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EDITORIAL

COVID-19 versus Education: Who Will Win?

THE COVID-19 pandemic is still raging around the world, but now all schools in China have reopened. With the advent of autumn, the number of global COVID-19 infections may once again set new records. This means that the risk has not gone away, and it may become more serious. Therefore, China's "School is Out, But Class is On" during the pandemic period is still worthy of attention (Zhou et al., 2020). In this issue, Dongdong Wang et al. (2020) conducted a large sample questionnaire survey based on the national network, and presented a panoramic view of Chinese education painting to the world on the online teaching research related to "School is Out, But Class is On." It provided the strategies and history of Chinese education managers, teachers, students, and parents to deal with major public health crises. Since various countries' national conditions and educational environments are different, China's experience may lack generality. However, as we expressed in the Editorial of BECE's "COVID-19 and Education: World's Issue" in July, 2020, facing such a global crisis, sharing, cooperation, and solidarity are the only way we can respond correctly. In this sense, it is imperative to share more of global educators' experiences.

At present, the world is still suffering from COVID-19. No one has ever thought that a virus will shut down the world and schools. However, COVID-19 has not hindered the orderly implementation of education. Whether it is the Internet or TV, they have played an irreplaceable role in implementing e-learning amidst the pandemic in different countries and regions. Although the Internet can partially make up for the shortcomings of not attending school, many students still cannot accept it. Today, when the global SARS-CoV-2 vaccine is about to come out, we sincerely hope that all students who are trapped at home receiving online courses can return to campus as soon as possible. We still welcome global education scholars to continue to discuss and share stories, experiences, and research results during the fight against COVID-19 through the BECE platform.

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ARTICLE

The Status Quo, Sources and Influencing Factors of Professional Pressure Faced by Preschool Teachers in Rural China: An Empirical Study Based on Multiple Counties in Hubei Province

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Abstract*. The professional pressure of preschool teachers in rural China is closely related to the stability of the teaching staff and the development of children. A study of 734 teachers in 155 rural preschools from three national-level poverty-stricken counties and one non-poverty county in Hubei Province showed that current rural preschool teachers are facing greater professional pressure. Approximately 44.47% thought that the pressure is high, but has not yet reached the level of high burnout; non-poverty county preschool teachers have relatively high pressure. According to the Demand-Control-Support (DCS) model, the main pressure stems from the work requirements of children and parents, especially parents' excessive emphasis on children's safety, knowledge, and skills. The results of the Ordered Probit Model showed that the influencing factors of preschool teachers' professional pressure in rural preschools in China include work factors such as workload and the number of children in difficulty; control factors like perseverance and professional identity; support factors such as staffing status, salary satisfaction, family support, and work support; as well as demographic variables such as age and household registration type (Hukou); and certain inter-county differences exist. Therefore, we recommend that the government, society, and preschools establish effective incentive and restraint mechanisms to reduce the professional pressure of preschool teachers in terms of salary, social status, parental guidance, workload, and stress training, and improve their ability to cope with pressure. Meanwhile, more focus need to be given on teachers who are for the first year preschool, older in age, lacking staffing status, no non-agricultural household registration, and overloading working.*

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***Keywords**: Rural China; Preschool Teachers; Professional Pressure; Influencing Factors*

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Question

FOR the survival and development of rural preschool teachers, it is not only necessary to pay attention to their performance and ability, but also to their mental life and professional pressure. The professional pressure of teachers is also the so-called work pressure of teachers. It is an unpleasant and complex negative emotional experience that occurs to teachers due to the continuous action of various threatening stimuli in the teacher's professional environment, such as tension, frustration and depression (Kyriacou, 1987), and the subsequent psychological and physical discomfort (Yao, 2005). From a global perspective, teachers have always been regarded as one of the most stressful professions (Boyle et al., 1995). The work pressure of university teachers mainly comes from the dual tasks of scientific research and teaching; the pressure of middle school teachers mostly comes from the pressure of students' academic performance, especially the pressure of higher-level entrance examinations; but the safety and behavior are the main sources of pressure for elementary school teachers (Li et al., 2011). Studies have shown that the negative effects of teacher professional pressure are generally greater than the positive effects. Excessive professional pressure can easily lead to emotional instability, affect their physical health and increase negative behaviors. For example, nearly half of university teachers believe that stress affects the quality of research and teaching (Miller et al., 2011); The stress of elementary and middle school teachers not only damages their health and reduces the quality of life, but also leads to absenteeism, resignation, or early retirement (Tsouloupas et al., 2010), In addition, the pressure of teachers is easily transmitted to students (Oberle & Schonert-Reichl, 2016), thus affecting student development (Herman et al., 2018).

Due to the age characteristics of young children and their lack of independence, they are easily influenced by teachers. At this stage, teachers' professional pressure has a greater negative effect, and it is of great practical significance to pay attention to preschool teachers' professional pressure. Preschool teachers are considered one of the most stressful professions (Curbow et al., 2000; Moriarty et al., 2001). Excessive professional pressure affects preschool teachers' professional identity, happiness and health, teacher-child relationship, quality of classroom care and education, and children's development, especially children's social and emotional development (Lu & Han, 2006; Jeon, L., 2018; Pakarinen et al., 2010; Whitaker et al., 2015). Professional pressure affects the stability of the teaching team, and high pressure is often the main reason leading to the resignation of preschool teachers. Excessive work pressure often causes teachers to produce burnout, lose their enthusiasm for work, and even begin to hate and fear preschool education. This may further affect the quality of education and teaching. At the same time, the working atmosphere and status of preschool teachers will also affect teacher cognition (Hur et al., 2016).

Generally speaking, there are abundant researches on professional pressure in the Chinese literature, but there are only ten empirical reports on preschool teachers, and there are fewer articles on professional pressure for rural preschool teachers in poverty-stricken areas. The research in this field mainly covers four aspects: the first is to

study the professional pressure itself and summarize the current situation and sources; the second is to explore the relationship between psychological capital, competence, organizational support, professional pressure and professional happiness from a psychological perspective; the third is to analyze the life state of preschool teachers from the perspective of spiritual life, and takes professional pressure as one of the indicators; the fourth is to study professional pressure from job burnout, taking professional pressure as an influencing factor of its occurrence. From these studies, the professional pressure of Chinese preschool teachers is not low, and the overall level of pressure is higher than that of moderate pressure. For example, a questionnaire survey of 302 preschool teachers in Sichuan, Shanxi, Guangdong, Liaoning, and Anhui indicated that 76.2% of teachers felt they were under work pressure, and 24.9% of the surveyed teachers felt severe or extremely stressed (Lu & Wang, 2008; Wang et al., 2015). Another study based on Shenyang City showed that 20.3% of the respondents felt the pressure was unbearable (Qin & Yan, 2007). This is basically consistent with the research conclusions in Wuhu of Anhui and Beijing (Alatambagen & Liu, 2014; Lai, 2011; Shu & Yao, 2004). A recent study found that from 2002, 2011 to 2016, the professional pressure of basic education teachers (including some preschool teachers) has gradually increased (Xu, 2017). The pressure of key teachers is not necessarily lower than that of other teachers (Li et al., 2013). Limited empirical research shows that teachers in rural preschools are under great pressure. For example, a survey of teachers in rural private kindergartens in Ya'an, Sichuan found that 49.6% of teachers thought they were under a lot of pressure, and 36.3% thought they were under pressure (Guo et al., 2017). Although there is currently no empirical research in China for direct comparison, it is generally believed that preschool teachers face younger children, while taking care of childcare and education work at the same time, and their professional pressure is greater than that of primary and secondary school teachers (Tsai et al., 2006). From the point of view of stress sources, the stressors of preschool teachers are the children and their parents (53.5%) (Jiang et al., 2016; Wang et al., 2015). In terms of influencing factors, there are significant differences in the work pressure of preschool teachers of different teaching age, professional title and school level. With the improvement of job titles, professional pressure shows a V-shaped change that first decreases and then increases. The 1,500-2,000 CNY middle-income teacher group professional pressure score is significantly higher than other income teachers and the income and environmental pressure scores of unmarried teachers are significantly higher than those of married teachers (Lai, 2011). The impact of the nature of preschool has not yet gotten agreement. Other factors include social status, attribution methods and stress coping methods (Lu & Wang, 2008; Zhang et al., 2012). The work pressure of rural preschool teachers also varies with the nature of the preschool, the teacher's marital status, age, teaching age, education level and grade (Wei & Dong, 2010).

Internationally, the group of preschool teachers in the United States faces high job requirements and lacks psychological resources and control capabilities (Li-Grining et al., 2010). Based on a survey of 150 preschool teachers in Romania, 42.0% were "very stressed" and 86% had intermediate to advanced stress levels (Clipa & Boghean,

2015). More than half of the 429 preschool teachers surveyed by Italian researchers had musculoskeletal diseases (Converson et al., 2018). Researchers mainly analyzed the sources of stress from the environment and individual factors, including: children's problem behaviors, special children in integrated classrooms, large numbers of children in the class, excessive paperwork, handling non-teaching tasks, and persisting in implementing correct early childhood education concepts, poor communication with colleagues and parents, children's separation anxiety, and time pressure (Alison & Berthelsen, 1995; Friedmankrauss et al., 2014).

On the whole, there are few surveys and researches on preschool teachers in rural areas, especially poor rural areas. For regions with different economic development levels, there is no direct comparative study, and the analysis of influencing factors is not thorough enough. Important variables such as child characteristics, teacher family support and work support, perseverance, and salary satisfaction have not been examined. After the completion of the two-term preschool three-year action plan, what is the current situation of the professional pressure of rural preschool teachers? What are the sources and influencing factors of stress? What is the difference between the professional pressure of poor and non-poor rural preschool teachers? We conducted questionnaires and interviews with more than 700 teachers from 155 rural preschools in multiple counties in Hubei Province, China. This paper will use the professional pressure model to analyze the professional pressure of preschool teachers in rural China for the first time, assess the current situation and sources of pressure, use an Ordered Probit Model to examine the influencing factors of pressure, and compare the differences between poverty and non-poverty areas. This supplements the research literature on rural preschool teacher pressure, enriches the unity of empirical methods in existing research, and provides policy inspiration and suggestions for promoting the development of Chinese preschool teachers and rural preschool education.

Psychologically, stress is a cognitive and behavioral experience composed of psychological stressors and stress responses. Professional pressure is the experience and feeling of discomfort when an individual deviates from a normal or desired lifestyle at work (Shi, 2003). In the analytical framework of this article (**Figure 1**), professional pressure is regarded as a mental state. Generally, work pressure has a significant positive predictive effect on job burnout (Zhang et al., 2014), i.e., high professional pressure will lead to higher job burnout (Zhang et al., 2009). According to the classic Demand-Control-Support (DCS) model, professional pressure stems from high work requirements, low control capabilities and insufficient support (Karasek et al., 1988; Johnson et al., 1989).

Needs include work tasks and individual development requirements; control refers to the individual's control over work, including the level of individual abilities, ability and job matching status, and decision-making initiative at work; support mainly refers to school, family and social support. In empirical research, the related variables of the influencing factors of the teacher professional pressure source analysis model usually include demographic variables such as gender, age, marital status, education level, work experience, qualification certificates, etc.; and workplace environmental

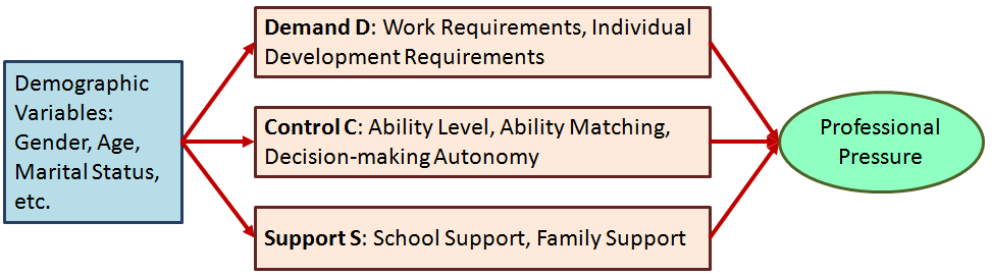

Figure 1. An Analysis Framework of Preschool Teachers' Occupational Stress Based on the DCS Model.

factors such as workload and teaching resources, Income, relationship with colleagues, etc. These factors may affect teachers' perception of job needs, self-control ability, and support received. This article classifies various factors into three dimensions: demand (D), control (C), and support (S). For example, workload, student behavior problems, parent expectations, etc. are demand factors. Psychological capital such as perseverance, personality characteristics, and the way of coping with stress are controlling factors. Economic benefits and colleague relations are supporting factors. Gender, education level, number of children, etc. are demographic variables that may affect multiple dimensions at the same time. For example, compared with men, women may have lower perceptions of their own work needs and less control, but the family burden is heavier. Since higher education level and professional title may increase teachers' self-development requirements, and also represent stronger individual ability and work decision-making initiative, teachers' education level and professional title are both demand factors and control factors.

Methods

This research uses a combination of questionnaire surveys and interviews. The sample of rural preschool teachers comes from three national-level poverty-stricken counties and one non-poverty-stricken county in Hubei Province, which are located in the east (Counties A and B) and west (Counties C and D) of Hubei. The enrollment rate of children of the right age in poverty-stricken county is about 80%, and that of non-poverty-stricken county (County C) is slightly higher, and the teachers are not professional enough. After stratified sampling of county-level units, the selection of rural samples adopts a strategy of combining cluster sampling and random sampling, based on the principle of covering representative townships and village-level preschools in the corresponding area, including 78 public, 71 private and 6 publicly-built private preschools. For two of the poverty-stricken counties, cluster sampling was used to let all teachers participate in the questionnaire survey; for the other two preschools and counties with a

large number of teachers, stratified random sampling was used. In each sample preschool, most teachers filled out the questionnaire, the return rate exceeded 90%, the number of valid samples was 734, and the number of samples without missing variable information was 626. At the same time, the research team randomly interviewed at least one teacher in each preschool.

Among the teachers surveyed, 53%, 40%, and 7% of the teachers were from public, private, and publicly-built private preschools, respectively; and more than 60% are from national-level poverty-stricken county. In terms of demographic characteristics, the proportion of male teachers was relatively low (1%), 13% were ethnic minorities, and the average age was 32 years old, with the majority being 20-30 years old (32.83%) and 30-40 years old (50.41%). Seventeen percent of teachers had a non-agricultural household registration, 92% were married, and more than 90% had at least one child. The education level of most teachers was associate degree (28.9%), 6.07% had a bachelor degree, 28% of teachers were majoring in preschool education, and 15% had preschool education qualification certificates. It can be seen that the overall educational background and professional level of rural preschool teachers were relatively low. In addition, the average teacher-student ratio of the classes led by these teachers was 0.06, which is approximately 1:17. These teachers worked an average of 9.12 hours a day, which was more than one hour over the eight-hour work system. The proportion of teachers signing contracts was 60%, and the proportion of those with institutional staffing status was only 11%. The average monthly salary was 1,563 CNY. About 16% of teachers had received preschool help when personally experiencing financial difficulties.

The survey used self-compiled questionnaires, and drew on related research on teachers' professional pressure and the quality of rural preschool teachers. Among them, related variables of professional pressure referred to the DCS model and the study of Jiang (Jiang et al., 2016). There are 92 questions in total. The current pressure was mainly measured by two indicators. The first was the question of the degree of stress, from 1 to 4 represents the degree of increase gradually. The second was a five-point scale adapted by researchers based on the MBI-ES for Educational Practitioners' Burnout Scale, which included 15 items like "feeling exhausted at the end of work", "work all day is really stressful for me", and "I have difficulty to concentrate", etc. The standardized job burnout index is synthesized through factor analysis, which approximately obeys a standard normal distribution with a mean of 0 and a standard deviation of 1. The scale has been widely used in the research of individual job burnout. Through the test, the Cronbach's α of the scale is 0.801, and the internal consistency is highly reliable. At the same time, the questionnaire also asked about the largest source of the stress of the teachers surveyed. According to the DCS model, part of the professional pressure of teachers came from work needs. In the professional situation of preschool teachers, work pressure mainly came from children, parents, preschool principals, colleagues and the society; the other part came from self-development needs and self-control. Therefore, the professional pressure of preschool teachers may also come from themselves. Therefore, the most stressor question was set as a multiple-choice question, with a total of 4 options: children and parents, preschool internal, self and society.

Regarding the quantitative analysis of the influencing factors of professional pressure, the questionnaire also designed related questions. According to the DCS model, many factors affect professional pressure. Generally, professional pressure stems from high job requirements, low control capabilities, and insufficient support. If the individual feels, the higher the work requirements, the lower the self-control ability, and the less support he receives, the greater the pressure he feels. Therefore, the questionnaire asked about the content of the job requirements of the surveyed teachers. For example, workload and the number of children with difficulties in class; ability and psychology that reflect control dimensions, such as education level, perseverance, and professional identity, some of which also demand dimensions; problems that reflect support dimensions, such as contract signing, salary, satisfaction with salary, relationship with colleagues. Besides, the questionnaire also contains demographic variables that affect the three dimensions together. Among them, perseverance character is a kind of psychological capital, a perceptual evaluation, and control factor, and indicators such as depression and lack of confidence in the management of behavioral relationships. The measurement method comes from the Chinese version of the grit scale developed by psychologist Angela Duckworth. It is a five-point scale, including eight items such as "New ideas and projects sometimes distract me" and "Setbacks cannot make me discouraged." Its Cronbach coefficient is 0.607. The professional identity index's measurement tool comes from the research of Tang et al. is a four-point scale, including 18 items such as "I very much agree with the profession of preschool teachers," and the Cronbach coefficient is 0.803. Both indices have undergone factor analysis and standardization. The family support index is a composite of the support level of family members, including five items. The job support variable is measured by the degree to which "preschool has helped solve personal financial difficulties."

The questionnaire was distributed at noon and was filled out by the teacher or an assistant. The questionnaire data is analyzed by descriptive statistics and systematic quantitative model analysis through STATA 14.0 software. Since the main dependent variable stress degree is an ordered discrete variable with a value of 1-4, and does not obey a normal distribution, the researcher chose an Ordered Probit Model and used the oprobit command to estimate. The model is as follows:

$$y^{*} = \psi(\beta_1 \text{individual} + \beta_2 \text{demand} + \beta_3 \text{control} + \beta_4 \text{support} + \text{county} + \text{e})\ \text{e}|X \sim N(0,1)$$

Among them, y is the ordered categorical variable "pressure degree".

If $y^{*} <= c_1$, y=1, it means "no pressure"
If $c_1 < y^{*} <= c_2$, y=2, it means "less pressure"
If $c_2 < y^{*} <= c_3$, y=3, it means "high pressure"
If $y^{*} > c_3$, y=4, it means "huge pressure"

c_j (j=1, 2, 3) is the critical value of the professional pressure index in ascending order from one degree to the next. The coefficient of c and the independent variable can be estimated by the maximum likelihood estimation method. As mentioned earlier, the influencing factors in the model mainly include: (1) demographic variables such as gender, age, ethnicity, education, and household registration; (2) education level, professional match degree, qualification certificate holding status, perseverance character, Control factors such as professional identity, some of which are also demand factors; (3) Demand factors such as the number of working hours per day, the type of class, the teacher-student ratio, the number of children with difficulties in the class, etc.; (4) Supporting factors include contract signing , Staffing status, salary, satisfaction with salary, colleague relations, school support, etc. In addition, there are school types and county-level virtual variables to control the differences between campuses and counties.

In the interview method, a semi-structured interview outline was used, which focused on content such as the degree of preference for the current job, the degree of stress, the reasons for the stress, the way of dealing with stress, the size of the class, and whether the children were difficult to teach. The choice of interview time was flexible, usually during interclass, lunch break or after get off work. In addition to on-site notes, interviews were recorded through audio recording after consent was obtained. The qualitative data collected was analyzed by classification method. Before issuing the questionnaire and starting the interview, the team members who received uniform training introduced the identity of the researcher and the research theme, obtained the consent and trust of the interviewees, and tried to ensure that the data and information were true and effective.

Results and Analysis

The Status Quo of Professional Pressure of Preschool Teachers in Rural China

In **Table 1**, the surveyed rural preschool teachers faced greater professional pressure, 36.83% of the teachers believed that they were under pressure at work, and 44.47% believed that the pressure was high. Among them, 40% of teachers worked for 10 hours or more per day, 2 hours more than normal working hours. During the survey, many teachers said, "I don't have enough time to rest at noon every day." On the other hand, the job burnout level of the sample teachers was not very high. The maximum personal index is only 3.87 (the theoretical maximum level is 5). Only 4.91% of the teachers chose the high levels of 4 and 5, no collapse appeared. This was lower than the level (22.17% of burnout type) found by Li et al. in the survey of preschool teachers in Beijing and Tianjin (Li et al., 2019). At the same time, there were still 43.24% of the teachers surveyed chose to "feel exhausted when off work", which was worthy of the attention of policy makers. A teacher pointed out in an interview, "I feel very tired and stressed, there are too many children in the class and they are noisy, and my voice is uncomfortable." Compare Guo et al.'s (2017) (49.6% has high pressure, 36.3% has

Table 1. Distribution of Stress Status and Job Burnout of Preschool Teachers in the Surveyed Rural Areas.

County		Frequency Distribution Percentage of Pressure (%) 1: No	2: Low	3: High	4: Huge	Mean of Pressure (1-4)	Mean of Job Burnout (1-5)	Sample #
Total		3.96	14.73	36.83	44.47	3.22	2.43	733
PSC	A	6.67	20.00	39.05	34.29	3.01	1.96	105
	B	9.09	15.91	25.00	50.00	3.16	2.13	44
	D	3.44	18.21	43.3	35.05	3.10	2.44	291
Non-PSC	C	2.73	9.22	31.4	56.66	3.42	2.62	293

Note: Because one of the 734 total samples is missing pressure information, the number of samples here is 733. The total number of samples 733 is also used in the statistics of pressure information below.

PSC: Poverty-stricken County; Non-PSC: Non-Poverty-stricken County. 4:Huge = Very High.

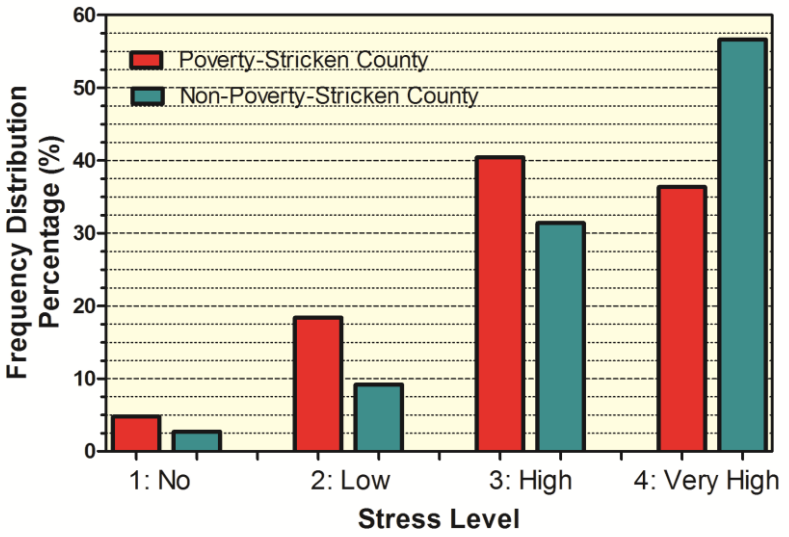

Figure 2. Comparison of Frequency Distribution of Stress Levels between Poverty-Stricken Counties and Non-Poverty-Stricken Counties.

huge or very high pressure), Zhang's pressure on preschool teachers in Wuhan City (48% expressed huge or very high (Zhang, 2016) and Jiang et al.'s pressure on rural preschool teachers in 2016 (35.0% showed the pressure was very high, 32.7% was under high pressure), as well as Wang & Gan's survey of the professional pressure situation of rural elementary school teachers in Shaoguan City, Guangdong Province close to the same period (53.4% were under high pressure, 7.77% under very high pressure) (Wang & Gan, 2018), this study found Rural preschool teachers have a higher level of professional pressure.

There were certain regional differences in the level of professional pressure of teachers. As shown in **Figure 2**, preschool teachers in non-poverty-stricken counties faced greater pressure compared to poverty-stricken counties. The level of job burnout of teachers in both poverty- and non-poverty-stricken county was roughly the same, and the level of job burnout of teachers in eastern counties was significantly higher than that of western counties.

From the perspective of demographic variables, the professional pressure levels of male and female teachers were not different. There were certain differences in the professional pressure of teachers of different ages. Among them, teachers in the 40-50 years old had the highest professional pressure (Mean: 3.37). The professional pressure of teachers with rural household registration is higher (3.25 vs. 3.10). The average professional pressure of married teachers was higher (3.24 vs. 2.97), and the professional pressure of minority teachers was slightly lower (3.05 vs. 3.25), but these differences did not pass the significance test in the influencing factor model.

The Sources of Professional Pressure for Preschool Teachers in Rural China

In the preschools surveyed, the professional pressure of teachers mainly came from children and parents. As shown in **Table 2**, among the sample teachers, 63.74% thought that the pressure comes from children and parents, 10.54% from preschool, 15.81% from themselves, and 9.90% from the society.

Combining the DCS model and various survey data, it is found that external job requirements are the main source of pressure for preschool teachers in rural China. Many teachers interviewed also believe that children's safety in the kindergarten and communication with parents are the biggest source of stress. On the one hand, safety issues have always been their biggest concern, because once a child has any problems in preschool, even if it is very small, it is easy to be complained or embarrassed by parents. Moreover, the mentality of rural preschool parents eager to see the effects of preschool education can easily increase the pressure on teachers. Teachers are faced with the ever-increasing requirements of the new generation of parents, and the pressure of the parents' expectation of literacy and mathematics education. This is in great conflict with China authority's idea of preventing "elementary schooling in pre-school education" and has increased the difficulty of teachers' work.

As a teacher in County C said, "Some parents do not understand their work (children pee in their pants, scratch their face, and fail to learn knowledge), and they

Table 2. Distribution of Sources of Professional Stress for Rural Preschool Teachers.

Source	Total Sample		Sub-Sample					
	F	%	Male	Female	< 50 yr	≥ 50 yr	AHR	Non-AHR
Children & Parents	399	63.74	42.86	63.72	64.39	20.00	65.76	53.85
Preschool	66.0	10.54	0	10.34	10.01	26.67	10.00	11.89
Self	99.0	15.81	0	16.28	16.27	6.67	16.44	14.69
Society	62.0	9.90	57.14	9.66	9.32	46.67	7.80	19.58
Total	626	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: F: Frequency; AHR: Agricultural Household Registration; Non-AHR: Non- Agricultural Household Registration.

Table 3. Types of Classes Brought by Preschool Teachers and Professional Stress.

		Professional Pressure			
Class	Percentage (%)	Mean	SD	Min	Max
2-3 yr	2.15	3.33	0.62	2	4
3-4 yr	28.26	3.29	0.83	1	4
4-5 yr	27.12	3.23	0.84	1	4
5-6 yr	28.26	3.09	0.88	1	4
6-7 yr	14.20	3.23	0.81	1	4

have not considered how many children a teacher has to bring and do not give themselves the opportunity to explain." A teacher in County B mentioned, "The work pressure is high, and every day I must be nervous and pay attention to the behavior of each child, worrying about safety issues and not explaining to my parents." A teacher in County D has similar feelings, "Sometimes parents feel that their children have not learned anything at school, so they feel stressed." In addition, many teachers pointed out, "The pressure of work comes from more children, and the children have different personalities, some are naughty, and some are obedient"; "Work is also very tiring, there are many children in the class, it is very noisy, and many children like to report but don't like to listen to the teacher's words. I have to emphasize a sentence many times."

Specifically, the pressure from children and parents and the work requirements of preschool have increased the workload of teachers. For example, "There are monthly activities in the park, such as outdoor open classes, reading competitions (inter-class appraisal), and children's activities on Children's Day, all of which require teachers'

design plans, which are relatively difficult." The descriptive statistics show that professional pressure and working hours are a significant factor. It is directly proportional (Spearman rank correlation coefficient is 0.11), and is significantly correlated at the level of $p = 0.01$. At the same time, the professional pressure of a teacher is related to the class type. **Table 3** shows that the average professional pressure scores of 2-3yr childcare teachers and 3-4 preschool teachers are higher than those of 3-4yr, 4-5yr and 5-6yr classes. More accurate results need to be verified by the ordered probability selection model. The heavy workload is even more serious for small-scale private preschools with only one teacher per class. As one interviewed teacher said, "some parents will pick up their children home for lunch breaks, but some children will stay in the class to play. We need to feed, receive parents, give homework, and take care of some of the children who are not sleeping. So every day it is very common to work over 12 hours."

Relatively speaking, the self-control ability they felt has a certain effect. For example, in the way of coping with stress, most of the teachers with greater stress did not know how to deal with such stress. Many teachers mentioned, "What else can I do, I can only rest more on my own", "Every day I work under a lot of pressure, and I am already stunned when I get home, and I can only transmit my pressure to my children." In addition, the professional pressure of teachers is closely related to security factors such as staffing status and salary, indicating the effect of control and support factors on pressure perception. For teachers with institutional staffing status, only 33.72% felt "high pressure", but for teachers without the staffing status, the proportion increased to 45.9%. Teacher professional pressure was negatively correlated with the salary satisfaction (Spearman's rank correlation coefficient is -0.2416), and it is significant at the level of $p=0.01$. This means that the higher the teacher's satisfaction with the salary, the lower the professional pressure. As shown in **Figure 3**, for the teachers with the highest salary satisfaction, only 14.29% of the teachers expressed a high pressure; for those teachers with the lowest salary satisfaction, 66.28% expressed a high pressure. In addition, none of the interviewed teachers mentioned that they received insufficient family support; a few teachers pointed out that "the burden is heavier at home", but "in many cases, it is better to go back home despite the pressure." At the same time, some teachers mentioned the disadvantages of school support, such as "the principal is too strict, does not respect the teacher, has a low status in the school, and parents have prejudice against them, and there is no promotion opportunity and qualifications", so "there is no hope for work."

In terms of sub-samples, 16.72% of preschool teachers in non-poverty areas believed that the biggest source of pressure was preschool. In contrast, the proportion of preschool teachers in poverty-stricken areas was only 6.12%, and the proportion of choosing children and parents as the biggest stressor was also significantly higher (67.12% vs. 58.02%). From the perspective of demographic variables, different groups of teachers had different sources of professional pressure. As shown in **Table 3**, for male teachers, a large part of the stressor came from the society (57.14%), surpassing "children and parents", which is only 9.66% for female teachers. For preschool teachers who are older than 50 years old, the biggest stressor was not only children and parents

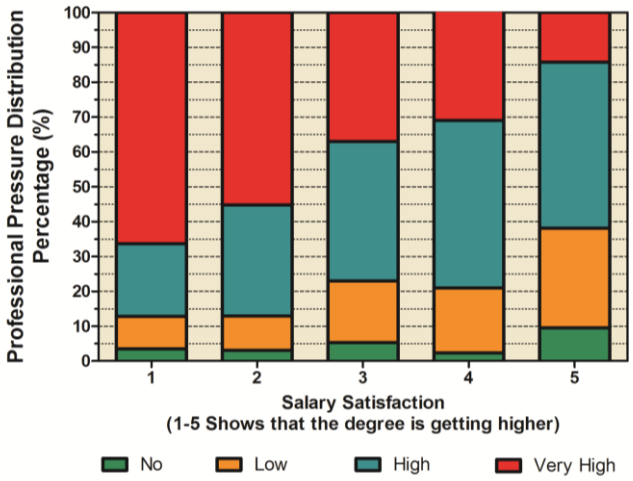

Figure 3. The Relationship between Professional Stress and Salary Satisfaction.

(20.00%), but society (46.67%). For rural preschool teachers with non-agricultural household registration, the pressure from the society was also higher (19.58% vs. 7.80%).

Analysis of the Ordered Probit Model of Influencing Factors of Professional Pressure

The results of the Ordered Probit Model of the factors affecting the degree of professional pressure are shown in **Table 4**. In terms of demographic variables, age had a positive effect on the professional pressure of teachers. The older you are, the more likely you are to feel "high pressure." In addition, if rural preschool teachers have a rural household registration, the more likely they were to feel "high pressure." The number of years in school had a positive effect on teacher pressure. Other demographic variables related to ability, such as education level and qualification certificate holding status, did not show a significant impact.

Consistent with the source analysis, most of the variables that reflect job requirements had significant effects. Among them, the number of working hours per day was positively correlated with the degree of work stress. Rural preschool teachers often spent a lot of time on daily management tasks, including taking care of children, preparing lessons, communicating with parents, organizing texts, and participating in training. The professional pressure level of teachers who care the 3-4 yr old children was significantly higher than that of other classes, which was consistent with the results of descrip-

Table 4. Model Results of Factors Affecting Professional Pressure.

Variable		Model 1: No Missing Value Processed	Model 2: Mean Replacement of Missing Values and Missing Labeling Method
Demographic Characteristics	Gender: Male	-0.261 (0.640)	0.268 (0.490)
	Nationality: Minority	0.277 (0.215)	0.128 (0.190)
	Age	0.024** (0.009)	0.015* (0.009)
	AHR	0.301** (0.138)	0.326*** (0.124)
	Married	0.364 (0.311)	0.304 (0.270)
	No Child	0.157 (0.290)	0.019 (0.256)
Capability Characteristics: Demand and Control	CCP Member	0.078 (0.192)	0.148 (0.174)
	Education Level	-0.008 (0.047)	-0.007 (0.043)
	Major in Preschool	0.041 (0.111)	0.070 (0.104)
	Preschool Qualification	0.165 (0.144)	0.197 (0.132)
	Teaching Years	0.029 (0.020)	0.032* (0.018)
Work Characteristic 1: Demand	Daily work Hours	0.092** (0.045)	0.091** (0.042)
	3-4 yr Old Children	0.223** (0.108)	0.212** (0.103)
	2-3 yr Old Children	0.273 (0.333)	0.237 (0.309)
	Teacher/Child Ratio	2.384 (1.870)	2.880* (1.726)
	No. of Difficult Children	0.012*** (0.005)	0.011** (0.005)
Work Characteristic 2: Demand And Control	Transfer Teacher	-0.116 (0.206)	-0.090 (0.185)
	Professional Title	0.155 (0.113)	0.126 (0.105)
Work Characteristic 3: Support	Contracted	-0.033 (0.107)	-0.041 (0.101)
	Institutional Staff	-0.538** (0.211)	-0.529*** (0.194)
	Salary	0.0001 (0.0001)	0.0001 (0.0001)
Psychological Characteristics: Control	Salary Satisfaction	-0.162*** (0.057)	-0.174*** (0.052)
	Perseverance	-0.099* (0.057)	-0.076* (0.050)
	Professional Identity	-0.142*** (0.055)	-0.079 (0.049)
Social Support: Control	Family Support	-0.178** (0.079)	-0.174** (0.074)
	School Helped Personal Financial Difficulties Ever	-0.366*** (0.125)	-0.326*** (0.119)
Preschool Type: Demand	Public Preschool	0.128 (0.116)	0.113 (0.107)
	Public-Built Private	0.206 (0.220)	0.342 (0.209)
County Virtual Variable (County A as the Reference)	B	0.239 (0.290)	0.378 (0.237)
	C	0.487** (0.229)	0.559*** (0.211)
	D	0.363 (0.229)	0.345 (0.210)
N		626	733

*Note: *, **, *** represent the significance level of 10%, 5% and 1% respectively.*

ARH: Agricultural household registration; CCP: Chinese Communist Party.

tive statistical analysis. The sample number of teachers for 2-3 yr children was limited, and there was no significant difference, but the coefficient was also positive. In addition, the greater the number of difficult children in the class (including left-behind children, children with family financial difficulties and children in need of special education), the greater the work pressure of teachers.

There was a negative correlation between the perseverance character that reflects the controlling factors and professional pressure, indicating that the teacher's own psychological capital will affect their perception and response to pressure. Positive individual adjustment factors in classic research include tolerance to change, self-esteem, non-individualism, persistence, strong personality, and non-A-type personality (Shi, 2003). In addition, teachers with high professional identity were less stressed.

The pressure-relieving effect of institutional staffing status is extremely significant, reflecting the importance of the support factors of welfare and job security to rural preschool teachers in China. The stress of teachers without staffing status was significantly greater than that of teachers with staffing status. Approximately 45.90% of teachers without staffing status expressed high pressure. Among teachers with staffing status, the proportion was only 33.72%, a difference of 12.28 percentage points. Salary had no significant effect, but satisfaction with salary can significantly reduce the degree of stress, which is consistent with the DCS model and the pay-back model (Luo et al., 2011). In addition, the other two indicators of the support dimension in the DCS model showed significant effects: first, the degree of family support was significantly negatively correlated with the professional pressure of rural preschool teachers; second, if preschool had helped teachers solve personal financial difficulties, and the probability of the teacher "feeling high pressure" is significantly lower.

Discussion

The professional pressure status of rural preschool teachers is related to the stability of teacher resources, the quality of preschool education and the development of children. Existing studies rarely involve the professional pressure of preschool teachers in poor rural areas, and lack systematic and strict quantitative model analysis. Based on the survey data in the rural areas of Hubei and the demand-control-support model in the professional pressure theory, this article empirically analyzes the current situation, sources and influencing factors of the professional pressure of teachers in rural preschools. The main conclusions and discussions are as follows:

First, the current preschool teachers in rural China are facing greater professional pressure. Among the teachers surveyed, 44.47% thought the pressure was extremely high, and 36.83% thought the pressure was high. This level is relatively high compared with previous studies on the pressure of rural preschool teachers. Meanwhile, the teacher's job burnout is within a tolerable range and there is no large-scale collapse, so it should be viewed in a comprehensive and objective manner; 43.24% of the teachers surveyed still felt exhausted when they were off work. In view of the negative effect of excessive work pressure, the professional pressure of rural preschool teachers deserves attention and further exploration.

Second, in general, the professional pressure of preschool teachers in rural China mainly comes from children and parents. From the perspective of the DCS model, the main reason for the high professional pressure of rural preschool teachers was the high job demand, and this demand mainly came from the job requirements of others. Approximately 63.74% believed that the greatest pressure came from children and parents, 10.54% thought it was mainly from preschool, 15.81% thought the pressure was mainly from themselves, and 9.90% of teachers thought it was mainly from society. The interviewed teachers were worried about the safety of their children, and at the same time, they often found it difficult to deal with elementary problems such as parents' over-concern with their children's pronunciation and arithmetic. This level is consistent with Jiang et al.'s findings on 7 national-level poverty alleviation counties in 6 provinces and cities in central, western, southern, and northern China, and Wang et al.'s research on Changchun preschool teachers, and the proportion is higher (63.74% vs. 42.4% vs. 53.5%); but from the source of the pressure of teachers themselves, it is lower than the study by Jiang et al. (15.81% vs. 27.0%). Descriptive statistical analysis also found that professional pressure is related to work requirements and control factors such as working hours, class type, staffing status, and salary satisfaction.

Third, based on the results of the Ordered Probit Model, the influencing factors of the professional pressure of rural preschool teachers include age, household registration, number of years in school, workload, class characteristics, number of children in difficulty, perseverance, professional identity, staffing status, salary satisfaction Degree, family support, work support and inter-county differences. According to the DCS model, the positive effect of age may be due to the fact that older teachers are already at the mature stage of their careers, playing a more important role in preschool, and having a stronger need for self-development. Moreover, due to the relatively low level of education of older preschool teachers, poor health, lower acceptance of new knowledge, and weak control over work content, work pressure is naturally greater. Household registration status largely reflects the socio-economic status and social resources of teachers and their families. If teachers working in rural areas have urban household registration, the resources from their families may be better, and then the preschool environment may be better. The ability to withstand pressure is stronger with stronger control over the work, and the perception of stress is weaker. The longer of years the teachers taught in school, the richer the work experience they would get, and then the stronger the ability and the higher the degree of stress resistance would be. Of particular importance is the fact that workload has a positive effect on professional pressure and burnout, which again verifies the discovery that the largest source of stress comes from work requirements. The work pressure of teachers is positively correlated with the number of children with difficulties in class, which is in line with the reality of preschools in rural China. In the interview, a teacher pointed out, "There are more left-behind children in my class. Two children are brought by their parents and the others are brought by grandparents. It is more difficult to communicate, especially when the children are injured because of collisions. During the activities, teaching children to dance and sing is difficult, and he will ignore you." Although the teacher-student ratio in rural preschools

is also problematic, basically it has not achieved "two teachers and one childcare worker" (in many cases there is only one teacher in a class), but due to the lack of internal differences, almost all teachers face this problem, the model found no significant results. Under the premise of controlling other factors, factors such as perseverance, professional identity and family support can also reduce professional pressure. Existing literature shows that self-esteem, self-motivated and perseverance are good predictors of professional pressure (Yang & Wu, 2013; Li et al., 2013). The effect of professional identity in reducing stress is consistent with a study from the United States (Buettne et al., 2016). As a teacher in County D mentioned in an interview, "Work pressure is okay, because I like this job, so I feel a little more relaxed." Salary satisfaction can significantly reduce the degree of stress, while the relationship between salary itself and work pressure is not significant. It shows that teachers' psychological feelings about wages are more important, that is, under greater work intensity, the low wages perceived by preschool teachers are likely to cause psychological imbalance, low professional accomplishment, and higher professional pressure. It can be seen from the survey and model results that teachers' recognition of their salary is a key factor. Some teachers have lower absolute salaries, but they are relatively acceptable in poor rural areas. They also believe that their academic background is consistent with the salary they receive, and their satisfaction with salary is not necessarily low, and vice versa. Family and school support are substantially negatively correlated with the professional pressure of rural preschool teachers, indicating that effective social support is an important guarantee for individuals to cope with stress.

Fourth, the professional pressure of preschool teachers in non-poor rural areas is higher than that in poor rural areas, and their sense of job burnout is roughly the same. This seems to go against the general expectation, but according to our research, we found that there are more preschools in rural areas in non-poverty-stricken counties. The competition among preschools is fierce. More workloads and work requirements can easily lead to greater professional pressure. Other reasons may lie in: rural preschool teachers in non-poverty areas have relatively high levels of education (47.44% and 27.67% of associate degree and above), and higher requirements for their own development; preschools in developed rural areas have a higher level of teacher management and the requirements may be higher. From the perspective of pressure sources, 16.72% of preschool teachers in non-poverty areas believe that their biggest source of stress is preschool, which is nearly 11 percentage points higher than that in poverty-stricken areas, and the proportion of choosing children and parents as the biggest source of stress is also lower. In addition, the levels of professional pressure and burnout of rural teachers in the eastern region were higher than those in the western region. According to the analysis of the survey, this may be because there are more preschools in the low-mountain plains in the eastern region, and the competition is more intense than in the high-mountainous regions of the western Hubei.

Recommendations

The results of this empirical study provide important policy inspiration for adjusting the professional pressure of preschool teachers in rural China and better guaranteeing the core quality of rural preschool education. For preschool teachers, moderate professional pressure helps to enhance their work motivation, but long-term excessive pressure can cause teachers' bad mood, negative slack, high resignation rate and absenteeism, which is not conducive to the development of preschool education (Xu, 2003). Considering that the overall pressure of teachers in rural preschools is relatively high, the government and schools should establish effective incentive and restraint mechanisms to effectively help teachers reduce work pressure in terms of wages and benefits, social status, parental guidance, and workload; teachers should also actively respond to professional pressure, improve emotional management and control ability, reasonably regulate pressure, and turn it into development motivation. Specifically, we recommend the following points.

First, the government and schools should introduce corresponding policies and measures to reduce the workload of teachers in rural preschools, so as to appropriately ease the pressure on teachers. For example, increase the allocation of rural preschool teachers, rationally and effectively arrange and allocate workload, and reduce their non-teaching workload. At the same time, the government and society should take measures to improve and protect the social and economic status of rural preschool teachers. Preschool leaders should try their best to create an optimal educational environment and working atmosphere for teachers to reduce the stressors.

Second, given that the source of pressure mainly comes from children and parents, the government and schools need to provide more parent education and propaganda to improve parents' awareness, so that they can learn more about the nature and complexity of preschool teachers' work. At the same time, actively guide preschool teachers to conduct home-school cooperation and communication to reduce the pressure from parents. Due to the low-age characteristics of children and the fact that rural parents have not yet formed a scientific preschool education concept that conforms to the law of children's growth and national guidelines, it is particularly important for teachers to gain the understanding and cooperation of parents in preschool education for their professional happiness.

Third, since professional pressure has not caused excessive job burnout, it is necessary to increase the stress resistance of rural preschool teachers, rather than simply alleviate the pressure. Psychologically, not all stress is bad. Yerkes and Dodson first studied the different effects of stress and proposed the famous "Yerkes-Dodson Law", that is, before reaching a certain point, as the level of stress and arousal increases, work performance also improves; After this point is exceeded, work performance begins to decline. Moderate pressure can not only stimulate the engine and improve work efficiency; it also has the functions of arousing, adjusting, and strengthening, which are the basic conditions for individuals to cope with life events (Yerks & Dodson, 1908). A variety of ways can improve teachers' self-stress management and control ability, so that they can devote themselves to the work of preschool education. Preschool teachers should recognize the importance of their work for themselves, students, parents and

society, and constantly remind and improve themselves. In addition, society and schools should increase social, economic and psychological support for rural preschool teachers. Active support is a protective factor, which can protect teachers' enthusiasm for work, enhance professional identity, and improve their ability to resist stress, so as to play a positive role in professional pressure. Whereas empirical studies have found that relative wages have a greater support and protection effect, and wage satisfaction is highly correlated with their relative wage levels among those around them. Therefore, the government should provide satisfactory salaries for teachers in public preschools, and private preschools should also consider market demand and the long-term development of schools to provide teachers with reasonable salaries.

Fourth, the study found that under the same county, age, workload, staffing status, etc., rural preschool teachers with perseverance and a high sense of professional identity have less pressure to report, indicating that these teachers can better deal with professional pressure. Therefore, psychological capital training courses can be added to the aforementioned training to improve teachers' social and emotional skills and perseverance character, thereby reducing the transmission of teacher pressure to children. Teachers who are under pressure should be provided with timely mentor guidance and psychological counseling opportunities, and consideration should be given to appropriately adding anti-stress content in business training, and innovating teacher education and training methods according to needs. For example, increase meditation training. Considering that the number of years of teaching has a significant impact on alleviating stress, the government and preschools should increase training opportunities, use senior teachers to supervise and instruct junior teachers, improve new teachers' work ability and professional identity, and strengthen their ability to resist stress.

In conclusion, coping with the professional pressure of preschool teachers requires the concerted efforts of the government, society, schools, and teachers to form a joint force. Our research results also demonstrated that while focusing on preschool teachers as a whole, we should also focus on rural preschool teachers for the child group of 3-4 year olds, and teachers who are older, lack staffing status, have no non-agricultural household registration, and overloading working. In view of the fact that the pressure on teachers in national-level poverty-stricken county preschools is not necessarily higher than that in non-poverty-stricken counties, relevant policies and measures to reduce pressure should cover the wider rural areas.

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ARTICLE

The Current Situation, Characteristics, and Countermeasures of the Verbal Abuse to Students by Elementary School Teachers: An Empirical Study of Four Provinces and Cities in China

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Abstract. *The negative impact of the verbal abuse on student by the elementary school teachers is a big issue. A total of 416 students from four provinces and cities in China were enrolled in this study. We found that the occurrence rate of the verbal abuse by elementary school teachers was not high, whereas it still caused psychological trauma to students once happened by manifesting as the frustration of learning efficacy, self-confidence and interrelationship. Regarding the causes, student's poor academic performance was the major reason, and it was significantly related to students' gender, i.e., male students who had poor academic performance were far more vulnerable to be verbally abused by their teachers. Further, the study also found that students who were verbally abused by teachers were more easily bullied at school. The findings suggest that the government and schools should take joint measures to clarify the specific boundaries of teachers' verbal punishment to students and standardize their verbal behavior to get teachers respect and care for students and create a healthy learning environment.*

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Introduction

THE basic principle for educators is to respect and nurture students and they should follow it as their professional accomplishment. With the prohibition of both formal and informal corporal punishment in elementary and middle schools, verbal abuse is becoming the main conduit for teachers' harmful behavior towards students in China. Other countries had established child protection laws, such as the Australian Children Protection Act, the UK Children Act, the US Dignity in Schools Campaign, and the UN Committee on the Rights of the Child, and explicitly prohibit teachers from conducting verbal abuse. The aim of these guidelines was to establish a harmonious and safe school culture to respect the dignity of students, protect them from degrading and punitive measures, provide a guiding framework enabling teachers to listen to the their views, and develop specific procedures to suspend harmful behavior or allow them to appeal. However, in China, few policies, laws, or regulations are currently available to limit teachers' verbal abuse.

Teachers should oversee the students to shape their learning, but they are equal with students. The real dignity of teachers does not from their subjective feelings, but from students' moral affirmation, knowledge acquisition and emotional attachment. In China, teachers' verbal abuse against students currently does not violate any laws and regulations. Therefore, we need to pay attention to helping teachers to respect students and establish a good, cooperative, pleasant, and mutually trusting relationship with students.

Literature Review

Definitions of Verbal Abuse

In Western countries, teachers' verbal abuse had been systematically studied, and it is usually divided into physical abuse, sexual abuse, emotional abuse and neglect. Verbal abuse was defined as a type of teacher's speech mode, which produces adverse influences on students' emotional, social, cognitive and physiological functions and adaptability (Wang, 2009). Teachers use shouting, abusing and other forms of speech to incur mental and psychological abuse to students, and negatively impact students' emotional and mental health.

In China, teachers' verbal abuse was defined as the use of discriminatory and insulting words or overwhelming criticism that deprecate students' personality and judgment, and result in devitalization on students' dignity, spirit and mental health (Sun, 2008). Specifically, teacher's verbal abuse was regarded as the behavior of restricting and depriving students of their right to speak and freedom of thinking (Wang, 2009).

In this study, teachers' verbal abuse refers to the negative speech of teachers that negatively impact students' physical and mental development through reprimand, insult, and abuse during the education and teaching activities.

Forms of Verbal Abuse

Teachers' verbal abuse shows different forms. King and Janson (2009) pointed out that it includes abusive language, slander, sarcasm, contempt, ridicule and other insulting and discriminatory language. Theoklitou et al. (2012) mentioned that it is loud yelling, coarse and rude attitude, harsh criticism, and denigration of the child's personality.

This study classified teachers' verbal abuse into two categories: (i) direct verbal abuse, i.e., a teacher directly and actively makes verbal attacks to a student, including yelling, insulting and sarcastic remarks; (ii) indirect verbal abuse, i.e., a teacher does not directly attack a student but evokes their peers to exclude them, or the teacher deliberately ignores or refuses to communicate with the student.

Effects of Verbal Abuse

The adverse effects of teachers' verbal abuse majorly include the academic performance, physical and mental health and social interaction, in combination with its negative results like poor academic performance, damaged self-esteem, feeling of inferiority and self-closure tendency.

A student survey showed that teachers' abuse had a significantly negative effect on students' psychological function (Nearchou, 2018). An interview of six graders showed that teachers' verbal abuse worsened their relationship with teachers, even led to verbal conflicts and violent attacks. Furthermore, teacher's verbal abuse got students hated their school and classes, and sometimes led students pretend to be sick to avoid schooling (Geiger, 2017).

Method

Data Collection

To get a good sample size, 13 elementary schools from four different provinces were selected. In this study, random sampling was used, and 20 students were selected from each class. All survey questionnaires were filled in the class. The average time for each questionnaire was five minutes. The survey questionnaire was drafted in simplified Chinese. The questionnaire was majorly to collect (i) demographic information of the students including gender, age, location, grades and school types; (ii) variable information from the students like types of direct verbal abuse, types of indirect verbal abuse, and academic self-efficacy.. Meanwhile, semi-structured interviews were used to understand other possible issues, such as the influence of teachers' verbal abuse and the actions taken when abused by teachers, etc. From November 2018 to February 2019, 16 students from different elementary schools were interviewed.

We used SPSS and Mplus to analyze the questionnaire data. To ensure the data coverage of interviews, the respondents were not only asked to answer designated questions, but also encouraged them to talk about their input on verbal abuse (**Table 1**).

Variables

Table 1: Demographic Information of the Students.

Item	Number	Percentage
Gender		
Male	233	56.0%
Female	183	44.0%
Grade		
Second	47	11.3%
Third	68	16.3%
Fourth	56	13.5%
Fifth	113*	27.2%
Sixth	132	31.7%
Area		
East	155	37.3%
Middle	166	40.1%
West	95	23.6%
Academic Performance		
Poor	85	20.3%
Average	237	57.1%
Good	94	22.6%
Total	416	100%

**: The original number herein was 133. Given the authors' correction, it is corrected to be 113.*

Table 2: Types and Reasons of Teachers' Verbal Abuse.

Types of Teachers' Verbal Abuse	
Direct Verbal Abuse	Roar, ridicule, taunt
	Frighten, threaten
Indirect Verbal Abuse	Isolated, exclude
	Neglect, ignore
Reasons of Teachers' Verbal Abuse	
Learning Performance	Violation of classroom discipline
	Poor academic performance, wrong answers
Other Reasons	Family background, economic conditions
	Looking and dressing

Table 3. Occurrence of Teachers' Verbal Abuse.

Types of Teachers' Verbal Abuse	Frequency (Number/%)		
	1 Time	2-3 Times	> 3 Times
Roar, ridicule, taunt	58 (13.9%)	18 (4.3%)	15 (3.6%)
Frighten, threaten	62 (14.9%)	18 (4.3%)	12 (2.9%)
Isolated, exclude	20 (4.8%)	11 (2.6%)	8 (1.9%)
Neglect, Ignore	26 (6.3%)	16 (3.8%)	9 (2.2%)

Four questions sets were designed for the dimension of "teachers' verbal abuse", two items including direct and indirect verbal abuse were asked. The direct verbal abuse indicates that teachers yelled at students or made fun of student such as "yelling at me" or "saying I'm stupid", and teachers frightened me such as "punish me if I don't perform well or telling my parents". The indirect verbal abuse means that teachers isolated me or destroyed my classmate relationship, such as "stopping other students from playing with me", teacher intentionally ignored me, such as "not listening to my explanation and do not care about me". For the dimension of "reasons for teachers' verbal abuse", four questions were asked. Two of them were about learning performance such as "teachers scolded me because I disturbed class discipline" or "teachers scolded me because I am not good at learning". The other two questions were other factors such as "teachers teased my family or parents" or "teachers teased my appearance or clothing" (**Table 2**).

Meanwhile, this study also listed topics of teachers' positive verbal behaviors, which include "teachers often said encouraging words to me", "teachers patiently guided me when I encountered problems", "teachers enlightened and comforted me when I was in sad", "teachers had a good attitude when they talked with me", "teachers praised me in front of other students", and "teachers praised me before other teachers or my parents", etc. Sara (2018) found that students who were ignored or abused by teachers were more vulnerable to school bullying. Therefore, this study also dealt with the issue of school bullying, and investigated the relationship between teachers' verbal abuse and different types of school bullying.

Results

Occurrence of Teachers' Verbal Abuse

Table 3 shows that the occurrence of verbal abuse by teachers in China is relatively low, which indicated that most elementary school teachers in China abide by professional integrity. However, several students reported that they frequently suffered from teachers' verbal abuse. Our study found that approximately 20% of students suffered from teachers' direct verbal abuse more than once each semester, and about 10% suffered indirect

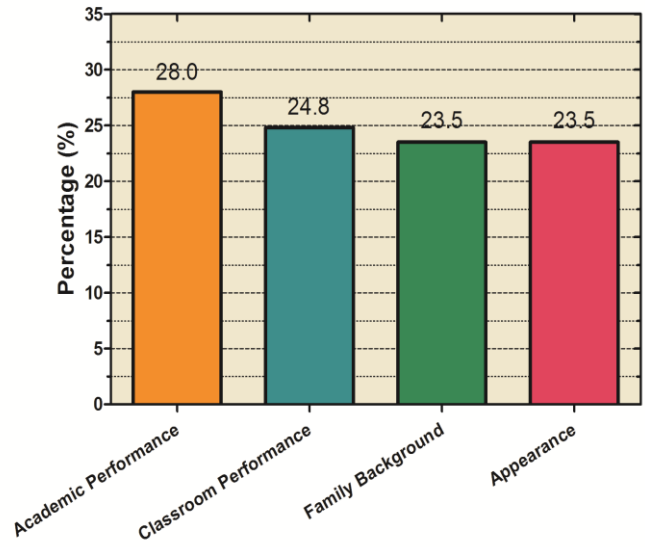

Figure 1. Reasons for Teachers' Verbal Abuse.

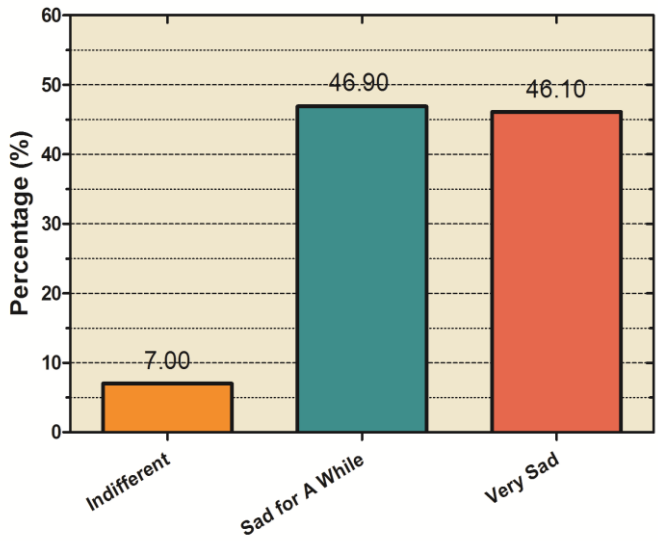

Figure 2. Influence of Teachers' Verbal Abuse.

verbal abuse more than once per semester. During the interview, it was found that almost all 16 interviewees mentioned that they had been subjected to direct or indirect verbal abuse from teachers with varying degree, some of which even were due to teachers' strong purpose of personal abuse. The following are examples of interview contents:

> *Once when I failed to answer a simple question, the teacher scolded me and said I didn't use my own brain in class, and then said that I'd better quit school. (Interviewee C, second grade, Female)*
>
> *Because I didn't do the cleaning carefully, the teacher threatened that he would move my seat to the trash next time. (Interviewee B, fifth grade, Male)*
>
> *The teacher said I was a poor student who would have a bad impact on other students' academic performance, and he appealed to other students to stay away from me. (Interviewee A, third grade, Female)*
>
> *The teacher always ignored the question I raised because he thought they were too simple. (Interviewee D, sixth grade, Male)*

Reasons and Influence of Teachers' Verbal Abuse

For the analysis of the causes of teachers' verbal abuse, this study statistically calculated the proportion of individual item to the total score. The two reasons for academic performance (*example: teachers scolded and teased me because I was not good at learning; teachers scolded and yelled at me because I disturbed classroom discipline*) were respectively termed "academic performance" and "classroom performance". The total score of "academic performance 1" was 564, "academic performance 2" was 500, "other 1" was 473, and "other 2" was 474. Poor academic performance is the main reason for teachers to conduct verbal abuse (**Figure 1**). The following are examples of interview contents:

> *I believe that I'm stupid. I'm not as smart as others. I always fail in the exam. The teacher also said that I was too dumb to study. (Interviewee H, fourth grade, Male)*
>
> *Once I played games with my classmates in class, the teacher scolded me that I should be a circus clown instead of a student, and I was not qualified to study with my classmates in the same classroom. (Interviewee G, third grade, Male)*
>
> *My parents got divorced when I was in elementary school. Once I got bad scores in exam, my teacher said that I failed because neither of my parents cared for me, and I deserved that. (Interviewee E, second grade, Female)*
>
> *My parents run a tiny grocery store, and they are busy all day long. I caught a cold the other day and I wept my runny nose with sleeves, which happened to be seen by the teacher. She was furious and asked me if I don't have parents to take care of me. (Interviewee F, fourth grade, Female)*

During the interview, students were asked to describe the causes of teachers' verbal abuse. The following are examples of interview contents: Teachers' verbal abuse to students will cause great harm to students' mental health, which will last for a long time. According to the survey (**Figure 2**), only 7% of the respondents held an "indifferent" attitude towards teacher verbal abuse, 46.9% of the respondents would feel "sad for a while" after suffering teacher's verbal abuse, and 46.1% of the respondents would feel "very sad". In this study, we specifically designed questions for students to describe the impact of teachers' verbal abuse. After analysis, we found that teachers' verbal abuse to students formed self-doubt and decreased self-confidence in their studies. The followings are examples of interview contents:

> *I'm introverted and not talkative, once the teacher asked whether I was a dumb man, which made me feel upset for a long time. After that incident, I believed that my character was defective and therefore my self-confidence was damaged. I am afraid to meet teachers and I dare not greet them. (Interviewee J, fourth grade, Female)*

> *I once drew a picture in math course. The teacher grabbed my picture, showed it in front of the classroom and mocked at me, "Masterpiece, hmm? Wanna be a painter in the future? Dream on!" I was ashamed and resentful, and I even couldn't fall asleep that night. I really love painting, but he satirized me so much that I thought if I should give up painting. (Interviewee I, sixth grade, Male)*

Characteristics of Teachers' Verbal Abuse

We used the OLS regression method to see the influencing characteristics of teachers' verbal abuse. Items of "Gender" and "Grades" passed the significant test ($p < 0.05$) (**Table 4**). When compared to female students, male peers were more likely to be abused by teachers (B = -0.131, S.E. = 0.055); students with poor academic performance were more frequently abused verbally by teachers than those with good academic performance (B = -0.088, S.E. = 0.051).

Another OLS regression method was employed to examine the influencing characteristics of teachers' verbal encouragement (**Table 5**). The items "Gender", "Location" and "Academic record" passed the significant test ($p < 0.05$). When compared to male students, female students were more likely to receive verbal encouragement from teachers (B = 0.165, S.E. = 0.071). Compared with the central and western areas, teachers in the eastern area were more likely to adopt verbal encouragements to students (B = -0.112, S.E. = 0.060). Students with good academic performance were more likely to receive teachers' verbal encouragement than those with poor academic performance (B = 0.318, S.E. = 0.065).

Teachers' verbal abuse to students was regarded as a type of bullying with unequal power (Olweus & Breivik, 2012). Studies show that teachers' verbal abuse will have a series of negative marginal effects on students, such as affecting the social relationship with their peer classmates, and reducing their self-efficacy (Brassard &

Table 4. Characteristics of Teachers' Verbal Abuse.

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	3.632	4	0.908	2.916	0.021
Residual	127.983	411	0.311		
Dependent Variable: Teachers' Verbal Abuse					
Items	**B**	**S.E.**	**Wald**	**df**	**Sig.**
Gender	-0.131	0.055	-0.116	-2.373	0.018*
Grades	-0.016	0.020	-0.039	-0.781	0.435
Areas	0.052	0.047	0.055	1.106	0.269
Academic record	-0.088	0.051	-0.084	-1.714	0.047*
Constant	1.594	0.206		7.732	0.000

**: p < 0.05.*

Table 5. Characteristics of Teachers' Verbal Encouragement

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	18.225	4	4.556	8.910	0.000
Residual	210.164	411	0.511		
Dependent Variable: Characteristics of Teachers' Verbal Encouragement					
Items	**B**	**S.E.**	**Wald**	**df**	**Sig.**
Gender	0.165	0.071	0.110	2.330	0.020*
Grades	-0.005	0.026	-0.009	-0.181	0.856
Areas	-0.112	0.060	-0.091	-1.869	0.042*
Academic record	0.318	0.065	0.231	4.852	0.000*
Constant	2.539	0.264		9.613	0.000

**: p < 0.05*.*

Fiorvanti, 2015). In China, it is hard to shake teachers' authority, and their behaviors will be imitated by students, which will make the situation much worse. To investigate whether there is an inevitable link between teachers' verbal abuse and school bullying, we conducted a correlation analysis, and found that all types of verbal abuse have significant relationship to all types of school bullying behaviors (**Table 6**). Students who were more vulnerable to teachers' verbal abuse were more likely to be bullied by other students. This is also reflected in the interview.

Table 6. Correlation Analysis of Teachers' Verbal Abuse and School Bullying.

Verbal Abuse School Bullying	Verbal Bullying	Social Bullying	Cyber Bullying	Physical Bullying
Direct Verbal Abuse 1	0.705**	0.535**	0.477**	0.451**
Direct Verbal Abuse 2	0.693**	0.532**	0.483**	0.449**
Indirect Verbal Abuse 1	0.524**	0.564**	0.443**	0.439**
Indirect Verbal Abuse 2	0.573**	0.550**	0.414**	0.457**
N	416	416	416	416

***: $p < 0.01$; *: $p < 0.05$.*

I don't do well in my study and my teacher often calls me a fool. Some guys in my class also call me fool in front of my classmates, which made me feel very shameful. (Interviewee D, third grade, Male)

The teacher said that we should make friends with the students who study well and not hang out with the students who study badly. Everyone thinks that everything the teacher says is right, so nobody wants to play with me. (Interviewee A, second grade, Female)

Discussion

Currently, it is extremely rare for studying teachers' verbal abuse in China through the CNKI, only 9 studies are available under the topic of "teachers' verbal abuse" or "teachers' verbal attack". It is of great value to analyze the situation and characteristics of teachers' verbal abuse within China.

Our results showed that the verbal abuse to students by elementary school teachers is not serious, but it does exist to some extent, and has a negative impact on some students, which is embodied in reducing students' learning enthusiasm and self-efficacy, and damaging students' interpersonal relationships. Direct verbal abuse is the major form for elementary school teachers, and then followed by indirect verbal abuse. Elementary school teachers conduct verbal abuse to students due to their bad academic performance or classroom performance. Especially, males with poor academic performance are more likely to be abused verbally. Furthermore, there is a strong correlation between teachers' verbal abuse and student bullying by their classmates.

Suggestion

First, China should build up legislative rules against teachers' verbal abuse and standardize the language behavior of elementary school teachers. Our results showed that the verbal abuse by elementary school teachers occurs frequently and produced a long-lasting negative impact on students' development. It is the duty of the national legisla-

ture and the education administration to establish corresponding legal regulations over teachers' verbal abuse. It is an unavoidable responsibility for governments to ensure the healthy development of students physically and mentally. The legislature should establish and improve the legal system to prohibit teachers' verbal abuse, and intensify the revision of relevant education laws; and also should clearly add relevant provisions into Teachers Law and Compulsory Education Law to prohibit teachers' verbal abuse. The Ministry of Education of China and education administration at all levels should formulate corresponding rules and policies in order to guide and supervise teachers' language behavior, limit and eliminate teachers' verbal abuse against students.

Second, elementary schools should improve institutional culture construction and establish prevention mechanisms for teachers' verbal abuse. It is time to strengthen the construction of teachers' morality, carry out pre-vocational and vocational training for all teachers, enable teachers to establish the value of respecting and caring for students, and put an end to the verbal abuse in educating and teaching activities. Elementary schools should enhance the supervision and assessment of teachers' verbal behavior. It should be taken into consideration to see whether they use abusive words when evaluating their teaching, and directly linked with the annual evaluation, award evaluation and title evaluation, etc. Regular lectures on the prevention of verbal abuse should be given to both teachers and students to enhance their understanding of the characteristics, hazards and countermeasures of the verbal abuse. Therefore, students can consciously identify and oppose teachers' verbal abuse in their daily school life. Further, schools should establish a family-school linkage mechanism to prevent teachers' verbal abuse and facilitate the channels of parents' complaints.

For teachers, it is necessary to clarify their power of punishment, especially the reasonable boundary of teachers' speech and behavior, and guide teachers to use reasonable and civilized language. Although it was called for the "right to punitive education" and a hot debate, in the teaching behavior, it is necessary to endow the teacher with reasonable and appropriate punishment power to standardize student's learning. However, how to avoid the corporal punishment by teachers in the form of "warning" and how to grasp the limitation of teachers' power of punishment both require careful consideration and design. Similarly, it is necessary to distinguish teachers' reasonable criticism to students from their verbal violence against students, set the bottom line for teachers to discipline students, and protect teachers' right to criticize students while forbidding teachers' abusive words. Besides, we should actively carry out teacher-oriented education and training, guide teachers to establish a correct view of students, and give more emotional attention and academic support to students with poor academic performance and poor daily behavior, instead of blindly denying, rejecting or even imposing verbal violence on them.

Last but not least, for students, it is of importance to improve the relief measures for students who suffered from teachers' verbal violence to reduce its negative impact. Our results showed that only less than 5% of the students tried to report the problem and seek help. Actively carry out the thematic education to prevent verbal abuse among peers and teachers for elementary school students, and encourage elemen-

tary students to report it and seek help, and school should provide psychological counseling and emotional support to the violence to minimize the negative impact. Meanwhile, our study showed that students who suffered from teachers' verbal violence were significantly associated with bullying. This suggests that schools should carry out educational activities on the theme of fighting against school bullying, preventing teachers' verbal violence, and building up a safe and healthy campus for their development.

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ARTICLE

Online Teaching During the "School is Out, but Class is On" Period: Based on 33,240 Online Questionnaire Surveys Across China

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Abstract*. During the COVID-19 pandemic, the Ministry of Education of China issued a call for "School is Out, but Class is On". Various regions responded to and issued relevant policies to use Internet educational resources to carry out teaching activities. In this context, we conducted a network questionnaire survey on district and county education administrators, school administrators, teachers, students, and parents nationwide. It aimed to understand the online teaching situation and the attitudes of different subjects towards online teaching during the "School is Out, but Class is On" period. Based on this, we summarized the problems existing in online teaching during the "School is Out, but Class is On" period and put forward countermeasures to better serve online teaching, to ensure the healthy development of online teaching after the pandemic, and to provide a reference for coordinating national forces to carry out online teaching in response to unforeseen public crises in the future.*

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Introduction

DUE to the continued COVID-19 pandemic, the Ministry of Education of China issued the "Notice on the Delay of the Start of the Spring Semester 2020" on January 27, 2020, requesting that the start of the spring semester be appropriately postponed, and encouraging all regions to use the Internet and information-based education resources to provide students Learning support to ensure "School is Out, but Class is On" (The Ministry of Education of China, 2020b). To this end, schools at all levels have been developing plans and conducted online teaching. Many experts and scholars also voiced the first time, such as Zhu et al. (2020) proposed an all-media learning ecological solution; Jiao et al. (2020) analyzed the typical cases of online teaching of "School is Out, but Class is On", to put forward relevant suggestions for online teaching for different practice subjects. To understand the implementation status of "School is Out, but Class is On", the "School is Out, but Class is On" charity alliance led by Beijing National Center for Open & Distance Education Co., Ltd., united with the National Engineering Laboratory for Intelligent Technology and Application of Internet Education, and jointly developed a survey questionnaire and conducted a nationwide survey based on the "Teacher Training" cloud platform to understand the status quo and find problems to better serve the specific implementation of online teaching. This provides a reference for coordinating the nation's efforts to conduct online teaching under the unforeseen public crisis in the future.

The Status Quo of "School is Out, but Class is On" Under Pandemic Prevention and Control

Policy Guarantee and Guidance

Since the announcement of the delayed start of the spring semester, the corresponding "School is Out, but Class is On" work implementation plan has been successively issued from the central to the local to the school. On January 29, 2020, the Education Department of Hubei Province, the pandemic disaster-stricken area, issued the Guiding Opinions of the Provincial Education Department on the implementation of network teaching during the pandemic prevention and control of the province's primary and secondary schools. In terms of teaching resources and other aspects, it provides comprehensive guidance for online teaching (Hubei Provincial Department of Education, 2020). On January 30, the Wuhan Municipal Education Bureau issued the "Notice of the City Education Bureau on Delaying the Start of Spring 2020 School Work" (Wuhan Municipal Education Bureau, 2020a), and the supporting release of "Wuhan City Elementary and Middle Schools During the Fight Against COVID-19 Pandemic "Online teaching implementation plan" (Wuhan Municipal Education Bureau, 2020b), made more detailed planning on online teaching related content. On February 12, the "Notice on Work Arrangements for "School is Out, but Class is On" in the Office of the Ministry of Education and the Ministry of Industry and Information Technology of the Ministry

of Education on the extension of the school start period of elementary and middle schools" (The Ministry of Education of China, 2020a) was published, further regulating the content of student learning, organization and coordination, connection between inside and outside class. As of early February, all parts of China have completed the formulation of supporting documents for online teaching, which provides guarantee and convenience for teachers and students participating in online teaching, and provides a policy basis for home-school communication and collaborative teaching.

Platform Selections and Teaching Mode

Judging from the policy documents of the education departments in various regions, the main sources of online platforms are (i) National public service platforms for educational resources, provincial and local public service platforms for resources. (ii) Education authorities at all levels organize the openly available network resource platforms in a targeted manner and guide schools to choose according to their needs. (iii) Resources and platform donations spontaneously carried out by educational institutions.

There are four commonly used online teaching and service modes: (i) "TV teaching video" mode. It is organized by the provincial and local education authorities or audio-visual halls and broadcast live through TV stations or dedicated digital TV channels. (ii) "Live Class" mode. Teachers are encouraged to design their courses based on actual conditions and conduct live broadcasts through the online platform. (iii) "Classes communicate with each other" mode. Provincial and local education authorities coordinate the organization of courses organized by local excellent teachers according to the subject catalog, which is regularly based on local education platforms, and carry out online tutoring and online Q & A. (iv) "Optional resources + online question answering" mode. The school uniformly selects teaching resources, compiles guides, and pushes them to students for independent study through websites, class exchange groups, etc. Teachers answer questions through common tools such as QQ and WeChat.

Systemic Service Support

Online teaching is not a simple "classroom shift". It requires teachers and instructional designers to build front-end curriculum resources, as well as strong back-end service teams to provide technical and service support. Specifically, education authorities and schools should actively strengthen guidance and supervision, and adjust implementation paths on time based on online teaching practices. Relevant domestic Internet service agencies, cloud service providers, and other enterprises in China actively responded to provide service support for the stable operation of online teaching cloud platforms, ensuring smooth network and stability of online use by large-scale users. All educational institutions should do a good job of allocating various resources such as software and hardware facilities, basic networks, teacher resources, professional counseling, etc., optimize personnel deployment, and fully guarantee the smooth implementation of "School is Out, but Class is On". More importantly, under pandemic prevention and control, the implementation of large-scale group online teaching nationwide requires the

establishment of one or more professional teams that provide common support services to allow teachers to focus on teaching and improve organizational efficiency and teaching effectiveness.

Survey of Online Teaching during the "School is Out, but Class is On" Period

To gain a deeper understanding of the current status of online teaching during the "School is Out, but Class is On" period, this study surveyed the "Questionnaire Star". The items in the questionnaire include basic information, existing preparations for dealing with "School is Out, but Class is On" online teaching, and knowledge and attitude towards online teaching. The questionnaire was distributed from February 5th to 11th, 2020. A total of 33,240 valid questionnaires were recovered, including 907 district and county education manager questionnaires, 777 school education manager questionnaires, teacher questionnaires 2,401, student questionnaires 17,025, and parent questionnaires 12,130.

Sample Overview of District and County Education Administrators

The statistical results of the 907 district and county education managers questionnaires show that the district and county education managers participating in the survey come from 28 provinces, municipalities and autonomous regions in the country, and most of them are staff members and below (88.31%). The specific job distribution is shown in **Figure 1**.

Overview of the Sample of School Administrators

The statistical results of 777 school education administrator questionnaires show that 72.33% of the school education administrators participating in the survey came from primary schools, and 15.06% came from junior high schools. In terms of geography, the school education managers participating in the survey are mainly in the western region and the northeast region, of which 317 people in the western region (Sichuan, Chongqing, Guizhou, Yunnan, Shaanxi, etc.), about 40.8%; the northeast region (Heilongjiang, Jilin, Liaoning, etc.) with 291 people, about 37.45%; eastern region (Beijing, Tianjin, Hebei, Shanghai, Jiangsu, etc.) 102 people, about 13.13%; central region (Shanxi, Anhui, Jiangxi, Henan, Hubei, etc.) 66 People, about 8.49%; another 1 person (about 0.13%) is from Hong Kong, Macao, and Taiwan. In terms of school size, most of the school administrators participating in the survey came from medium-sized schools, of which 37.58% came from schools of more than 1,000 people, and only 10.55% came from schools of less than 100 people (**Figure 2**). As far as administrative duties are concerned, 75.55% of the school administrators participating in the survey are grassroots managers, 9.14% are principals or executive vice principals, 5.66% are deputy principals in charge of teaching, and 9.65% are deans of academic affairs.

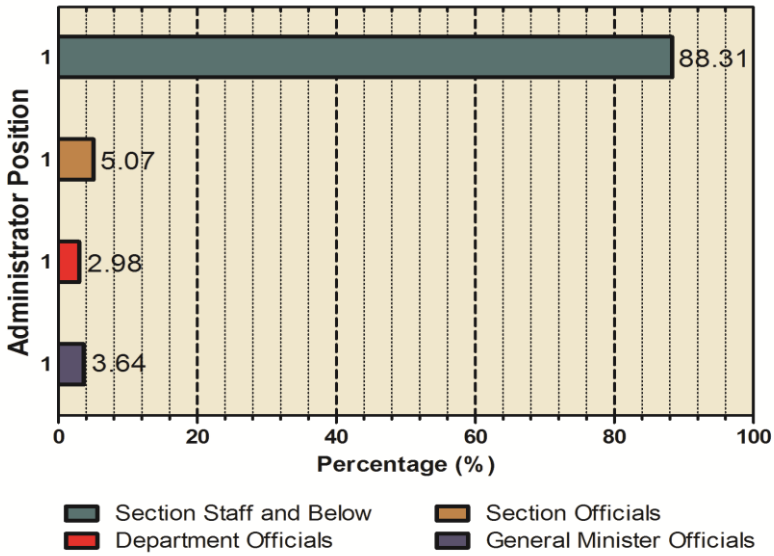

Figure 1. Distribution of the District and County Education Administrative Officials.

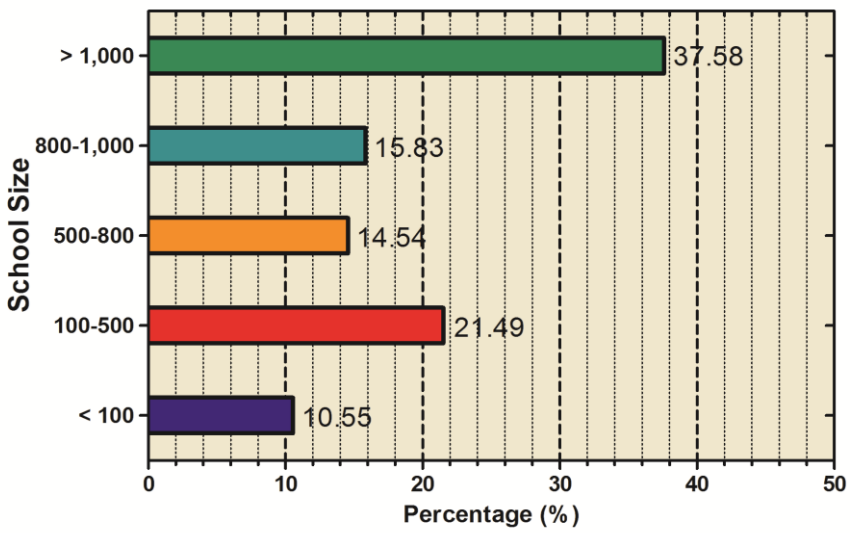

Figure 2. School Size and Proportion

Teacher Sample Overview

The statistical results of a total of 2,401 teacher questionnaires show that the teachers participating in the survey come from 31 provinces, municipalities, and autonomous regions in China and the majority are female teachers. The ratio of men to women is about 1:2. There were 1,294 (53.89%) young teachers (under 34 years old), 840 (34.99%) middle-aged teachers (35-48 years old), and 267 (11.12%) old-age teachers (over 49 years old). 58.34% are urban school teachers, 39.62% are rural school teachers, and about 2% are teaching site teachers. 83.42% are elementary and middle school teachers (Elementary teacher 52.98%, Middle teacher 30.44%), 8.37% are kindergarten teachers, 6.54% are high school teachers, and 1.67% are vocational teachers (**Figure 3**). Therefore, more than half of the teachers participating in the survey were Chinese and mathematics teachers (52.2%), followed by English and phonetic beauty teachers, and relatively few teachers in other disciplines.

Student Sample Profile

The statistical results of 17,025 student questionnaires show that the students participating in the survey come from 32 provinces, municipalities, and autonomous regions across the country, with 8,139 males (47.81%) and 8,886 females (52.19%). More than half (75.14%) students come from urban schools, 22.1% of students from rural schools, and only 2.76% of students from teaching points. Most of them are elementary school students (56.16%), middle school students (28.09%), and high school students (15.21%), followed by secondary vocational school students (0.54%).

Overview of Parent Samples

The statistical results of 12,130 parent questionnaires show that the majority of parents participating in the survey are women, and the ratio of men to women is about 1:2. Elementary school students had the most parents (69.1%), followed by middle school students (18%). In terms of age distribution (**Figure 4**), most parents are 30 to 39 years old. In terms of the area where the children attend school, 43.1% of parents in the eastern region, 26.7% in the northeast region, 19% in the western region, 11.1% in the central region, and 0.1% in other regions. About 77.6% of parents were from urban schools and 22.4% were from rural schools.

Attitudes of Different Subjects towards Online Teaching during the "School is Out, but Class is On" Period

District and County Education Managers: Encourage and Support

The statistical results of 907 district and county education managers' questionnaires showed that 54.8% of district and county education managers encouraged the develop-

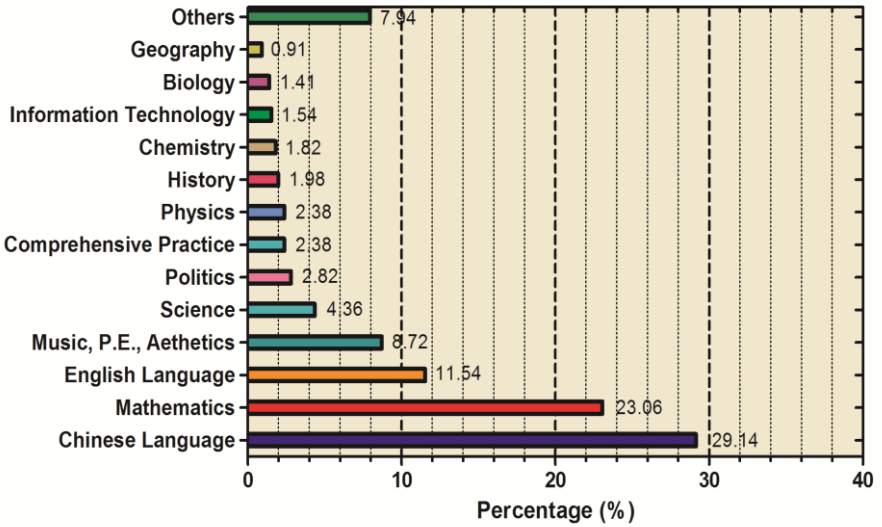

Figure 3. Proportion of the Courses.

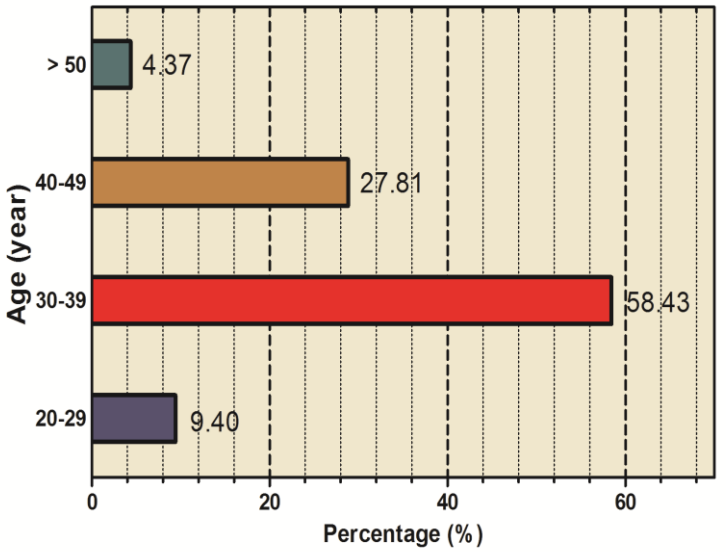

Figure 4. Parents' Age.

ment of online teaching related to teachers; 42.56% did not restrict the specific forms of online teaching; 49.17% chose to introduce high-quality online teaching resources; 43.2% developed a management system for online teaching. It is worth mentioning that the district and county education administrators also realized that online teaching is suitable for personalized learning for students (61.41%), improve teaching efficiency (54.8%), make up for the shortage of resources (41.9%), and solve the shortage of teachers (27.34%) 68.22% of managers even expressed their expectation that online teaching will be a part of the normalization of regional education services in the future. So, district and county education managers have a positive attitude towards encouraging and supporting online teaching during "School is Out, but Class is On".

School Administrators: Relatively Active

School administrators are relatively passive in carrying out online teaching, and their attitudes towards online teaching are also slightly different: some actively formulated specific measures for schools to carry out online teaching based on various educational policies issued by the State and the Education Bureau, such as opening air classrooms based on the teaching week, establish an online curriculum that conforms to the teaching schedule and online teaching characteristics, but some had the phenomenon of copying traditional classrooms directly. The results of 777 school education administrator questionnaires showed that: 68.92% of school administrators believed that the implementation of online teaching can ensure the quality of teaching during the pandemic period; 68.72% believed that online teaching can meet the basic needs of students, but they worried about insufficient teacher preparation; 31.5% of school administrators were skeptical of teachers' basic skills in online teaching. How to effectively organize and implement online teaching, how to ensure that online teaching achieves the same effect as traditional teaching, how to effectively carry out online teaching activities, and how to manage the teaching and learning process have become the focus of school administrators.

Teachers: Positive Attitude but Anxious

Overall, middle and elementary school teachers have a positive attitude towards online teaching. The results of 2,401 teacher questionnaires showed that more than 50% of teachers believed that online teaching can meet the learning needs of students, and 31.9% of teachers were willing to continue online teaching after the pandemic is over. But at the same time, teachers also had a lot of anxiety about online teaching. The main points of anxiety are interaction with students (62.6%), equipment operation (58.6%), and teaching organization (52.1%). In terms of age, middle-aged and older teachers were significantly less anxious about online teaching organization and class manners than young teachers; 72.6% of teachers hoped to receive targeted training, and especially older teachers had more demand for technical application training. From a geographical perspective, urban teachers were more anxious about class manners, software quality, and equipment operation of service providers, while rural teachers were more anxious

about interacting with students and teaching organizations. From the perspective of willingness to use, there were obvious differences between teachers who had different views on the effect of online teaching: those who recognized the effect of online teaching had a stronger willingness to use; teachers under the age of 34 and teachers between the ages of 45-55 had the willingness of future use; at the same time, with the increase of age, the number of people who wanted to continue online teaching has shown a downward trend.

Students: Urban-Rural and Learning Stages Differ Significantly

In general, students have positive attitude toward online learning and strong adaptability. The results of 17,025 student questionnaires showed that although 16.95% of students expressed some concerns, 83.05% still held a positive attitude ("surprise" 36.92% and "happy" 46.13%). This is mainly because students had a positive understanding of online learning. For example, they believed that online learning could be self-paced and had complete and visible learning records. About 61.46% of students thought that they could quickly adapt to the online learning method, and were willing to continue to use this method to carry out learning activities, especially middle school students. Compared with rural schools, urban school students had a more positive and adaptable attitude towards online learning. The major reason may be from urban students had equipment that can meet their daily online learning and they were more familiar with electronic equipment. Besides, there are significant differences in the attitudes of students at different stages of learning on the Internet: high school students had less disappointment, but relatively higher in the worrisome that may be related to the higher pressure they were facing.

Parents: High Expectations and High Concerns

The results of 12,130 parent questionnaires showed that on the one hand, parents had high expectations for the remedy measures adopted by schools for online teaching. About 49.2% of parents hoped to have different online teaching methods such as live classroom, video recording, homework correction and feedback, and parents of urban school students and elementary school students were looking forward to the diversification of online teaching methods. On the other hand, the parents' concerns were also obvious. About 64.1% of parents said they were not clear what type of courses to choose for their children, 52.4% were unfamiliar with online learning operations, and 14.7% said that the network and equipment were in short supply. In addition, parents also had concerns about impaired vision (59.9%), inattention (57.3%), online temptation (49.2%), unanswered questions (43.9%), and poor learning effectiveness (40.9%).

Problems and Countermeasures in Online Teaching during the "School is Out, but Class is On" Period

Existing Problems

Differences in Policy Understanding and Implementation

Education authorities and schools had different understandings of "School is Out, but Class is On" and lacked systematic and long-term planning. Although most provinces and cities had built public service platforms for educational resources, only a few provinces and cities had launched a unified platform. The policies of most provinces and cities were mainly guided by recommendations and standardized requirements. Schools organized and arranged themselves in a specific implementation, so there was generally a "One-Size-Fits-All" implementation of the policy. Schools blindly implemented and organized, mainly live broadcast classroom teaching mode, almost made an identical copy of the traditional classroom teaching. The competent education department did not follow up on the access standards, content review, and supervision of online teaching platforms and resources in time, and also lacked guidance on teacher selection platforms. Also, hidden dangers existed in the intellectual property rights of online teaching courses during the pandemic.

Insufficient Preparation for Basic Education Informatization

The implementation of "School is Out, but Class is On" at the stage of basic education has exposed the serious problem of insufficient preparation: (i) from the competent department to the school to the teacher, short-term emergency and blind response have occurred; (ii) basic education will be fully networked in a short period is a real frustration and obvious "unsuitable". This "unsuitability" is mainly reflected in the basic stage of education informatization, which has always focused on schools and classrooms. However, online training outside the school plays an essential supplementary role in the development of basic education informatization and fails to form a systematic and standardized support service system for elementary schools in China.

The Scientific Characteristics and Applicability of the Teaching Plan are Insufficient

According to the survey data, many regions and schools lack the thinking and design according to local conditions and lack the scientific characteristics and pertinence. The specific performance is as follows: (i) The practice model is relatively simple. The teaching progress is synchronized with the offline teaching, or the schedule is the same as the school learning time. There is no comprehensive consideration, evaluation, and design of the teaching content of different levels and different disciplines. The results of the questionnaire survey showed that 56.6% of teachers tended to use existing or ready-made resources for students to learn independently, supplemented by homework guidance. This approach makes the teaching and learning that are originally separated in both time and space less interactive, and the existing curriculum resources are also difficult to meet the dynamic personalized learning needs of students. (ii) Most of the online teaching currently used is a free and open platform; it is difficult to realize real-

time supervision and comprehensive evaluation of students' learning situations. Besides, the online teaching experience during the pandemic and the teaching after pandemic lack a connection, which may become isolated historical data, and cannot be a guiding reference for the teaching after the pandemic.

Insufficient Informatization Capabilities of Various Subjects

The lack of information literacy is another practical problem in facing "School is Out, but Class is On". At present, the informatization capabilities of various subjects are insufficient. This includes: (i) The ability of the school's information planning and the rapid organization was insufficient. (ii) Teachers' online teaching ability was uneven. The results of the questionnaire survey showed that 42% of teachers felt anxious, mainly because they did not know how to interact with students online, how to organize teaching activities, and how to deal with equipment operation difficulties. Teachers also generally lacked online teaching experience and could not quickly adapt and take advantage of network technology. (iii) Students had insufficient online self-learning ability and it was difficult to guarantee learning participation. The results of the questionnaire survey showed that 38.54% of the students had insufficient confidence in adapting to online learning quickly; 37.1% believed that they were less active in online learning; 45.79% said that teachers and parents were required to supervise to complete online learning tasks. (iv) Parents had insufficient ability to assist their children in online learning. The results of the survey showed that 52.4% of parents reported that they were not familiar with the operation of online learning, and there was no active and effective solution to the problems that might occur in online learning.

Weak Infrastructure Affects the Implementation Effect

Weak infrastructure is a fundamental problem that hinders the large-scale popularization of online teaching. This is mainly manifested as (i) Insufficient infrastructure preparation, such as large-scale access that greatly exceeds the conventional service capabilities of the platform, and problems such as stalls and frequent disconnections seriously affected the learning experience. (ii) Individual users have limited basic equipment. The results of the survey showed that 75.5% of teachers tended to use mobile phones for online teaching, but many teaching platforms and software only support computers, and some institutions' online teaching programs require more than two computers, which brought inconvenience to online teaching for teachers. Also unstable network signals in rural areas have made online teaching a big burden.

Response Measures

During the pandemic prevention and control period, online teaching demonstrated many advantages. The online teaching experience and practice accumulated during the "School is Out, but Class is On" period are very valuable, and it is worth conscientiously summarizing and refining to provide a reference for the subsequent online teaching development.

Macro Control, Strengthen Public Support Services

The informatization foundation and capabilities vary from place to place. To cope with various emergencies, local governments and education authorities need to improve the corresponding management systems and build supporting public service systems. The details include: (i) Strengthen investment to ensure that the school's information infrastructure is in place and promote practical application. (ii) Have a long-term and systematic planning, to guide schools to develop specific methods and implementation plans for online teaching in light of local conditions. (iii) Strengthen content construction and supervision to improve the digital education-related public service system, increase the effective supply of high-quality educational resources, and expand the coverage of online teaching resources of famous schools and famous teachers. (iv) Improve the online teaching-associated support system, provide targeted support services for different users, and ensure the effectiveness of the processing. (v) Establish a supervision and guidance mechanism, strengthen coordinated supervision by all regions and departments, broaden social supervision, and improve supervision efficiency.

Improve the Informatization Capabilities of Various Subjects

To ensure that online teaching can effectively meet the needs of education and achieve a teaching effect not less than that of face-to-face classrooms, all kinds of educational subjects should pay attention to the improvement of informatization capabilities and form a normalized mechanism. (i) Improve the school's comprehensive informatization capabilities, focusing on strengthening management and technical personnel training, and effectively improving the school's informatization management level and capabilities. (ii) Establish and improve a training system that combines long-term basic and short-term targeted training of teachers 'information technology application capabilities, so that targeted training and guidance can be quickly initiated in emergencies. (iii) Deepen the application of information-based teaching practice, cultivate the habit of teachers and students, improve students' self-learning ability on the Internet, deepen parents' understanding of online teaching, and improve the application of information technology for teachers, students and parents.

Build and Improve the Technical Environment and Digital Resource Service System

As the basis of online teaching, the technical environment and resources should be given full attention by competent authorities at all levels. (i) At the macro-level, we must provide targeted assistance to areas with limited teaching equipment and network conditions to meet the basic conditions for students to learn online. In the process of allocating teaching resources, the education department should give full consideration to many factors such as school teachers, software and hardware conditions, network implementation, and academic status of the school, so as to promote the full use of digital teaching resources. (ii) At the micro-level, we should focus on strengthening the

informatization capabilities of education managers and teachers, and provide services such as consulting and technical support to break through technical limitations. It enables education administrators to concentrate on organizing online teacher training, and teachers can concentrate on optimizing online teaching content design. In the future, the government, enterprises, and schools can be laid out following the principle of "infrastructure depends on policies, and individual resources depend on the market." Local governments and education departments should strengthen macro-control and effectively integrate and rationally allocate educational resources. Enterprises should be guided by the individualized needs of schools, leading the development and construction of education and teaching resources, and finally the three parties will work together to create a good "Internet+" education ecology.

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ARTICLE

Does the Salary of Elementary and Middle School Teachers Affect Students' Participation in Extracurricular Tutoring? §

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Abstract*. Based on the data of China Family Panel Studies 2016 (CFPS 2016), this study analyzed the effect of teacher wage index on students' participation in extracurricular tutoring through a two-layer linear model. We found that the wage index of elementary and middle schools teachers in China is generally low, and this index had a significant negative impact on students' participation in extracurricular tutoring, i.e., the lower the teacher's wage index, the higher the participation rate of students' extracurricular tutoring. Governments at all levels should increase financial investment in elementary and middle schools teachers' salaries. Efforts to improve the salary of elementary and middle schools teachers upon the teacher's wage index as a reference will help to reduce the supply and demand of extracurricular tutoring in the basic education in China, and will also facilitate the implementation of the policy of prohibiting in-service teachers from participating in extracurricular tutoring.*

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Keywords*: Extracurricular Tutoring; Teacher Salary; Wage Index*

§: The original Chinese version has been abridged due to the limited printing layout. In this article, the original content that has been deleted is also published.

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IN recent years, extracurricular tutoring has become a hot social issue that concerns the government, students and parents. Among them, paid tutoring by in-service teachers is a focus problem that the government, society and schools have been paying close attention to and trying to solve. Some studies have found that teacher salary was closely related to students' participation in extracurricular tutoring (Brehm et al., 2012; Sujatha & Rani, 2011). Investigation of the relationship between teachers' salary level and students' participation in extracurricular tutoring will help to understand the phenomenon of in-service teacher's paid tutoring, and it will provide a reference for the Chinese government to handle effectively the extracurricular tutoring and paid tutoring for in-service teachers.

Studies found that low salary is a major reason for teachers to participate in extracurricular tutoring. Researchers found that some in-service school teachers in countries such as Cambodia, Mauritius and Romania got paid tutoring for students, and the official salary of teachers in these countries was very low (Bray et al., 2013; Foondun, 2002; Popa & Acedo, 2003). Studies by Brehm, Sujatha, and Rani found that in Cambodia and India, many teachers provide extracurricular tutoring to supplement their income (Brehm et al., 2012; Sujatha & Rani, 2011). In Shanghai of China, Zhang and Bray discovered through questionnaires and interviews that urban teachers are facing increasing economic pressure, and many of them got additional income through shadow education. The survey included 548 students in Shanghai, of them 35.8% had received tutoring in their teachers' homes, and 26.1% had received tutoring at schools. During the interview, they found that some of the teachers' colleagues participated in paid tutoring outside the classroom, and all the school principals interviewed expressed sympathy for their teachers' participation in the tutoring even they got the so-called medium salary (Zhang & Bray, 2017).

The in-service teachers will gain income through direct participation in tutoring and referral to counseling agencies for getting commission. Bray et al. (2018) found that in Siem Reap Province, central Cambodia, almost all extracurricular tutoring is provided by school teachers rather than commerce, and teachers are usually responsible for the same group of students in the school. In addition to direct participation, some school teachers play an intermediary role. Zhang and Bray's survey in Shanghai showed that nearly one-third of the students surveyed said that their tutoring information was from their teachers, through which some teachers got commission by introducing students to counseling agencies (Zhang & Bray, 2017).

In-service teacher is the classroom leader of school education, so if they directly or indirectly participate in paid tutoring, they will encourage students and parents to participate in tutoring. In-service teacher's paid tutoring will bring "benefits" to participating students, and it will be "unfavorable" to those who do not participate in teachers' tutoring. In a survey conducted in Bangladesh in 2017, some students mentioned that receiving tutoring from school teachers would receive extra benefits, including answering skills set by these teachers (Mahmud et al., 2017). Gok's investigation report in Turkey highlighted a teacher's case, in which the teacher clearly told the students: "You didn't take my private class, so I don't talk to you anymore" (Gök, 2010). Kodakos and

Fragiskos pointed out that the paid tutoring of in-service teacher has the risk of concealing the content of the classroom to promote their tutoring needs. They emphasized that when in-service teachers are also extracurricular tutors, they would use the "Margin Management Model", that is, when teachers tutor their students privately, there is a danger of favoring the students who receive tutoring. It is easy for these teachers to deliberately conceal content in regular class teaching to promote the need for their private classrooms, so margin management is necessary (Kodakos & Kalavasis, 2015).

In sum, some empirical studies showed that in countries with low teacher salaries, teachers are more likely to participate in paid tutoring, and teachers who get paid tutoring will encourage their students to participate in extracurricular tutoring in turn, so the in-service teacher salary level will affect students' participation in extracurricular tutoring. Teacher's wage index is an objective quantitative index to measure the relative level of teachers' wages (Organization for Economic Cooperation and Development, 2011). A low teacher's wage index indicates that the level of teachers' wages is low compared to the level of local economic development. Therefore, teachers' life pressure and their income imbalance increase, which may reduce work effort and engage in paid tutoring to supplement income. Both of these aspects all may encourage students to participate in extracurricular tutoring. Therefore, we hypothesized that the salary level of elementary and middle schools teachers has a significant negative impact on students' participation in extracurricular tutoring, i.e., the lower the teachers' salary, the higher the students' participation in extracurricular tutoring.

Students' participation in extracurricular tutoring is affected by two factors: supply and demand. At present, there have been studies explored the influence of individual and family characteristics of students on extracurricular tutoring from the perspective of extracurricular tutoring demand, but no study has explored the impact of features such as in-service teacher on student participation in extracurricular tutoring from the perspective of extracurricular tutoring supply. This study will comprehensively consider the impact of extracurricular tutoring supply and demand on student participation in extracurricular tutoring. After controlling the individual and family characteristics of students in the econometric model, we will observe the effect of teacher salary level on students' extracurricular tutoring participation.

Data Source and Variable Description

The data of the extracurricular tutoring, individual factors, family factors, and school factors in this study come from the 2016 data of China Family Panel Studies (CFPS) of the China Social Science Survey Center of Peking University. According to the variable description of extracurricular tutoring in the data set, extracurricular tutoring mainly refers to supplementary educational activities other than formal school education to improve students' academic performance, including both academic and talent courses. The study objects were elementary and middle school students and a total of 3,109 effective samples were obtained, including 2,332 from elementary school and 777 from middle school.

From the perspective of economics, teachers' wages are the remuneration of teachers for their labor in the organization. When analyzing teacher salaries, we usually use the teacher income index (Du, 2015). *Education at a Glance 2011: OECD Indicators* pointed out that when discussing teacher wages, comparing legal wages with GDP per capita is easy to analyze, and provides a way to examine teacher wages in the context of national wealth (Organization for Economic Cooperation and Development, 2011). Du compared the salary level of teachers with the GDP per capita of various provinces and the discretionary income of urban residents, and examined the changes in the average salary level of teachers in China from 2000 to 2011 (Du, 2014). An suggested that the relative level of teacher wages was a way of judging the comparison between teacher wages and gross national product, i.e., the proportion of teacher average wages to GDP per capita can be called wage index (An, 2014). Xue and Shen used the teacher wage index (Shen, 2018; Xue & Tang, 2017) when measuring the salary of elementary and middle schools. Because teachers' perception of their wages stems from the overall wages paid in the previous year, so the wage index of teachers in 2015 is selected here. The description of the variables is shown in **Table 1**.

Teacher Salary and Student Extracurricular Tutoring Participation Rate in Elementary and Middle Schools by Province

Participation Rate of Extracurricular Tutoring of Elementary and Middle Students by Province

Table 2 shows that the participation rate of extracurricular tutoring of elementary school students in each province was uneven. The top three provinces with extracurricular tutoring participation rate for elementary school students were: Jiangsu, Heilongjiang and Shanghai. Their rate all exceeded 32%, and the number of participants account for more than one third of the sample population in the province. The provinces with lower participation rates were: Guangxi, Guizhou, and Jiangxi. Their participation rates were 1.1%, 1.8%, and 2.9%, respectively, and the number of participants was less than one-third of the number in the province. The participation rate in the eastern China was high, the central region was uneven, and the western region was low. The participation rate of extracurricular tutoring of middle school students in different provinces was also mixed.

The provinces with high participation rates of extracurricular tutoring for middle school students were: Jiangsu, Anhui and Liaoning, with participation rates of 55.6%, 42.1%, and 35.9%, respectively; the provinces with lower participation rates were Guangxi and Guizhou, with 4.2% and 4.4%, respectively. The participation rate of middle school students in the eastern region except Guangdong and the northeast region was relatively high. The participation rate in the central region except Jiangxi was more than 20%, and the participation rate in the western region was uneven. In short, the par-

Table 1. Description of Variables in Statistical Analysis.

Variable Type	Variable Name	Variable Description
Extracurricular Tutoring	Whether to Participate in Extracurricular Tutoring	0=No, 1=Yes
Personal Factors	Gender	0=Female, 1=Male
	Household Registration (Hukou)	0=Agricultural, 1=Non-Agricultural
	Math Scores	1=Poor, 2=Medium, 3=Good, 4=Excellent
	Chinese Performance	1=Poor, 2=Medium, 3=Good, 4=Excellent
Family Factors	Parent's Highest Education	1=Illiterate, 2=Elementary School, 3=Middle School, 4=High School, 5=Junior College, 6=Undergraduate and Above
	Parental Education Expectations	1=Middle School And Below, 2= High School, 3=Junior College, 4=University Undergraduate, 5=Master's Degree and Above
	Annual Household Income Per Capita	Continuous Variable, Unit: CNY
School Factors	Demonstration/Key School	0=No, 1=Yes
	Class Size	Continuous Variable, Unit: Person
2015 Teacher Wage Index	Average Salary of Elementary School Teachers in the Province in 2015 / GDP Per Capita in 2015	Continuous Variable
	Average Salary of Middle School Teachers in the Province in 2015 / GDP Per Capita in 2015	Continuous Variable

ticipation rate of elementary and middle students in the eastern region is mostly higher than that in the western region, and the central region is high, and the rate of elementary school students is uneven.

Relative Salary of Teachers in Elementary and Middle Schools by Province

Teacher wage index refers to the proportion of teachers' average salary to GDP per capita. This is a way of judging the comparison of teachers' wages with gross national product, which indicates the relative level of teachers' wages (An, 2014). Regarding the reasonable level of wages, it is believed that the teacher wage index should be reasonably between 1.8:1 and 2:1 in developed countries and 2.5:1 and 3.5:1 in developing countries (Qu, 1995). Chinese elementary and middle schools teacher wage index is shown in **Table 3**. The wage index of elementary school teachers in the table is the average salary of elementary school teachers in 2015/GDP per capita in 2015, and the wage index of middle school teachers in 2015 is the average salary of middle school teachers in 2015/GDP per capita in 2015.

Table 3 shows that the average value of the middle school teachers' wage index was higher than that of elementary school teachers. The provinces with elementary school teachers whose wage index was less than 1 were Jiangsu, Liaoning and Shanghai, all of which are provinces in the eastern region where the economies are relatively de-

Table 2. Participation Rate of Extracurricular Tutoring in Elementary and Middle Schools.

Province	Participation Rate of Extracurricular Tutoring	
	Elementary School Students (%)	Middle School Students (%)
Hebei	16.1	15.9
Shanxi	18.9	22.2
Liaoning	22.5	35.9
Jilin	16.1	33.3
Heilongjiang	37.0	33.3
Shanghai	32.7	31.6
Jiangsu	39.0	55.6
Zhejiang	27.6	28.6
Anhui	22.4	42.1
Jiangxi	2.90	12.5
Shandong	21.1	16.0
Henan	20.8	27.4
Hunan	14.5	27.3
Guangdong	10.6	8.80
Guangxi	1.10	4.20
Chongqing	7.40	25.0
Sichuan	12.8	17.2
Guizhou	1.80	4.40
Yunnan	6.80	11.8
Shaanxi	18.4	25.0
Gansu	7.10	15.6
Nationwide	14.3	20.1

veloped. The provinces with elementary school teachers whose wage index was higher than 2 were Gansu, Guizhou and Yunnan, all of which are western provinces, indicates that the teachers' wage level and economic level are relatively commensurate. The wage index of elementary school teachers in the eastern region was lower than the average level, and the central region was uneven, but the western region, except Chongqing and Shaanxi, other provinces were higher than the average. The provinces with middle school teachers whose wage index was lower than 1 were Jiangsu and Liaoning, and those higher than 2 were Gansu, Yunnan and Guizhou. Therefore, the wage index of middle school teachers in the eastern region was lower than the average, the central region was at the middle level, and the western regions except Chongqing and Shaanxi were all above the average. It can be seen that the relative salary of elementary and middle schools teachers in the eastern region is not commensurate with the level of economic development, but the relative salary of teachers in some western provinces matches the level of economic development. Overall, the relative salary of teachers in China is relatively low.

Table 3. The Wage Index of Elementary and Middle School Teachers in Each Province in 2015.

Province	Elementary School Teacher Wage Index	Middle School Teacher Wage Index
Hebei	1.35	1.42
Shanxi	1.62	1.7
Liaoning	0.88	0.90
Jilin	1.07	1.11
Heilongjiang	1.47	1.54
Shanghai	0.93	1.03
Jiangsu	0.85	0.91
Zhejiang	1.14	1.26
Anhui	1.55	1.64
Jiangxi	1.45	1.47
Shandong	1.05	1.15
Henan	1.17	1.26
Hunan	1.12	1.21
Guangdong	1.02	1.08
Guangxi	1.47	1.58
Chongqing	1.25	1.41
Sichuan	1.59	1.76
Guizhou	2.13	2.21
Yunnan	2.1	2.27
Shaanxi	1.14	1.17
Gansu	2.26	2.32
Mean Value	1.36	1.45

The Wage Index of Elementary and Middle Schools Teachers and the Student Participation Rate of Extracurricular Tutoring

In 2015, the average value of the elementary school teachers' wage index was 1.42, and the average value of the middle school teachers' wage index was 1.51.

Figure 1 shows the relationship between the elementary school teachers' wage index and the students' extracurricular tutoring participation rate. The provinces with lower wage index among elementary school teachers have relatively higher participation rate; on the contrary, the province with higher wage index among elementary school teachers have relatively lower participation rate. For example, the provinces with elementary school teachers whose wage index was less than 1 were Jiangsu, Liaoning, and Shanghai, all of which are in the eastern China. The participation rates of these three provinces in extracurricular tutoring were very high, at 39%, 22.5%, and 32.7%, respectively. The provinces with elementary school teachers whose wage index was

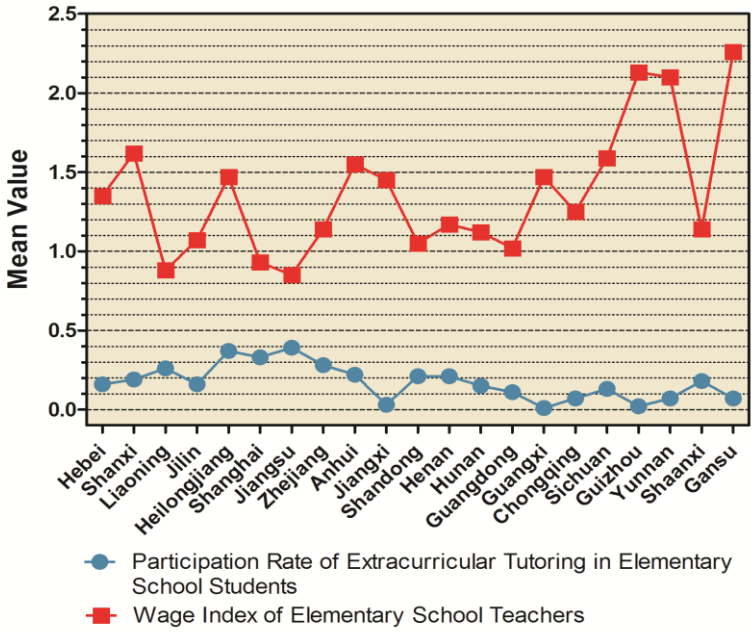

Figure 1. Elementary School Teacher Wage Index and Students' Extracurricular Tutoring Rate.

higher than 2 were Gansu, Guizhou and Yunnan, all of which are in the western China, and the participation rates of extracurricular tutoring in these three provinces were relatively low, at 7.1%, 1.8% and 6.8%, respectively.

Figure 2 shows that between the wage index of middle school teachers and the participation rate of students' extracurricular tutoring are also reversely related. In the provinces with high wage index of middle school teachers, the participation rate of students in extracurricular tutoring was relatively low; on the contrary, in the province with low wage index of middle school teachers, the participation rate of extracurricular tutoring students was also relatively high. For example, the provinces with middle school teachers whose wage index was less than 1 were Liaoning and Jiangsu. The participation rates of students in these two provinces were very high, at 35.9% and 55.6%, respectively. The provinces with middle school teachers whose wage index was higher than 2 were Gansu, Yunnan and Guizhou. The rate of students participating in extracurricular tutoring in these three provinces was 15.6%, 11.8% and 4.4%, respectively.

The Effect of Elementary and Middle Schools Teachers' Wage Index on Students' Participation in Extracurricular Tutoring

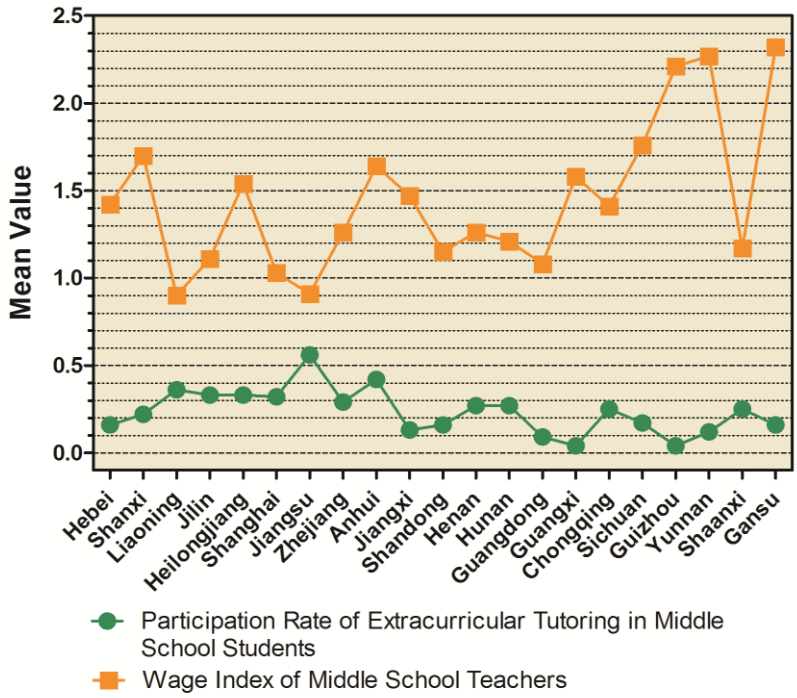

Figure 2. Middle School Teacher Wage Index and Students' Extracurricular Tutoring Rate.

The hierarchical linear model is proposed to address the limitations of traditional statistical techniques when processing multi-layer structure data and the possible misinterpretation of the analysis results. It is suitable for proper and in-depth analysis and interpretation of widely existing multi-layer nested data (Osborne & Neupert, 2013). When the hierarchical linear model is analyzed at different levels, it can make full use of the information of each layer to decompose the factors influencing students' participation in extracurricular tutoring at all levels, so it is more accurate and more reasonable.

When analyzing the elementary and middle schools teacher wage index affecting students' participation in extracurricular tutoring, we introduced the hierarchical linear model, because the sample of students in this study is nested in different provinces and regions, and teacher salaries are different in different provinces. For this kind of data with nested structure, HLM2 can be used to examine the effect of student-level variables and provincial-level teachers' wage index variables on students' participation in extracurricular tutoring.

At the beginning of the model construction, the zero model was first estimated to explain the percentage and significance of the total variance of the dependent variable that could be explained by the differences between groups. Then, HLM2 was built.

$$\text{Lay1: Tutor}=\beta_0+\beta_1\text{gender}+\beta_2\text{parentedu}+\beta_3\text{parentexpectation}+\beta_4\text{salary}+\beta_5\text{language}+\beta_6\text{math}+\beta_7\text{key school}+\beta_8\text{classsize}+\gamma \quad (1)$$

$$\text{Lay2: } \beta_0=\gamma_{00}+\gamma_{01}\text{teachers'salary}+\mu_0 \quad (2)$$

Among them, the dependent variable Tutor represents whether students participate in extracurricular tutoring. The independent variables are divided into two levels: the first level is individual level variables, including student gender, parental education level, parental education expectations, family per capita income, whether it is a key school, class size, language performance, and math performance; the second level is Provincial level variables, including teachers' salary index.

A Hierarchical Linear Model Analysis of the Effect of Elementary School Teachers' Wage Index on Students' Participation in Extracurricular Tutoring

Construct a zero model in the sample of elementary school students. The zero model refers to a model that has no predictor variables at the individual level and the provincial level. This is mainly used to observe whether the dependent variable is statistically significant at the provincial level. This study conducted a zero-model analysis of whether students participated in extracurricular tutoring in the past 12 months. The results are shown in **Table 4**.

The zero model showed that with student participation in extracurricular tutoring as the dependent variable, its p value was < 0.01, which means that the predictor variables of the second layer have a significant impact on the variation of the dependent variable. In **Table 4**, the variance between groups was 0.009, the variance within the group was 0.117, and the intra-group correlation coefficient (ICC) = 0.071 was further calculated. ICC is to test whether the dependent variable is different between different groups. According to Cohen's definition, 0.071 is a moderate intra-group correlation (Less than 0.059 indicates low-level intra-group correlation, 0.059-0.138 is moderate intra-group correlation, and greater than 0.138 is high-level intra-group correlation). The data in this study were moderately related within the group, so the differences within the group cannot be ignored. This means that the degree of variability caused by the difference from the provincial level in students participating in extracurricular tutoring was 0.009, which was about 7.1% of the variance. On the one hand, the predictor variables of the second layer have a significant impact on the variation of the dependent variable; on the other hand, according to the estimation results of ICC (cross-level correlation coefficient), the dependent variable has obvious differences between groups, and the characteristics of the differences between groups must be considered. Therefore, it is suitable to use a HLM2 for analysis.

Table 4. Elementary School Sample Zero Model Parameter Estimation.

Parameter	Variance Estimation	Standard Error	Intra-Group Correlation Coefficient	Chi-Square Value	P-Value
Intercept Term (Variation Between Groups U_0)	0.009	0.004	0.071	52.043	0.000
Level 1 (Variation Residual Within the Group R)	0.117	0.003			

Model 1 and Model 2 (**Table 5**) were the influencing factors of extracurricular tutoring participation of elementary school students. Model 1 was the basic model, which estimated the influence of control variables on extracurricular tutoring participation in the elementary school samples. The data showed that in elementary school, the higher the annual per capita income of the family, the more non-agricultural students were less likely to participate in extracurricular tutoring. The larger the class size, the higher the likelihood of students participating in extracurricular tutoring. The higher the parent's education level, the higher the likelihood of students participating in extracurricular tutoring.

Model 2 adds the variable of 2015 average salary of elementary school teachers/2015 GDP per capita (2015 elementary school teachers' wage index) to the control variable. After the addition, the logarithm likelihood drops from 1,378.003 to 1,376.780, and the values of AIC and BIC also decrease. . This showed that the addition of this variable had statistical significance, which made the model fit better. The data shows that the agricultural household in Model 2 is negatively significant, that is, the more agricultural household students, the lower the possibility of participating in extracurricular tutoring. Parents' education level, family per capita income and class size were positively significant, i.e., the higher the parent's education level, the higher the family's per capita income and the larger the class size, the greater the possibility of students participating in extracurricular tutoring. The coefficient of elementary school teachers' wage index was -0.096 ($p < 0.05$). The results of the data showed that the greater the ratio of the average salary of elementary school teachers to the annual per capita GDP, the less likely students was to participate in extracurricular tutoring. For each additional unit of elementary school teacher wage index, the possibility of students participating in extracurricular tutoring decreases by 0.096 units, i.e., the higher the elementary school teacher wage index, the lower the possibility of students participating in extracurricular tutoring.

Mixed Model Analysis of Middle School Teacher Salary to Students Participating in Extracurricular Tutoring

Table 5. Multi-Layer Linear Model Analysis Results of the Impact of Elementary School Teacher Wage Index on Students' Participation in Extracurricular Tutoring.

Variable	Model 1	Model 2
Individual Level Variable		
Gender: Female (Male=1)	0.022 (0.015)	0.023 (0.015)
Agricultural Household Registration (Non-Agricultural Household Registration=1)	-0.096 *** (0.025)	-0.094*** (0.025)
Chinese Performance	0.008 (0.010)	0.008 (0.010)
Math Scores	-0.016 (0.010)	-0.016 (0.010)
Annual Household Income Per Capita	1.726*** (5.862)	1.650 *** (5.856)
Parent's Highest Education	0.015* (0.008)	0 .014* (0.008)
Parents' Educational Expectations for Their Children	0.008 (0.007)	0 .009 (0.007)
Non-Key School (Key School=1)	-0.014 (0.019)	- 0.015 (0.019)
Class Size	0.001** (0.000)	0 .001** (0.000)
Provincial Level Variable		
Average Salary of Elementary School Teachers in 2015 / GDP Per Capita in 2015		- 0.096** (0.036)
Intercept Term	0.094 (0.067)	0.229*** (0.084)
Sample Size	2,332	2,332
Random Effect		
Sd (Intercept)	0.004 (0.002)	0.003 (0.001)
Sd (Residual Error)	0.110 (0.003)	0.110 (0.004)
Goodness of Fit		
-2 Restricted Log Likelihood	1,378.003	1,376.780
Akaike's Information Criterion (AIC)	1,382.003	1,380.780
Schwarz's Bayesian Criterion (BIC)	1,393.119	1,391.972

*Note: 1. ***, **, * represent significant at the 1%, 5% and 10% levels, respectively.*

2. Standard errors are in parentheses.

Table 6. Middle School Sample Zero Model Parameter Estimation.

Parameter	Variance Estimation	Standard Error	Intra-Group Correlation Coefficient	Chi-Square Value	P-Value
Intercept Term (Variation Between Groups U_0)	0 .008	0 .005	0 .049	73.537	0.000
Level 1 (Variation Residual Within the Group R)	0 .154	0 .008			

Table 7 : Multi-Layer Linear Model Analysis Results of the Influence of Middle School Teacher Wage Index on Students' Participation in Extracurricular Tutoring.

Variable	Model 3	Model 4
Individual Level Variables		
Gender: Female (Male=1)	0.022 (0.031)	0.024 (0.031)
Agricultural Household Registration (Non-Agricultural Household Registration=1)	-0.126*** (0.046)	-0.108** (0.046)
Chinese Performance	-0.016 (0.020)	-0.012 (0.020)
Math Scores	-0.015 (0.018)	-0.021 (0.015)
Annual Household Income Per Capita	4.429 (5.192)	3.633 (5.184)
Parent's Highest Education	0.052*** (0.015)	0 .052*** (0.015)
Parents' Educational Expectations for Their Children	0.011 (0.015)	0 .008 (0.015)
Non-Key School (Key School=1)	-0.035 (0.036)	- 0.040 (0.035)
Class Size	0.002 (0.001)	0 .002 (0.001)
Provincial Level Variables		
Average of Secondary Education Teachers in 2015 Wages/2015 GDP Per Capita		- 0.089* (0.048)
Intercept Term	0.105 (0.150)	0.233 (0.167)
Sample Size	777	777
Random Effect		
Sd (Intercept)	0.004 (0.003)	0.004 (0.003)
Sd (Residual Error)	0.144 (0.008)	0.143 (0.008)
Goodness of Fit		
-2 Restricted Log Likelihood	682.061	677.424
Akaike's Information Criterion (AIC)	686.061	681.424
Schwarz's Bayesian Criterion (BIC)	695.027	690.378

*Note: 1. ***, **, * represent significant at the 1%, 5% and 10% levels, respectively.*
2. Standard errors are in parentheses.

By constructing a zero model in the middle school samples, the results were shown in **Table 6**. In this zero model, whether the student participated in extracurricular tutoring was the dependent variable, the inter-group variance was 0.008, the intra-group variance was 0.154, and the significance level was $p < 0.001$.

Further calculation of the intra-group correlation coefficient (ICC) = 0.049, its P value was < 0.01, i.e., the second-level predictor variables have a significant impact on the variation of the dependent variable, and the impact of the provincial-level variables on the dependent variable needs to be considered. Therefore, it was suitable to use hierarchical linear model for analysis.

Models 3 and 4 were the influencing factors of extracurricular tutoring participation of middle school students. Model 3 was the basic model, which estimated the influence of control variables on extracurricular tutoring participation in the middle school samples. It can be seen from **Table 7** that in the basic model, middle school par-

ents' educational background and household have a significant impact on students participating in extracurricular tutoring.

Model 4 added the variable of 2015 middle school teachers' wage index to model 3, the logarithm likelihood dropped from 682.061 to 677.424, and the values of AIC and BIC also decreased, indicating that the addition of this variable had statistically significance, and the model fitting was better. The data showed that the highest educational level of parents was significant at 0.01 and household was significant at 0.05, i.e., non-agricultural household students were more likely to participate in extracurricular tutoring than agricultural household students. The coefficient of the variable of wage index for middle school teachers was -0.089 ($p < 0.1$). The data showed that the greater the ratio of the average salary of middle school teachers to the annual per capita GDP, the less likely students was to participate in extracurricular tutoring. For every additional unit of middle school teacher wage index, the possibility of students participating in extracurricular tutoring decreased by 0.090 units, i.e., the higher the secondary school teacher wage index, the lower the possibility of students participating in extracurricular tutoring.

Discussion and Conclusion

Through the above analysis, it is found that the relative salary of elementary and middle schools in China is relatively low. In 2015, the Wage Index of elementary school teachers in all provinces of China was between 0.87-2.26, and the Wage Index of middle school teachers was between 0.9-2.32. None of them has reached the level of 2.5-3.5 for the wage index of teachers in developing countries. This study showed that the wage index of elementary and middle schools teachers in China had a significant negative effect on students' participation in extracurricular tutoring. The province with the lower elementary school teacher wage index has the higher participation rate of extracurricular tutoring. Elementary school teachers with the lowest wage index in Jiangsu (0.85) had the highest extracurricular tutoring participation rate (39%), accounting for more than one-third of the province's elementary school samples. The same was true for middle school teachers. In Liaoning (0.9) and Jiangsu (0.91), where the middle school teachers' wage index was lower than 1, and their students' participation in extracurricular tutoring was high, at 35.9% and 55.6%, respectively. This showed that the relative level of teachers' salary had a significant impact on students' participation in extracurricular tutoring. Our findings corroborate the findings of Foondun et al. in Cambodia and other countries (Foondun, 2002), the lower the teacher's salary, the more students' tutoring; this also was agreement with Zhang and Bray's survey in Shanghai, China from the perspective of teacher salary (Zhang &Bray, 2017).

Adams's *Equity Theory* believes that the enthusiasm of employees depends on the degree of fairness in distribution (i.e., sense of fairness); and this sense of employees depends on a process of social comparison, that is, a person not only cares about his absolute income, but also cares about his relative income (Chen & Gao, 2008). When teachers in elementary and middle schools in China compare their income horizontally with other professionals in the society, if they feel that their income is lower, they will

feel unfair, so they will seek to increase their income or reduce their work to obtain a sense of fairness. On the one hand, some in-service teachers will participate in paid tutoring in an attempt to increase their income. On the other hand, some in-service teachers who do not participate in paid tutoring will reduce the work effort in their daily school teaching. Meanwhile, some in-service teachers not only participate in paid tutoring but also reduce the teaching effort, and they will intentionally teach less important content in the classroom, deliberately guide or encourage students to participate in extracurricular tutoring activities they organized or involved in. This had pushed up the scale of students' participation in extracurricular tutoring, impacted the order of school education and disrupted the normal school education ecology, and also harmed the equity of education and increased the burden of student learning.

In 2015, the Ministry of Education of China issued the *Regulations on Prohibiting Elementary and Middle Schools and In-service Teachers from Participating Paid Tutoring* (Ministry of Education of China, 2015), which prohibits in-service teachers from participating in paid tutoring. Since the document was issued, some provinces and cities had also issued relevant policy documents. On the basis of "6 prohibitions", Henan Province put forward "prohibition on elementary and middle schools in-service teachers from deliberately failing to complete education and teaching tasks in the classroom" and "prohibition on elementary and middle schools teachers from teaching after school for being paid" (Henan Provincial Department of Education, 2015); Beijing also issued policy document stating "whether the in-service teacher organizes or participates in paid tutoring will be regarded as an important basis for annual assessment, job title evaluation, promotion, rewards, and punishments" (Liang, 2017). On the basis of prohibition, the relevant documents also proposed to "educate and guide the teachers to practice the core values of education, stand up for morality, and consciously refuse paid tutoring; select and promote outstanding teacher models, and fully demonstrate the spirit of dedication and kindness of teachers" (Ministry of Education of China, 2015). The guidance of correct values is conducive to weakening teachers' sense of injustice and reducing motivation to go out for tutoring.

Given that Chinese elementary and middle schools teachers' wage index has a significant negative impact on students' participation in extracurricular tutoring, and the current Chinese elementary and middle schools teachers' wage index is generally low, governments at all levels should increase financial invest to teachers' salaries. With the teacher's wage index as the reference standard, strive to increase the relative salary of elementary and middle school teachers. For provinces with stronger financial strength and lower teacher wage indexes, governments at and below the provincial level should increase the financial input, and focus on raising the teacher wage index and improving the relative level of teacher wages. For provinces with weaker financial strength and lower teacher wage index, central and provincial governments should increase fiscal transfer payments to help local governments at all levels of the province increase the input and strive to improve the teacher wage index. The efforts of governments at all levels to increase the salary of elementary and middle schools teachers will help reduce the supply and demand of extracurricular tutoring in the basic education in China, and

also provide a basis for prohibiting in-service teacher from participation in extracurricular tutoring.

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NEWSLETTER

How Long Should We Sleep? The Ideal Matching Pattern between Sleep Time and Academic Achievement of High-school Students

By Liu, J., Zhao, L.M., Du, X.F., Xu, G.X.

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ADEQUATE sleep time, good psychosomatic development environment, and high-quality academic achievement are necessary conditions for educational success. Based on this, a study published in *Journal of East China Normal University (Educational Sciences)*, relying on the data of the Quality and Health Check-up Program of China Basic Education Quality Monitoring Coordination Center, explored the ideal matching model between students' high academic achievement and sleep time on the basis of students psychosomatic development and a good educational environment, and providing multi-level early-warning to schools that sacrifice students' sleep time in exchange for good scores. The results show that:

- In general, high school students have the best academic performance when they sleep more than nine hours. And those students enjoy a higher interest in learning, less stress, better learning quality, higher activity participation, more harmonious interpersonal relationships, and more happiness.
- For schools with low socioeconomic status, students who get the best grades when they sleep between eight to nine hours have higher interest, less stress, better learning quality, more activity participation, harmonious interpersonal relationships, and more happiness. This shows that in the school environment with an overall lower socio-economic background, students need to pay a certain amount of time and effort to achieve good grades, and the best performance can only be achieved on the basis of at least eight hours of sleep, which guarantees a healthy educational environment.
- For schools with high socio-economic status groups, students who get the best grades when they sleep for more than eight hours have higher interest, lower stress, better learning quality, more ac-

tivity participation, more harmonious interpersonal relationships and more happiness.

The study suggests that high achievement should not come at the expense of less sleep, regardless of the socio-economic status of the school. Keeping students' sleep time at or above eight hours is an ideal matching mode for schools to ensure students' physical and mental health development and to create a good educational environment. It's suggested that the administrators, schools, teachers, and parents should hold positive values and understand the relationship between students' sleep time and academic performance. For schools that blindly pursue high grades at the expense of students' sleep time, a multi-level early-warning mechanism should be established and their rectification should be supervised.

Source: Journal of East China Normal University (Educational Sciences), 2020; 38(3):71-79.

NEWSLETTER

The Benefits to Students of Helping Others

By Lu, C., Jiang, Y., Zhao, X., & Fang, P.

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TEACHERS would be grateful if students adopted the positive social custom of "one for all, all for one". However, would helping others be beneficial to the students themselves? A recent study published in *Journal of Happiness Studies* examined whether the altruistic personality trait of Chinese students contributed to their life satisfaction.

The study conducted a survey of 428 students from schools in East China, of which 148, 139, and 141 were drawn from, respectively, primary schools, junior high schools, and senior high schools. Students were assessed for their altruism, life satisfaction, positive and negative emotions. Altruism was measured in terms of sociability, empathy, social responsibility, and interpersonal trust. The findings were as follows:

- Adolescents who have higher levels of altruism were found to have more positive emotions, fewer negative emotions. Their life satisfaction was also higher.
- Empathy, social responsibility, and interpersonal trust positively predicted life satisfaction.
- On the other hand, no direct relationships were found between sociability and life satisfaction.

The authors suggested that the results revealed insights for educating adolescents. They recommended providing students with empathy training, cultivation of social responsibility, and education on interpersonal trust.

Source: Journal of Happiness Studies, 2020; 21(4):1407-1425.

NEWSLETTER

Analysis on Effects and Potential Influencing Factors of Massive Online Education Practice during the COVID-19: A Case of Xiaogan City, Hubei Province

By Wang, J.X., Cui, Y.P., Yan, Y.T.

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IN this study, Xiaogan City, Hubei Province was used as the research area to explore the effects and potential influencing factors of large-scale online education practice of "School is Out, but Class is On" during the COVID-19 pandemic, trying to form a regular understanding and discovery, and hoping to promote the follow-up work and the providing a reference for the future development of online education. The research mainly includes four aspects: the guidance of education administration departments and leadership, the basic status of online teaching and home study, the satisfaction degree of students, teachers, and parents; the practical effects of online education, and the potential influencing factors. Data collection mainly adopted methods such as questionnaire surveys, online classroom observation, online interviews, policy text analysis, and case collection. The research results are as follow:

- The basic situation of large-scale online education practice in Xiaogan City, Hubei Province: in terms of organizational management, there are guaranteed; in terms of platforms and tools, regional education cloud platforms are highly used by teachers and students in elementary and junior high schools, the types of platforms used in high schools are relatively diverse, and the use of tools for primary, junior and senior high schools is also showing a diversified trend; primary schools and junior high schools make more use of regional, provincial, and national platform resources. High schools mainly use resources collectively selected and produced by subject groups and resources independently produced by teachers; in terms of teaching content and teaching methods, the teaching content includes subject curriculum and special education. The teaching methods mainly use live broadcast, resource packages, recording and broadcasting resources, organization of independent learning and TV programs, etc. From the perspective of family-school collaboration, parents mostly participate in the student's learning process by paying attention to

notifications, companionship and supervised learning and assignments inspection. In terms of satisfaction degree, students in rural areas are more satisfied than those in cities, and students in the junior high school are the most satisfied, the high school students' satisfaction degree is the lowest, teachers' satisfaction of online teaching is at a medium level, while parents' satisfaction of online teaching is relatively high.

- Practical effects: through the guidance and leading of the education administration departments, it has promoted the coordination of multiple departments, improved the educational governance capacity, the construction and application of the online learning space, and laid the foundation for integration and innovation; through implementation and action, the school has promoted the transformation of the school's education concept and methods, and clarified the needs and goals of smart campus construction and smart education practice; through exploration and adaptation, teachers and students actively explored and adopt, which promoted the comprehensive development of teachers and cultivated students' independent learning ability and digital literacy; through the support and service, the education informatization enterprise has demonstrated the enterprise's responsibility, improved the brand reputation, and provided an opportunity for the enterprise to participate in the school education process in an all-round way; through cooperation and participation, families enrich the content of family-school communication and provide opportunities for co-education.
- Potential influencing factors includes online education concept, online education guarantee and supply, teacher-student literacy and ability, and family-school co-education.

Through the above analysis, it is looking forward to providing a reference for the theoretical research and practical exploration of future online education in primary and secondary schools.

Source: e-Education Research, 2020; 41(6):5-12.

NEWSLETTER

The Influence of Technology's Interference on Adolescent Addiction to Smartphone: The Function of Core Self-Evaluations and Need Satisfaction Perceived Online

By Chen, X., Lin , Y., Liu, Q.X.

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WHAT is the impact of technology interference on smartphone addiction among teenagers? Recently, a study published in *Psychological Science* selected 11-19 teenagers as the research object, through the science and technology interfere with the scale, the core self-evaluation scale, psychological demand, network meet the scale, and smartphone addiction scale as a research tool, using the method of cluster sampling from two middle schools in Hubei province, a questionnaire survey was conducted among 4,856 students, eliminating invalid questionnaires and obtained 4,372 valid questionnaires. Observe the influence on teen addiction to the smartphone through technology interference in parent-child interaction, and further respectively explore the mediation mechanism from the cognitive level (core self-evaluation) and motivation level (psychological demand network meet). After verifying that there is no serious common method deviation in the study, SPSS 21.0 combined with SPSS macro program PROCESS was used for data management and analysis. The results are as follow:

- There was a significant negative correlation between technological interference and core self-evaluation; there was a significant positive correlation between technological interference, psychological needs network satisfaction, and smartphone addiction.
- Technology interference significantly positively predicted smartphone addiction.
- Both core self-evaluation and network satisfaction of psychological needs play an intermediary role in the influence of technological interference on smartphone addiction.

Based on the data analysis results, the study proposes several suggestions:

- Parents can reduce the frequency of using electronic devices in parent-child interactions to prevent smartphone addiction among teenagers and healthily use electronic devices in family life.

- When parents cannot avoid using electronic devices in parent-child interaction, it is suggested to participate in positive electronic device use activities with children.
- By encouraging teenagers to have peer interaction offline and giving them opportunities to make decisions and express themselves freely, teenagers' needs for friendship and autonomy can be satisfied and their psychological needs can be satisfied in reality so as to reduce their psychological needs online.
- Provide adolescents with high social support to improve their core self-evaluation, thus playing an intervention role in teenagers' smartphone addiction.

Source: Psychological Science, 2020; 43(02):355-362.

NEWSLETTER

The Impact of City Size on the Rate of Return to Education

By Yang, J., Ai, M.T.

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IN recent years, the capital cities represented by Xi'an and Wuhan have successively introduced policies to attracted talents to settle down. To better study the talent mobility strategy, research published in *China Economics of Education Review* analyzed the impact of urban size on education returns in 2002 and 2012. The results show that: the effect of city size on the rate of return on education increased significantly over time.

To be specific:

- In 2012, for every 1% increase in the urban population, the labor force return to education increased by an average of 1.15%-1.21%. Among them, the male return to education increased by an average of 1.60%, and the female return to education increased by 1.50%; and for every 1% increase in urban GDP, the return to education will increase by 1.07%-1.14%. Among them, the male education returns rate increased by 0.80%, and the female education return rate increased by 0.72%. The results of correcting the endogenous bias through instrumental variables show that for every 1% increase in urban population, the rate of return to education will increase by 4.84%-5.14%; for every 1% increase in urban GDP, the rate of return to education will increase by about 2.80%-2.97%.
- As the level of education increases, the impact of city size on the rate of return to education gradually increases. Among them, for every 1% increase in the size of the urban population, the difference between the educational return rate of the high school group and the university group relative to the junior high school group should be increased by 5.2% and 8.5%; and for each 1% increase in the urban GDP scale, the high school group and the university group relative to the junior high school group should be increased by 4% and 7.4%, respectively. The size of the city has a greater

impact on the educational returns of people with a college education or above.

- Compared with the educational returns of different age groups, the urban scale shows an inverted U-shaped relationship. As age increases, the urban educational returns premium increases first and then decreases. For the workforce of 30-40 years old, the size of the city has the greatest impact on the rate of return on education. As the age rises further, this effect will weaken. When considering the actual income adjusted by the price level, the positive effect of the city size on the return to education is weakened. When considering the actual income adjusted by the housing price level, the effect of the city size on the return to education changes from positive to negative.

To this end, the author suggests that for smaller cities, it should be based on economic development, increase the degree of industrial agglomeration, and attract talents of all levels to employment, so as to achieve further expansion of the city's scale.

Source: China Economics of Education Review, 2020; 5(1):110-132.

NEWSLETTER

How to Accurately Prevent and Manage School Bullying: Study on the Influencing Mechanism of School Bullying among Primary School Students of Different Genders

By Li, J.Z., Hu, Y.M.

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A Study published in *Journal of Educational Studies*, using the data from "Regional Education Quality Health Check-Up" survey sample of 176823 pupils, examined primary student's self-esteem, academic performance, parental involvement, peer relationship, teacher-student relationship, and the characteristics of family variables on its suffering from all kinds of school bullying, the results are as follow:

- The difference analysis shows that there are significant differences in the frequency of three types of bullying (physical, verbal and relationship) among primary school students of different genders, among which the average frequency of primary schoolboys being bullied is significantly higher than that of primary schoolgirls.
- OLS regression model was established to explore the influencing factors, and it was found that each variable significantly predicted the probability of physical bullying of primary schoolboys and girls. The result of the regression of the three dependent variables found that primary school students from single-parent families were more likely to suffer from various types of school bullying without gender differences. In terms of physical bullying, among primary schoolboys, migrant boys are more likely to suffer physical bullying than non-migrant children. Among primary schoolgirls, whether they are migrant children has no steady and significant influence on their physical bullying. In terms of verbal bullying, migrant children are more likely to suffer verbal bullying, and there is no gender difference. However, whether being migrant children or not has no steady and significant influence on the relationship bullying of primary school students. Moreover, among primary schoolboys only, left-behind children are more likely to suffer from three types of bullying than non-left-behind children. Among primary schoolgirls, left-

behind children have no significant influence on their suffering from three types of bullying.

- In addition, academic performance can significantly predict the probability of primary school students suffering from three types of school bullying, and improving academic performance has a greater impact on reducing the probability of physical bullying and verbal bullying for primary schoolgirls, and a greater impact on reducing the probability of relationship bullying for primary schoolboys. Self-esteem level can significantly predict the probability of primary school students being bullied by three types of school, and improving self-esteem level has a greater impact on reducing the probability of primary schoolboys being bullied by three types of school bullying. Peer relationship and teacher-student relationship can also significantly predict the probability of primary school students suffering from three types of school bullying, and improving peer relationships has a greater impact on reducing the probability of primary schoolboys suffering from three types of school bullying. Improving the relationship between teachers and students has a greater impact on reducing the probability of primary schoolgirls suffering from three types of school bullying. Parental involvement can significantly predict the probability of primary school students suffering from three types of school bullying, and increasing parental involvement has a greater impact on reducing the probability of primary schoolgirls suffering from relationship bullying.

The paper suggests that in the prevention and management of school bullying, schools should pay special attention to the learning status and mental health status of left-behind and floating children and primary school students from single-parent families, and pay attention to the important role of parents in the prevention and treatment of school bullying. At the same time, teachers should pay close attention to boys with tense peer relationships, timely guide boys to build a healthy and harmonious peer relationship. In addition, teachers should pay attention to the way of communication with girls, protect their self-esteem, and actively create a caring and supportive teacher-student relationship.

Source: Journal of Educational Studies, 2020; 16(03):55-69.

NEWSLETTER

The Role of Teachers' Social-Emotional Beliefs and Teacher-Student Relationship in the Effects of Principals' Authentic Leadership on Students' Social-Emotional Competence

By Zhang, S., Mao, Y.Q.

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THE authentic leadership of the principal refers to the positive psychological ability and moral values of the principal in the work interaction with teachers. In a district of Beijing, Zhang and Mao chose stratified sampling to select 9 public primary schools and distributed a total of 900 teacher questionnaires. Combined with the principal questionnaire and the student questionnaire, they investigated the teacher's social-emotional belief, the principal's honest leadership, the students' social-emotional ability, and the close relationship between teachers and students. All the questionnaires adopted a 5-level Likert scale. Among them, students' social-emotional ability includes six dimensions: self-cognition, self-management, others' cognition, others' management, collective cognition, and collective management. Teachers' social-emotional beliefs include three dimensions: learning adaptability, commitment and support culture. The results show that:

- The authentic leadership of principals has a significant positive effect on students' social affective ability.
- Teachers' social emotions and beliefs close relationship between teachers and students and the leadership of the headmaster integrity students play a role of independent mediation between social-emotional ability, which shows the principal authentic leadership, in addition to playing a direct role of social emotions, can influence teachers' social emotions and close relationship between teachers and students.
- Teachers' social affective belief and intimate teacher-student relationship play a chain of mediating roles between principals' authentic leadership and students' social affective ability. In other words, principals' authentic leadership affects teachers' social affective beliefs, further affects an intimate teacher-student relationship, and finally affects students' social affective ability.

Source: Global Education, 2020; 49(6):113-128.

NEWSLETTER

The Effect of Teachers' Support on School Adaptation of Chinese Migrant Children

By Yang, K.C., Jia, A.B., Guo, X.

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USING data from China Education Panel Survey (2014-2015), the current study focused on the role and the internal mechanisms of teachers' support on school adaptation of Chinese migrant children. The research carried out data analysis by building relationship models among three dimensions of teacher support (academic support, emotional support, and relationship support), self-education expectations of migrant children, mental health status, and school adaptation. The research findings are as follows:

- The school adaptation level of migrant children was significantly lower than that of the urban local children.
- Teachers' support and its three sub-dimensions had positive effects on self-educational expectations, mental health and school adaptation.
- Self-educational expectations and mental health played an intermediate role between teachers' support and school adaptation of migrant children.
- The three dimensions of teachers' support had different influence mechanisms on school adaptation of migrant children; teachers' academic support influenced school adaptation through self-educational expectations, teachers' emotional support influenced school adaptation through mental health, and teachers' relationship support influenced school adaptation through self-educational expectations and mental health.

Therefore, in the design of the migrant children's social integration policies, we should pay more attention to the problem occurs when facing school adaptation, fully play the protective role of teachers' support for children's school adaptation, establish and improve the mental health service system for the mobile children, and as a result, improve the external social and ecological environment for the living and learning of the migrant children with the intervention of comprehensive social integration policies.

Source: Education & Economy, 2020; 36(1):77-86.

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