SPRING 2020
APPLIED POLICY PROJECT

IMPROVING THE QUANTITY AND QUALITY OF RURAL PRESCHOOL TEACHERS IN CHINA

UNICEF CHINA

SI ZHANG
MASTER OF PUBLIC POLICY CANDIDATE
FRANK BATTEN SCHOOL OF LEADERSHIP AND PUBLIC POLICY
UNIVERSITY OF VIRGINIA

UVA | FRANK BATTEN SCHOOL *of* LEADERSHIP *and* PUBLIC POLICY

unicef 联合国儿童基金会

Acknowledgements

I would like to thank Professor Leora Friedberg from the Department of Economics at the University of Virginia for her patient guidance and help, especially the later policy selection and evaluation. I thank Professor Lucy Bassett of the Batten School of Leadership and Public Policy for her guidance of my early courses and the selection of clients. I also appreciate to Xuefeng Chen and Shouqing Zhu from UNICEF for allowing me to work with them to solve China's education problems in the past few months. I am also very grateful to my professors and classmates during my graduate studies. Thank them for their time studying with me.

I sincerely thank my friends who have lived with me in the Charlottesville. Their company has never made me feel lonely in my graduate life.

Finally, I want to thank my parents and family for their selfless efforts and help.

Honor Statement

On my honor as a student, I have neither given nor received unauthorized aid on this assignment.

Disclaimers

The author conducted this study as part of the program of professional education at the Frank Batten School of Leadership and Public Policy, University of Virginia. The research content does not necessarily reflect any opinions from UNICEF CHINA. Therefore, UNICEF CHINA and the University of Virginia is not responsible for any content. The judgments and conclusions produced in this report only represent the personal views of the author, and may not necessarily be endorsed by UNICEF CHIANA and the Frank Batten School of Leadership and Public Policy.

Key Abbreviations

CPD – Continuing Professional Development. It refers to the process of tracking and recording the skills, knowledge, and experience acquired on the job formally or informally, without any initial training.

ECDA – Early Childhood Development Agency. It is the supervision and development agency of the Singapore Child Care Department, which is primarily responsible for overseeing the critical aspects of the development of children under seven years old in kindergartens and child care centers.

MOE – the Ministry of Education

PFP – The Pay for Percentile

PRC – the People's Republic of China

SDG – Sustainable Development Goals

STAEC – the Science and Technology Academy Early Childhood

UNICEF – the United Nations International Children's Fund

Table of Contents

Executive Summary

Due to factors such as insufficient long-term education funding and uneven distribution of education resources, preschool education in rural China has been relatively disadvantaged compared to urban preschool education. Specifically, the shortage of rural preschool education teachers and the low quality of instruction has aroused close attention from the Ministry of Education of the People's Republic of China.

UNICEF CHINA has been working with the Chinese government and the Chinese Ministry of Education to improve the lives of children in poverty-stricken areas. One of their goals is to ensure the continuous improvement in the quantity and quality of rural teachers. Combining relevant academic literature and considerations of the current state of education and policy environment in China, I have identified four possible policies to be adopted by UNICEF CHINA:

1. **Maintain the Status Quo:** Let the current trend continue and adjust the employment of preschool teachers according to the market supply and demand.
2. **Improve the compulsory in-service training for preschool teachers:** Rely on methods such as classroom observation and the establishment of teacher files to determine the in-service training content that teachers need to improve and create a mandatory customized training program for rural preschool teachers.
3. **Provide subsidies for participating in voluntary in-service training teachers:** Use subsides to create a voluntary training program and encourage rural preschool education teachers to participate in in-service training.

4. **Establish an undergraduate internship program:** Encourage college students to go to rural preschool schools to complete graduation internships.

In order to evaluate the relative advantages of each of these alternative methods, I consider using the following three criteria: **(a) Effectiveness, (b) Feasibility, and (c) cost**. The analysis of the above alternatives and criteria in this report shows that **establishing an undergraduate internship program** alternative is the recommended option.

Finally, through communication with the client, I detail the implementation process of the recommended options. The Ministry of Education (MOE) of the People's Republic of China (PRC) will be the main actors to implement this policy.

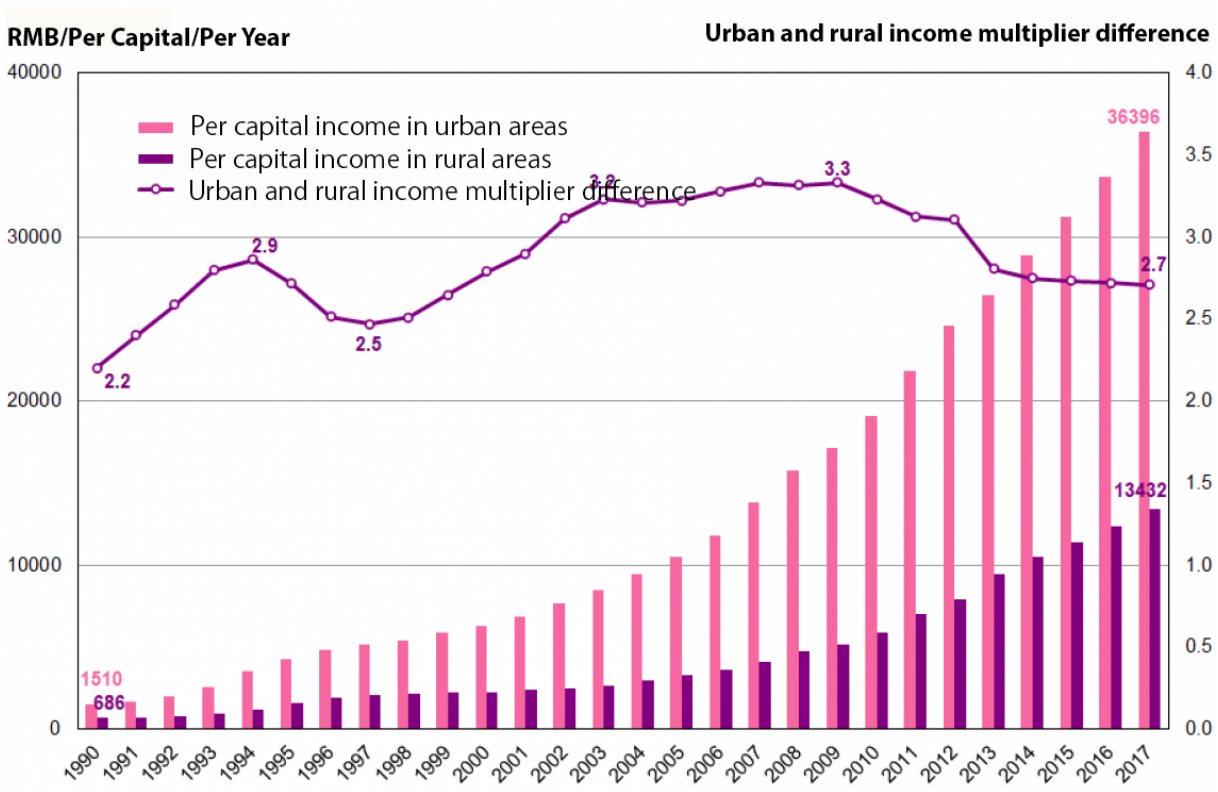
Problem Statement

As the understanding of the importance of preschool education by individual families, the government, and society has deepened, the development of preschool education, which covers children from three to six years old, has been supposed to a problem that must be solved in the development of Chinese education. Since preschool education is not compulsory education in China, China ’s preschool education funding accounts for only 1.3% of the total financial investment in education, while the international average is about 10% (Hu, Zhou, Chen, Fan & Winsler, 2017). Galor and Zeria studied the impact of initial income distribution on the distribution of education, arguing that due to the incomplete lending market, equal income will benefit poor people. The latter cannot raise education costs through loans to obtain educational opportunities (Galor & Zeira, 1993). The urban-rural income gap will affect the level of education by affecting human capital investment. This gap in education levels further leads to a lower return on investment in rural education, so the allocation of education funds in rural areas is lower than in cities. The lack of long-term funding has hindered the development of rural preschool education, which makes rural areas less attractive to preschool education teachers. Low wages, poor employment prospects, and poor environment further contribute to the current shortage of preschool teachers in rural China. To encourage preschool education teachers to go to work in rural areas, rural preschools often recruit teachers who did not obtain proper teacher qualifications, causing poor quality of teaching in rural preschools.

To completely solve the development problem of preschool education in rural areas of China, the quality and quantity of rural preschool teachers should be improved simultaneously. The purpose of this report is to try to describe the policies UNICEF China may adopt to solve the problem of preschool education in rural China.

Background

China has the largest population in the world, with about 1.39 billion people, of which 41.48% live in rural areas. Of that rural population, 244 million people across the country choose to migrate in pursuit of a better life. (Yuchi, Z., & Zhujun, J., 2019). The large migrant population has increased the burden of preschool education in rural areas. As shown in the figure below, in 2017, the average annual per capita income in urban areas (RMD36,396, or $5,191) was 2.7 times that of rural income (RMB13,432, or $1,916). About 20 million people in rural areas lived in absolute poverty, with a per capita annual income of less than RMB 2,799 ($399)—less than the World Bank's poverty line of $1.90 a day (NBS,2017).



Source: National Bureau of Statistics, China Statistical Abstract, 2018

Compared with urban education, inequality in urban and rural economic levels has led to a lower return to rural education. At the same time, the intensifying education gap has deepened the economic differences between urban and rural areas. The process of this vicious cycle leads to further polarization in basic education in urban and rural areas. Promoting rural education becomes a crucial step in China's education reform.

The Importance of Preschool Education

Evidence from neuroscience and preliminary research suggests that children's brain development is influenced by the first six years of educational experience. Preschool education occurs in the first six years of life, and education during this period also affects children's later cognitive and social emotional development (Wu, Young, & Cai, 2012). Developing preschool education would promote children's comprehensive and healthy development of body and mind, improving the overall quality of the citizen, and realizing the goal of building a moderately prosperous society in China.

Reasons for the Slow Development of Preschool Education in China

China's nine-year compulsory education does not include preschool education. Therefore, in the past preschool education has not been regarded as the primary development area. In order to achieve the strategic goal of “basic popularization of preschool education” in the “Outline of Education Planning”, China has issued a series of policy measures. In particular, in 2010, the State Council issued the “Several Opinions on Current Development of Preschool Education.” Despite the increase of up to 17,000 preschool schools nationwide, preschool education coverage only reached 33% of the children; about one-third of school-age children still do not have access to preschool education. Access to preschool education in rural areas is even lower. The participation rate of preschool education in rural areas is generally lower than 50%, and that of key poverty-stricken areas is only 30%-40% (Pang, 2016).

However, while there is a shortage of preschool education, the demand for preschool education is rising. With the continuous reform of the primary school curriculum and the deepening of the difficulty, more and more rural parents have gradually realized the importance of participating in preschool education. Prior to this, some rural parents, due to economic pressure and lack of awareness, regarded preschool education as optional. This directly led to problems, such as low learning ability and inattention after starting primary education directly in rural areas. The gap in children's learning ability and learning interest has alerted rural parents. The increase in parents' emphasis on preschool education has led to an increase in preschool education needs.

The “two-child” policy officially implemented by China in 2016 is expected to significantly increase the number of children in China who need to participate in preschool education. The liberalization of the two-child policy means that the country will no longer uniformly limit the number of new children in each family. In 2019, the number of school-age children who need to participate in preschool education increased by 6 million, and it is expected that there will be an increase of about 11 million by 2020. By 2021, the number of school-age children receiving preschool education will increase by about 15 million, and there is expected to be a shortage of nearly 110,000 preschool education schools. With this expansion, rural China will need 3 million more preschool teachers and childcare workers to meet demand (Ministry of Education of The People’s Republic of China, 2016).

Why is the problem of teachers a significant problem in preschool education in China?

Due to the inadequacy of the preschool teachers' job security policies and their implementation, teachers' salaries, social security, professional titles, training, and other treatments have not been conclusively resolved for a long time, resulting in low income, inadequate protections, and high turnover (Lijuan &

Xiaoyu, 2010). It is challenging to attract outstanding talent to engage in preschool education in rural areas in China. In particular, preschool teachers are not protected by similar policies such as the professional guarantee system and title for professional posts, making it challenging for the number of preschool education practitioners to rise.

Preschool education teachers in rural areas are not only insufficient in quantity, but the quality of education is also significantly lower than in urban areas. To fill the education gap in some rural areas, social personnel who do not have professional qualifications for preschool teachers are hired for preschool education. According to the annual statistics of the Ministry of Education, in 2016, there were 3.81 million preschool education faculty members, of which only 2.5 million are principals and full-time teachers. Among these preschool teachers, the academic qualifications are mainly concentrated at the associate level, accounting for 56.37% of the total. 22.4% of teachers only have high school diplomas and below (Ministry of Education of The People's Republic of China, 2016). Due to the limited number of highly educated teachers, preschool education in cities has always been prioritized relative to rural areas. Excellent teachers' resources tend to develop in cities in order to seek better professional treatment and development prospects. Under such circumstances, the quality and quantity of preschool teachers in rural areas needs to be developed simultaneously.

Literature Review

My client, UNICEF CHINA, has been working with the Chinese government and the Chinese Ministry of Education to improve the lives of children in poverty-stricken areas. Specifically, they have been working to ensure the continuous improvement in the quantity and quality of rural teachers. There is a large body of literature and research aimed at trying to solve this problem. Below I focus on three main approaches: raising the teaching threshold, in-service training, and economic subsidies.

Raising teacher standards

Most studies have shown that well-educated preschool teachers provide better education for their students, resulting in a long-term positive impact (OECD, 2012; Gupta & Simonsen, 2016; Bauchmüller, Gørtz & Rasmussen, 2016). Therefore, setting a higher threshold for qualifications for teachers in preschool education has become one of the ways to improve the quality of education.

In 2015, an educational reform required preschool education to increase the number of teachers with university degrees. In this situation, some European countries have systematically upgraded its professional development system and early childhood education standards, and its academic level and professionalism have also improved. In addition to the rise in the overall level of education in Europe, the government has played a crucial role in the threshold adjustment of the standards of employment (Jensen & Iannone, 2015). Europe is not the only region that raises the standards of preschool education practitioners. With the support of the government, Singapore requires practitioners to meet the relevant academic, linguistic, and professional requirements for Early Childhood Development Agency (ECDA) certification (Neuman, 2019).

However, some critics have also expressed concern about the high qualifications of preschool education practitioners. The increase in the requirements for

qualifications is likely to lead to an increase in the minimum wage (Resa, Wieduwilt, Penderi, Anders, Petrogiannis, & Melhuish, 2016). Welfare subsidies for wages refer to additional allowances paid by the government to teachers with higher education in addition to the basic salary. For rural education, funding has always been limited. If teachers are paid more, what other expenses will be cut? The standard is not only established in the academic qualifications but also reflected in the internship experience. Silvernail and Costello conducted evaluation assessments of pupil control perspectives, anxiety levels, and teaching concerns. The comparison of early assessments and ongoing assessments found that more internships benefitted students' teaching experience (Silvernail & Costello, 1983). The University of Southern Maine College of Education compared students with one year of teaching experience to students with 15 weeks of the internship experience, finding that a longer internship period helped reduce teacher post-service anxiety and improved teaching quality. However, this study focuses more on whether teachers develop post-service anxiety and the main criteria for measuring post-service anxiety. Because the psychological qualities of the two control groups may be different, there may be a bias in the issue of whether the internship can help reduce teacher anxiety.

Another study adopted the similar method. In Singapore, for example, to obtain a new diploma from the State Polytechnic, students must complete two internships for at least 22-weeks per year (Neuman, 2019). Practitioners can combine practice and theory through sufficient internships. Real admission to schools not only allows preparatory practitioners to carry out reflective practice but also significantly reduces their professional anxiety, enhances their teaching level. Nevertheless, the question worth considering is whether a small amount of internship experience is enough to improve the quality of teaching. It is difficult to quantify what kind of internship can definitely be used to improve the quality of

teaching. Another issue to consider is the balance between theoretical courses and practical content. Although increasing the internship time has particular benefits for the professional development of teachers, contemplating the opportunity cost problem, whether to consider the internship duration as an exact threshold remains to be deliberated. For future policy changes, it is important to think about the link between internship experience and knowledge learning and try to make the internship period and study time not conflict, reducing potential opportunity costs from internships.

In-service training

In addition to ensuring that more highly qualified practitioners enter the industry, post-employment training of existing faculty and staff is also a well-practiced approach to improve their professional skills. In Singapore, the Continuing Professional Development (CPD) Master Plan provides in-service training for ECDA-certified practitioners. It pays 80%-100% of the course fee. Practitioners who complete the course have the opportunity to receive bonus incentives and higher possibilities for advancement. The government supports practitioners to get more on-the-job training opportunities. Since 2015, the enrollment rate of the Science and Technology Academy Early Childhood (STAEC) has doubled (Neuman, 2019). Rockoff's experiment concluded that the changes in student achievement before and after the training concluded that after-service training greatly improved the teaching ability of current teachers (Rockoff, 2003). Other studies have found different outcomes, from 2011 to 2013, Danish scholars conducted a randomized controlled trial comparing the educational effects of preschool teachers who received post-employment training and those who did not receive post-employment training to prove whether post-employment training can improve early childhood education. The primary measure of educational outcomes is Sustainable Development Goals (SDG), a test that

measures children's socio-emotional outcomes. However, the experimental results show that the differences between the two groups are not noticeable, and the post-employment training for teachers does not significantly increase the educational effect. (Jensen, B., Jensen, P. & Rasmussen, 2017)

We cannot deny that training has dissimilar effects on different teaching needs since participating in preschool education, elementary education, and junior middle school education has different requirements for teachers' education level. The teacher groups in the above experiment usually do not distinguish the teaching objects/fields, so it is not clear what the effect of post-service training on preschool education teachers is.

Economic subsidies

Many regions have begun to use economic incentives to encourage rural teachers to stay and improve teaching quality. For example, researchers experimented with rural Uganda, and teachers were awarded different levels of reward based on the performance of their students. This experiment was intended to study whether the bonus incentive system is beneficial to the quality of teaching. After implementing the Pay for Percentile (PFP) incentive system, student attendance increased from 0.56 to 0.60, demonstrating that the quality of teachers had improved to better engage students in learning (Gilligan, Karachiwalla, Kasirye, Lucas & Neal, 2018). There is also research that shows that high economic incentives can encourage new teachers to accept less-than-ideal work situations (Steele, Murnane & Willett, 2010).

However, two questions about the economic incentive mechanism have not yet been determined. First, is a small-scale economic incentive sufficient? Because rural areas in China have different economic levels from other regions, it is unclear exactly how much money can motivate preschool teachers in rural China. Second, are financial incentives applicable to education areas? Considering that

reward mechanisms are often linked to teaching effectiveness, it is difficult to measure the performance of individual teachers; furthermore, it is tough to attribute the educational results to one teacher because of teamwork (Mizala & Romaguera, 2004). Third, could this incentive mechanism promote teaching quality? There are two concerns about this. On the one hand, this personalized incentive mechanism may encourage individualistic behavior and is not conducive to teamwork. On the other hand, the merit pay method may only motivate some teachers, which is not enough to improve the overall teaching quality. Competence-based incentives may be unfair, so I will focus on providing incentives based on teacher training participation.

Evaluative criteria

In view of the above extensive research on existing policies, each policy has advantages and disadvantages. It is challenging to decide which option is better without using fixed standards to measure different alternatives. When assessing potential alternatives that could improve the quantity and the quality of preschool teachers in rural areas in China, I will use the following criteria:

1. **Effectiveness**

   In order to improve students' outcomes, education environment should be effectively improved. Improving the preschool education environment in rural areas of China not only focuses on increasing the number of teachers but also on improving the quality of teachers' teaching. Therefore, in measuring the effectiveness of each option, a separate assessment of quality and quantity is required.

   - Quantity

   Quantitative effectiveness refers to whether a single alternative will increase the quantity of rural preschool teachers. Since only teachers in a classroom can have the effect of preschool education, the quantity only considers the number of teachers who are working in preschools. In other words, if an alternative significantly reduces the number of teachers in school, regardless of whether the number of in-service teachers changes, its quantitative effectiveness must be considered.

   In this part, I will pay more attention to the process implemented by each option. If the implementation of an alternative significantly reduces the time teachers spend in school, then the number of teachers who can teach is considered reduced. I will measure this by the impact of different alternatives on employee turnover and how long teachers stay in the

schools. If any option could result in a long absence from the teacher, the impact on quantitative effectiveness will be emphasized.

- Quality

Quality effectiveness refers to whether each option improves the teaching quality of teachers and how much can each option increase. The main assessment standards for quality are as follows:

(1) Teacher performance

When measuring the quality of teaching, teacher performance is the main objective. Therefore, when measuring each option, the main consideration is whether the option can improve the teacher's literacy, language skills and teaching style.

(2) Student achievement

The impact on student performance is one of the criterions to evaluate the quality of teaching. A better teacher will create better outcomes for students.

This measure focuses more on results. I will measure the effectiveness of quality by comparing the positive or negative changes that each option brings to the above indicators. I will compare with similar policies implemented in other regions to estimate the final effect.

2. Feasibility

In order for a policy to be successful, it has to be able to be politically and administratively feasible, meaning it can be easily implemented. Feasibility mainly measures two aspects, one is whether the government can approve the option, and the other is whether the option can be implemented quickly after it is passed. Similar policies implemented in other regions are important reference records in this part.

Measuring this criterion involves a comprehensive study of stakeholders and the difficulty of implementing existing policies and related policies in

rural areas of China. I will read the literature to estimate the length of each alternative implementation cycle.

It is worth noting that the particularities of preschool education must be considered. Therefore, I will also consider the acceptance of each policy by preschool teachers. I will also measure the level of teacher participation to determine whether each alternative is feasible to improve outcomes.

3. **Cost**

The cost criterion will evaluate the implementation cost and subsequent maintenance cost of each option. The cost mainly includes the following three aspects:

- Teachers

  For teachers, the cost is more focused on time and opportunity cost. I will use the analysis of existing policies to measure the time taken by each alternative and the opportunity cost of the teachers' career development.

- School

  The cost of the school mainly refers to the money the school needs to spend to achieve each option. This may include potential costs paid to interns, training costs for current teachers, and loss of teachers' salaries paid for outside training.

- Government

  The main focus of government cost is the expenditure of the Ministry of Education. By comparing the spending required to implement the corresponding policies in other regions, I will determine the level of financial expenditure for each alternative. Among them, part of the cost of implementing education reform and training optimization will fall to the Ministry of Education.

Evaluating Alternatives

To improve the quantity and quality of teachers, I consider applying the following alternatives. In order to thoroughly analyze the characteristics of each alternative and find out the recommended options, I will use three criteria, namely effectiveness, feasibility, and cost, to measure different alternatives.

Option 1: Maintain the Status Quo

This option will not make any policy change or adjustment to related departments. The alternative will continue existing policies and concepts in the field of preschool education in rural areas in China.

With the continuous reform of the primary school curriculum and the deepening of the difficulty, more and more rural parents have gradually realized the importance of participating in preschool education. Prior to this, some rural parents, due to economic pressure and lack of awareness, regarded preschool education as an optional part. This directly led to problems, such as low learning ability and inattention after starting primary education directly in rural areas. The gap in children's learning ability and learning interest has alerted rural parents, so the demand for preschool school in rural families has been rising. Besides, China's new two-child policy will create a vast market space for preschool education.

As I discussed earlier, market demand for preschool education is expected to continue expanding. Under the premise that the market demand for preschool education is continuously expanding, the need for preschool education teachers is also expected to increase significantly. Under the conditions of the commodity economy, the number of pre-school education teachers currently available is less than the total number of pre-school education teachers who fully meet the enrollment needs during this period. Then the pre-school education teachers are in a relatively dominant position. Affected by the market supply relationship, the wages and

benefits of preschool teachers are expected to continue to grow. This will lead to an improvement in the quantity and quality of rural preschool teachers.

Effectiveness

The status quo option has a relatively low effect on improving the quantity and quality of teachers. First of all, based on maintaining existing policies, rural areas will still not become the primary area for solving preschool education problems. Regarding the quantity, although the development of the two-child system has increased the demand for preschool education, preschool education in urban areas is likely to be prioritized due to restrictions on the direction of population migration and residents' income levels. Therefore, the gap between rural preschool education and urban preschool education might be further widened. Regarding the quality, the increasing demand for preschool education will further increase the difference in the quality of teachers in rural and urban areas. Since the current number of teachers is not enough to meet the needs of the country, the city's preschool education will be given priority, not only because the city has better resources for teaching facilities but also because the city can provide a higher professional treatment. Some teachers with relatively low teaching quality are more likely to choose rural areas.

As I mentioned before, the two-child policy will bring a substantial increase in the number of children waiting for school. The increase in children will also increase the class size, and the student-teacher ratio will continue to increase, which is not conducive to the improvement of teaching quality. Overall, the effectiveness of the status quo option is low.

Feasibility

The status quo option is administratively feasible. The policies that have been implemented, such as raising rural teachers' salary levels and planning the increase in preschool education schools, have been proven through years of research and practice. Therefore, it is more feasible for the government to maintain the status quo and administer the same policies. This policy has no more requirements for working rural teachers, so it has little impact on teachers. So, maintaining the number and quality of existing teachers is an acceptable option for them.

The status quo option is also politically feasible. As there is no need to implement new policies, the government will easily pass this plan. It is a worthwhile option for the government to rely on the power of the market and employment needs for self-regulation.

The feasibility of this alternative is high because it satisfies both political feasibility and administrative feasibility.

Cost

The evaluation of cost mainly includes three stakeholders. For rural teachers, maintaining the status quo means that they do not need to invest extra energy and time to improve their teaching quality by participating in training and other methods. Therefore, this option does not create additional opportunity costs for teachers.

From the perspective of the school, the school does not need to pay additional wage subsidies. Although the average salary of preschool education teachers in rural areas is lower than that of teachers in urban

areas, their teaching quality and education level are also significantly lower than those of urban teachers. Therefore, it can be said that the labor income of rural preschool teachers is in line with their current educational level.

Similarly, this is not generating any more costs than are already allocated in the budget of the MOE of PRC. The increase in teacher salaries that may be caused by the relationship between supply and demand is minimal. It is consistent with the teachers' deserved to pay.

Therefore, the cost of this alternative is low.

Option 2: Improve the compulsory in-service training for preschool teachers

The primary purpose of this option is to strengthen the training programs for preschool teachers. Unlike elementary and middle school education, the mainstream group of Chinese preschool education practitioners has a two-year college associate's degree. Therefore, in-service education would be beneficial. The lack of ample training content is a permanent phenomenon in preschool teachers training. Training content can be more targeted to link what teachers really need to what they are actually being taught. Therefore, the MOE must strengthen the research on the development of teachers' abilities and master the rules of their professional development in depth. To this end, the local education bureau can break through the limitations of traditional research methods and use big data to more accurately obtain the individual needs of the teachers, evaluate and track the development trends of their abilities, grasp the different models needed for their development, and design targeted training content. For example, the local government can analyze the regional teaching characteristics by establishing teachers 'professional files to summarize teachers' teaching years, gender and other data. Furthermore, schools will use data analysis and

classroom observation to obtain and evaluate teachers' ability to improve. Teachers need to improve their teaching level through compulsory training based on their deficiencies every semester.

UNICEF will work with the Chinese government and the MOE of PRC to solve this problem. The MOE will improve in-service training efficiency through classified training courses. For example, limited by the class size, student-teacher ratio is relatively high. It is tough for teachers to pay enough attention to a single child, so traditional teaching methods may not attract children's attention. For these teachers, the government can provide training on children's awareness. The in-service training of rural preschool teachers will be subdivided into different modules, such as professional concepts and professional ethics, Chinese traditional culture, curriculum design, learning activities, and children's observation, development, and education evaluation. After the training content is subdivided, the Ministry of Education will provide teachers with workshops with different emphasis.

Effectiveness

Providing targeted training for rural preschool teachers can effectively improve the quality of teaching. In Finland, there has been a precedent for tailoring the training content of teachers based on their education and experience. This customized training can be understood as an alternative to broad training programs (Melhuish, Ereky-Stevens, Petrogiannis, Ariescu, Penderi, Rentzou & Leseman, 2015). Providing customized training can make up for teachers' shortcomings and significantly improve the quality of teaching. One study found that the performance of the students had improved after the compulsory in-service training was performed by comparing the performance of the Jerusalem elementary

schools before and after the teacher received in-service training (Angrist & Lavy, 2001). This result verified the effect of mandatory training on improving the quality of teaching. Mandatory training based on individual deficiencies can provide periodic rectification for teachers' teaching. Therefore, this option is effective for improving the quality of teachers. However, mandatory customized training will not increase the number of rural teachers, and may even reduce the potential employment opportunities for preschool teachers in rural areas. First of all, combined with the previous analysis, training rural in-service teachers will significantly improve the quality of teaching. However, preschool teachers who have received high-level instruction are more inclined to go to the city to find new employment opportunities. Therefore, improving the teaching quality of teachers through free compulsory training may lead to further loss of rural teachers.

Since it is impossible for compulsory training to consider the time of a single teacher, the training time may conflict with the class time or preparation time of some teachers. Teachers who go to training cannot attend classes. Compulsory training will also reduce the teacher's working time, which is effective teaching time.

This option only increases the quality of teachers but there is no obvious improvement for increasing the number of teachers. Considering the impact of this option on quantity and quality, this alternative's effectiveness is moderate.

Feasibility

This option is politically feasible but has a high degree of difficulty. First of all, the assessment and testing of the teaching quality of primary

school teachers has already existed. Therefore, the field of pre-primary education can refer to the experience of China ’s primary schools when implementing this policy. The Education Bureau has a clear basis and expertise in issuing similar policies at the political level. However, analytic teaching and mandatory training have never been implemented. The Education Bureau needs to weigh the impact of this policy on teachers and the corresponding financial expenditure.

Although this option is likely to be implemented at the political level, its practicality is extremely low. First of all, the basis for customized training is through the collection of working teachers 'information. Collecting teachers' professional files requires a lot of manpower, resources, and time. In terms of policy implementation, there are concerns such as incomplete information collection and long implementation time. Second, although the use of big data for analysis is necessary, it is challenging to apply at the implementation level. On the one hand, the local education bureau does not have sufficient capacity to complete this complex customization process. On the other hand, even if the education bureau has the ability to use big data reasonably, it is prone to omissions in the process of relaying information from the education bureau to the rural school, and then to the specific implementation of the local school to the rural teachers.

Overall, this option is moderately feasible.

Cost

The cost is reflected at two levels: the cost for teachers and the cost for schools and governments. For teachers, attending compulsory training will take up a lot of their preparation time and leisure time. A large number of studies have shown that teacher preparation time has a positive

impact on students' academic performance (Monk, 1994; Darling-Hammond, Macdonald, Snyder, Whitford, Ruscoe & Fickel, 2000). Compulsory unified training, while trying to improve the overall teaching quality, also ignores the teachers' familiarity with the teaching content. Although teachers may spend part of their time on other things rather than preparing for teaching even if they do not participate in mandatory training, it is necessary to consider the opportunity cost of participating in training. Teachers could use the training time to familiarize themselves with the curriculum and improve the quality of teaching. Therefore, the opportunity cost of training is exceptionally high for teachers.

For schools and governments, their cost is mainly reflected in the use of human resources and financial expenditures for training. Information collection and classroom assessment for rural preschool teachers means a lot of human resources costs and time costs. Schools need to form dedicated teams to collect and analyze information. Compulsory training also requires significant financial expenditure. Taking the United States as an example, the cost of conducting in-service training for teachers in public schools is about US $ 12,000 per day, about RMB 84,524 (The Hidden Cost of Free: What Districts Should Know About the Cost of Teacher Training, 2019). This cost mainly includes the cost of renting a venue and hiring a trainer. If the calculation is based on opening one in-service trainings per week, the annual expenditure of a rural preschool education organization on training will be as high as RMB 4,057,152.

In 2018, China's national total investment in preschool education was 367.2 billion yuan, an increase of 12.79% over the previous year demand (Zhong, 2019). According to the Action Plan for Revitalizing Teacher Education (2018-2022), teacher training funds should be included in the financial budget, and preschool education schools should arrange teacher

training funds at 5% of the total annual budget (the Action Plan for Revitalizing Teacher Education (2018-2022), 2018). Therefore, the expenses that can be used to pay for preschool education and training are about 18.36 billion yuan. Among them, the education budget allocated to rural schools will be significantly lower than that of urban schools. Combining the above data and analysis, the cost of conducting on-the-job training in rural areas is too high.

Option 3: Provide subsidies for participating in voluntary in-service training teachers

A study based on the latest data of all middle school economics students in Georgia proves that teachers participating in in-service training can actually improve student achievement (Swinton, De Berry, Scafidi & Woodard, 2010). Unlike the previous policy, the in-service training in this policy is voluntary. There is more flexibility both in terms of training content and training time. Preschool teachers could choose various workshops according to their needs and schedules, personalizing their courses. In order to do this, the government will include in-service training of preschool teachers into the individual budget of rural education, clearly define the proportion of training funds for preschool education, and secure funding sources from the government and NGOs. The Ministry of Education can increase teacher training allowances in rural areas, and schools can use this additional funding to organize more training courses for teachers. Some part of this education funding will come from the financial budgets of the central and local financial departments, and the other parts will derive from donations from other non-governmental organizations, such as the China Education Foundation and the China Development Research Foundation.

Unlike the existing policy of directly granting subsidies to motivate rural preschool teachers, participants in training should sign a training agreement with the school, and only get the allowance if they complete the training tasks. The distribution of subsidies based on training participation will improve fairness among teachers. Replacing direct subsidies with rewards after training can not only encourage more rural teachers to participate in training but also increase the overall income of teachers to a certain extent.

In this option, teachers will not be forced to participate in training. Some teachers will voluntarily participate in workshop because of the financial incentives.

Effectiveness

A study based on the latest data of all middle school economics students in Georgia proves that teachers participating in in-service training can actually improve student achievement (Swinton, De Berry, Scafidi & Woodard, 2010). Based on this study, we can conclude that flexible training programs could have an effect on teaching quality. However, this alternative method can help but not greatly improve the teaching quality of teachers. Because training is not a mandatory requirement, some preschool teachers may not be motivated by subsidies or promotion opportunities to choose to receive training. Therefore, only those teachers who are trained are likely to improve their own teaching quality rather than the overall teaching quality. It is worth noting that there may be selection bias here - the teachers who choose to participate in the training may be the better teachers in the group, or the teacher who chooses to participate in the training do so because they are inefficient anyways and the training

may not help. On the other hand, teachers choose different workshops according to their individual needs. It is unclear whether there would be enough courses in relevant topics to meet the needs of all teachers. Teachers may choose courses that they think are interesting rather than courses they need to take to improve their instruction, and their judgments on their shortcomings may not be accurate. Compared with mandatory training, voluntary in-service training has lower effectiveness.

The use of subsidy incentives to encourage teachers to choose their own training courses does not increase the overall number of teachers. Due to the voluntary nature of the training, the existing number of serving teachers cannot be guaranteed. Teachers who want to participate in the training can choose their own courses at the appropriate time according to their curriculum arrangements, so it will not affect the current teaching progress and the number of teachers in the schools. Compared with the previous alternative, this option will not negatively affect the number of teachers in the school but will not increase the number of teachers in schools either. This option only meets some of the evaluative criteria that I mentioned. This is moderately effective because it only slightly improves the quality of teaching but has no effect on the number of teachers.

Feasibility

This option is politically feasible. The MOE of PRC has already used subsidies to motivate the employment situation of rural preschool teachers in China. Therefore, there is no essential political difference between the method of subsidy distribution based on training participation and the large-scale and unlimited distribution method. Therefore, it is feasible to grant allowances. In countries such as Spain, Portugal and Iceland, in-

service training for teachers is voluntary. In fact, attending training courses is closely related to the additional salary (Saiti & Saitis, 2006). The extensive implementation of voluntary participation in in-service training in these countries has proved the political feasibility of this policy to some extent.

Although the implementation of similar policies in the above countries has proved to be feasible at the political level, there is no direct evidence that it is easy to implement administratively. Training participation needs to be monitored, and teacher participation can be tracked through teacher sign-in and training notes. At the same time, granting allowances based on training participation is operational. As the compulsory nature of training is abolished, the flexibility in terms of training content and practice will be improved, so the policy will be less challenging to implement. However, letting teachers voluntarily choose training content also faces the problem of inconsistency in training content. Teachers may not want the same training, so schools need to provide different training. There are huge difficulties in implementing different trainings according to the different needs of teachers under the premise of insufficient education funds.

In general, the feasibility of this policy is moderate because although it is politically feasible, it cannot fully meet the administratively feasible standards.

Cost

Teachers can decide their participation in training according to their own needs. Therefore, workshops do not conflict with their preparation and breaks. There is a time cost to participating in these trainings, but the voluntary nature of the training decreases the opportunity cost for the

teachers...However, teachers still need to consider the potential occupational hazards of giving up training, such as the consequences of insufficient appreciation space and lack of allowances.

For the MOE and rural school, there is no need to provide large-scale training, only small-scale training according to the needs of teachers. So, the expenditure on training costs will be reduced accordingly. Considering the voluntary participation of the project under the voluntary principle compared with mandatory training, the number of participants is relatively small. Schools can consider reducing the frequency of training to twice a month. If the training course is set at a standard of US $ 12,000 per day, or around RMB 84,524, the cost of voluntary training will be approximately RMB 2,028,576 per year. At the same time, preschools only need to pay allowances to the teachers participating in the training and not to all teachers. Therefore, the financial cost caused by the distribution of subsidies based on training participants will be lower than that of the universal distribution method.

For these reasons, the cost of this option is moderate.

Option 4: Establish an undergraduate internship program

In order to improve preschool education in the future, this option would target university students studying preschool education. The focus of this option is to pay attention to the academic situation of potential preschool education teachers and reform the graduation internship that is a necessary condition for graduation.

The MOE will establish an undergraduate internship program to allow students who major in preschool education to conduct internships in the rural areas, temporarily replacing the positions of incumbent employees, and providing in-service teachers in rural areas with opportunities to receive training. Students will be assigned to cooperative preschools, the

central place for Chinese children to receive preschool education, in rural areas for a minimum of three months of internship in the last semester of their senior year. During the internship, students will formally participate in curriculum planning and classroom teaching. While practicing what they have learned, students will also receive feedback from senior teachers in the school. Through these internships, students will gain knowledge of practical courses.

Graduation internships will be linked to pre-employment training to provide students with the necessary work experience while examining student learning outcomes. Allowing students to participate in preschool education in rural areas will motivate them to realize the shortage of teachers or support in this area, and then stimulate their enthusiasm for working there. Because rural areas lack resources and have a higher student to teacher ratio compared with urban areas, students will have the opportunity to try to solve troublesome problems and improve their organizational skills, laying the foundation for future teaching.

This option, while improving the quality of rural preschool education through training, relies on the college student internship system to ensure the stability of the number of rural preschool teachers. College students' internships not only ensure the teaching quality to a certain extent but also fundamentally improve the teaching quality of future employment.

Effectiveness

Sending students to rural areas for internships might significantly improve the quality of teaching.

First, the internship program can be considered a systematic training before potential teachers can join the school. While enriching their practical experience, students can also learn

more practical teaching skills with serving teachers, thereby improving the quality of future teaching. A study using Romanian Business and Administration University Education as an example shows that internship experience can meet the expectations of students and make students become candidates with a higher potential when they are employed (Marinaș, Igreț & Marinaș, 2018). The School of Education at Southern Maine University compared students with one year of teaching experience with students with 15 weeks of internship experience and found that longer internships help improve the quality of teaching (Silvernail & Costello, 1983). This also validates the positive impact of the internship on teaching quality. Second, although there is no direct evidence to show whether interns can improve the quality of rural teaching in the short term, we can make predictions based on the educational level of interns and working teachers. As mentioned earlier, most rural preschool teachers only have an associate degree. The students participating in the internship are usually systematically and comprehensively educated, so their theoretical knowledge may be more abundant than some rural teachers. Therefore, in terms of attracting children's attention and productive conversation, it might immediately and effectively improve the quality of local teaching.

This option is also effective in increasing the number of teachers. First, the increased number of interns will continuously become part of the preschool education teacher force in rural areas, increasing the number of serving teachers. In fact, there are indeed precedents for the government to use interns to increase the number of employees in the schools. The Pakistani government called on provincial units to increase and improve the internship program to obtain interns and use them to fill suitable vacancies (Anjum, 2020). Secondly, internships can allow students to access rural preschool education. Full participation is conducive to fostering their

relationship with rural students, which in turn attracts some potential teachers to seek employment because they want to help develop preschool education in rural areas.

In general, this method can effectively improve the number and quality of rural preschool teachers in the short-term and the quality and quantity of potential teachers in the future. Therefore, the effectiveness of implementing this alternative is high.

Feasibility

Organizing students for internships in rural areas is feasible in terms of policy implementation. First, there are precedents for these types of internships. At present, an internship is a necessary condition for graduates of Chinese preschool education majors. But in terms of school choice, schools in urban areas are usually preferred. The government only needs to encourage students to choose internships into rural areas. Combined with the current situation in China, this policy change is not large and conforms to the trend of China's preschool education reform. Secondly, the demand for preschool education in rural areas is much higher than that in urban areas. Focusing on supporting preschool education in rural areas is also a general trend at the political level. A large number of studies have shown that other countries, such as the United States, have successively adopted the preschool teacher internship program because this option has certain feasibility (Akerson, Buzzelli & Donnelly, 2010; McCormick & Brennan, 2001). Therefore, it can be inferred that this policy has high political effectiveness.

However, organizing students to carry out internships in rural areas has some difficulties in practical implementation. Accommodation,

transportation, and other issues are urgently needed to solve. Students living in rural areas make up only a portion of the students who participate in internships. Therefore, requiring all students to go to rural areas for internships means that students must live in these specific areas. For local schools, it is complicated to solve the housing problems of these students. Similarly, it is difficult to persuade students to go to rural areas for internship. Compared to rural areas, students are more inclined to stay in the cities for internships, not only for a better teaching environment but also for career development. However, if the internship program is voluntary, and at the same time the MOE can use enough subsides to motivate students, the practical difficulty of this policy will be greatly reduced.

Because this alternative has high feasibility at the political level and has many precedents from other countries, the difficulties at the implementation level can also be resolved, so the overall feasibility of this policy is high.

Cost

The main cost of this project is concentrated in the MOE's uniform subsidies for students going to rural internships and the cost of the intern salary provided by local rural schools to attract interns.

For the MOE, the government needs to provide students with a certain amount of internship subsidies, and the specific standards should be based on local wage levels. Because the salary of interns varies greatly depending on the economic level, it is challenging to determine the exact amount of allowance. However, the relative cost can be obtained by comparison with the allowance given to working teachers in the previous

policy because the financial budget for granting allowances to working teachers is different from that of interns. Therefore, it can be inferred that the amount of the allowance paid by the MOE to inspire students is lower than the allowance paid to working teachers.

At the same time, rural preschools need to share the cost of food and transportation during interns' work through a proper intern salary. According to the data of the International Bureau of Statistics, in 2015, the average salary of interns was RMB 95 to RMB 135 per day, for about 20 working days per month, which is equivalent to RMB 1,900 to RMB 2,700 per month. In 2015, the national average salary was RMB 62,029 per year (Statistics, 2015). Compared with the payment of wages to rural teachers, the cost of paying interns is lower. Considering the limited number of interns, each rural school only needs to control the basic salary of two to three interns. Based on the three-month internship period, the annual salary for interns in rural schools would be between RMB 9600 to RMB 16,200. Compared with setting up teacher in-service training, the cost of this policy is lower.

While this project also includes the cost of allowances and wages, the cost is low compared to the other alternatives.

Outcome Matrix

	Effectiveness	Feasibility	Cost
Option 1: Maintain the Status Quo	**Low**	**High**	**Low**
Option 2: Improve the compulsory in-service training for preschool teachers	**Moderate**	**Moderate**	**High**
Option 3: Provide subsidies for participating in voluntary in-service training teachers	**Moderate**	**Moderate**	**Moderate**
Option 4: Establish an undergraduate internship program	High	High	Low

Recommendation

Although Option 1 has absolute advantages in terms of both feasibility and cost, its effectiveness is low and will not significantly improve the quantity and quality of teachers. Therefore, Option 1 cannot be recommended.

The cost of Option 2 is significantly higher than any other option and is likely to exceed the budget available for the implementation of in-service training. This option is mediocre in terms of effectiveness and feasibility and does not have distinct advantages. Therefore, Option 2 cannot be recommended.

Option 3 is rated as "moderate" in all aspects according to the criteria evaluation. This option does not have any advantages over other options and is therefore not considered.

Option 4 has an absolute advantage in terms of effectiveness. This alternative takes into account both quantity and quality improvements and is the best performing of all options. In terms of feasibility and cost comparison, option 4 and

option 1 are similarly ranked. Still, considering that Option 1 performs insufficiently in terms of effectiveness, Option 4 is better than option 1. Combined with the analysis of the outcome matrix, option 4 is the alternative I recommend to implement.

Implement

At the request of the China Education Bureau, my client, UNICEF, is trying to solve the problem of the quality and quantity of teachers in rural preschool education. Therefore, my client will provide a detailed project plan to the Ministry of Education of the People's Republic of China. I recommend that UNICEF aids in the implementation of a college student internship program to improve the quantity and quality of rural preschool teachers.

Stakeholders involved in the implementation of this recommendation include the MOE of PRC, local universities, students, rural schools, and rural preschool teachers. I will analyze the stakeholders' views on this policy separately:

1. The MOE of PRC

   I expect the MOE of PRC may take a positive attitude towards this policy. Firstly, the MOE fully recognizes the necessity of college students' internships and has initially formulated the requirements for the length of college students' internships. On this basis, this policy recommends that the MOE change some students' internship locations to rural areas. It is further clarified on the basis of existing policies, so it is more politically feasible in terms of implementation. Secondly, compared with the significant increase in teachers' salaries or the improvement of the in-service training program, this measure requires less financial allocation. Therefore, the MOE expects a positive attitude towards the economic viability of this policy. However, there might be a negative attitude towards changing the system. There are certain difficulties in changing the documents or legislation. To further strengthen the MOE's enthusiasm for policy implementation, UNICEF, as an outside group, will track the follow-up implementation of the internship program, taking care of the burden of analysis and implementation, and making it easier for MOE to implement this option. It should be noted that the follow-up report

will take several years. UNICEF can analyze the follow-up output of this policy, such as classroom performance before and after interns' participation, the proportion of interns staying in rural areas, and feedback from local teachers to interns.

2. Universities

   Universities are likely to remain neutral on this policy. Although the required percentage of interns in rural areas, as issued by the MOE, may place a burden on universities to arrange internships, the MOE will allocate sufficient funds to support the smooth implementation of internships. In terms of student mobilization, MOE's unified internship allowance will be adequate to motivate students, and universities do not need to take additional measures. On the other hand, internship experiences in rural areas may also have a positive impact on the reputation of universities. Universities can take action to show concern for preschool education in rural areas. In this regard, while UNICEF will help analyze overall data from all universities, they will focus on advanced universities, which deliver a higher percentage of students, in subsequent reports, to enhance their reputation. UNICEF will do this through interviews with professors, students, and interns at the specific universities to better understand the new policies.

3. Students

   For students, the benefits of this program may outweigh the costs. Firstly, although rural internships mean poor conditions for transportation and accommodation, the internship allowances issued by the MOE and the different internship environments will be designed to make internships attractive to students. Secondly, due to the small number of interns assigned to rural areas, rural schools will fully value interns and provide more opportunities for communication and learning with working

teachers. Students will also have opportunities to interact with preschool education experts from UNICEF which will further increase student benefits. UNICEF preschool educators will regularly visit rural schools for instruction, which will ultimately help students in their internships and university studies.

4. Rural schools and rural preschool teachers

   Rural schools are likely to support this policy. The arrival of interns will not only be alleviated local training pressure but also injected more specialized forces into education. In the long run, this policy may also attract more full-time teachers to rural schools. Current preschool teachers might also support this policy. This policy can not only share their teaching pressure but also improve their teaching quality through communication. UNICEF can also offer expert support to rural schools and teachers through follow-up report.

The Ministry of Education (MOE) of the People's Republic of China (PRC) should implement the policy after internal discussions with reference to UNICEF's comments. MOE of PRC, as China's state-level educational institution, has the authority to require courses, test scores, and internship experience for the standards to graduate college. Therefore, the primary enabler of this policy is the MOE of PRC. Under the guidance of the MOE of PRC, the university needs to reach a cooperative relationship with the neighboring rural preschools. The MOE can require local colleges to send a certain number of interns to rural preschools each year. First, the MOE must strengthen the management of internships for college students, and clearly specify that all normal college students must have internships longer than three months to meet graduation requirements. This can be specified by adding to the document, "Opinions on Strengthening and Standardizing the Management of Internships in Undergraduate Universities", which is the official policy of the MOE. At present, although the MOE requires

college students to carry out internships, poor management has led to some students not participating in internships. When following up on the student's internship, the school only requires the signature of the internship unit and does not verify it with the internship unit. Therefore, the MOE needs to require students' valid participation through clear legislation in the document and use the law to encourage schools to strengthen the review of the authenticity of internships.

Second, under the premise of ensuring that students fully participate in internships, the MOE of PRC will explicitly require local colleges to recommend at least 20% of the total number of students to participate in their internships in rural areas each year. Those poor students who receive national scholarships will be given priority to participate in internship programs in rural areas. To encourage students to participate in rural internships, the MOE of PRC will issue a national standard internship allowance in the form of income subsidies to motivate students to participate in rural internships actively. This is a change that will be implemented nationally.

Third, the MOE of PRC will issue the above requirements to the local education bureau in the form of an official document. Under the unified standard, the local education bureau will guarantee the actual implementation of the policy.

Fourth, the local education bureau will call on local universities to send students to rural areas every year to meet specific targets. The MOE of PRC will require the local education bureau to summarize the information and internship status of interns in detail and report them at the provincial level in the form of reports.

Fifth, when students are assigned to rural preschools, UNICEF will represent the MOE, follow up reports, and analyze and promote the implementation process. To ensure the smooth implementation of the policy, UNICEF will also send education experts to the grassroots level for guidance.

POSSIBLE PROBLEMS TO IMPLEMENTATION

There are also some concerns in measures to establish a student internship system. First, choosing which students can become 20% of interns who go to the countryside may face fairness issues. Rural internships are voluntary, and we can assume that the internship grant issued by the Ministry of Education of the People ’s Republic of China is sufficient to encourage students to go to rural internships. Due to funding constraints, if the number of students who want to go to the rural internship exceeds 20%, then the school must decide which students are eligible to participate. There may be unfair phenomena in the selection process. Secondly, rural interns may face transportation and accommodation issues. Since interns would be moving from the urban areas to the rural areas, local schools must have the ability to provide or support the search for teacher dormitories. Third, interns usually spend about three months with their students and often leave after they become familiar with the children. For local children, the departure of intern teachers may have a negative impact on the psychological and teaching effects. Although this problem is common in the internship process of teachers, it is especially severe in rural areas. I mentioned earlier that rural areas are facing a labor drain, so many rural children are left behind. Because of the lack of emotional sustenance among rural children, the dependence of rural preschool children on teachers may be higher than average.

References

Akerson, V. L., Buzzelli, C. A., & Donnelly, L. A. (2010). On the nature of teaching nature of science: Preservice early childhood teachers' instruction in preschool and elementary settings. Journal of Research in Science Teaching: The Official Journal of the National Association for Research in Science Teaching, 47(2), 213-233.

Angrist, J. D., & Lavy, V. (2001). Does teacher training affect pupil learning? Evidence from matched comparisons in Jerusalem public schools. Journal of labor economics, 19(2), 343-369.

Anjum, S. (2020). Impact of internship programs on professional and personal development of business students: a case study from Pakistan. Future Business Journal, 6(1), 1-13.

Bauchmüller, R., Gørtz, M., & Rasmussen, A. W. (2014). Long-run benefits from universal high-quality preschooling. Early Childhood Research Quarterly, 29(4), 457-470.

Bing, W. K. (2008). Education and inequality in the developing world. In Inequality in Education (pp. 86-127). Springer, Dordrecht.

Darling-Hammond, L., Macdonald, M. B., Snyder, J., Whitford, B. L., Ruscoe, G., & Fickel, L. (2000). Studies of Excellence in Teacher Education: Preparation at the Graduate Level. AACTE Publications, 1307 New York Avenue, NW, Suite 300, Washington, DC 20005-4701 (nonmembers: $25.95; AACTE members: $20.95).

Fu, C., & Zeng, W. (2019). How do rural youth teachers stay in the post-return analysis based on survey data from 35 counties in 18 provinces across the country. Teacher Education Research, (3), 8.

Gilligan, D. O., Karachiwalla, N., Kasirye, I., Lucas, A. M., & Neal, D. (2018). Educator incentives and educational triage in rural primary schools (No. w24911). National Bureau of Economic Research.

Gupta, N. D., & Simonsen, M. (2016). Academic performance and type of early childhood care. Economics of Education Review, 53, 217-229.

Galor, O., & Zeira, J. (1993). Income distribution and macroeconomics. The review of economic studies, 60(1), 35-52.

Hu, B. Y., Zhou, Y., Chen, L., Fan, X., & Winsler, A. (2017). Preschool expenditures and Chinese children's academic performance: The mediating effect of teacher-child interaction quality. Early Childhood Research Quarterly, 41, 37-49.

Jensen, B., & Iannone, R. L. (2015). CARE-curriculum quality analysis and impact review of European ECEC: D3. 1: Comparative review of professional development approaches.

Jensen, B., Jensen, P., & Rasmussen, A. W. (2017). Does professional development of preschool teachers improve children's socio-emotional outcomes?. Labour Economics, 45, 26-39.

Jiang, J., & Tian, M. (2019). The Impact of Rural Teacher Living Subsidy Policy on Teachers' Free Willingness——Based on Empirical Research in Three Counties in Poorly Poverty Areas. Educational Science Research, (4), 7.

Kidwai, H., & Chen, D. (2016). China: Early Childhood Development. SABER Country Report, 2016. World Bank.

Lijuan, P., & Xiaoyu, H. (2010). China's Preschool Education Legislation. Thinking and Process. Journal of Beijing Normal University (Social Science Edition).

Marinaș, C. V., Igreț, R. Ș., & Marinaș, L. E. (2018). Predictors of Quality Internship Programs—The Case of Romanian Business and Administration University Education. Sustainability, 10(12), 4741.

McCormick, K. M., & Brennan, S. (2001). Mentoring the new professional in interdisciplinary early childhood education: The Kentucky Teacher

Internship Program. Topics in Early Childhood Special Education, 21(3), 131-149.

Melhuish, E., Ereky-Stevens, K., Petrogiannis, K., Ariescu, A., Penderi, E., Rentzou, K., ... & Leseman, P. (2015). A review of research on the effects of Early Childhood Education and Care (ECEC) upon child development.

Mizala, A., & Romaguera, P. (2004). School and teacher performance incentives: The Latin American experience. International Journal of Educational Development, 24(6), 739-754.

Monk, D. H. (1994). Subject area preparation of secondary mathematics and science teachers and student achievement. Economics of education review, 13(2), 125-145.

National Research Council. (2015). Transforming the workforce for children birth through age 8: A unifying foundation. National Academies Press.

NBS (National Bureau of Statistics of China). 2017. Poverty Monitoring of Rural China. Beijing: China Statistics Press. (国家统计局。中国农村减贫监测报告. 中国统计出版社。北京)

Neuman, M. (2019). Developing Career Pathways for Early Childhood Care and Education Workers. Singapore: Singapore Country Brief.

OECD. (2012). Starting Strong III: A Quality Toolbox for ECEC.

OECD. (2016). EDUCATION IN CHINA A Snapshot. Paris, France: OECD.

Pang, L., Han, X. (2016). Reforming of Teachers Resources for Compulsory Education in China Rural Areas: problems and solutions. Doctoral dissertation.

Ran, M. S., Xiang, M. Z., Simpson, P., & Chan, C. L. W. (2005). Family-Based Mental Health Care in Rural China: Sexual Economies and Other Philippine Consequences for the New World Order (Vol. 1). Hong Kong University Press.

Resa, E., Ereky-Stevens, K., Wieduwilt, N., Penderi, E., Anders, Y., Petrogiannis, K., & Melhuish, E. C. (2016). Curriculum Quality Analysis and Impact Review of European Early Childhood Education and Care (ECEC).

Rockoff, J. E. (2004). The impact of individual teachers on student achievement: Evidence from panel data. American economic review, 94(2), 247-252.

Saiti, A., & Saitis, C. (2006). In-service training for teachers who work in full-day schools. Evidence from Greece. European Journal of Teacher Education, 29(4), 455-470.

Silvernail, D. L., & Costello, M. H. (1983). The impact of student teaching and internship programs on preservice teachers' pupil control perspectives, anxiety levels, and teaching concerns. Journal of Teacher Education, 34(4), 32-36.

Steele, J. L., Murnane, R. J., & Willett, J. B. (2010). Do financial incentives help low-performing schools attract and keep academically talented teachers? Evidence from California. Journal of Policy Analysis and Management, 29(3), 451-478.

Swinton, J. R., De Berry, T., Scafidi, B., & Woodard, H. C. (2010). Does in-service professional learning for high school economics teachers improve student achievement?. Education Economics, 18(4), 395-405.

Statistics, N. B. O. (2015). China statistical yearbook 2015.

Tang, Z., Liu, W., Yin, H., Wang, P., Dong, J., Wang, Y., & Chen, J. (2007). Investigation of intelligence quotient and psychomotor development in schoolchildren in areas with different degrees of iodine deficiency. Asia Pacific journal of clinical nutrition, 16(4).

The Hidden Cost of Free: What Districts Should Know About the Cost of Teacher Training. (2019, February 1). Retrieved from Kognito: https://kognito.com/blog/the-hidden-cost-of-teacher-training

Tsang, M. C. (1994). Costs of education in China: Issues of resource mobilization, equality, equity and efficiency. Education Economics, 2(3), 287-312.

Wu, K. B., Young, M. E., & Cai, J. (2012). Early child development in China: Breaking the cycle of poverty and improving future competitiveness. The World Bank.

Yuchi, Z., & Zhujun, J. (2019). Bridging the gap: ICT and oer for equitable and quality rural education in china. In MINISTERIAL FORUM (p. 175).

Zhong, J. (2019, April 30). Ministry of Education's National Express Statistics Report on Education in 2018. Retrieved from Minstry of Education of the People's Republic of China: http://www.moe.gov.cn/jyb_xwfb/gzdt_gzdt/s5987/201904/t20190430_380155.html