Traits; SI Intention to Students; LS Practical Lecturing Skills; RR Research Representation

We conducted descriptive statistics to identify study's first, second and third research objectives. In the normal situation, the average score over 4.25 is seen as highly agreed, the score between 3.75-4.25 is seen as agreed, the score between 3-3.75 is seen as average, and the score under 3 is seen as "not agreed". In this study, we consider the score over 4.25 as a representation of high level of the certain factor. For example, an average score of 4.5 within emotional recognition means the participant feels belonging about being a teacher, feeling positive towards the experience of teaching. After running data analysis, the average teacher's professional identity level of teachers in School of Education at Baoshan University is high ($M=4.15$; $M_{ER} = 4.12$; $M_S = 4.37$; $M_{SE} = 4.00$; $M_{VI} = 4.05$; $M_{BI} = 4.24$; $N = 51$), which means their view on the function of teaching is mostly positive. The self-reported score of teaching competence is 3.73 (M_P=4.08; M_S=4.17; M_I=3.60; M_R=3.07). This indicates participants averagely rate their personality traits at a moderate high level; rate their research representation at a moderate lower level. The mean of job burnout is acceptable (M_{EE} = 2.63; M_{DP} = 1.94; M_{PA} = 3.62).

We conducted Pearson correlation coefficient to test our three hypotheses, to analyze the relationships between sub-scales of the three variables. The means, standard deviations, and significant correlations are showed in Table 1. Most sub-scales are related to each other at different affecting level. In terms of professional identity, emotional recognition is highly related to teacher's lecturing skills ($r = .449$, $p < 0.01$). Self-efficacy correlates to personal accomplishment ($r = .662$, $p < 0.01$), and lecturing skills ($r = .709$, $p < 0.01$). Value identity is strongly related to intention to students ($r = .668$, $p < 0.01$) and lecturing skills ($r = .674$, $p < 0.01$). Behavior inclination is a indicator of lecturing skills ($r = .524$, $p < 0.01$). In terms of job burnout, emotional exhaustion is negatively related to self-efficacy ($r = -.491$, $p < 0.01$). Depersonalization negatively relates to personality traits ($r = -.542$, $p < 0.01$). There is a positive relationship between personal accomplishments and intention to students ($r = .577$, $p < 0.01$). Personal accomplishments also positively relate to satisfaction ($r = .662$, $p < 0.01$). Overall, relationships between research representation and other subscales are relatively lower compared to other pairs, with self-efficacy at .581 and value identity at .533 ($p < 0.01$).

Discussions

This study aimed to investigate the average level of teaching competence, job burnout and professional identity of teachers from School of Education at Baoshan University. Our results support our hypotheses. As stated in the beginning, there is a low level of self-rated research representation. This result also corresponds to researchers' understanding of the population. As a local university located border area of Yunnan, many teachers do not feel confident with their research capabilities and research efficacy. As to "I have extensive academic contacts", most teachers choose "not sure". Administrators may seek to stimulate employers' research input by building up the school's academic connection with other institutions. In addition, the study shows that one's research representation is greatly affected by self-efficacy and value identity. Administrators may also encourage teachers of higher education putting more into research by acknowledge their work performance.

Our first hypothesis is supported with strong relationships between all three factors of job burnout and all four factors of teaching competence. Our second hypothesis is supported by relationships between five factors of professional identity and four factors of teaching competence

except there is no statistical finding between satisfaction and research representation. Our third hypothesis is supported by statistical findings between five factors of professional identity and three factors of job burnout except there is no relationship between depersonalization and emotional recognition.

As to "working in the higher education field meets my expectations and life value", most participants choose "agree". "I am fully passionate with higher education career", most participants selected "not sure". Teachers of School of Education feel uncertain with their energy input into the career. This is important for administrators to be aware. The research has shown that teacher's needs satisfaction level is significantly associated with emotional exhaustion, which is an important domain of job burnout defined by Maslach (Maior, Dorean & Pasarelu, 2020). It means that one's sense of identity of being the profession may mediate one's positive feelings of the work. Although Major, Dobrean, & Pasarelu (2020) conclude that rational beliefs show no relationship emotional exhaustion, our study found that emotional exhaustion is affected by all factors of professional identity, including behavior inclination. Previous research also found the personal accomplishments are significantly related to basic needs satisfaction and social-emotional competencies in a positive way. Rational beliefs are defined as preferential statements rather than must-be statements. Rational beliefs allow one to construct positive coping strategies in dealing with overwhelming situation (Maior, Dobrean, & Pasarelu, 2020). In other words, rational beliefs specifically mediate the relationship between basic needs and depersonalization, which these three factors all medicate teacher's performance. This also accords with our study results.

Conclusions

Further research is suggested to focus on a mediation model through determination of the mediating relationship. The Maior, Dobrean, & Pasarelu (2020) conclude that there is a significant relationship between burnout factors and social-emotional competencies, so as it is between burnout factors and people's basic needs or needs satisfaction. Needs satisfaction may differ from satisfaction that was studied in this research, but it is a common understanding that fulling one's work and life expectations affect one's input. Depersonalization is also negatively associated with social-emotional competencies and basic needs satisfaction. This is also supported in our research. By understanding relationships between each domain through the study results. We may conclude, that developing the educators' professional identity, and building an environment that promotes satisfaction in general can lead to lower levels of emotional exhaustion and depersonalization, and higher personal accomplishments. In conclusion, including teaching competence and professional identity training elements within intervention programs could prevent teachers from being overwhelming, further to promote efficiency, as they influence burnout factors in interconnected ways.

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高校美术专业教师课堂领导力提升对策研究

A STUDY ON THE COUNTERMEASURES OF IMPROVING THE CLASSROOM LEADERSHIP OF ART TEACHERS IN COLLEGES AND UNIVERSITIES

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摘要：课堂领导力的研究大幅度提升了课堂效率，促进了教育教学的发展。高校美术专业课堂教学创新是培养现代化人才的需要。通过高校美术专业课堂创新提升美术教育的作用，促进美术课程发展，提出美术课程特色，营造良好的美术学习氛围，使学生在教师课堂领导力影响下更有效的参与美术教学。提升学生学习能力、审美能力和创造能力，促使当代大学综合素养不断发展。结合本文研究方向，笔者采用文献研究法、调查问卷研究法、数据研究法和案例研究法，探索教师课堂领导力内涵，并结合高校美术专业课堂教学实践分析当前高校美术教学的现状。再针对高校美术教学中存在的问题思考高校美术教学的发展和创新，提出促进教师课堂领导力提升的若干策略。目的是将教师课堂领导力理论更好地应用于高校美术专业课堂教学，提升高校美术专业教学的综合价值。提升现代人才的审美能力，创造、创新能力，使艺术在我们的学习、生活中发挥更积极的作用。

关键词：高校教师，美术专业，课堂领导力，提升策略。

Abstract: The research on classroom leadership has greatly improved classroom efficiency and promoted the development of education and teaching. Classroom teaching innovation of art major in Colleges and universities is the need of cultivating modern talents. Through the classroom innovation of Art Majors in Colleges and universities, improve the role of art education, promote the development of art courses, put forward the characteristics of art courses, create a good art learning atmosphere, and enable students to participate in art teaching more effectively under the influence of teachers' classroom leadership. Improve students' learning ability, aesthetic ability and creative ability, and promote the continuous development of comprehensive quality of contemporary universities. Combined with the research direction of this paper, the author uses the methods of literature research, questionnaire research, data research and case study to explore the connotation of teachers' classroom leadership, and analyzes the current situation of art teaching in Colleges and universities combined with the classroom teaching practice of Art Majors in Colleges and universities. Then, in view of the problems existing in art teaching in Colleges and universities, this paper considers the development and innovation of art teaching in Colleges and universities, and puts forward some strategies to promote the improvement of teachers' classroom leadership. The purpose is to better apply the teacher's classroom leadership theory to the classroom teaching of art specialty in Colleges and universities, and improve the comprehensive value of art specialty teaching in Colleges and universities. Enhance the aesthetic ability, creativity and innovation ability of modern talents, and make art play a more active role in our study and life.

Keywords: College Teachers, Art Major, Classroom Leadership, Promotion Strategy.

1 绪论

1.1 研究背景

高校美术教育在现代人才培养中发挥着重要作用，对现代教育的影响更加突出，在大学生教育、大学生审美能力培养和大学生认知发展方面发挥了重大作用。然而高校美术教学中存在的问题不能忽视，高校美术专业教师领导力提升就是当前要重点解决的问题之一。

《国家中长期教育改革和发展规划纲要》对高校教师师德水平、专业能力等提出了更高要求，高校美术专业教师要积极打造高效课堂，推动高校美术教育的改革、发展和创新。高校美术教学实践中，学生参与美术教学的诉求更高，大学生希望通过美术学习改变自身气质，提高自己的知识学习能力、艺术审美能力和社会认知能力，为其走上社会积累丰富的经验。社会上，艺术教育的兴起带动了各类美术培训热，美术教学形式的创新和发展也体现出社会对美术教育类人才的更高要求。

1.2 研究目的

研究高校美术专业教师的领导力提升对策能更准确地了解当前高校美术教育的现状，发现当前美术教育存在的问题，进而有针对性的解决这些问题，促进高校美术教育的发展。基于当前深化素质教育的现状，提升高校美术教师课堂领导力，能为社会培养更优秀的人才。

1.3 研究意义

当前，高校美术教学的研究主要集中在教学问题、教学方法、教学策略等方面，主要从教学实践中探究高校美术教学现状，从教学的实践中分析得出高校美术教学改革的方向、策略。已有的研究对教师领导力研究不足，对美术课堂教师领导力的研究更少。鉴于此，本文的研究能够在分析和总结已有研究基础上，将教师课堂领导力相关的理论应用与高校美术教学联系起来，通过教师课堂领导力相关的问卷调查激发大众对美术专业教师课堂领导力的关注，为该课题领域的研究提供理论参考和研究方向引导，让更多的人加入相关研究，以推动高校美术教学的改革、创新和发展。

高校美术教学存在一定的问题，教学中学生参与积极性欠缺，学习目标不明确，课堂教学单一、枯燥，难以发挥美术教学的教育、审美能力培养和认知能力提升作用。当下，研究高校美术专业教师课堂领导力提升问题能激发教师与学生的探究意识，进而促进师生合作，营造良好的高校美术教学环境，促进高校美术教育教学的发展。

1.4 研究方法

文献研究法：通过搜集、整理、分析和研究文献的方法进行高校美术教师课堂领导力研究。本文主要通过知网、维普网等网站进行文献资料的搜集和整理。再通过文献阅读、文献讨论等方法整理和分析文献，筛选本文研究所需的数据、理论观点等。

调查问卷研究法：设计针对于高校教师的高校美术专业教师课堂领导力调查问卷，就高校美术专业教师的年龄分布、课堂领导力认知等进行调查，得出可靠的研究数据。问卷以电子问卷的形式发放，共收回有效问卷 327 份，随机抽取其中 100 份进行研究分析。

数据研究法：采用表格的形式对搜集到的资料、数据进行整理分析，得出研究结果。

案例研究法：搜集高校美术教学实践案例，选择符合研究内容的案例进行分析研究。

1.5 论文结构

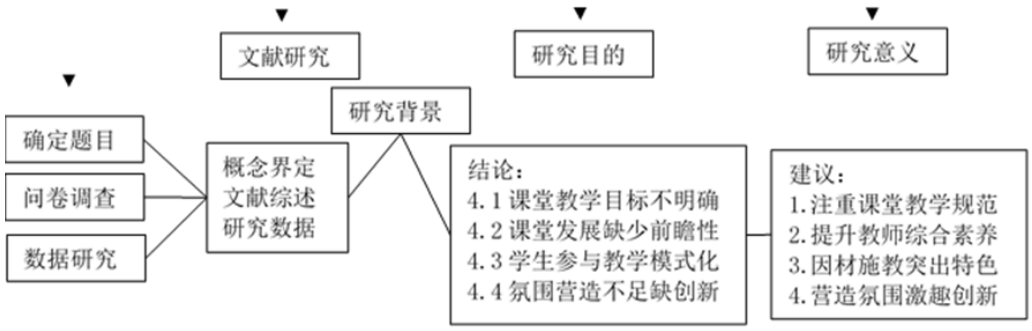

图 1：论文结构图

2 文献综述

2.1 相关概念

2.1.1 领导力

领导者个人带领所在组织实现共同目标的能力称为领导力。北京大学扬状教授认为“领导力是职场人自身所渗透出的气质”，企业管理者在工作实践中探寻符合人性的规律，个人素养和知识能力不断提出，进而影响周围的人及自己所在的团队，使其能够按照“领导者”意图，服从他、支持他。领导力心理学认为领导力并非指权利的影响，而是建立在互惠、互利、认同、信任、喜好等非权利影响基础上态度、行为、认识的趋同。由于态度、行为、认知的趋同一个人或一个团队的观点、目标更容易被认可，进而提高个人或团队带领所在组织实现目标的能力。

2.1.2 教师领导力

教师领导力最早出现在 1988 年，至今仍未有统一的界定。结合文献研究，本文将教师领导力定义为教师在教育教学活动中发挥的领导作用，可具体到在教育教学活动中教师所表现的教学领导力、同伴领导力和决策领导力。

2.1.3 课堂领导力

课堂领导力是教师领导力的具体表现，是教师教学领导力的一部分。在课堂教学中教师能够根据具体学习，发挥个人领导魅力，从思想、精神、文化、行为等方面影响学生，使学生在态度、行为、认知方面与教师趋同，进而影响学生高效参与课堂教学，激发学生学习欲望和学习创新意识，使高校美术专业教学在人才培养上的优势充分发挥出来。

2.2 文献综述

2.2.1 国内研究综述

1）教学领导力理论研究

教学领导概念的提出在上世纪末期，至今未能形成统一的认知。崔佳峰（2020）对教学领导力概念提出后近 40 年的文献进行了研究，他在《国外教学领导力研究图景：脉络、主题及趋势——基于 web of science 文献关键词的可视化分析》一文中重点研究了国外教学领导力的脉络、主题及发展趋势。研究发现教学领导力理论研究正逐渐进入实践，通过教学情境创设发挥教师在课堂上的领导力。同时教学领导力作用机制、研究层次等也在不断的优化和提升。张艳群（2021）本着提升高校教学质量、促进高校发展的目的，针对高校教师教学领导力进行了研究。研究发现高校教师领导力已成为高校变革的决定性力量。在对国内外文献研究进

行分析的过程中发现国内关于教师领导力的研究大都集中在中小学教学层面，对于高校教师领导力的研究不足，高校教师的领导力发挥受到限制。

2）教学领导力实践研究

余瑶（2021）结合教师领导力的理论研究对中学教师领导力展开调查，通过实践研究发现中学教师因年龄、性别差别其对课堂的领导力有很大差异。教学活动实践中，教师教学目标设计、教学重点难点设计、教材研读的思维方式、实施路径等都有一定差距。饶爱京（2019）根据大数据对我国高校教师教学领导力进了研究。一方面，大数据对高校教育教学的反应比较客观，结合大数据研究高校教育教学问题真实、可靠。另一方面，大数据为当代教学改革提供了丰富的、可靠的信息资源，通过大数据研究能够准确掌握当前教育教学的发展和存在问题。研究发现高校教师领导力的方向发生了较大转变，当下高校教育改革要重视教师教学领导力的发展，培养高校教师信息技术应用意识和应用能力，在立德树人的思想下加强对高校教师领导力的研究，对于促进高校教育发展有积极意义。

3）高校美术教学

万昆,邹维（2021）针对高校美术教学改革中的突出问题进行研究，研究认为高校美术教学是为了培养学生的美术审美能力，提高学生艺术创新能力，提升素质教育水平。研究认为教学目标不明确，教学意识缺少创新、教学理论知识研究不足是当前高校美术教学的主要问题。经过研究分析提出活跃美术课堂、实施教学拓展、加强教学趣味性和实施分层教学的具体办法，能够解决当前高校美术教学中存在的问题，提升高校美术教学效果。唐苒晨（2021）将研究的重心放在高校美术教育的实践上，论文以高校美术专业学生为研究对象，认为当前高校美术课程设计不合理、教学缺少创新、实践教学探索不足。并针对这些问题提出了解决策略，论文对高校美术教学的实践进行了全面、透彻的分析，为高校美术课堂教学改革、创新研究提供了参考依据。

2.2.2 国外研究综述

Beachum F，Dentith A M.（2004）着重于教师领导力的理论研究。研究针对教师领导者在学校改革中的作用及表现展开，认为促进教师领导力提升的主要因素是信任和合作，是教师与同事及领导者之间强大的关系网。Berg J H, Carver C L, Mangin M M.（2014）研究教师领导力的模式标准，研究中重点分析教师领导力和教师个人素养之间的联系，在教育教学实践中想要充分发挥教师的领导力必须树立教师强烈的责任感，使教师个体的影响力、效能作用增加，进而通过个人魅力、个人对教育目标的规划和教育理念等，影响和感染学生与教师形成教学方法、学习目标等方向的一致，使教师在课堂教学汇总的领导作用得以发挥。Berry B, Hess F M（2013）认为拓展教师的学习途径，提升教师个人素养，使教师在教育教学实践中更

好的发挥自身的领导创新能力、引领合作能力等是教师领导力发展的具体表现。研究对教师领导力发挥中学生的影响作用进行了阐述，提出学校教育团队中，教师通过教学研究、同事之间相互交流等途径提高自身效能作用的实践。学生成绩能够反应教师的领导力，但教师的领导力与学生学习成绩并不是简单关系。在教育教学实践中研究教师领导力需要更开阔的眼界和思路。

2.2.3 小结

本章研究的重心是教师领导力的影响因素，结合中外文献研究得出，影响教师领导力的主要有三方面因素。第一，教师自身因素。教师个人能力、个人素养等决定了教师在团队中的领导力。教师个人综合素质较高，对专业课程教学具有一定的前瞻性、课程创新能力、学习感召力等，教师的领导力就能更好的发挥出来。反之，教师领导力难以发挥。第二，同事及领导因素。教师领导力对同事和学校领导有一定的依赖性，在工作中其他教师的支持、合作能够提高教师的同伴领导力，使教师分享知识、引领学术共同体等能力增强。领导的支持更利于教师分享教育知识、引领学习共同体发展。第三，学生因素。学生是教师施教的主体，在教育教学活动中学生与教师互动，认知、学习的态度、行为等与教师趋同，两者相互信任、相互欣赏，教师能够有效控制课堂情况；能够引领教学方向；能够在思想、精神、行为等方面影响学生。这就是教师领导力的体现，因为学生的参与和表现，教师的领导力才能体现出来。

3 研究设计

3.1 选择研究参与者

本文的研究在选择参与上不分学校，电子版调查问卷面向全网发放，不针对教师所在学校进行调查，只了解当前高校美术教育现在及教师对高校教学实践中教师领导力的认知。回收的调查问卷经过整理、筛选，获得 327 份有效问卷，随机抽取 100 份问卷进行研究，这 100 名高校美术专业教师便是本文选择的研究参与者。

3.2 收集数据

3.2.1 问卷调查

确定研究方向后结合研究内容设计调查问卷，调查问卷共 10 题，1-9 题教师在完成调查问卷时只需要阅读题目，在确定的答案前点击鼠标左键，便可以完成选项。第 10 题教师可输入自己对提高教师课堂领导力的建议。

表 1：问卷调查信息统计表

答卷教师信息	人数	平均年龄	职称	
男	55	45.36	教授	13
			副教授	16
			讲师	26
女	45	42.72	教授	9
			副教授	16
			讲师	20

由接受调查教师的基本信息可知，参与本次调查的教师年龄主要分布在 31-40 岁和 41-50 岁之间，教师年龄偏向中青年，教龄较长有丰富的教学经验。教授、副教授、讲师的比例不匀称，其中参与调查的讲师人数占调查人数的 50%左右。参与调查的男性教师数量比女性教师多 10 人，男女比例为 11：9。高校美术专业教学实践中男女教师的教学风格不存在较大差异，对于提升教师领导力的认知无明显区别。

3.2.2 收集文件材料

文件材料的收集主要包括以下几个方面。第一，收集相关文献资料。笔者通过互联网及图书馆途径共收集论文 63 篇，书籍文献 9 部，参考文献只选择重要文献罗列。第二，收集高校美术教学视频，通过线上和线下两种途径获取。第三，收集美术专业教师接受采访的视频，对视频信息进行分析、整理，选择可用信息。第四，收集高校美术教学教案、学期授课计划及课件、学生助教日记等。文献资料不仅是理论研究的基础，还是研究数据的重要来源。

3.3 整理与分析数据

3.3.1 整理数据

先对文献资料的相关数据进行整理分析，结合文献研究进一步缩小研究范围，准确确定题目。再对 100 份调查问卷信息进行整理分析。所有数据整理采用表格形式。

3.3.2 分析数据

数据是本文研究的重要参考，分析数据过程中，笔者尊重客观事实，对数据进行全面、准确的整理，再结合理论研究分析数据所表现出的理论应用及调查结果。

表 2：高校美术专业教师对课程领导力的认知调查

所持观点	持这一观点人数
课程管理的观念与行动教学	65
指导与管理教学实践的系列观念与行为	97
引领课程实践的观念与行动	82

高校美术专业教师对课程领导力的认知并不全面，其中 97%的人认为教师领导力是教师指导与管理教学实践的系列观念与行为；82%的人认为教师领导力是教师领导课程实践的观念与行动；65%的人认为教师领导力是课程管理的观念与行动教学。从该组数据可知高校美术专业教师对教师领导力的认知并不全面，调查中教师最不认可的观念是“教师领导力是课程管理的观念与行动教学”，这就导致教师在教学实践中缺乏主动践行能力，缺少理论领域的创新意识，高校美术教学可能存在固化思维和教育教学的模式化，教师对美术教学的前瞻性研究较少，对课堂发展关注不足。教师对“教师领导力是指导与管理教学实践的系列观念与行为”这点的认知最为统一，反应出教师对教师领导力的探讨更多集中在教学实践和系列观念与行为研究上，一方面，教师对教学实践的创新性研究不足，教学实践的探讨主要是支持自身系列教学观念与行为，再次说明高校美术专业课堂教学缺少前瞻性，课堂教学模式趋于模式化。同时，也表现出高校美术专业教师对课堂领导力的关注度较高，只是当前高校教师领导力孩子研究和探索中，在教育教学中的应用还不成熟。“引领课程实践的观念与行动”也是教师领导力的主要体现，接受调查人员对这一观点的认可表现出大多数教师具有主动践行、自觉践行教师角色、任务的意识，只是当前教学实践中教师领导力的发挥不够强，课堂教学氛围营造不足缺少创新。结合调查问卷第 5 题、第 6 题、第 7 题调查，以上观点更具说服力，表现出当前高校美术专业教师领导力现状。

表 3：高校美术专业教师发挥课堂领导力调查

所持观点	持这一观点人数
经常反思教学实践，发现教学中存在的问题	89
持续改进自己的教学方法	67
开展教学研究	91
不断地更新自己的教育教学知识	96

以上四个观点是发挥教师领导力，促使教师领导力提升的重要策略，调查显示教师对于以上观点的认可度很高，但没有一项达到 100%，从认知情况看高校美术专业教师领导力的

发挥水平较高。96%的人认为通过不断地更新自己的教育教学知识能提高自己对课堂的把控能力，能有效管理学生，进而实现教师领导力的提升。91%的人认为通过开展教学研究提高教师领导力；89%的人认为通过经常反思教学实践，发现教学中存在的问题提升教师领导力。这两个观点有一定的相似性，通过教学实践反思、发现教学中的问题是开展教学研究的一种行为，对促进教师领导力发挥和提升确实有积极意义。67%的人认为持续改进自己的教学方法可提升教师领导力，持这一观点的人数较少，但持续改进自己教学观点是课堂创新的关键，也是方法教学方式、突出教学特色的关键。结合第 7 题调查可知高校美术专业教师在教育教学方面不够自信、缺少主动探索意识和闯力，在自己的岗位上创新不足、引领作用不突出。

4 高校美术专业教师课堂领导力调查结果

4.1 课堂教学目标不明确

教学目标的设定有利于提升教师和学生在教学活动中的主动性，使其相互配合、共进共赢。在高校美术教学中教学目标不明确提升了高校美术专业教学的灵活性和自由性，却降低了高校美术教学的有效性和教师领导力。第一，高校美术专业教师在课堂教学中对自己的角色任务认知不清，没有主动践行的意识，对教师领导力的发挥不足。例如，问卷调查中教师对高校教师领导力认知的不全面反应出教师对自身角色任务的认知不清，教学实践中难以发挥教师领导力。第二，教师缺少引领合作意识，课堂上学生参与的积极性、主动性不高，教师的讲和学生的学不在一个水平上，教师又不重视对学生学习的引导和启发，自顾自地讲。教学中，学生对知识点的认知、理解效率低，教师领导力发挥不足，课堂教学有效性差。第三，高校美术专业课堂教学中师生互助共进意识薄弱，学生不服管、教师不爱管，课堂教学学生参与度低，教学效果不理想，教师课堂领导力难以发挥。

4.2 课堂发展缺少前瞻性

高校美术专业课堂教学的目的在于培养学生审美能力、艺术创造能力等，使学生能够将艺术与生活联系，一方面，在美术教学参与中尽情体会生活的美好，艺术的生命力和感染力。另一方面，将美术技巧应用于艺术创作、生活设计中，让我们的生活更加多姿多彩。然而，由于教师自身美术教学观点、学生参与美术学习态度及教师教学目标设定等问题，导致教师在课堂教学中的领导力不足，对于美术教学的发展及课堂创新认知不足。导致高校美术课堂缺少推动力，课程创新不足，课堂教学理论研究滞后。例如，在课程领导过程中遇到困难时，只有20%的教师表示自己会在探索中寻趣解决途径。但有近 80%的教师表示自己会寻求帮助或应用

其他办法解决。表示会通过教师团队共同探讨解决问题的教师只占被调查人数的 67%。由此可见，高校美术专业课堂发展欠缺推动了，课堂创新不足、理论研究滞后，教师对高校美术课堂的发展缺少前瞻性，学生对美术专业的未来认知模糊，大家都在一个混沌的环境中被动的参与教学，美术教学的教育意义、人才培养作用难以发挥到极致，教师课堂领导力根本无法发挥。

4.3 学生参与教学模式化

学生参与教学的模式和教师的“领导”方式有关，在高校美术专业课堂教师以绝对的“领导”优势掌控教学的方向，而不能用“非领导方式”引导和启发学生主动参与教学。因此，高校美术专业教学中，学生参与美术教学被动、疲惫，不会主动探索知识，多数学生会沿着教师设计的模式机械地完成教学任务。例如，教师在教学中让学生欣赏《螺旋防波提》感受大自然与艺术创作的结合，体验作者内心对“和谐”的渴望。但由于教师领导力不足，学生参与美术教学已进入模式化，导致学生在教师分析这件以大自然为画布创作的艺术品时显得很淡然。学生在教学参与中既不能体验大自然之美，也不能领会到罗伯特·史密森创作的独特思维。此外，教师课堂领导力不足使其不能结合某一教学环节的具体学情转变教学方式，不懂得在教学中与学生有效互动、沟通。高校美术教学越来越没有趣味，艺术的灵感与热情在枯燥的课堂教学中被抹杀，高校教师领导力严重欠缺。

4.4 氛围营造不足缺创新

营造美术氛围，激发学生艺术创新意识，让学生在不同风格的艺术审美中体会当代艺术的个性化和多元化。然而现实中，高校美术课堂教学氛围营造不足，创新缺失。第一，氛围营造不足使教师对课堂的掌控力不足，教学难以达到理想目的。例如，在《螺旋防波提》欣赏教学中，教师想要引导学生体会作品象征的力量以及作者想要表达的“人与自然”的和谐。然而因为氛围营造不足，学生很难将艺术与自然联系起来，也不能想象“螺旋”为什么是力量的象征，自然生成的“艺术品”经过人微妙的加工其内涵和底蕴发生了怎样的变化。第二，氛围营造不足导致教师和学生思维固化，师生互动有效性难以保障，教师和学生没有共同的思想、文化、精神和行为认知，其对美术作品及美术教学的欣赏、参与目标很难一致，教师领导力难以发挥。第三，氛围营造不足导致师生实践创新不足，使学生在美术学习中难以树立创新意识，难以提高自身的创新能力，导致高校美术课堂教师领导力缺失，课堂教学单一、枯燥，缺乏创新和激情。

5 高校美术专业教师课堂领导力提升策略

5.1 注重课堂教学规范

规范课堂教学，别出心裁的设计能够使课堂教学更明确，教师在课堂教学中的领导力得到更好发挥。第一，规范课堂教学的过程中，教师需要认真思考自己在教学活动中的角色和任务，能够在课程反思和实践中不断提升自己的教学领导力，主动践行教师职责，使教师角色在高校美术教学中发挥更大魅力，引导课堂教学目标的实现。第二，规范课堂教学能促使教师认真思考各种教学模式，通过引领合作激发学参与教学意识，使学生在教师的影响下参与教学更加积极、主动，在教师的引导和启发下按照教学设计有效学习知识、达到学习目的。第三，注重课堂教学规范化能够促进教师和学生的共进意识，学生在教师领导力的影响下思考教师的思想、兴趣等，进而和教师达成思想、文化、精神、行为等方面认知的统一，使教师在教学实践中的课堂领导力大步提升。

5.2 提升教师综合素养

提升教师综合素养，使教师的专业能力得到提升，进而带动学生审美能力、艺术创造能力的提升，促进教师课堂领导力发展。一方面，通过提升教师综合素养提高教师的课堂感召力，推动和影响学生向更高层次的美术教学领域探究。另一方面，发挥教师在美术教学中的课程创新能力，使学生能够主动围绕课堂教学主题展开讨论、研究，通过探究式、专研式参与美术教学，通过自主学习提高学生美术素养，使其在教师领导力影响下有效学习美术知识、应用美术知识。

5.3 因材施教突出特色

因材施教突出高校美术教学特色，也能发挥美术教学的个性化，使学生与教师有更主动的情感交流、思想交流和精神交流，进而利用教师领导力影响学生参与教学，使学生在教学参与中体验美术教学的多元化、趣味性，进而有效完成教学任务、在思考和探索中主动向教师设计的教学目标探索。同时，使教师课堂领导力在相互交流与探讨中得到提升，学生能更充分的理解教师的思想、行为、精神等，进而支持教师、爱护教师、尊敬教师。

5.4 营造氛围激趣创新

营造氛围激趣创新的重点在于教师要主动承担课程发展的推动角色，激发学生美术学习兴趣，在课堂教学方面有所创新。第一，提高教师对课堂的掌控力，在课堂教学前进行情境

创设，通过情境营造氛围激发学生的求知意识，使其在教师领导力的影响下主动参与教学，主动探索教学目的实施的途径。同时，使教师课堂领导力在持续的教学改进和教学研究中得到提升，促进高校美术专业课堂教学水平的提升。第二，教师在教学实践中不断反思、探索，创新课堂教学模式，丰富课堂教学理论，以促进自身课堂领导力的提升，学生能够在任何情况下得到教师的引导和启发，学生对教师的信任感增强，愿意服从教师、支持教师，高校美术教学过程中教师的课堂领导力也会得到更好的发挥。第三，营造美术教学氛围，使高校美术专业课堂教学实践中教师和学生都有极强的创新意识，教师能够认真对待学生在教学参与中的反应和问题，思考和分析学生对于美术作品、美术创作的理解、认知和观念，促进高校美术课堂多元化发展，激发学生参与课堂教学的兴趣，促使学生突破传统美术学习的有限制，获得独特的见解和美术观点。使教师和学生在相互影响下互助共赢，提升教师课堂领导力。

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精准扶贫背景下非政府组织帮扶农村基础教育的困境与对策研究

A STUDY ON THE PREDICAMENT AND COUNTERMEASURES OF NGO HELPING RURAL BASIC EDUCATION UNDER THE BACKGROUND OF TARGETED POVERTY ALLEVIATION

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摘要：教育是民生之本，同时也是断绝贫困传递的重要措施，非政府组织在社会体系当中发挥自身的主体引导作用，为谋求社会福利，为相关的教育贫困组织提供特定的帮助和扶持。近年来， 随着我国社会经济的快速发展，也进一步推动非政府组织积极参与农村的教育扶贫工作。本篇文章在研究中以“教育改变安溪”作为研究案例来全面分析非政府组织参与农村教育扶贫活动其中所存在的困境，分析这一部分困境产生的具体因素，并且提出相对应的优化措施，实现农村教育扶贫效率的提高，并且指出非政府组织参与教育扶贫工作需要得到政府的财政力量支持。同时要在自身运营和发展的过程当中，不断地拓宽融资渠道，开展特定的培训活动，培训出高素质的专业人才，建立起科学合理的帮扶机制，加强自身建设。在整个过程中全面为了乡村振兴提供智力和科研以及精神文化等多方面的支持，实现乡村振兴和产业振兴以及人才振兴，着力解决农村教育贫困问题。非政府组织积极主动地参与农村教育扶贫工作，能够与政府成为良好的合作伙伴关系，两者之间相辅相成，为共同实现农村教育扶贫工作的全面胜利积极努力奋斗。

关键词：非政府组织，教育扶贫，支教。

Abstract: Education is the foundation of people's livelihood, but also an important measure to cut off the transmission of poverty. Non-governmental organizations play a leading role in the social system, providing specific help and support for seeking social welfare and related educational organizations. In recent years, with the rapid development of China's social economy, NGOs have been further promoted to actively participate in rural education and poverty alleviation. This paper takes "Education changes Anxi" as a case study to comprehensively analyze the difficulties existing in the participation of Non-Governmental organizations in rural education poverty alleviation activities, analyzes the specific factors resulting from this part of the difficulties, and proposes corresponding optimization measures to improve the efficiency of rural education poverty alleviation. It is also pointed out that non-governmental organizations' participation in poverty alleviation in education needs financial support from the government. At the same time, in the process of their own operation and development, they should constantly expand financing channels, carry out specific training activities, train high-quality professionals, establish a scientific and reasonable supporting mechanism, and strengthen their own construction. In the whole process, we will provide all-round intellectual, scientific and cultural support for rural revitalization, realize rural revitalization, industrial revitalization and talent revitalization, and strive to solve the problem of rural education poverty. Non-governmental organizations actively participate in rural education poverty alleviation work, can become a good partnership with the government, the two complement each other, to jointly realize the comprehensive victory of rural education poverty alleviation work actively strive.

Keywords: Non-Governmental Organizations, Poverty Alleviation Through Education, A Volunteer Teacher.

引言

新时代精准扶贫这一历史性战役背景下，习近平总书记提出，扶贫必先扶智，让贫困地区的孩子接受良好的基础教育，是扶贫攻坚的关键，也是阻断贫困代际传递的重要途径。往往以政府组织为主导的农村基础教育扶贫治理，存在帮扶效率低，靶向度不高、难以应对文化贫困、且缺失社会层面有效监管等现实问题，非政府组织由于其自身的优势恰恰能够弥补政府组织在农村基础教育帮扶中的这些不足之处。现如今想要实现农村振兴就必须要加强农村教育扶贫工作的重要性，为了继续完善扶贫工作，应当置于我国的农村教育理念，采取相对应的教育手段，　立足于实际情况做出相对应的调整和变动，才能够实现自身所开展的教育扶贫工作满足于农村地区的扶贫现象，全面实现乡村振兴和乡村教育可持续发展。

1、非政府组织参与农村教育扶贫的必要性及优势分析

近年来，随着我国国民经济的快速发展，在这一时代背景下非政府组织凭藉着良好的市场条件，能够得到快速的发展，非政府组织的概念在我国可以当作是民间组织或者是社会组织。这种社会组织需要在相关的政府部门登记备案，同时，也能够有效的区别于政府的一种组

织结构，在非政府组织参与农村教育扶贫的过程中可以应用自身的独特优势，去帮扶农村的扶贫教育工作，并且可以通过可行的形式来协调整体社会的利益关系。基于这个角度，本篇文章在研究中提出具体的非政府组织优势有以下几点：

1.1 非政府组织的视角优势

在开展非政府组织教育扶贫工作的过程中，政府的宏观调控能力属于主导能力，无论是在发布行政命令，还是在制定公共政策上通常都必须要全面考虑大部分人民群众的利益，不过在这一部分工作实施过后仍然还是没有照顾到小部分人的利益。相比于政府组织还是存在很大的差异。本文所研究的非政府组织属于社会组织，这一类社会组织与民众的关系较为协调，更加考虑民众的基本需求，所以在开展教育扶贫工作的过程中非政府组织可以更加全面，并且所制定的组织行为和活动都能够全面符合人民群众的需求，因为本文所研究的非政府组织的工作人员主要是来自于社会体系当中，这一部分非政府组织的工作人员都是一些有责任心的普通民众。因此，非政府组织在开展教育扶贫工作的过程中，熟悉民众、了解民众，在开展教育扶贫工作的过程中，能够基于普通民众的角度去探讨和解决那些被政府组织所忽视的问题，并且采取相对应的优化措施，进一步提高整体教育扶贫的工作效率。

1.2 非政府组织的行动优势

非政府组织相较于政府组织严格的管理制度来说较为宽松。本篇文章所研究和探讨的非政府组织能够在特定的范围内处理相关的问题，如果在开展教育扶贫工作当中遇到问题，因为非政府组织具有较强的独立性，该组织当中的工作人员可以依据于民众的需求来采取多方面的优化措施解决问题。而且因为非政府组织结构较为灵活多变，组织内部的工作人员任职岗位也相对来说比较灵活，整个组织可塑性较高。而且非政府组织内部工作人员去有很多的可能性，所以在整个信息收集渠道存在特定的优势，能够有效地提高开展教育扶贫工作的效率，特别是在教育扶贫工作过程中发生的问题，可以及时地做出迅速的反应解决问题。

1.3 非政府组织的专业优势

现如今根据研究和调查发现我国非政府组织的数量比较繁多，能够呈现出一个极具富有活力的社会组织。不过，在具体到每一个非政府组织，他们在开展扶贫教育工作的过程中所坚定的组织目标和宗旨都是相对具体的，例如中国红十字会，作为一个非政府组织在开展运行工作的过程中主要是向民众们提供医疗救助。非政府组织在成立的时候就会明确自身组织运营的目标和宗旨，强调组织在运行的过程中需要坚守哪一些原则，为哪一部分人员服务，通过明

确自身的专业方向，运用资源优势才可以实现整体的服务工作有效发展。基于这一情况，非政府组织在招募成员的时候，更愿意招聘拥有相关领域专业的工作人员，为了能够更好地实现整体社会服务工作的有效发展来解决在开展服务工作的过程中所存在的问题，更好地体现出非政府组织的专业性和可靠性。

1.4 非政府组织的资源整合优势

根据研究和调查发现非政府组织在社会机构分类体系当中属于社会组织，同时非政府组织相比较于社会体系当中其他的组织来说，本文中所讨论和研究的非政府组织并不是为了盈利， 而是通过运用自己的专业能力来为社会提供相对应的服务工作。在现实情况当中，基于非政府组织的活动出发点进行描述，能够有效地得到非政府组织更容易获得部分人民群众的支持和信任。在开展特定的社会服务工作的过程中更加顺利，得到民众力量的支持，整体工作效率也逐步实现提高。因为非政府组织拥有民众支持的优势条件，可以在运营的过程中实现资源的有效整合，并且可以将自身组织的资源实现整体的优化配置，更好地整合社会的各资源因素，为人民群众提供更加全面的服务工作。

2、非政府组织参与农村教育扶贫过程中的困境及个案分析

2.1 参与农村教育扶贫的非政府组织——“教育改变安溪”为例

泉州市安溪县剑斗镇地处晋江西溪上游，是国务院部署为了加快推进建设的 172 项重大水利工程之一的泉州白濑水利枢纽工程建设所控制的核心乡镇。为了支持泉州白濑水利枢纽工程的建设，2011 年起涉及库区建设的 8 个行政村 控制建设，禁止新增建设项目，导致经济社会发展较缓慢。云溪村、御屏村、潮碧村是剑斗镇较为偏远的革命老区村、建档立卡贫困村，也是省市级扶贫开发重点村。目前，御屏村、潮碧村各设有小学一所，师生均在 100 人左右，云溪村未设小学。这三个乡村地区因为地理位置较为偏僻，经济发展落后交通条件较差，进而导致这三个乡村地区的教育水平较为落后。同时因为茶叶行情不景气的影响，当地的大部分村民都外出务工，留在当地学校学习的小学生成为了留守儿童，在教育层面丧失了家庭力量的支持和监督。

2016 年，晋江籍大学毕业生吴隆裕（教育改变安溪发起人，也是后来剑斗镇扶贫开发协会副秘书长）被选聘到安溪县剑斗镇担任大学生村官，在工作的过程中了解到，因为山村条件较为落后，有些孩子为了上学每天都需要攀山越岭到镇上的学校，那些家庭更为困难的孩子只能够留守山村。近年来，随着生源越来越少，所得到的教育资源分配也随之减少，进而加剧

了乡村教师的流失情况，能够留下来任教的教师，大多数都是比较年迈的教师。在本篇文章调查和研究的过程中发现当地山区的留守儿童父母亲因为工作繁忙或者是外出务工，在现实情况当中根本没法关心孩子的学习情况，而且与他们的相处时间较少，进而缺乏有效的沟通，造成孩子和父母两者之间的关系越来越生疏。加上这一部分孩子在生活当中都是由祖父母所照顾，因为这一部分祖父母年龄较高，每天都要参与劳动和生产，在日常生活当中可以保证孩子们的基本温饱已经是最大的付出，根本没有时间关注孩子的学习情况。

在工作的过程中也发现在我国教育体系当中的西北偏远地区需要支教，同时地处于东南沿海的山区农村同样也需要支教。城乡之间的教育资源分配差异水平较大，进而导致城乡之间所开展的教育水平存在较大的差距，并不有利于实现山区农村小学实现标准水平的教育工作。在研究和探讨现如今山区小学的教育现状过后指出：可以通过“支教+陪伴+长期结对帮扶”的形式，探讨出一条由教育开发的教育扶贫道路。

2018 年 8 月在安溪县剑斗镇党委政府、团委等相关政府部门和工作人员的支持下，建立起相对应的大学生志愿平台，能够将各大高校有志愿的学生邀请到教育扶贫的工作体系当中，开展相对应的教育扶贫公益支教活动，为当地的山村小学引入一定的教师资源，同时通过相对应的书刊和报纸的报导大力宣传使人民群众更加注意起安溪县开展的公益支教活动，在开展本次公益支教活动的过程中有 600 多名的山区贫困学生和 350 多户家庭受益，由此可以得到开展特定的支教公益活动，有利于推动教育扶贫工作的开展。截止到目前，根据研究和调查大概已经有 700 名山区贫困学生和 400 多户家庭在开展的公益支教活动当中获益。

2.2 非政府组织帮扶农村基础教育过程中的困境分析

支教作为教育扶贫的基本手段，同时也有利于提高山区贫困地区的教育水平，同时教育也是阻断贫困传递的重要途径。在开展支教活动的过程中要将教育和扶贫两者之间的关系落实到位，同时需要各方面的资源力量支持，才有利于实现教育扶贫预期效果。现如今我国非政府组织参与到农村知识教育扶贫活动的过程中所取得的成绩十分显著，也进一步推动我国非政府组织更加积极主动地参与到农村支持教育扶贫活动的过程中，所产生的组织数量越来越多，但在实践中所产生的问题也相对增多，下文主要是本篇文章总结了几点问题：

2.2.1.资源配置不均

非政府组织也可称为民间组织，在自身运行和施政发展的过程中，主要依靠自身的资源调控配置，并没有国家所赋予的行政权力。因此在大多数人民群众来看，非政府组织并没有特定的权威性，所以在这种条件下许多人民群众更愿意相信政府的权威工作，因为目前政府在整一个体系当中都具有主导的力量角色。政府在开展社会服务工作的过程中，同样也会存在特

定的问题，不过，经过长时间来的政府主导权力，也让许多人民群众对政府掌控公共服务的权利习以为常。这也会早治在开展社会治理活动的过程中许多人民群众不信任非政府组织，进而影响到非政府组织所开展的社会服务活动受到阻碍，缺乏人民群众的支持。现如今根据本篇文章的研究和调查发现部分人民群众对非政府组织存在这特定的怀疑态度，而且缺乏一定的了解和信任，对于某部分非政府组织所号召的捐款以及相对应的改善措施不予理会，进而影响到整体非政府组织所开展的社会服务活动。

2.2.2 资金筹集困难

非政府组织整个资金来源较为单一，而且在运行的过程中，不具有经济独立性，这两个问题都能够间接地导致非政府组织的资金筹集困难问题的出现。非政府组织的资金短缺，在一定程度上影响到非政府组织的运营和管理能力，虽然非政府组织在运作的过程中具有相对独立性， 但是其内部的资金主要来源还是企事业工作人员的缴纳，在开展社会服务工作的过程中所需求的大部分资金来源还是要依靠政府的财政拨款。但是，在现实情况当中，政府的财政拨款程序教育复杂，而且时效性较差，却这也导致非政府组织在开展特定的社会服务工作的过程中因为资金筹集的困难劲儿无法开展科学合理的社会服务工作。同时在薪酬方面与其他企业相比没有特定的竞争优势，无法为非政府组织留住专业的人才。

2.2.3.非政府组织及人力资源未被充分挖掘

根据研究和调查发现我国的非政府组织相对于西方发达的非政府组织来说成立时间比较 晚，在自身运营和发展的过程当中并没有足够的专业经验，而且相比较于政府组织的公务员录用制度，非政府组织并没有制定出科学合理的人员招募制度和相对应的专业人才，有很大一部分优秀的专业人才都是选择参加公务员考试进入到政府组织行列当中，进而导致非政府组织在运营和发展的过程当中并没有专业的工作人员作为基础。虽然少部分非政府组织存在少数的专业性人才，但是因为非政府组织的资金短缺不能够为这一部分专业人才提供高薪酬的待遇，也会进一步导致非政府组织难以留住专业的人才，进而影响到整体开展社会服务工作的专业力度。而且我国的非政府组织数量较多，但是组织和组织之间并没有形成科学有效的沟通，进而在开展社会服务工作的过程中，并没有实现高效的互通合作，进而影响到整体的社会资源有效分配。

2.2.4.教育扶贫工作延续力待加强

非政府组织在开展农村教育扶贫工作的过程中，因为自身的工作的延续力较弱，影响到整体教育扶贫工作的有效发挥，部分非政府组织在开展教育扶贫工作的过程中，可以运用其自身专业的人才资源和资金资源实现有效的调控，进一步提高整一个教育扶贫工作的覆盖率，能够真真切切地为人民群众谋取福利。但是在现实情况当中，许多政府组织并没有将农村教育

扶贫工作延续下去，而且因为教育的作用存在特定的滞后性，并不是说开展特定的教育扶贫工作， 就能够在第一时间内取得成效。同时，因为一部分不可抗力的因素也会对非政府组织所开展的教育扶贫工作带来特定的阻碍，例如在 2020 年爆发的新冠疫情病毒，许多非政府组织首开展的教育扶贫工作不得不延期。

3. 非政府组织帮扶农村基础教育扶贫过程中的对策及建议

3.1 政府要重视和支持非政府组织的发展

非政府组织开展相对应的教育扶贫工作必须要强调实现多方参与，从精神动力和信息技术以及财政支持等多个方面实现社会体系的全部融合，能够为教育扶贫工作融入特定的资金力量支持，实现整体教育扶贫工作效率的提高。同时也强调政府组织必须要发挥自身的主体引导作用，能够引导更多的社会力量进入到非政府组织所开展的教育扶贫工作的过程中，有效地提高教育扶贫的工作效率与效益，提升整体教育扶贫工作所获得的效果，有利于实现教育行业的平衡发展。在开展教育扶贫工作的过程中，由一主体逐步转化为多元主体的参与，为教育扶贫工作体系引入特定的社会组织力量，建立起风险共担和利益共享的合作关系。综上所述可以得到必须要引起政府组织的重视，才可以获得更加全面的社会力量支持。强调政府组织必须要发挥自身的主导支持作用，提高政府的工作效率和贡献率，扩大教育扶贫的社会效益。

3.2 拓宽融资渠道

非政府组织在开展教育扶贫工作的过程中要不断地实现拓宽融资渠道，为自身所开展的教育扶贫工作融入更大的资金力量支持。非政府组织可以在自身运营和发展的过程中加强与各大企业和协会等相对应的社会组织合作，凝聚全社会的力量，为健全农村教育振兴的机制引入特定的资金力量，支持鼓励民间组织新型扶贫教育活动，同时可以运用强大的力量支持全面的完善贫困地区的教育基础设施建设，从而有利于保障乡村地区的教育水平得到整体的提高。可以将当地的振兴发展经验进行广泛的传播和推广，提高其他贫困地区脱贫致富的信心，同时也可以为其他贫困地区提供相关的教育扶贫工作经验，也有利于吸引更多的社会资源进入到乡村教育扶贫工作中。全面丰富扶贫形式，而且强调非政府组织在开展特定的教育扶贫工作的过程中， 要对于某部分留守儿童家庭和残疾人家庭的特殊的学生群体给予帮助，通过减免学费和提供生活补助等形式实现“一个对象不能少”、“一个项目不能少”、“一分钱不能少”等的实现。

3.3 培养高素质人才，加强自身能力建设

支教是育人的有效手段开展特定的支教活动，有利于实现整体山村贫困地区教育水平的提高。非政府组织在开展教育扶贫工作的过程中要针对于相关的工作人员给予特定的培训，不断地实现培训内容的有效丰富，基于教育新课标的内容进行有效的改造，才可以通过开展相关的培训活动，进一步提高教育工作人员自身的工作专业技能水平，使其在开展教育工作的过程中可以为山区农村儿童提供高水平的知识教育。而且强调在前期选拔工作人员的过程中要择优录取，在录用过后也必须要加强工作人员的定期考核工作，全面考核该工作人员的专业水平，并且构建出科学合理的激励政策，激励工作人员更加积极主动地参与到教育活动当中。非政府组织在开展教育扶贫的工作中要与实现更好的社会服务为目标，引入特定的人力资源作为工作的保障，提高非政府组织自身的建设力量解决现阶段所存在的问题。

3.4 建立长效帮扶机制

明确教育扶贫的正确发展方向将其的未来发展趋势，基于我国的发展战略体系当中，符合习近平总书记有关于精准扶贫的内容要求。强调非政府组织必须要建立起科学合理的长效帮扶机制，充分的挖掘和应用人力资源的能力，制定出科学合理的支教效果评价机制。并且在开展教育扶贫的工作过程中充分的应用效果评价机制的导向作用。基于学生的德智体美劳全方面进行有效的考评，有利于实现支教教师所开展的教育工作整体效率的提高，同时也可以保证执教效果评价机制的科学性，而且全面丰富职教效果评价体系的评判标准内容。在开展教育扶贫工作的过程中更加注重学生的心理健康，为贫困地区的学生树立起正确的三观意识。转变传统落后的教育模式，改造以往的灌溉式教育模式，逐步转变为造血式教育模式发展，促进教育的精准扶贫工作可持续健康发展，可以为贫困地区的经济社会发展提供更强大的人才支撑。

根据《2019 年全国未成年人互联网使用情况研究报告》显示，2019 年，我国的未成年网民共有 1.75 亿人次，其 中农村未成年人互联网普及率达到 90.3%。现如今，随着信息技术的快速发展，能够全面渗透进入到人民群众生活当中的方方面面。非政府组织在开展相对应的教育扶贫工作的过程中要不断地完善贫困地区的网络教育环境，能够在开展教育工作的过程中引入特定的信息技术力量，全面实现教育工作的智能化，同时也可以采取线上和线下相结合的模式， 利用学生的课余时间来弥补支教时间的不足，打破教师与贫困学生的受教育空间限制，而且职校的教师也可以通过录制视频课程供给贫困山区的学生后期反复观看，提高教育工作的可持续性。通过引入特定的信息技术全面实现 “互联网 + 支教”发展趋势，有效的对教育资源进行整合，进一步实现可持续健康发展的支教模式。

结论及建议

现如今，疫情爆发过后，社会结构和社会需求更加的复杂化，因此非政府组织在开展相对应的教育扶贫工作的过程中所制定的战略目标要更加的精准，所实施的应对策略要更加的谨慎， 所采取的教育工作行为必须要基于正确的教育贫困治理理念之上。通过本文的研究和调查发现， 中国地区之间教育水平发展不平衡的现象依然存在，教育扶贫的发展道路还需要走很长的路。习近平总书记在多次会议当中强调必须要开展特定的教育扶贫工作，同时可以将教育与扶贫两者之间的关系论述落实到实地，需要各方面的社会全体力量共同参与努力。同时，教育扶贫的目的以及主要的工作内容都会随着形势的变化而不断的改造，但是所开展的教育扶贫工作实现人的可持续健康发展的目标是不会改变的。现如今想要实现农村振兴就必须要加强农村教育扶贫工作的重要性，为了继续完善扶贫工作，应当置于我国的农村教育理念，采取相对应的教育手段，立足于实际情况做出相对应的调整和变动，才能够实现自身所开展的教育扶贫工作满足于农村地区的扶贫现象，全面的实现乡村振兴和乡村教育发达的现象。在开展教育扶贫工作的过程中必须要坚持中国共产党的正确领导，实现扶贫教育工作的全面胜利。

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“分流培养”人才培养模式创新研究与实践路径——以郑州工商学院的经管学院为例

“DIVERSION TRAINING” TALENT TRAINING MODE INNOVATION RESEARCH AND PRACTICE PATH----TAKE SCHOOL OF ECONOMICS AND MANAGEMENT OF ZHENGZHOU TECHNOLOGY AND BUSINESS UNIVERSITY AS AN EXAMPLE

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摘要：目前我国高等教育正处于“大众化教育”向“普及化教育”转型的关键阶段，普通高校的人才培养随之也面临很多问题，其中，最突出的问题是学生的基础水平，学习能力以及学生之间的个体差异的不断增大与传统单一的教学模式和教学目标不相适应的矛盾所导致一系列不良后果。面对这些问题，如何提升普通高校的人才培养质量，是我们高校工作者需要不断探索和研究的方向。经济管理学院作为郑州工商学院人才培养模式改革试点单位，探索实行“分流培养”，目前本科各专业都进行了专业分流培养。本研究主要以郑州工商学院经管学院的“分流培养”现状、成效、发现问题、追寻原因及改进方略为探究点，以期将经管学院及郑州工商学院全面实施的专业分流培养改革向前推动一步。

关键词：分流培养，模式创新，实践途径。

Abstract: At present, China's higher education is in the critical stage of transition from “popularized education" to "universal education". Meanwhile, the talent training of ordinary colleges and universities is also faced with many problems, among which the most prominent problem is the conflict between students' basic level, learning abilities and increasing individual differences and the traditional single teaching model and teaching objectives. In the face of these problems, how to improve the quality of talent training in ordinary colleges and universities is what we university teachers need to constantly explore and study. As Zhengzhou Technology and Business University talents training mode reform pilot unit, school of economics and management explores ways to practice "Diversion Training", with all undergraduate majors having been carried out this mode. This research mainly explores the status quo, effectiveness, problems, causes and strategies of "Division Training" mode of school of economics and management, expecting to push forward the reform of professional diversion training comprehensively implemented by the school of economics and management of Zhengzhou Institute of Business and Technology.

Keywords: Division Training, Model Innovation, Practice Path.

引言

人才培养一直以来都是个历久弥新的话题。高等教育的重要职能是进行人才培养，同时，高校对知识的传承、传播、轴新、运用，即高校的科研、服务和管理等这些工作都是围绕人才培养这一核心职能而展开。那么，高校怎样进行人才培养，怎样使高校人才培养质量得到保证，作为高校工作者，这些课题是应该不断探索和研究的。高校专业分流培养作为当前高校人才培养模式改革的重要部分受到了人们的广泛关注。经济管理学院作为郑州工商学院人才培养模式改革试点，一直探索实行“分流培养”，目前本科各专业都进行了专业分流培养，但是这种分流仅是按照学生的初步意愿同专业内简单分配并调整行政班，人才培养方案、师资调配等工作未同步进行。公共课承担部门对经管学院分流培养工作不太熟悉，相互之间沟通不够，未达到“升学班”对基础课教学水平的需求。基于此，深入探讨经管学院“分流培养”，有助于我们考察现状、总结成效、发现问题、追寻原因及改进方略，以期将经管学院及郑州工商学院全面实施的专业分流培养改革向前推动一步。

1. “分流培养”相关概述

“分流培养”是指学生在大学学习期间，在学生学习完专业规定的课程之后，根据学生的职业规划，按方向（升学班、就业班）对学生进行分流、从而有目的地、有针对性的对其能力进行强化训练。简单的说就是“就业班”的学生可以加强专业实训和校外实习，等；而

“升学班”则是需要将主要的精力一方面用在考研或专升本的准备上，另一方面是要有意识的培养学生的科研素养。

1.1“分流培养”概念界定

“分流培养”是一种创新人才培养模式，这种创新是一种资源有效配置的过程。这种模式对学生的培养主要是通过分类别、分阶段、分层次的思路，从而使得培养出的学生符合社会和企业的要求。并且这种人才培养的模式，有效的规避了传统的“一体化”的培养模式忽视学生的个体需要、忽视学生个体发展的前景的弊端。“分流培养”这种创新的人才培养模式不仅对学生升学率的提高有促进的作用，同时，为想工作的同学提供了实践机会，提高了就业技能。

1.2“分流培养”的相关研究述评

通过郑州工商学院组织教师代表、高年级学生代表就目前高年级已实施的“分流培养”方案充分调研，争取师生的意见建议，调研省内其他开展分流培养高校的具体做法，向业务主管部门及其他兄弟部门征求意见，发掘现有方案的不足之处，并针对存在的问题提出可行性对策，通过梳理现有“分流培养”的研究成果，不难发现，现有的相关研究主要集中在两大块：

首先，基于“大类招生”基础上的专业分流培养模式的探讨。“大类招生，分流培养”是相对于传统的专业招生培养而言的。其代表了目前高等院校的人才培养理念已经发生了重大的转变，教育理念开始从“专才培养”向“通才培养”转变。新中国成立后，我们国家的高校培养模式是借鉴前苏联的招生培养模式，这种培养模式是为了适应当时高度集中的计划体制。它的优点具有很强的针对性和实效性，可以为国家各部门培养专门人才。但是，这种人才培养的模式非人本性与扼杀人的独特性与创造性的缺陷也非常明显。因此，本世纪以来，随着我国高等学校招生规模的扩大，以及高等教育观念的革新，各高等院校开始积极探索人才招生与培养模式的改革，正是在高等学校人才培养理念革新的背景下，“大类招生，分流培养”的大类招生方案应运而生。针对“大类招生，分流培养”的研究成果主要集中在：对“大类招生，分流培养”的模式进行探讨的，主要以魏媛(2019)，葛阿萍、江荧(2021)，江苇航（2017）等为代表；对“大类招生，分流培养”模式下专业大类分流过程的进行研究，主要以张鹏、刘秀波(2021)为代表；探讨分流有效路径的，以吕思雅、吴方(2018)为代表等。

其次，基于“职业生涯规划”基础上的专业人才分流培养的探讨。此类研究成果比较少，课题组成员在知网上，通过输入关键词“专业人才分流培养”、“研究型专业人才分流培养”、“就业型人才分流培养”、“专业分流培养”等，找到相关的研究文献只有20多篇左右，这些相关研究主要集中在探讨基于学生的职业生涯规划某一个专业如何进行聚义专业人才的分流培养，主要是介绍了分流培养的模式以及简单的探索实践。比较典型的有：游媛媛（2015）

探讨“专业分流”培养模式在播音与主持艺术专业人才培养中的应用研究；周越、张万芹、刘娟、马宝林（2016）从多个方面探讨了普通高等院校金融数学专业人才再分流培养；吴孙勇、薛秋条（2014）探讨信息与计算科学专业人才培养的多维分流模式；龙建新、刘 兵等（2016）讨论体育教育专业人才 “1 + 2”分流培养模式的探索与实践等。

通过上述综述，不难发现，不论是相关研究的数量还是成果都是比较欠缺的，并且研究成果都是针对具体的院校、具体的专业做的研究成果，因此，基于郑州工商学院经济管理学院的实际情况，针对当前经管学生学业继续深造还是就业，如何更有效的采取适用型和研究型不同的培养模式,是本研究需要认真研究、调研和总结的。

2.“分流培养”人才培养现状及存在的问题

郑州工商学院经管学院研究小组通过深入座谈会、问卷调查等方式针对目前实施“分流培养”的现状进行概述，并指出实施过程中存在的问题现状进行分析，从而梳理存在问题，寻求有针对性解决方案。

2.1“分流培养”人才培养的现状

针对目前郑州工商学院经管学院已实施分流培养的在校学生发放问卷 150 份，回收 150 份，组织召开经管学院教师代表、承担公共课程的教师代表以及行政辅助单位代表座谈会，了解师生的意见建议。通过分析问卷以及座谈资料，以及结合最近几年“分流培养”的实施情况，可以比较客观的反映出经管学院“分流培养”人才培养的基本现状：目前本科各专业都进行了分流，分流主要是基于“职业生涯规划”基础上的专业人才分流培养，也就是考虑学生职业生涯的需要，在专业学习的基础上将学生分为“升学班”和“就业班”，分别来进行针对性的培养。

首先，在调查的 150 个学生中，90%以上的学生对“分流培养”是持肯定和赞美观点的，学生认为，这种做法充分的考虑到他们的职业生涯规划，学生学习的针对性更强了。相关教师在座谈中也反映，“分流培养”不仅是高等教育的大势所趋，同时这种培养方式优点非常明显，特别是“升学班”的学生的学风非常的好，有助于促进好学风的形成。同时，院部相关数据也反映出，不管是学生升学率，还是就业率的数据都毫无疑问说明了这样分流培养的成果是非常乐观的。

其次，通过相关座谈也了解到，目前分流的标准是学生的初步意愿，之后根据学生的意愿进行分配并调整行政班级。但是关于分之后学生的培养目标、课程设置等并且没有做出相应的调整，从学院层面上要求本院专业教师在上课的时候要对不同的需求的学生，要侧重点不

同。但是公共课承担部门对经管学院分流培养工作不太熟悉，相互之间沟通不够，未达到“升学班”对基础课教学水平的需求。另外，通过对行政部门教师代表座谈，相关教师们普遍反映因行政班人员调整给学籍管理系统、体质健康测试、贫困生认定等多项工作带来不便，影响了相关工作的顺利开展。

2.2 “分流培养”人才培养的存在的问题

通过对经管学院“分流培养”现状的分析，梳理问题如下：

2.2.1 缺乏对“分流培养”内涵的真正理解

课题组组织召开经管学院教师代表、承担公共课程的教师代表以及行政辅助单位代表座谈会，在参会的众多代表中，现场进行了随机的调查，发现我们的代表中对“分流培养”的了解程度不是很高，“非常了解”仅占 4.74%，“比较了解”占 12.3%，“大致了解”的只有 20.14%，有将近 63%的教师对“分流培养”不了解甚至完全不了解，详见（图 1）。

针对了解程度较高的教师，课题组又做了专门的了解，他们普遍认为：

（1）“分类培养”只是针对学生未来的职业生涯规划，将学生在培养的时候分两个方向来培养：升学班（考研/专升本）和就业班，这样升学班的学习氛围会比较好，有利于学生继续升学深造，对应的就业班学生会在多实践方面达成共识，有利于实践能力的提高。

（2）什么时间来分流，教师代表的意见不一，有人认为，大一下学期就可以分流，也有教师认为大一结束的时候分，部分教师认为等基础上结束，也就是大二结束的时候进行分流培养。

（3）教师代表普遍反映虽然进行了分类培养，但是升学班和就业班的仍然会上同样的课程，针对就业班和升学班，老师在讲授的时候，却没什么差别，没有任何的针对性。

综合上述的调研，研究认为：这些现象是对“分流培养”的内涵缺乏真正的理解，仅仅将“分流培养”定位为提高学风建设的一种途径，而不是真正的考虑学生的职业生涯规划，更不是“按需定制、分流培养”。

2.2.2 分流结构不均衡

目前，经管学院的分流方向是“升学班”和“就业班”，“升学班”的定义就是本科生的考研以及专科生的专升本，“就业班”就是学生实际就业。

通过调研发现在大二和大三阶段分流培养的分流结果中：大二的人力资源专业和大三的人力资源管理专业，两年的分流培养，都是 2 个升学班和 1 个就业班；大三的物流管理专业，分流结果显示 3 个班，其中 2 个升学班和 1 个就业班，并且升学班每班人数都在 50 人以上，而就业班人数不超过 30 人。郑州工商学院作为民办院校，作为地方本科院校，相关教育部门

给我们的定位是：将办学模式转到产教融合、校企合作上来，着重培养应用型技术技能型人才，通过培养不断的增强学生就业创业能力，从而，提高人才培养质量。

2.2.3 分流依据单一，导致分流结果不理想

目前研究的分流标准是学生的初步意愿，之后根据学生的意愿进行分配并调整行政班级，也就是说分流的依据就是学生的意愿，学生愿意去考研班的就直接分配到考研班，学生愿意去就业班的就分配到就业班，学院没有任何考核的标准。学生的意愿有很大的变动性，受很多因素的影响，比如，同宿舍学生的态度，家长的态度等。

通过调查发现，在已实施分流的两个年级中，通过问卷调查发现在升学班的学生中，只有 45.3%的学生的升学意愿非常的强烈，升学目标非常的明确；有 38.6%的学生意愿不是很强烈，同样升学目标不是很明确，分析原因，这部分同学之所以为什么会报升学班，学生阐述的原因中阐述最多的是：“不知道以后考不考研/要不要专升本，都说升学班教师讲的好，所以我来了”，“升学班学生学习氛围好”，“大家都报升学班了，所以我也报了”，“家长说要我报升学班”等；在升学班中，仍然有 16.1%的学生没有任何的升学意愿，详见（图 2）。另外，通过调查，因为分流依据单一，导致每年都有部分的学生在分流之后，随意申请调整班级，这给后续工作带来很多不便。

2.2.4 课程设置不合理

调研发现，目前经管学院针对“分流培养”的方向：“升学班”和“就业班”没有进行独立的人才培养方案的设计，以至于“升学班”和“就业班”学生开设的课程是一模一样的，没有任何的区别，两个方向的学生毕业学分的要求也是一样的。“升学班”没有因为是升学的需求而增设有利于升学的课程，该有的实习以及实训跟“就业班”的学生没有任何的差别，“升学班”的实习和实训因为学生不重视可以说是实际效果却很差，另外，由于大部分学生都在“升学班”，因此“就业班”实训实习又不是很被重视。

另外，对“就业班”的学生来说，他们比较关心的是在校期间所学的知识，对他们未来择业以及未来事业的发展是否有利，因此学生在学习过程中，往往会根据自己的目标有选择性的进行听课，跟目标不一致的或者在他们看来没用的，就会放弃不停。课题组通过调研注意到有的“就业班”的学生普遍认为: “没用的课程开设的多，有用的课开设的少”“没用的讲得多，有用的讲得少”。相反，与上述学生相比，“升学班”的学生对课程的讲授要求则会有所不同。由于“升学班”的学生有继续深造的愿望，因此这些学生更希望在校期间可以在某一专业方向进行深入的学习，从而能够为未来读硕士或本科奠定良好的基础。从而我们不难看出，由于学生的学习目标不同，基础不同，爱好不同，导致他们对教学内容提出了不同要求。所以统一的模式，不合理的课程设置已不能适应这种多元化的需求。

2.2.5 教学方法和手段缺乏针对性

教学方法属于方法的范畴，主要包括教法和学法两方面的内容。它是在教师和学生在教学活动过程中形成的，反过来，又对教学活动有指导作用的一系列方式的集合。教学手段是指在教学活动中运用了各种教具，仪器设备等，是现代教学活动的载体。教学方法和教学手段是实现人才培养必不可少的。

目前针对经管学院已实施分流培养的学生，课题组通过调研发现：“升学班”的学生普遍认为：担任他们的任课教师在教学过程中，使用的教学方法,讲授法占 92.4%，案例教学占 75.8%，情景教学法占 8.3%，讨论法占 48.8%，练习法占 22.2%，演示法占 16.6%，详见图3-5；同样针对“就业班”学生的调研数据详见（图 5），不难发现，在针对不同方向的学生就行培养的时候，教学方法的选择差别较小，且针对性不强。

2.2.6 学院兄弟部门之间缺乏沟通和有效的协调

作为郑州工商学院人才培养模式改革试点，经管学院从探索实行“分流培养”，目前本科各专业都进行了分流，但是这种分流目前给人的错觉就是这个活只是经管学院内部的事情，经管学院的实施“分流培养”并没有有效的跟学院兄弟部门进行及时有效的沟通。

针对“升学班”学生的调研发现，就公共基础课程教师的讲解内容是否满足自己升学的需要，学生的反馈显示，基本满足的占 28.59%，完全满足的占 5.33%，学生认为满足程度普遍偏低占 59.07%,不满足的占 7.11%，完全不满足的占 0.89%，详见（图 6），相关数据表明，针对“升学班”的基础课程的教学未达到“升学班”对基础课教学水平的需求。

3.“分流培养”人才培养模式创新途径

通过对“分流培养”人才培养模式的现状分析及问题显示等从清晰定位、合理设置分流方向、考核依据、方案培养、课程体系设置、师资队伍建设、教学方法、兄弟部门沟通、科学管理等方面探索创新型培养途径，以期将经管学院及郑州工商学院全面实施的专业分流培养改革向前推动一步。

3.1清晰定位“分流培养”

总结国内外的相关研究，关于“分流培养”的模式有很多：

3.1.1“流层直升型”和“流层考升型”模式

以学生的学业升迁流层为依据，将分流模式分为“流层直升型”和“流层考升型”模式。流层直升型即“连读”模式，是指学生可以不通过考试，而是通过一定的考察手段后进入高层次教育的分流模式；流层考升型是指学生只有通过考试才可进入高层次教育的分流模式。

3.1.2“入学分流型”和“中期分流型”模式

以学生进入专业的时间为依据，可分流分为“入学分流型”和“中期分流型”模式。入学分流型是指在学生入学时就分流到专业方向的模式；中期分流型是指学生入学的时候是以大类学科入学的，经过一段时间的学习后再将学生分流到专业的不同方向的分流模式。

3.1.3“一次分流型”和“多次分流型”模式

以学生分流的次数为依据，将分流模式分为“一次分流型”和“多次分流型”模式。一次分流型就是依据学生入学的成绩将学生进行一次性分流到不同专业，不同班级，不同课堂的模式；多次分流型就是采用多种途径将升入高校的学生进行多次分流的模式。

3.1.4“专业主流型”和“专业分岔型”模式

以学生是否选修为依据，可将分流模式分为“专业主流型”和“专业分岔型”模式。专业主流型是指在大学学习期间学生只修一个专业的分流模式；专业分岔型是指学生在大学期间除主修专业之外还可以根据自己的需求选修其它专业或课程的模式。

3.1.5“学校配置型”和“自主选择型”

以学生能否自主选择为依据，将分流模式分为“学校配置型”和“自主选择型”。学校配置型具体是指完全有学校来安排学生所学专业及课程等的分流模式；自主选择型却是由学生自己来选择自己所学专业、课程、班级和课堂等。然而，经管学院的分流培养到底是哪种分流培养模式，只有真正的定位了自己模式，才有利于后续一切工作的顺利进行。通过深入的研究认为:经管学院的分流模式应该是“流层考升型”，“中期分流型”、“一次分流型”、“自主选择型”相结合的分流模式。具体来说：首先，经管学院的分流模式的要一改之前的分流标准：学生的初步意愿，而要建立新的标准（“流层考升型”和“自主选择型”相结合的模式）：结合学生的意愿，同时还要有学业成绩的要求；其次，分流要坚持“中期分流型”，主要考虑数学、英语、政治等公共基础课开设时间都是4个学期（本科），且各门课程之间都是相互衔接，拟考虑在第4学期结束后完成分流工作；专科，拟订第2学期结束后完成分流工作；另外，坚持“一次分流型”，告诫学生结合自己实际情况分流之前做好充分的思考，避免个别学生频繁更换分流方向；最后，“分流培养”只是一种人才培养的途径，要想真正的达到培养目标，要有针对性的调整人才培养方案、合理的进行课程设置以及安排师资。

3.2 合理设置分流方向

普通本科院校主要责任是为地方发展有目的是培养应用型人才，但由于其本身起点低、底子薄的特性，使得普通本科院校与重点院校在办学经验、实验条件、师资力量、教学模式、

生源质量等方面有较大的差距。所以，根据学生的不同发展需要，有目的，针对性强的分流培养对普通本科院校就显得非常重要。

3.2.1分流培养方向———就业班（专业就业/其他就业）

通过调研发现，“就业班”的学生的就业方向有两大类：专业领域内就业、其他岗位就业（行政事业机关/自己创业），经管学院在具体实施分流的时候，考虑到师资以及学生数量的实际情况，虽然在实施分流的时候不能将方向具体落实到：专业就业和其他就业，但是我们得了解“就业班”学生的职业生涯规划，以便更好的有针对性的培养学生。

调研时发现，学生除了到专业领域就业之外，还有一部分学生的目标是在自己毕业后能够顺利进入行政事业机关工作，一般情况下，行政事业单位不仅对学生的专业技能要求比较高以外，同时还要求学生具备较高的行政能力。目前，国家行政事业机关主要通过《行测》、《申论》、《公共基础》这三门科目对学生的专业技能和行政能力进行相应的考查。因此，在实施分流培养的时候有必要针对“就业班”有此类需求的的这类学生在进行指导的时候可以由针对性的加强这三门考试的指导工作，同时也要鼓励学生在平时多关注时事政治，多参加校园活动，以便更好的锻炼自己的能力。还有一部分学生期望毕业后进行自主创业，针对这类学生，学院以及教师应该为学生提供可行性分析，并在市场分析、资金技术等多方面的帮助对学生实施帮助，同时鼓励学生向成功者取经，推动学生创业走向成功。

3.2.2分流培养方向——升学教育

除了就业的同学之外，还有部分学生在完成本科/专科学习之后，仍希望进行更高层次的研究生/本科教育。针对这类学生，在具体培养的时候应加强升学指导，在指导的时候可以采用导师负责制和小组合作制两种形式。学业导师负责制是指根据学生主观意愿结合导师研究方向，让学业导师负责辅导学生专业知识的复习，同时，学业导师应在学习方法、院校选择、专业方向选择以及科研基本能力等方面给予学生一定的帮助。小组合作制是指让报考院校层次相近的学生组合成小组，以便大家相互鼓励，共同探讨，这种方法在及时性上效果非常显著。

3.3 制定多样化的分流考核依据

课题组通过调研认为考虑到学生大一大二往往对就业还是升学目标并不是很清晰，再加上，大一大二开设的课程以公共基础课居多，因此课题组认为本科生的分流培养在第 4 学期结束的时候完成，专科生的分流培养在第 2 学期结束的完成，是比较合理的。针对之前分类只考虑“学生意愿”的做法的欠妥之处，课题组认为，在实施“分流培养”的时候，不仅要考虑学生的志愿，同时还需要看学生的综合测评结果，一般情况下，我们认为学生的综合测评是对

学生在校期间综合能力和思想德育水平的一种综合评估。另外，职业生涯相关课程的测评也应纳入考核中。只有这样的考核才能实现学生个性化发展，有助于我们有针对性的培养人才。

3.4 修订人才培养方案，完善科学课程体系

人才培养方案是高校实现人才培养目标和培养合格人才的基本途径，是全面提高人才培养质量的重要保证。课程设置是人才培养方案的基础架构，只有课程设置科学、合理，才能使该专业培养出来的学生更好地满足社会的需求。

研究认为：应针对人才分流培养的目标，因势利导的对原来的人才培养方案进行了合理的优化，建议将专业课程类型再次明确为专业必修课和专业选修课两个部分。其中，专业必修课是为了培养学生的专业综合能力，它是“升学班”和“就业班”学生都需要学习的基本课程。相应的，专业选修课的设置却可以因人而异，可以考虑学生的需要，开设的更有针对性。比如，针对“就业班”的学生，课程的开设可以更多的侧重于就业指导，这些课程不仅可以帮助学生合理规划自己的职业生涯，而且还可以帮助学生了解目前企业的实际需求，自己离企业实际需求之间的差距，鞭策学生努力学习，为学生将来顺利就业做好铺垫。而针对“升学班”的学生，分流后应继续注重对数学、英语等基础课程的学习，通过“选修课”、“串讲课”等形式，明确该类课程的学时要求和学分标准，强化对专业核心课程学习，删减部分意义不大的专业理论课程。同时，在实践教学环节（专业实习和社会实践），“升学班”和“就业班”同样也要有所侧重。针对“就业班”的学生，可以通过校企合作的形式加大课外专业实习，同时也可以让学生到企业去实训来进行相应的社会实践，这样一来，学院可以将学生在企业实习和实训的内容置换成相应学分。为了能更好地实现学分置换，学校与企业可以对实训和实习内容进行联合审定，保证实习实训时间和质量，真正的让学生在实习和实训中学到知识、提高技能、增加经验、从而使学生毕业前成为一个具有较强实际工作经验的职业人才，弥补学生无工作经验的不足。

3.5 加强师资队伍建设

郑州工商学院建校晚，师资数量和质量都比较薄弱，师资结构不够合理，年轻教师居多，女教师数量远远超过男教师数量，尤其是近几年引进了不少青年教师，青年教师教学经验不够丰富，教学平有待提高，为了让年轻教师尽快进入角色，提高教学水平，学院采取了相应的措施帮助青年教师尽快成长，即凡是从事教师岗的青年教师，在上课的前两年都要接受青年教师培养，由教学经验丰富的讲师以上职称的教师对新上岗教师进行教学方面的培养指导，要求新教师与指导教师共同备课，互相听课，新教师向老教师学习，老教师给新教师以指导。

同时，为满足人才分流培养的需要，学院对师资队伍建设也要分类明确，重点突出。针对分流的学生，学院要针对性地提供师资，培养方案、教学模式及教学大纲都要做出调整，教师队伍同样也要针对分流培养的学生归类提供。这样才能满足学生个性发展的要求，实现分类培养的目的，培养“研究型”的教师和“双师型”教师。以科研促进教学，院部应建立了教师奖励机制，针对科研方面取得巨大成就的老师进行奖励，针对升学指导做出贡献，升学率较高的教师进行奖励，通过不断的激励，提高教师的教学和指导动力，从而提高教师自身水平，以满足“升学班”学生培养的需要。对一些在岗教师，学院选派教师到企业一线中去锻炼、学习，提高实践能力，积累相关行业知识和经验；定期邀请来自相关行业的专家、高管为学生授课或开设讲座，让学生了解最新的行业发展趋势，提升专业认同感，以满足“就业班”人才培养的需求。

3.6 改进教学方法和手段

首先，在教学方法上，经管学院在运行人才分流培养模式时，应使“升学班”和“就业班”的教学方法区别对待，只有这样才能有的放矢、有针对性的对不同学生的知识和能力进行提升。针对“升学班”的学生，高校教师应采用启发式和引导式的教学方法，重点培养学生自主学习的行为、主动研究的行为以及归纳总结的能力，为进一步学习深造做准备。对于“就业班”从学生，高校教师应采用案例教学法、情景教学法等教学方法，将理论联系实际，重点在于培养学生在就业过程中，培养学生的职业素质以及职业操守。

其次，在对于“升学班”和“就业班”的教学过程中，都应该将统的教学手段与现代科技技术结合起来，将课内教学与课外辅导结合起来，以适应不同类型学生培养的需要。对于“升学班”的学生，制定更适合他们的教学手段，比如，在英语的教学过程中，英语的学习是升学过程中最大的阻碍，升学必须要考英语，英语是升学的基本需求，经管学院完全可以制定更适合“升学班”英语学习的措施，加强英语等级考试的考前指导、考研英语的辅导以及举办考研英语交流会和专题讲座等等；在实施过程中，给“升学班”学生提供更多的便利，比如考研自习室等，并安排考研经验丰富的教师对学生进行全方位指导，从报考学校、专业的选择，专业课的复习以及面试复试等专门指导。同时还可以成立学生出国留学指导小组，为学生参加学院出国项目或自主申请留学提供建议和帮助。对于“就业班”的学生，学院要充分利用现有资源，通过校企合作的形式，为就业班学生建立起校外实习基地，有效的组织学生在校外进行实习以及毕业顶岗实习，将产学紧密结合起来，有效利用课本理论来指导工作实践，提升学生的实践和创新能力，为他们能及早适应社会工作而服务。

3.7 加强兄弟部门之间的协调和沟通

优质学生的培养不是一个部门就能独自承担的，它需要各兄弟部门的大力支持，因此，课题组认为经管学院在实施分流培养时，应加大与兄弟部门之间的沟通，积极寻求支持。首先，争取公教部、思政部、文法学院的大力支持，选派优秀师资为“升学班”学生量身打造符合考研/升本学生实际的课程，联合制定相对固定的符合“升学班”和“就业班”实际需求的人才培养方案。其次，教学、团学工作相互协作，凝聚共识，引导更多学生树立深造目标，并以此作为学风考风建设的抓手，营造积极向上的浓厚学风氛围，加强学风建设。再次，争取教务、学务等部门的协助，共同处理好分流后宿舍调整、学籍信息、贫困生认定系统等异动问题，共同探索如何有效规避因分流后行政班级调整带来的遗留问题。

3.8 科学管理，加强教学评估和管理制度建设

为了保证分流培养的正确实施和实施效果，建议经管学院建立动态的效果评价体系。同时在对教学效果进行评价的时候，可以采用过程性评价和总结性评价相结合的的评价形式。具体来说，过程性评价主要是针对实施环节的，总结性评价主要是针对每个学期和学年的，并将结果形成文字记录。同时还要组织专业教师针对评价结果进行分析，并提出初步建议，再将建议反馈给专家进行论证，而后将结果应用到后期的实施环节中，达到分流培养的效果。

同时，为确保人才分流培养方案的有效实施，应在教学、管理、科研、实践等方面制订了操作性强的制度。如《经管学院实践教学改革实施方案》、《经管学院***届毕业生见习方案》、《经管学院教学质量奖惩制度》、等，通过对制度的建设和完善，用制度来规范工作和落实工作，逐步提高人才培养定位和培养过程的科学性。

研究目的

第一，规范“分流培养”工作流程，创新“分流培养”工作模式，为普遍推行积累经验。

第二，通过设立分流标准，打造“比、赶、超”的优良学风，浓郁全院的学习氛围，切实提高“升学班”的考研率（专升本率）和“就业班”的就业率，不断提升人才培养质量。

第三，在此创新改革的基础上，不断摸索“大类招生”分流培养的新模式新途径，创新人才培养模式。

文献综述

针对“分流培养”的人才培养模式，为了能够让其切实可行的实施，在研究初期对于国内外的研究现状进行了系统性的分析。首先从国内来看，韩运侠、李大亮、韩礼刚、赵志国

四人撰写的《以就业为导向的分流培养模式的研究与实践》，文章通过研究调查对专业毕业生的就业情况进行了分析，以图证明分流培养的必要性；刘莉、张杨两人撰写的《大类招生现状与对策研究——基于南京某农林院校工商管理大类分析》，文章从大类招生角度入手，验证现状弊端以及分流培养必要性和对策建议；还有董泽芳的《高等教育分流问题研究》，刘英华的《地方高校应用型本科人才培养模式研究》等多篇文章都从各自不同的角度对分流培养提出必要性研究以及对实施路径给予对应的建议。同时，参考多篇关于人才培养方面外文期刊，旨在通过国内外教育的碰撞与融合，达成教育的最优化以及适应当代的提升人才培养模式的创新性研究点。

研究方法

主要采用调研法访谈法和文献研究法。

首先，调研法：通过策划与思考，研究拟定调研方案，选择郑州工商学院师生为调研对象，制定调研步骤，合理时间规划，拟定调研提纲后展开实地调研，多角度、多层次、多渠道的进行调查，然后进行研究分析，有针对性的提供建议并撰写调研报告；

其次，访谈法：提前设计访谈提纲，多以倾听的方式，从态度层面、情歌层面、认知层面等方面与对方进行平等交流，做好访谈记录，将材料整理后进行对应分析；

最后，文献综述法：根据目前国内外已经有的与之相关研究进行分析，对当前的研究水平、发展动态、应当解决的问题以及未来的发展方向，提出自己的观点和建议。同时，依据已有理论研究，将研究条件和实际需要等对研究成果进行评述，为当前的研究提供有力的支持和论证。

研究结果

首先，推动复合型创新人才的培养。“强化基础、淡化专业、因材施教、分流培养”是学院教育教学改革的指导理念，是全国人才培养模式改革创新的大趋势。根据本科生的职业生涯规划，按照“升学”和“就业”两大方向进行分流，针对性加强基础教学和实践教学，有利于因材施教和复合型创新人才的培养。

其次，为学院实行按专业“大类招生”提供借鉴。为提升人才培养质量，提高就业水平，全国各大院校逐步在推行“大类招生”，我院还未迈出步伐，尝试按“升学”和“就业”进行分流，探索积累专业大类“分流培养”的实践经验，对于将来学院实行按专业“大类招生”具有借鉴作用。

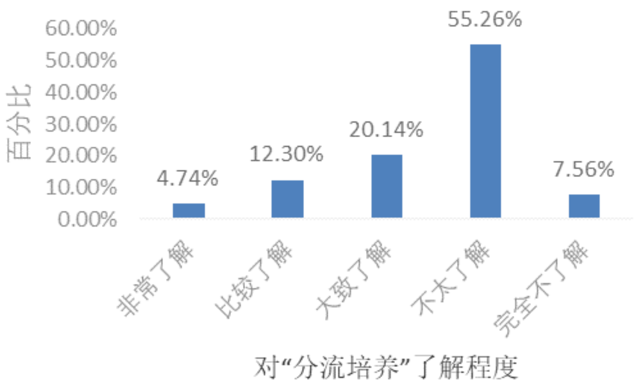

图 1：教师代表对“分流培养”了解程度的比例

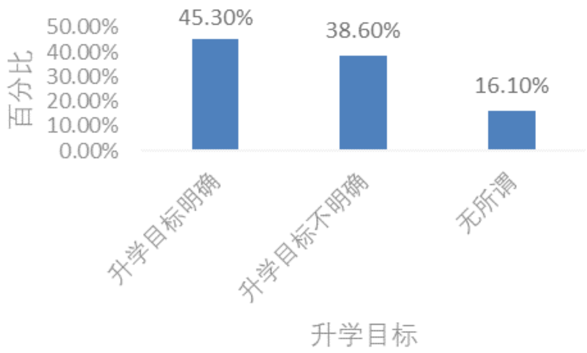

图 2：升学班学生升学目标明确程度

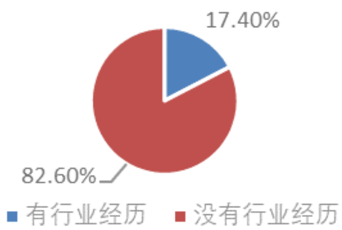

图 3：经管学院师资有无行业经历的比例

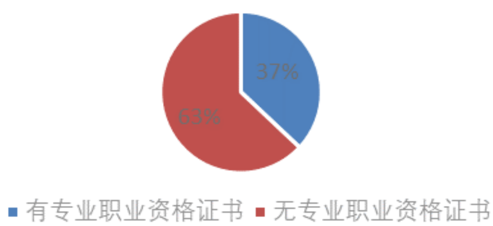

图 4：经管学院师资有无专业职业资格证书的比例

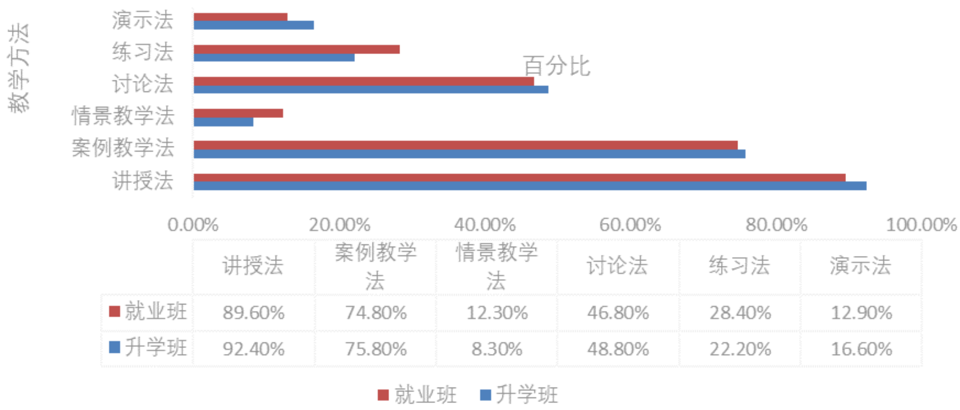

图 5:“升学班”和“就业班”教学方法对比（多选题）

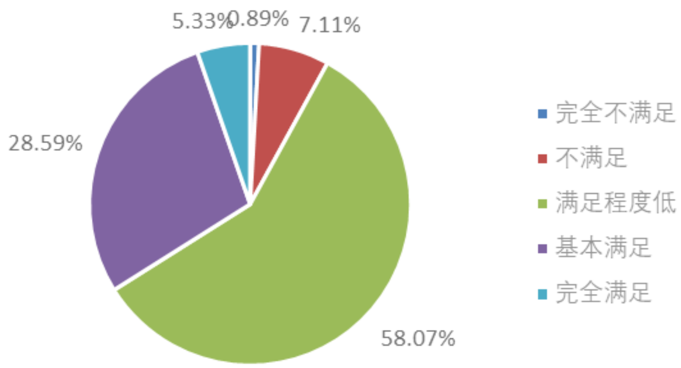

图 6：公共基础课开设满足“升学班”学生的需求程度

总结

本项研究主要以郑州工商学院这一人才培养改革试点单位的经济管理学院为例，在实施“分流培养”过程中的存在的问题，追寻原因，为经管学院“分流培养”人才培养模式的进一步实施提供建议。通过问卷调查，座谈以及文献综述法等方法，系统阐述了郑州工商学院经管学院在实施“分流培养”过程中存在的一些问题，并针对这些问题，为后期继续推进“分流培养”提出了具体的解决措施，以期将经管学院及郑州工商学院全面实施的专业分流培养改革向前推动一步，从而为高校人才培养提供参考。

讨论

可行性分析

第一，学校一直提倡开展教育教学改革，经管学院作为“分流培养”的试点单位，各级领导对此项工作大力支持，有良好的研究环境和研究价值。

第二，经管学院 2014 级-2016 级已经实行“分流培养”，有一定实践经验，研究对象明确，可操性强。

第三，本课题组成员均为经管学院教学管理一线人员，具备较强的科研能力，熟悉现有方案的情况，便于开展研究。

特色与创新

本研究是在经管学院已实施“分流培养”的基础上开展的研究，具有很强的针对性和对比性，便于掌握一手资料，研究成果易于在接下来的实际工作中开展实施。同时，将教育教学改革与德育管理、学风建设等有机融合，深入贯彻了“立德树人”的教育理念；尝试打破既定人才培养方案的束缚，敢于改变创新，一切都以培养适应社会需要的应用型技术人才为出发点；在全国上下逐步推行按专业“大类招生”的新形势下，积极探索分流培养的新模式新途径。

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A STUDY ON THE PRESENT SITUATION OF UNIVERSITY TEACHERS' TPACK COMPETENCE IN HUNAN PROVINCE OF CHINA

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Abstract: To conform to the trend of the information age of higher education in China, teachers are required to deeply integrate information and communication technology (ICT) with teaching content. Technical Teaching Content Knowledge (TPACK) is an internationally recognized theoretical framework for researching the knowledge teachers need to integrate ICT effectively. In this context, the purpose of this study is to evaluate the present situation of university teachers' TPACK competence in Hunan Province of China and analyze the impact of demographic variables such as age and years of teaching experience on TPACK competence. 235 in-service teachers from Hunan International Economics University were selected as a sample to complete the self-reported TPACK questionnaire. The findings show that teachers have a sufficient level of knowledge in all areas of TPACK. Subject Pedagogical Knowledge Integrating Technology (TPACK) achieved the highest competency and Technical Knowledge (TK) reported the lowest competency. In addition, there were significant differences in age and years of teaching experience.

Keywords: TPACK Competence, ICT, University Teachers.

Introduction

At present, information and communication technology (ICT) has had an enormous impact on the development of education around the world. The use of ICT in the educational process can not only improve the speed of teaching information transmission, expand the breadth and depth of knowledge sources, but also record knowledge, etc. It also has an impact on the quality of teaching and learning (Sutrisno et al., 2021). However, the introduction of ICT in education is a very challenging task. It requires teachers to be proficient and wise to use ICT tools in the classroom (Hayitov, 2020). Education in the 21st century requires teachers who are capable of using ICTs, including teachers in universities. (Hafifah & Sutrisno, 2020). Teachers are one of the critical factors in the successful application of ICT in universities. Teachers can integrate ICTs into higher education environments and curricula to improve the quality of teaching activities (Lubis et al., 2020).

Since 2018, higher education in China has entered information 2.0 (Chinese Education Department, 2018). Government departments have successively issued a series of relevant policies to guide and promote the reform of information-based teaching in universities. It requires university teachers to deeply integrate ICT with teaching content, actively apply educational information, improve teaching innovation capabilities, and reconstruct teaching models and systems. University teachers should have technical teaching and content knowledge (TPACK) to better integrate ICT with the curriculum effectively (Gao, 2020), which is in line with the trend of higher education development in China. However, studies have found that most teachers lack the knowledge to integrate ICT into teaching (Tondeur et al., 2018; Wao & Zhao, 2021), and most teachers are not able to successfully integrate advanced technologies to achieve specific teaching goals (Heitink et al., 2016). According to the data from the Teaching and Learning International Survey conducted by the Organization for Economic Co-operation and Development (2018), despite the high teaching level of Chinese teachers, " The use of ICT to organize student learning or project activities" is less than half the international average. To adapt to the development of education, teachers have been constantly trying new technologies as tools to prepare lessons, teach or mobilize the classroom atmosphere (Voet & De Wever, 2017), but they still lack sufficient skills and abilities to Constructive use of ICT in China (Munyengabe et al. 2017; Dong et al., 2020). The TPACK framework provides a new perspective for teachers to integrate ICT into the classroom. It focuses not only on training the ability to use ICT tools but also on their interrelationship with teaching components (Isabel & Cristina, 2021). Based on the TPACK perspective, the research on the ability of Chinese university teachers to use ICT is limited, and it is even more scarce in Hunan Province, one of the pilot provinces of China's Information 2.0. So, my research focuses on the present situation of university teachers' TPACK competence in Hunan Province of China, as well as the influence of demographic variables such as age and teaching experience on teachers' TPACK competence.

Research Objectives

The objectives of this research are as follows:

(1) To assess the present situation of university teachers' TPACK in Hunan Province of China.
(2) To identify the relationship between the components of TPACK and the demographic variables of teachers. (i.e., age, educational background, teaching experience, ICT training, years of computer use)

Literature Reviews

The TPACK Framework

The TPACK framework is currently widely used to describe the knowledge structure teachers need to integrate technology and pedagogical knowledge into teaching activities effectively. Koehler and Mishra (2006, 2009) defined TPACK consists of Technological Knowledge (TK) Pedagogical Knowledge (PK), Content Knowledge (CK) as the core parts and four interactive parts, namely Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK) and Technological Pedagogical Content Knowledge (TPACK). Harris et al. (2009) developed the original model of TPACK and emphasized that the three main contents of CK, PK and TK overlap and interact with each other.

To be effective in ICT teaching, teachers must understand both the content being taught and the teaching methods that run parallel to content and ICT to support student learning in a particular context. As a framework for illustrating teacher knowledge areas, the interaction between the seven knowledge areas in the TPACK framework (Picture 1) is considered to be an effective way to integrate ICT into the classroom (Marbán & Sintema, 2020). Thus, TPACK provides a comprehensive framework for this research to understand the knowledge that university teachers must have to integrate ICT into the curriculum.

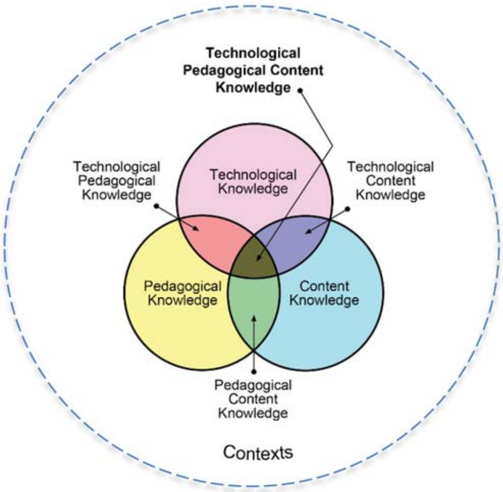

Figure 1: The TPACK Framework (Source: http://tpack.org)

Research on teacher's TPACK competence

Research has shown that the introduction of new technologies into the teaching process has important implications for teachers, enhancing teachers' competencies in both teaching and curriculum content areas, making them more adaptable to new teaching strategies and methods, and helping students use technological tools to be more effective learning (Akram et al., 2021). While most teachers place a strong emphasis on technology integration in their teaching, there are considerable differences in the quantity and quality of technology utilization (Saritepeci, 2021). Even if teachers have technical knowledge, it does not mean that they can use it well in the teaching process. Technical knowledge and using technical knowledge in teaching practice are two completely different abilities and concepts

(Alanazy & Alrusaiyes, 2021). The use of technology is also influenced by various other relevant factors in the educational environment, such as learning and teaching theory, quality of training, professional knowledge, teacher TPACK level, etc. (Durak & Saritepeci, 2017; Dong et al., 2020; Soszyński, 2021;) Since technical knowledge has only been in the field of teachers' knowledge for more than a dozen years, there is less research on TPK and TCK. The ubiquitous use of technological tools and their application of common sense in everyday life makes the study of teachers' TPACK components increasingly important (Soszyński, 2021).

In the study of the components of the TPACK framework, researchers further extended its concept from knowledge to skills (i.e., application of knowledge) or abilities (Willermark, 2018). Although the TPACK framework has been established, the study of its components and their interrelationships has become a hot issue. Akram et al. (2021) used the TPACK model to evaluate the online teaching ability of teachers in higher education. They believed that in all areas of TPACK, teachers have sufficient knowledgeability and level, the ability of CK is the highest, and the ability of TK is the lowest. Qiu et al. (2022) recently surveyed pre-service teachers in mainland China and found that they could not distinguish and define TPK and TCK, and could not synthesize TPACK with TPK. Chee et al. (2017) conducted a qualitative study of preschool teachers in Malaysia, and the results showed that teachers' knowledge and ability in PK are strong, but CK's knowledge and ability seem to be incomplete. The results of a study on Greek preschool teachers show that most teachers have a higher awareness of their CK, PK, and PCK (Roussinos & Jimoyiannis 2019).

However, Chinese scholars have focused their research more on the impact of context on teachers' TPACK ability (Xu et al., 2018), and have not conducted a comprehensive analysis of their TPACK ability from the perspective of teachers' characteristics. This research could fill this research gap and provide useful references for teachers to improve their TPACK ability better.

In conclusion, the TPACK level is the most important indicator of the integration of ICT into learning and teaching practice in educational settings. This is because TPACK effectively implements instructional strategies by including supportive instructional strategies through the best content (Graham et al., 2009). In this sense, teachers with high levels of TPACK will have fewer problems integrating ICT into educational settings (Saritepeci, 2021).

The Effect of Demographic Variables on TPACK

Teachers' characteristics such as age and teaching experience may also have an impact on their TPACK, but the results of the studies are different (Lubis et al., 2020). Age, educational background, teaching experience, etc., are also variables that affect teachers' TPACK. PK and PCK were positively associated with age, and TK was negatively correlated with age (Liang et al., 2013). Previous research has shown that teachers' TPACK competencies are significantly correlated with years of teaching experience (Claro et al., 2018). Akram et al. (2021) found that teachers with 2-5 years of teaching experience had higher TPACK than more experienced teachers and novice teachers. In addition, teachers with rich teaching experience had significantly higher TK (Long et al., 2020). Lavidas et al. (2021) emphasized that participation in ICT training among teachers' traits is the most important factor affecting their TPACK ability. And teachers with graduate degrees seem to have more confidence in TK, PK, CK, and TPACK.

Therefore, research and analysis on teachers' TPACK are significant, for the effective integration of ICT in education. It can not only support teachers in classroom teaching practice but also facilitate the implementation of teachers' ICT literacy training-related projects (Roussinos & Jimoyiannis 2019). In a word, it is very necessary to conduct a comprehensive investigation and analysis of the overall level and current situation of TPACK among university teachers.

Methodology

Sample

This research adopts the method of quantitative research and takes all the full-time teachers (excluding administrative staff and part-time teachers) of Hunan International Economics University in China as the research object. According to an abbreviated table of sample sizes required for educational and psychometric measures of population size (Krejcie & Morgan, 1970), a convenience sampling method was used to select 234 teachers from 586 teachers for the study.

Instrument and Procedure

TPACK can be measured in several ways: standardized self-report scoring scales, open questionnaire interviews, and performance evaluations, which can take the form of standardized test lesson plans or actual teaching observations. (Conway & Lance, 2010; Tondeur et al., 2012; Schmid et al., 2020; Zimmermann & Huwer, 2021) Among them, the self-report method is one of the most commonly used methods (Farjon et al., 2019; Schmid et al., 2020). Because the self-report questionnaire is an economical, reliable, and cost-effective way, it seems more likely to measure teachers' confidence and self-efficacy in various domains of TPACK, rather than just actual knowledge (Willermark, 2018). Therefore, this study used the teacher self-reported TPACK questionnaire (Lavidas et al. 2021) for measurement.

The questionnaire for this study is divided into two parts. The first part includes teacher demographics such as gender, age, education level, teaching experience, training of serving teachers in ICT classroom practice, and years of computer use. The second part is the teacher self-reported TPACK questionnaire (Lavidas et al. 2021), with a total of 7 dimensions and 28 items, used to measure and evaluate teachers' TPACK status. Teachers were asked to rate their views using a five-point Likert scale (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree) (see appendix). The 28 items were randomly assigned to avoid answer bias.

Data Analysis

The data for this study was collected in March 2021, and teachers were informed that the questionnaires were anonymous and that the data collected would only be used for academic research. In this study, questionnaires of teachers who volunteered to participate in online answering were collected through the Questionnaire Star platform. A total of 235 valid questionnaires were received in this study. Table 1 shows the demographic characteristics of the samples. Descriptive statistics, mean analysis, analysis of variance (ANOVA) correlation analysis, and regression analysis were carried out on the collected valid data by using SPSS Statistics 26 and AMOS in the study.

Table 1: Demographic, individual characteristics of the sample (N=235)

Gender	Age	Educational Background
Male 42.55%	20–29 years 9.79%	Bachelor's Degree 28.94%
Female 57.45%	30–39 years 34.89%	Master's Degree 68.51%
	40–49 years 46.81%	PhD student 2.55%
	Above 50 years 8.51%	
Years of teaching experience	Years of computer use	Training in ICT
Less than 3 years 13.19%	Less than 3 years 2.13%	Yes 36.17%
3-5 years 9.79%	3-5 years 2.13%	No 63.83%
5-10 years 12.34%	5-10 years 11.91%	
10-15 years 20.43%	10-15 years 27.66%	
More than 15 years 44.26%	More than 15 years 56.17%	

Results

When the teacher's self-reported TPACK questionnaire was tested by confirmatory factor analysis (CFA), all indicators showed optimal or acceptable values (see Table 2).

Table 2: Fit Indices for The Seven-Factor Structure of The TPACK Scale

x2/df	RMS	CFI	NFI	IFI	TLI
2.203	0.073	0.947	0.908	0.947	0.939

Table 3 shows that when testing the convergent validity of each item, it is found that (1) the factor loadings of all items are greater than 0.7. (2) the combined reliability of all items is greater than 0.9. (3) the AVE is greater than 0.5. Therefore, the TPACK factor structure has statistical significance and satisfactory loading at the 0.001 level, as well as satisfactory reliability and convergent validity for all dimensions.

Table 3: Factorial Structure, Reliability, And Convergent Validity Coefficients

	Mean	SD	Factor loading	Cronbach's Alpha	CR	AVE
TK1	3.87	0.954	0.817	0.922	0.923	0.751
TK2	3.78	0.996	0.887			
TK3	3.54	1.030	0.895			
TK4	3.74	1.006	0.862			
PK1	3.88	0.820	0.902	0.946	0.948	0.821
PK2	3.99	0.762	0.946			
PK3	3.96	0.783	0.929			
PK4	4.02	0.768	0.844			
CK1	4.03	0.742	0.921	0.930	0.933	0.780
CK2	3.71	0.864	0.91			
CK3	3.94	0.740	0.796			
CK4	4.04	0.715	0.901			
TCK1	3.84	0.867	0.901	0.936	0.937	0.787
TCK2	3.86	0.804	0.892			
TCK3	4.02	0.773	0.889			
TCK4	3.86	0.796	0.865			
PCK1	3.86	0.778	0.918	0.958	0.958	0.851
PCK2	3.89	0.743	0.934			
PCK3	3.93	0.725	0.934			
PCK4	3.84	0.766	0.904			
TPK1	3.79	0.766	0.899	0.942	0.943	0.806
TPK2	3.90	0.715	0.885			
TPK3	3.76	0.820	0.919			
TPK4	3.81	0.802	0.888			
TPACK1	4.00	0.742	0.898	0.947	0.948	0.819
TPACK2	3.98	0.751	0.900			
TPACK3	4.02	0.734	0.917			
TPACK4	3.94	0.785	0.905			

Present Situation of University Teachers' TPACK Competence

Through the investigation and analysis of the 7 dimensions of TPACK competence of university teachers, this paper evaluates the present situation of university teachers' TPACK Competence. As shown in Table 4, university teachers have the highest scores in the TPACK dimension, indicating that teachers pay more attention to the knowledge of the complex relationship between technology, pedagogy, and subject content. In contrast, the TK dimension has the lowest score, indicating that various traditional and emerging technical knowledge have become the shortcoming of university teachers. In general, the scores of the 7 dimensions of university teachers' TPACK Competence are all above 3.5 points, especially in the three dimensions of PK, CK, and TPACK, the self-efficacy is slightly higher. This research data shows that most university teachers have high levels of identification with teaching methods, content knowledge, and self-efficacy if appropriate technology is incorporated into specific teaching content. There is a significant positive correlation between the dimensions of each dimension.

Table 4: Descriptive Statistics, Correlation Coefficients in The TPACK Domain

	Mean	SD	TK	PK	CK	TCK	PCK	TPK
TK	3.74	0.89	1					
PK	3.96	0.73	.606**	1				
CK	3.93	0.69	.550**	.717**	1			
TCK	3.89	0.74	.569**	.688**	.710**	1		
PCK	3.88	0.71	.436**	.629**	.617**	.583**	1	
TPK	3.81	0.72	.596**	.684**	.658**	.738**	.724**	1
TPACK	3.99	0.70	.541**	.593**	.636**	.689**	.626**	.792**

Note： ** for $p<0.01$, * for $p<0.05$.

Impact of University Teachers' Characteristics on Their TPACK

Through one-way ANOVA on the characteristics of university teachers, we found the influence of teacher characteristics on each area of TPACK (see Table 5). The results of the study showed that there were significant differences in TPACK competence among groups of different ages and years of teaching experience.

In particular, there were significant differences in TK ($F=2.988$, $p=0.032$), TCK ($F=4.449$, $p=0.005$), and TPK ($F=4.348$, $p=0.005$) of teachers in each age group. Teachers over the age of 50 have significantly lower self-efficacy in the three areas of TK, TCK, and TPK than other teachers under the age of 50. Among them, teachers aged 20-29 have the highest self-efficacy in TK and TCK, and teachers aged 30-39 have the highest TPK self-efficacy. Teachers with different teaching experience years also had significant differences in TK (F=2.966, p=0.019), TCK (F=3.040, p=0.018), and TPK (F=2.477, p=0.045). Teachers with less than 15 years of teaching experience have significantly higher self-efficacy in the three areas of TK, TCK, and TPK than teachers with more than 15 years of teaching experience. Among them, teachers with 11-15 years of teaching experience have the highest self-efficacy in TK and TPK, and teachers with 3-5 years of teaching experience have the highest self-efficacy in TCK. Teachers' educational background, years of computer use, and ICT training did not affect all areas of TPACK.

Table 5: The Impact of University Teachers' Characteristics on the 7 Domains Of TPACK

	Age	**Educational Background**	**Years of Teaching Experience**	**Years of Computer Use**	**Training in ICT**
TK	20-29: 3.98 30-39: 3.84 40-49: 3.70 ≥50: 3.25	Ns	≤3: 3.92 3-5: 3.91 6-10: 3.63 11-15: 4.00 ≥15: 3.55	Ns	Ns
PK	Ns	Ns	Ns	Ns	Ns
CK	Ns	Ns	Ns	Ns	Ns
TCK	20-29: 4.17 30-39: 4.01 40-49: 3.83 ≥50: 3.46	Ns	≤3: 3.95 3-5: 4.15 6-10: 3.91 11-15: 4.09 ≥15: 3.88	Ns	Ns
PCK	Ns	Ns	Ns	Ns	Ns
TPK	20-29:3.92 30-39:3.95 40-49:3.77 ≥50:3.35	Ns	≤3: 3.82 3-5: 3.93 6-10: 3.85 11-15: 4.04 ≥15: 3.67	Ns	Ns
TPACK	Ns	Ns	Ns	Ns	Ns

Note：p<0.05, Ns: non-significant.

Discussions

The advent of the information age has changed the teaching methods of university teachers, requiring teachers to integrate ICT into the content of classroom teaching. This study evaluates the current state of university teachers' TPACK competence and attempts to outline demographic variables such as age, teaching experience, and so on.

This study identified current university teachers' TPACK competence through descriptive analysis to understand teachers' perceptions of their TPACK competence. The findings suggest that university teachers consider themselves adequately knowledgeable in all areas of TPACK, which is consistent with previous findings (Akram et al., 2021). Therefore, it also shows that TPACK is an excellent framework to examine the competence of university teachers in China.

According to the data of this study, university teachers have the highest score in the TPACK dimension, while the TK score is the lowest. This difference once again proves the view of Alanazy & Alrusaiyes (2021) that technical knowledge and the application of technical knowledge are two completely different abilities and concepts. It is undeniable that the technical knowledge of university teachers is relatively lacking, but they may pay more attention to integrating the mastered technology into classroom teaching. In addition, university teachers have a higher awareness of themselves in PK and CK. It is similar to other studies (Roussinos & Jimoyiannis 2019; Lubis et al., 2020; Qiu et al., 2022).

In the research on the influence of university teachers' characteristics on their TPACK competence, the results show that age and years of teaching experience have become the most important influencing factors. This seems to explain teachers' perception of traditional knowledge. This finding is similar to those found by others (Usart & Carnicero., 2019; Zhao et al., 2021). However, it is interesting that the teaching background does not affect the TPACK ability of university teachers, which may be related to the fact that teachers in Chinese universities have postgraduate degrees currently. Similarly, the years of computer use cannot affect the TPACK ability of university teachers. This may be related to the current popularity of computers in China. More than half of the teachers in this survey have more than 15 years of experience in using computers. In addition, attending ICT training does not seem to help university teachers' TPACK competence. This is different from the conclusions drawn by other researchers (Chee et al., 2017; Lavidas et al., 2021). This may be related to the lack of teachers' ICT training in Chinese universities. In this study, 63.83% of university teachers have not participated in any ICT training. Even if they have participated in relevant training, there are still problems such as relatively single training content and poor operability.

Conclusions

The results of this study provide an overview of the current status of TPACK competence of university teachers in Hunan Province, China, and reveal that university teachers have high self-confidence in all areas of TPACK, with significant differences in age and teaching experience. This study also reflects that the ICT-related training for university teachers in Hunan Province needs to be further strengthened and improved. The results of this study provide important theoretical and practical values for measuring the TPACK level of university teachers and formulating their training strategies. It also provides favourable data support for the relevant education departments and policymakers to evaluate and improve the ICT literacy of university teachers, thereby improving the quality of higher education.

This study has certain limitations. On the one hand, the scale used in this study is a self-assessment tool, so respondents may overestimate or underestimate their abilities. On the other hand, although the teachers in this survey have different professional backgrounds, they come from the same university, which may also affect the sample size.

This study is a preliminary exploration to explore the TPACK competence of university teachers. In the future, more factors affecting the TPACK competence of university teachers should be explored. The TPACK competence of university teachers should be associated with their major, to further carry out in-depth analysis and research, and put forward strategies to improve the TPACK competence of university teachers.

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新文科背景下设计类专业“产教创三位一体”协同育人机制研究

A STUDY ON THE COLLABORATIVE EDUCATION MECHANISM OF "PRODUCATION-EDUCATION-INNOVATION TRINITY" IN DESIGN MAJORS UNDER THE BACKGROUND OF NEW LIBERAL ARTS

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摘要：深刻解读 “新文科”建设针对人才培养的全新定义和指向意见，立足产学协同育人观点对新文科背景下人才培养的多方面内容进行分析和探索，其中包括人才定位、培养内涵以及具体表现等，旨在新形势下寻求符合产学双创人才培养目标的全新路径，在宏观角度上能为高校产业联合提供人才基础，在社会以及教育等多层面实现双创人才的产出目标，在宏观以及微观角度均具有可操作性以及现实意义，能够很好解决人才社会关联性低下与企业人才需求紧急的社会问题，同时也为增强学生创新创业能力、增加实践机会、提升个人竞争水平提供现实基础。本文针对高校“产教创”三者融合难，育人平台综合水平低下、双创训练与专业知识脱节等难题展开阐述，将政府、学校与企业资源整合，齐力解决上述问题，打造“产教创三位一体”育人模式。

关键词： 新文科，产教融合，创新创业，育人模式。

Abstract: From the "new arts" construction puts forward new requirements for personnel training, to create visual angles of cooperative education between production analysis and interpretation of new arts talents cultivation orientation, connotation, characteristic and the demand, production actively explore new situation and new thinking of cultivating talents, help to promote greater level of colleges and universities, industry (enterprises) between communication and collaboration, It is of great practical significance and value to provide macro coping ideas, micro solutions and operational implementation paths for industry-university-innovation collaborative training of entrepreneurship and innovation talents, further improve the disconnection between talents and the needs of society and enterprises, and improve students' innovation and entrepreneurship ability, practical ability and employment competitiveness. Aiming at the practical problems such as the difficulty in integrating "production, education and innovation", the lack of comprehensive education platform, and the disconnection between "entrepreneurship and innovation" education and professional education, this paper gathers the resources and forces of "government, administration, school and enterprise" to create the "production, education and innovation trinity" education mode.

Keywords: The New Arts, Integration of Industry and Education, Innovation and Entrepreneurship, Education Mode.

1. 绪论

1.1 研究背景

国家为了提高新型领域高层次设计创新人才的培养数量和成长速度，于 2017 年发布有关建设“新文科”的若干政策，旨在深推高等院校“双创”教育。在“大众创业、万众创新”国家战略的领导下，相应国家号召，顺应时代大势，促进产教融合、工学结合。《国务院关于大力推进大众创业万众创新若干政策措施的意见》（国发〔2015〕32 号）提出：创业精神培育和创业素质教育是国民教育体系中不可缺少的部分。优化创业课程，培养学生实训能力是提升国民教育的重要方法。《教育部关于深化职业教育教学改革全面提高人才培养质量的若干意见》（教职成〔2015〕6 号）指出：“推进产教深度融合，加大对学生创新创业实践活动的支持和保障力度”。高等学校不仅要培养应用型人才，还要培养创新型、复合型人才。因此产教一体化的教育模式已经无法满足当今社会对人才的培养需求。“产教创三位一体”培养人才的模式可以同时培养创新型、复合型、应用型人才，因此它必然是高校培养人才的必然选择。

深刻理解“新文科”背景下针对人才培养的新型建设目标，立足立足产学协同育人观点对新文科背景下人才培养的多方面内容进行分析和探索，实现高校与企业之间的互联互通，在宏观以及微观角度均具有可操作性以及现实意义，能够很好解决人才社会关联性低下与企业人才需求紧急的社会问题，同时也为增强学生创新创业能力、增加实践机会、提升个人竞争水平提供现实基础。

1.2 研究意义

深刻解读“新文科”建设针对人才培养的全新定义和指向意见，立足产学协同育人观点对新文科背景下人才培养的多方面内容进行分析和探索，其中包括人才定位、培养内涵以及具体表现等，旨在新形势下寻求符合产学双创人才培养目标的全新路径，在宏观角度上能为高校

产业联合提供人才基础，在社会以及教育等多层面实现双创人才的产出目标，在宏观以及微观角度均具有可操作性以及现实意义，能够很好解决人才社会关联性低下与企业人才需求紧急的社会问题，同时也为提供现实基础。

1.3 研究目标

深刻解读“新文科”建设针对人才培养的全新定义和指向意见，立足产学协同育人观点对新文科背景下人才培养的多方面内容进行分析和探索，其中包括人才定位、培养内涵以及具体表现等，旨在新形势下寻求符合产学双创人才培养目标的全新路径，建立改进与修订人才培养模式、课程体系、师资队伍、实践教学、育人平台、教育管理、评价体系等内容，从更大层面上促进产与教、教与创、产与创的深度融合育人机制。构建能够持续发展及“产教创三位一体”的人才培养体系，形成集“教育、实训、指导、孵化、培训、创新、创业”于一体的高等教育新形式，立足宏观角度寻求与产学创协同人才培养目标相符的建设路径，在此基础上构建微观解决体系与具体实施路径，为人才与社会和企业提供交流机会，增强三者之间的关联性，同时有助于学生创新创业能力的增强、实践机会的增加以及个人竞争水平的提升。

1.4 研究内容

随着我国经济水平的提高，“集约型”逐渐取代了“粗放型”发展方式，社会对于应用型技能人才的需求急转直上，创新创业能力成为人才时代的热门标签。针对此种情况，高等院校围绕综合性育人平台匮乏、“双创”与专业知识脱节、“双创”教育与多学科融合等实际问题，通过积极探索新形势下产学创人才培养模式的新思路，建立改进与修订人才培养模式、课程体系、师资队伍、实践教学、育人平台、教育管理、评价体系等内容，从更大层面上促进产与教、教与创、产与创的深度融和育人机制。集聚“政行校企”多方资源与力量，构建能够持续发展及新文科背景下“产教创三位一体”的人才培养体系，形成集“教育、实训、指导、孵化、培训、创新、创业”于一体的高等教育新育人模式。

1.5 研究方法

（1）文献研究法

运用文献研究法围绕“新文科与产学创协同育人”这一课题展开资料调研，其范围包括图书馆、中国期刊全文数据库、外文数据库检索系统等，大量阅读相关文献期刊以及论文，查找教育部颁发的文件以及相关著作，在此基础上进行资料整合并展开分析，深刻理解新文科背景下双创人才的培养需求，对当下研究领域内的基本成果进行掌握，有助于本课题的后续工作

推进。

（2）比较分析法

将目光锁定在设计教育和产学创合作育人情况之上，对国内外的发展现状进行比对分析，在此基础上深层次分析新文科背景下我国产学创协同育人在道路探索以及实际应用方面出现的系列问题，将其与国际标准进行比对并提升设计教育专业认证和质量评价体系应用水平，为我国教育发展提供理论基础，使得“新文科”建设和产学创协同育人模式与我国实际发展情况相符合。

（3）调查问卷

选取河南省郑州市高等院校作为调研对象展开产学创协同育人分析，通过发放调查问卷等方式获取调研数据以及相关信息。

（4）实证研究法

以作者所在高校设计类专业群建设为基础，围绕人才培养模式、课程体系、师资队伍、育人平台、教育管理、评价体系等内容，进行适应我国“新文科”建设和产学创协同育人模式建设路径的实证研究。

2 文献综述

2.1 相关概念

2.1.1 产教创三位一体

我国在发展高等教育过程中逐渐提升产教融合的建设水平、提高对于实践育人的重视程度、旨在满足双创人才培养需求，在此背景下“产教创三位一体”一词应运而生。“产教创三位一体”作为一种育人模式主要针对高等院校而言，旨在培养双创专业型技能人才、联合政府、社会以及高校三方力量打造协同育人体系，在生产经营以及教学创新等方面实现融合发展目标，实现实践育人平台的全方位提升。在高校育人平台中融入市场机制，在生产创新环节引入专业教育份额，进一步推动教育事业与生产创新的联合发展；将专业教育与双创教育相结合，借助创新创业成功案例实现专业建设水平的提高；通过生产经营为学生提供实践平台，推动技术创新能力的增长，同时双创教育的实践也会也会为生产创新提供正向回馈。整体而言，生产经营、教学教育与双创培训三方有机结合，互联互通，对三方都起到正向作用。三方有机结合体的构建有助于高校学生提高个人竞争水平，使其与社会需求相符合，同时也能提升创新创业能力，为学生提升提供现实基础和发展平台。

2.1.2 新文科

新文科与传统文科相对应，其出现于国际新科技革命、新经济发展与中国特色社会主义新时代的大环境之下，不同于传统文科具有局限性的思维体系，新文科吸取传统文科的优点并在此基础上予以创新，具备交叉融合、协调共享的鲜明特点，为多学科互联互通提供途径，推动传统文科的升级创新，重视需求的导向地位，从专业分割转向交叉融合方向迈进，从适应服务转向支撑引领。

2.2 文献综述

2.2.1 国内研究综述

在设计教育以及产学合作育人方面的研究方面国外进程较快并且取得了较为良好的研究成果，在发展速度以及创新质量方面均处于领先地位。我国在此领域内的研究起步较晚，目前仍停留在摸索阶段，但也取得一定成果且初步实现新文科建设模式的目标。除此之外，专家学者也对产学创协同育人相关内容进行了全方位的研究分析，其中部分成果在实践环节取得良好效果。不过值得注意的是国内外发展环境存在差异且合作主体需求不同等情况的存在，主客观环境的影响使得我国在此领域内仍有诸多问题有待完善与解决。

“新文科”是近几年教育界的热门话题，然而当下致力于研究的“产学创协同育人”课题往往与新文科关联不强，尤其是人才培养方面的相关成果并未能体现新思维、新技术以及新手段的应用。除此之外，当下针对产学创协同培养“新文科”人才影响分析仍有待细致化，应扩展至多角度来展开研究，并且从新视角出发得出的理论较少，并不能真正发挥理论引导作用。与此同时，我国近些年产生来无数了产学创合作教育的研究成果，但是仍处于育人路径的探索阶段，政府和企业应该积极寻求与当下发展模式相符的协同育人模式，增加自身在此种模式中的贡献度。当下我国积极建设新文科体系，产学创协同育人也应响应时代需求，推进设计教育的全方位转型与提升，实现新文科与产学创的紧密结合，为经济提升与时代发展提供助力。

3“产教创三位一体”育人模式的制约因素

“产教创三位一体”育人模式前景优越，但现今仍停留在摸索阶段，要形成有自身特色的“产教创”紧密融合的育人模式需要深入分析其制约因素，有助于其突破发展瓶颈利用“产教创三位一体”育人模式全面提升了学生素质，在实践中实现“产教创三位一体”育人模式的完善。

3.1“产教创”三者融合难

产、教、创三方在目标设定以及利益趋向均存在差异，这也使得三者处于制约和融合

共存的局面。

第一，“产教”融合难。产与教必须保持进度一致，教师和学生在其中扮演双重身份，前者职责加重的同时后者任务量增加，上述情况会使得组织构架出现缺陷，在事故责任以及利益分配多方面存在难题。假设某一阶段出现纰漏，如果教师未能平衡生产和教学的关系就会使得教学效果有所下降，教学平台的良好运营也会因此受到负面影响。第二，“教创”融合难。双创环节的加入会使得专业教育专业性有所下降，双创实践占比的提高不利于教学进度的加快以及教学质量的提升。第三，“产创”融合难。生产经营中融入“双创”教育及实践中如果无法科学组织与管理就会浪费时间以及参与者精力，甚至影响生产任务的完成情况。第四，“双创”融合难。创新创业的同步推进对师生而言也是一道挑战。总之，主体多、任务重、链条长，而且孰轻孰重也不易把握给“产教创三位一体”育人模式带来诸多问题。

3.2 多功能育人平台匮乏

就当下产、教、创融合发展需求而言，育人平台建设必须具备将三方融合并促进发展的功能，实现全方位一体化建设目标，这也向其提出了诸多挑战。首先，投入大、筹资难。由于平台综合性的建设需求，使得人力物力以及财力均全面提升，这不是其中一方就可以独自解决的。其次，环节多、组织难。平台从建设到完善需要漫长过程，建设前期需完善准备工作，建设中期需及时监督，保证质量在线，建设后期需面对企业以及学生开放，招纳优秀项目，完善生产教学环节，实现各阶段紧密相连，每一环节都具备相当难度。而后，规划难、功能杂。平台所具备的多项功能必须互联互通且对彼此存在正向回馈作用，这需要平台拥有完善的处理机制。建设前合理规划保证其科学性，建设后也要确保布局完善、分区细致。最后，任务繁、管理难。平台管理会面临数不胜数的相关事宜，如果处理能力不强，就会使得局部功能受损，甚至对平台整体运行造成严重后果。由此可得，科技园、示范园、创业园之类规模化、综合性育人平台实为罕见，当下高校对“产教创三位一体”育人模式的建设依然是心有余而力不足。

3.3 多环节、杂要素、难统筹

“产教创三位一体”育人模式任务总量繁重且建设体系复杂，各环节必须在统筹管理下合理进行，且要保证其间关联性不受影响，实现要素与实施过程的完美匹配。首先，重构课程体系纷繁琐碎。“产教创三位一体”课程体系涉及课标修订以及教材新编等内容，需要建立在丰富的调研基础之上，并加以精心设计与合理落实，聚集“校行企”多方力量方可实现。其次，师资队伍建设困难重重。教师承担职能三倍增长存在困呐，绩效和成果也难以保证。最后，平台运行暗藏隐忧。“产教创”三者之间相互牵制，导致平台运行中局部利益与整体目标、局部功能

与整体功能之间存在偏向、脱节乃至冲突，存在诸多隐患。

3.4 学生“双创”实践牵涉面广

学生投身“双创”实践，涉及到学分的改变与累积、入驻基地创业项目选择、金额资助等方面。并且涉及方面多、涉及形式多样，对于操作与管理都有着不小的挑战，直接导致许多高校面对“产教创三位一体”的新模式不敢放手执行。

4“产教创三位一体”育人模式的策略

近些年国内高校一直探寻新型“双元一体化”、“工学研结合”的育人模式，创建了“产教创三位一体”育人模式，研究这些模式的成功经验，具体策略如下：

（1）开创专业课与双创系统相联系的课程体系。针对学生自身应掌握的专业知识和原有课程教学的体系，进一步对专业人才的培养计划进行深层次改革升级等，并且将双创教学融入其中，实现深层次融合，争创与“双创”活动相结合的课程体系。

（2）实施拔尖人才工程。积极挑选高水平人才参加创业创新大赛，进一步提高其创新能力，加强执行创新训练，同时开办有关创业类活动，寻找培养拔尖人才，注重学生多方位发展。该方案已经取得一定成效，新型育人模式很大程度提高了学生的创新水平，培养出一部分具有代表性的“双创”榜样。

（3）打造多功能育人平台。在政策的支持与地方政府的鼓励中，各地高校应切实利用这一优势，做好带头羊作用，与当地企业实施深层次校企合作，积极利用社会层面资金支持，在经济允许的条件下对产教融合基地实现进一步发展，引领时代潮流，打造出育人平台和当地企业合作共赢的良好局面。

4.1优化高等教育，重构课程体系

国内有些做的比较好的高校多年来一直探索与实践优化高等教育模式，比如创建“产教创三位一体”育人模式，利用高等教育的创新培养体系，创建了一个专业、行业、就业、创新创业“四业互融”的育人理念；深层次的探究“产教创”之间的内在联系，邀请一些专业人员研究行业标准和企业岗位技能的内部关联，加速推进产业与“双创”内容相结合，联合修订专业人才培养计划的主要课程大纲，编撰同系列校本教材，制定新型教学方式，使“双创”特色浓郁的“产业创”育人模式与校内培养体系紧密贴合起来。

在重构课程体系基础上，不断实践创新，最终完善主要论点，形成认知、探索、实践“三阶递进”的课程场景，形成专业知识与“双创”基础相贴合、专业技术与“双创”能力相贴近、

职业道德涵养与“双创”品质相融合、工作实习与“双创”实践“相适应的完整课程体系，进而缩短上课时间，缓解师生压力，削弱“产教创三位一体”育人模式的阻力。

在全体师生之中积极培养热衷创业并具有创业才能的师生，系统推进“三阶递进”课程体系的实施，对创新创业学分的改变与积累制度进行专业化的改革，课堂上采取较为宽松的教学方式，进而增强学生的创业兴趣与创业思路，开拓学生的创业视野。切实执行创新创业人才培养体系，以偏带全，努力打造一个优异的创业环境，进而提升全校的创新创业水平。落地实行创新创业人才培养计划，对于怀有创业梦想的在校学生，配备专业导师和大赛指导教师，对他们进行针对性创业培养。通过“创业方案设计大赛+项目论证”，挑选出适应时代发展、符合市场潮流、商业价值高的项目，创建相应创业团队，进一步提高团队成员的整体水平，积极引入大学生创业园来为大学生提供更好的服务，相关部门应提供公司注册、政策咨询等相关问题的解决措施。结合产教深度融合平台，采用“前店后厂（场）”的孵化模式，实行创新创业的相关实习，形成“项目人才集聚、重点项目示范、创新创业倍增”的效应。

4.2 营造全真环境，打造育人平台

积极利用政府、企业的大力扶植和银行贷款方式，与当地的标杆企业达成长时间合作意向，聚合多方面的力量，共同创建出结合管理、技术研发、技能培养、培训、“双创”实践等多方面相联合的综合性育人平台；切实执行现代企业管理方式，把土地、资金、技术等折合成经济方面，按照资产的投入比例来确定各持股人所持有的具体股份；积极参加区域经济活动，严格按照现代企业管理制度经营平台。育人平台按照功能可以分成“产教一体化”专区、“研学一体化”示范区、教育教学与社会培训专区、学生创业基地等不同的区域。联合学校相关部门、二级学院、企业合作管理和育人平台管理的多方面管理方式，为“产教创三位一体”育人平台提供坚实发展基础。

4.3 顺应时代发展，创新育人模式

目前，我国致力于发展创新创业新模式，鼓励各级教育工作者实行具有创新意识的教学方法，学校应该积极加强与校外企业合作，校企互补，建立起一种新型的育人模式，调动各方资源，对现有教育机制进行进一步改革创新，将校企合作的模式与双创工作联合起来，创造一支“三能型”师资队伍，共同打造新模式下的教育平台；着重培养“三能型”教师的创新能力，全面利用育人平台提供的硬性条件，根据现存的课程培养体系加以优化，在实际教学过程中，应该格外注重培养学生的创新意识与动手能力，学校还应对拔尖人才进行特殊化人才培养；学校骨干教师与科技型人才更应以身作则，积极向学生宣传双创实践活动，校外合作企业应提供

良好的实践条件，培养学生的双创实践能力，对于学生所提出的双创项目进行积极有效的引导和培育，吸引更多的学生投入到双创项目中去；联合培养出一批具有示范性的双创人才，让整个校园充满创新的文化氛围，进一步推动双创模式与教学活动、学生创业和产业合作的深度开发，逐渐形成产、教、创三位一体化的人才培养模式。与目前我国所面临的行业转型发展目标结合起来，全力发展建设校内产教创培养基地，建设开发了中国现代化设计业职教发展集团，以校内的学习环境作为基础，同校外职教集团联合起来，依托现代化管理制度，模拟出真实的职场环境，举办一系列具有学校特色的创新创业实践活动，与当前专业紧密联合起来，在产教一体化过程中将教学模式、生产经营和创新创业联合起来，构建新型人才培养方式。

5 “产教创三位一体”育人模式的保障举措

创建新型的产教创一体化热人才培养模式仍面临许多问题，高职院校需联合起来，共同攻坚克难，对现有机制进行升级改革，激发出教职工的创新意识，共同实现新型育人模式的升级转换。

5.1合理组建育人共同体

育人共同体是实现产教创一体化的重要根基，高职院校应该与有着共同利益的社会企业合作起来，共同组建校企合作的育人共同体，加速推进一体化的形成进程。在人才培养上，高校应该与其他合作方明确签订相关培养协议，明确规定好双方所要承担的义务与权利，地方政府也应出台相关政策，在土地规划、资金支持和科技项目等不同方面给予力所能及的支持与培养，积极引进外来人才，尤其是应届毕业生，推动毕业生的就业工作，引领其在当地就业或自主创业，带动更多的居民实现共同富裕，解决周围居民就业问题；相关行业协会应该全力协调学校与企业的内在关联，为企业的发展提供具有建设性的意见，监督人才培养的质量，不断提高行业标准；学校应该积极组织相关教学活动，推动课程建设，提高自己的办学水平，为社会输送优秀的毕业生；企业的责任则主要是实行高效的管理模式，引领人才培养，对优秀毕业生给予具有竞争性的薪酬待遇。

育人共同体将企业与职校联盟作为主要的组织形式。组织里的不同单位进行深入探讨，共同制定出符合行业标准的章程，进一步明确共同体的行业标准和创建目的，促进组织内成员携手前进、积极承担责任、明确产权规划、服从组织分配、积极处理纠纷等具体相关制度。规范大家的行为，同时组织内应实施理事会制度，对于重大问题进行积极有效的沟通，杜绝一言堂。理事会应该与高职院校结合起来，设置运营部门、监管部门、执行部门等部门机构，对组织内内部事务进行积极有效的处理。

5.2 建立“三能型”师资队伍

双师型教师队伍应该作为高校的重点发展对象，依托其建造出具有专业化教学能力，职业化技能训练和正面有效的双创指导三管齐下的人才培养模式。

（1）积极引领在校教师考取专业资格证书，助力其在双创教育上的进一步提升，积极向三能型教师靠拢，同时邀请行业内具有一定影响力的企业家和双创培训老师到校进行专业的主题讲座，将具有培养发展潜力的教师送到校外的专业基地进行学习培养，促进其转型提升，培养出一批具有榜样带动效应的三能型教师，以此激励更多的教职工投入到双创活动中去。

（2）针对目前的管理制度进行灵活变通，对教职工实施新型激励机制，在新型实践教学活动中，对表现优异的教职工学校应额外进行资金补贴（比照普通课程增加一定系数）；教师指导学生“双创”实践，由学校另外核发课时津贴；教师兼任企业岗位职责，由企业计发薪酬；在评奖评优、职称职务晋升等方面向“三能型”教师倾斜。

（3）将职业技能培养与党建工作融合起来，提升教师的自我培养意识，全方面促进教师的综合素质发展。

（4）创建出新型教学团队，通过吸引专业技术人才、辅导员、技术专员等人员共同参与进来，实现资源融合，共同搭建人才培养的平台，弥补学校在三能型教师培养方面的漏洞。

5.3 构建长效运行机制

长效运行机制在构建新型人才培养平台上发挥了重要作用。

（1）高等院校应该协调好与各方面的利益关系，积极调动企业教职工和学生的创新创业积极性，对于有发展前景的项目给予资金支持和专业性的意见指导，同时联合校外企业加速实现项目进程，在项目申报过程中给予项目补贴。制定扶持完善双创学分制度，对于项目优异者，给予一定的学分奖励，创建双创激励制度，为学生提供切实保障，解决后顾之忧。对于已经成型的双创项目，在学生毕业后，无论是继续进行创业活动，还是将发展任务交给学弟学妹，学校都应该给予大力支持。

（2）实施监控机制。对于项目进程实施具体化监督机制，对于不合理的现象坚决揭发并大力整改，积极采纳专业人员的建议，进行专业化评估，对于表现优异的人员进行正面奖励，对于个别不达标的项目，督促其进行整改，如整改不到位，则进行严肃处理，并剥夺其主管资格。

（3）实施协同统筹管理机制。针对目前的发展状况实施切实有效的管理制度，对于不同岗位、不同部门建立相应管理机制，组织部门灵活变通，培养制度意识，进一步实现组织化管理。

（4）实施执行机制。人才培养新模式下协商出的决议与学校职能部门、下一级学院，企业董事会等协议具有同等效力，任何人员都应无条件服从执行，对于拒绝执行的人员采取强制措施。

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