

The Recruitment and Retention of Teachers in Rural Areas of Guizhou, China

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Abstract

This study aims to explore the challenges of recruiting and retaining teachers in rural schools of Guizhou, China. It is intended to offer research-based information to improve our understanding of the factors related to the severe problem of teacher shortage in these rural areas. During the survey, data were collected over a period of 17 months to answer the following three main questions: 1. Are there shortages of teachers in rural schools in Guizhou? 2. What are the factors that influence teachers' decision-making about whether or not to enter and remain in the teaching profession? 3. What strategies have been developed for teacher recruitment and retention? Both quantitative and qualitative research methods were used in the research. Besides, the researcher conducted a field study in 47 primary schools and carried out in-depth interviews with 41 teachers, 9 headteachers, and 4 government officials. In addition, a total of 200 primary school teachers participated in the questionnaire survey. According to the analysis, the teacher shortage problem in rural schools of Guizhou is highly complex. A majority of rural schools are still short of teachers. The current teacher recruitment and retention policies of rural schools are not effective enough and have not been fully implemented. Also, salary, working conditions, location, family and individual development are the main factors that influence teachers' decision-making about whether or not to start and continue to teach in rural areas of Guizhou. Improving working and living conditions as well as offering more training opportunities are important for the recruitment and retention of rural teachers in rural areas of Guizhou. Housing policies are the most attractive recruitment strategy for rural teachers of Guizhou. A job rotation system can help rural schools to ensure the quality of teaching and reduce the relatively high rate of teacher shortage. Furthermore, policy-makers can engage volunteers in resolving the problem of teacher shortage through collaborative efforts. In conclusion, it is significant for policy-makers to develop shared visions and make full use of every resource to resolve the teacher shortage problem. Long-term objectives should be set to ensure that the quality of education in rural schools can be improved step by step.

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Declaration

I declare that this thesis is a presentation of original work and I am the sole author. This work has not previously been presented for an award at this, or any other, University. All sources are acknowledged as References.

Introduction

Education is playing an increasingly significant role in the development of China, especially its economic prosperity. In China, education is widely considered as an effective tool to increase wealth and reduce or eliminate poverty. Education in rural areas of China has been a critical issue that affects the sustainability and development of the Chinese economy, society, and communities. Poor education in rural areas prevents these areas from attracting high-quality human resources that can help develop the local economy and improve people's living standard. As education, economy and society interact with each other, poor economic conditions and low-quality social infrastructures make rural areas unable to attract and employ excellent teachers. Consequently, rural schools in China have been providing poor education to students.

The introduction explains why the researcher considered this topic important enough to constitute the basis of the PhD thesis. Furthermore, it gives a brief overview of the study and describes the layout of the written thesis.

1. Reasons to Choose This Topic

In China, teacher shortage has been a challenge for rural education. Even though the government has stipulated a set of policies to help rural schools attract more talented teachers, it is still difficult for these rural schools to recruit qualified teachers who are willing to remain to teach in these rural schools. Governmental data show that there were 705,000 Daike teachers in primary and secondary schools nationwide in 2001 (Daike teachers mean teachers who are not on government payroll, but are locally funded and appointed without formal teacher certification), accounting for 6.6% of the total teaching staff; they mainly concentrate in rural areas. Data from Chinese

governmental website show that the number of teacher shortage in Guizhou was 164,000 in 2006, and there were still 22,300 Daike teachers at school (News, 2006). It shows that teacher recruitment and retention has been a critical issue in Chinese rural education.

Guizhou, a province located in Southwest China, is one of the poorest provinces in China. It has been difficult for rural schools in this area to attract and employ talented teachers due to the low level of salary, the unsatisfying living and working environments as well as the lack of opportunities for self-development and advancement. Even though policy-makers have made a number of policies to attract teachers, especially university graduates and experienced teachers, the relatively large population in Guizhou Province has made it difficult to resolve the complicated issues and education problems in this area. Every year, more and more teachers in the rural area of Guizhou choose to leave and seek for better jobs with a higher salary, more satisfactory security system, as well as better living and working environments (Xie, 2002).

Graduates who have enjoyed the better living at universities are not likely to work at rural schools. The desire for fame and money has motivated an increasing amount of teachers to find jobs in cities. Furthermore, these teachers have shown little interest in teaching in rural areas and often praised themselves for working in cities. Most teachers have more opportunities to improve themselves and achieve career success in cities (Post, 1990). This explains why teachers are not willing to teach in rural schools of Guizhou. Policy-makers should provide more satisfactory solutions to teachers, especially recent graduates to solve their problems. However, for most graduates, teaching in rural areas is usually the last thing they will take into consideration regarding job-hunting. Also, graduates who are well educated can help a lot in resolving the teacher shortage problem. However, the performance of graduates turns out to be not as great as that of their predecessors who do not have good educational background. In addition, graduates seldom perform well when they begin teaching in

rural areas. The quality of human resources (teachers) has been a critical factor that influences the quality of education. This challenge increases the difficulties for rural schools to attract talented teachers in the process of implementing related recruitment and retention policies.

Weakness in communication infrastructure has caused rural schools of Guizhou to lose teachers as teachers cannot keep in touch with their friends and families. The lack of access to the outside world makes their work and life boring in rural areas. Consequently, a number of teachers choose to leave after they have worked in rural schools for just a few months. In many rural schools of Guizhou, information technology facilities, such cameras and blackboards are not available (Wu, 2010). Due to the lack of information technology, graduates become isolated in these rural areas and teachers do not have the right tools to provide their students with fresh knowledge and news which can help students develop their outlooks on themselves and the world. Nowadays, information is the basis for social progress. Thus, rural education should also depend on information. Policy-makers usually rely on not only information from government research but also information about recruitment and retention practices to create effective policies to retain more qualified teachers. In a majority of rural areas, only around 1/10 of schools are equipped with the latest computing tools.

In addition, human resource management strategies can directly influence teachers' abilities to motivate the learning of their students. Whether teachers have opportunities to develop and improve their professional performance heavily influences the success of education in rural areas. Training and development programmes have been highlighted by policy-makers to improve the quality of teaching staff. Effective training programmes give teachers more opportunities to develop their abilities. The quality of teachers can have a significant influence on the quality of education in any place. Rural schools in Guizhou usually provide limited opportunities for teachers to develop themselves and achieve career success. Only

when teachers are active in contributing to rural education through their involvement, can they concentrate on their teaching practices in rural schools (Cheng, 1996). In this way, teachers' sense of responsibility and attitudes toward teaching in rural areas can improve, which will enhance the possibility of staying in a workplace for a longer period. If these factors can be managed effectively, teachers are more likely to be productive and competitive, and will be enthusiastic about rural education.

According to related literature, many factors may influence teacher quality and capacity in rural schools (Zhang et al., 2002). Teachers in rural schools can be more confident and brave if they know how to deal with these factors properly, which is also true for policy-makers. Policy-makers are responsible for providing directions on how recruitment and retention practices should be undertaken to achieve the expected outcomes. Furthermore, policy-makers, especially headteachers, should take on the responsibility to implement government policies and integrate related elements into real practice. Also, policy-makers who are major leaders to improve the living and working conditions for teachers should understand teachers' different needs and requirements to make them stay longer in rural schools. The capacity of policy makers to explore, understand and integrate teachers' needs into recruitment and retention practices is of great significance. It can help rural schools in Guizhou to provide more teaching resources and improve the overall quality of rural teaching staff. According to the reality in rural areas of Guizhou, a number of researchers have argued that it is a big challenge for rural schools in these areas to provide facilities to teachers to guarantee their safety (Zhang, 2002).

Policy-makers have made efforts to resolve the teacher shortage problem. They have developed and implemented policies as well as increased investments in local rural economies and societies. The lack of supervision has made the implementation of many of these policies ineffective. It is a complicated task for policy-makers to resolve the teacher shortage problem in rural areas due to its complex causes (Robinson & Yi, 2008). However, policy-makers in China seem to be very confident

in their strategies, and there are always positive data about improvements of the living and working environments in related government documents and reports. Actually, the government only focuses on the numeral data about the overall achievements of the policies without evaluating the specific outcomes in each school, which is an important reason why rural schools suffer differently regarding the problem of teacher shortage. Opposed to policy-makers in Western countries, policy-makers in China have focused too much on the overall improvement of education rather than improvement in every aspect. As a result, many rural schools, which are facing varied conditions, have been neglected. Generally, the improvements in rural schools have been exaggerated. Conversely, Western countries seem to be more sensitive to the progress made in every individual objective to improve the quality of education and resolve the teacher shortage problem step by step.

Various factors including complicated social and economic realities result in the problem of teacher shortage in rural schools of Guizhou. To resolve this severe problem, detailed analyses of these factors are important for policy-makers, which can provide a basis for policy-makers to develop more effective strategies. By determining the performance of different recruitment and retention strategies, this study can also provide a preference for rural schools in other provinces.

2. Why Me?

In China, very few scholars have carried out in-depth studies on the situation of rural school teachers in Guizhou. In fact, there are many deep-rooted reasons for the scarcity of research on this important issue. First of all, Guizhou consists of more than 90% of the mountainous land, covering an area of 1,100 meters above the sea level. Lots of rural regions in Guizhou have no road connected to the outside road, and the transportation facilities are underdeveloped. Secondly, Guizhou is one of the most demographically diverse provinces in China. To be more specific, 48 minority groups

take up over 37.9% of the population, and a majority of the minority groups have their language. 55.5% of the provincial area in total are autonomous regions for ethnic minorities and all the autonomous regions have their policies and regulations.

Compared with other scholars, the researcher has many advantages on the research on education issues in poverty-stricken areas of Guizhou. The researcher used to work as a volunteer teacher in remote minority areas of Guizhou from 2005 to 2011 before conducting a further study for the Ph.D. programme in the UK. Within the six years, the researcher lived in ethnic minority areas, and mastered the local dialect skilfully, which not only helped the researcher to develop a thorough understanding of ethnic culture and customs but also facilitated the interviews with local teachers. In addition, through six years of teaching experience in the poverty-stricken areas of Guizhou, the researcher has gained a good understanding of the present situation of education in these areas and found out the reasons why teachers frequently left and why the existing recruitment and retention policies had little effect on attracting and maintaining teachers.

In three years of learning in the UK, the researcher has read a lot of books and materials that are not available in China and explored all kinds of education subjects with scholars around the world. All these have greatly helped the researcher to achieve improvement from the theoretical aspect. In this thesis, for example, the researcher lists the teacher recruitment policies in poor areas of 26 countries, compares the recruitment policies with China's, and finally develops unique views that are different from other scholars in China.

3. Research Strategy and Focus

The study was designed to collect data over a 17-months period to answer the following questions.

1. Are there shortages of teachers in rural schools in Guizhou? What policies have been stipulated and implemented in Guizhou for rural teacher recruitment and retention? Did the policies work? What are the difficulties faced by rural schools of Guizhou when they are attempting to recruit and retain teachers?

2. What are the factors that influence teachers' decision-making about whether or not to enter and remain teaching in rural areas?

How can these factors influence teachers' decisions? What incentives have rural schools in Guizhou provided to recruit and retain highly qualified teachers?

3. What strategies have been developed for rural teacher recruitment and retention?

What are the strengths and weaknesses of these strategies? What education policies should be suggested to policy-makers?

This study aims to explore the challenges of recruiting and retaining teachers in rural schools of Guizhou, China. It seeks to offer research-based information to improve our understanding of the factors related to the problem of teacher shortage in these rural areas. Both of quantitative and qualitative research methods have been applied in the research. The researcher carried out a field study in 47 primary schools as well as conducted in-depth interviews with 41 teachers, 9 headteachers, and 4 government officials. In addition, a total of 200 primary school teachers (100 urban teachers and 100 rural teachers) participated in a questionnaire survey.

4. Chapter Layout

There are five chapters in this thesis. Chapter One gives an overview of the literature

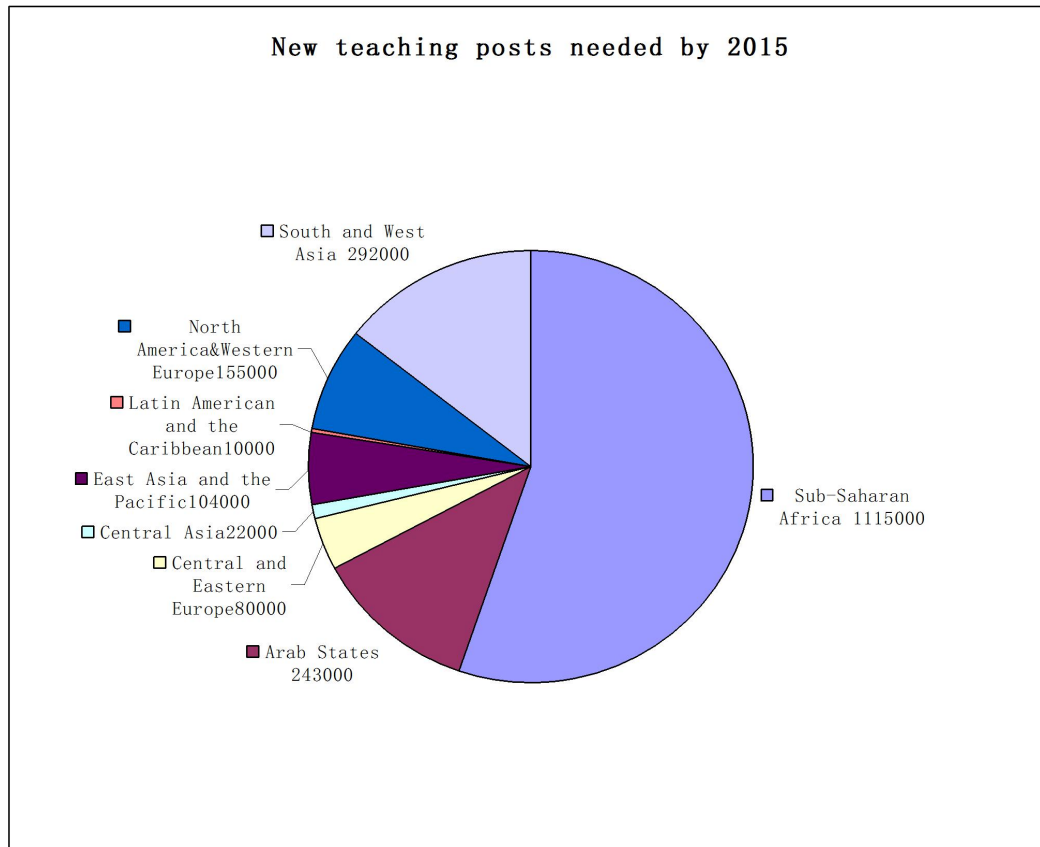
related to teachers' needs and various factors that determine whether teachers are willing to remain at rural schools. The literature about the recruitment and retention practices in rural schools from Western countries and China will also be reviewed in the first chapter. Chapter Two is about the research methods used in this study. Through the usage of qualitative and quantitative research methods, the researcher was able to collect both descriptive and numerical data on teacher recruitment and retention in rural areas of Guizhou. With charts, tables, and diagrams, the collected data are presented in a clear way. This section is of importance as it provides primary data to help the researcher find answers to the research questions. Chapter Three provides an analysis of the main problems in teacher recruitment and retention in rural education. Various factors that influence the teachers' decision-making process are also analysed. Based on the data collected with quantitative and qualitative research methods, the researcher analyses the factors that affect the implementation of recruitment and retention strategies in depth. New findings about factors that affect teachers' performance are studied as well. This chapter also discusses the roles of policy-makers and headteachers in resolving the teacher shortage problem as well as provide suggestions for the development of more effective recruitment and retention policies to improve the education quality in rural schools of Guizhou. Chapter Five is the conclusion, summarizing the contents, findings, significance and value of the study and pointing out its limitations.

Chapter One Literature Review

Teachers play a significant role in childhood education. A teacher's ability to motivate students to learn can affect each student's educational attainment, perhaps more than any other characteristic of schooling. There is a strong consensus among experts that teacher's quality is the most crucial determinant of education. Greenwald, Hedges, and Laine (1996) claimed that the quality of teaching in the classroom is the most important factor related to school to ensure student's achievement. Sanders and Rivers (1996) found that students who had excellent teachers for three consecutive years achieved 54% higher reading improvement than those who began at the same level yet with weaker teachers for the same period. Goldhaber and Brewer (2000) estimated that at least 7.5% of student's achievement resulted directly from teacher's quality, and the actual number could be as high as 20%. Bruce Fuller (1987) found that, in developing nations, teachers' knowledge of the subject matter as well as the scores and qualifications of their verbal and mathematical proficiency tend to relate to higher student's achievement. The role played by teachers is important to student's education. In fact, teachers to some extent can be considered as nation-builders, which can explain why policy-makers in different countries are attaching so much importance to teacher's quality about the issues of teacher recruitment, professional development, and retention.

However, teacher shortage, especially in rural areas, has become a common problem for a majority of countries all over the world. The UN calculated that 8 million extra teachers were needed worldwide in 2015. The following chart shows the new teaching posts by 2015:

Figure 1 New Teaching Posts Needed by 2015



Source: theguardian.com development data

Figure 1 shows a significant teacher shortage all over the world. It shows that in 2015, there was a severe problem of teacher shortage in sub-Saharan Africa with around 1115000 teaching posts needed; there were around 292000 teaching posts in the district of South and West Asia; even the North America and Western Europe which have been widely considered as developed regions were also suffering from the teacher shortage problem. Thus, the teacher shortage problem is a global issue which needs to be solved urgently.

Although many countries have tried various methods to solve the problem of teacher shortage, it seems that this will still continue in the following years. The following table shows the change of teacher number between 2009 and 2015 in 32 nations around the world.

Table 1 Teacher Shortage in 32 Nations

Country	Teaching staff in 2009 (000s)	Teaching staff in 2015 (000s)	Absolute change in stock (000s)	Average annual change	Total recruitment including attrition (000s)
Iran	278	315	37	0.02105	124.9
Ireland	31.5	35.1	3.6	0.01795	13.5
Egypt	382.5	418.6	36.1	0.01515	155.3
Sweden	61.4	67.2	5.8	0.01508	24.9
Thailand	348	379.2	31.2	0.01442	139.4
Spain	212.6	231.7	19.1	0.01441	85.2
United States	1,772.40	1,888.70	116.4	0.01065	662.4
Saudi Arabia	284.8	302.6	17.9	0.01021	105.5
United Arab Emirates	19.5	20.5	1	0.00859	7
South Africa	232.2	242.3	10.1	0.00715	81
Italy	273.1	284.3	11.2	0.00673	94.5
Uzbekistan	116.6	118.2	1.6	0.00226	36.8
Greece	62.1	62.8	0.7	0.0019	19.4
Hungary	37.1	37.5	0.4	0.00176	11.6
Finland	25.7	25.8	0	0.00022	7.8
Syrian Arab Republic	132.1	131.3	-0.8	-0.00098	38.8
Romania	54.1	53.7	-0.4	-0.00115	15.8
United Kingdom	244.4	238.7	-5.7	-0.0039	66.9

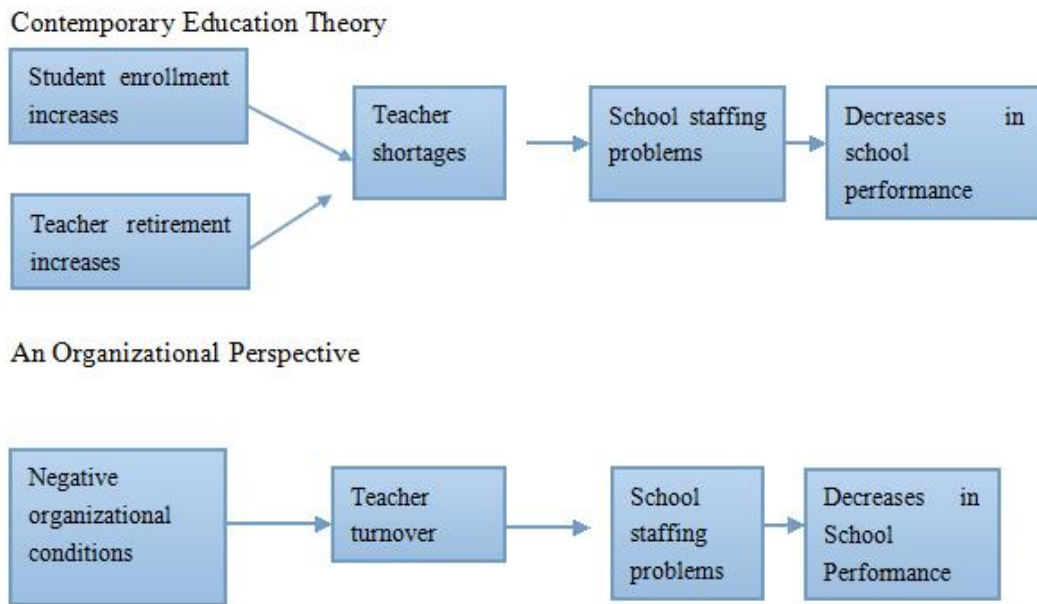
Philippines	390.4	381	-9.5	-0.00409	106.5
Poland	238.7	223.9	-14.9	-0.01066	54.9
Japan	396.4	361.9	-34.5	-0.01506	80
Chile	67.2	61.1	-6.1	-0.01572	13.3
Argentina	288.8	254.4	-34.4	-0.02093	47.8
Germany	242.3	212.1	-30.2	-0.02193	38.6
Indonesia	1,800.00	1,533.00	-267	-0.02641	238.6
Colombia	180.8	153.9	-26.9	-0.02646	23.9
Cuba	92	77.2	-14.8	-0.02886	10.9
China	6,018.80	5,024.40	-994.4	-0.02965	682.6
Mexico	528.6	436.5	-92.1	-0.0314	54.5
Republic of Korea	155.6	124.4	-31.1	-0.03653	11.5

Source: theguardian.com development data

Table 1 indicates that the quantity of teachers in some countries like Iran, Egypt, Thailand, United States and South Africa showed an increasing trend from 2009 to 2015; among these countries, the United States had the maximum growth in the number of teachers with an increase of around 116400 teachers. On the other hand, in some other countries, like Japan, Germany, Indonesia, China and Mexico, the number of teachers was increasing in those six years. It is worth mentioning that the number of teachers decreased drastically for 994400 in quantity. Furthermore, China has the largest number of teacher's recruitment, which is a question needed to be studied.

Ingersoll (2001) found two perspectives about the causes and consequences of school staffing problems. His points of view are shown in the following figure:

Figure 2 Ingersoll's Perspectives on School Staffing



From Ingersoll's perspectives, the Contemporary Education Theory relates teacher shortage problem to the evolution of time under social background, which is an objective reason. It explains that with the passage of time, student's enrolment and teacher's retirement have increased. The second theory relates the problem to negative organisational conditions, which result in teacher's turnover and shortage problem. This is a subjective issue.

To conclude, teacher shortage problem is mainly a contradiction between teacher's recruitment and retention. Generally, this thesis conducts an extensive and detailed literature review on the issues about teacher's recruitment and retention, particularly in rural areas.

1.1 The Theory of Educational Resources Management

Educational resources mainly refer to the elements that constitute education activities, including four points: (1) teaching staff (headteachers and teachers); (2) material goods needed in teaching and management of activities (school buildings, fields and books); (3) new knowledge, technology, information and teaching environment in

teaching activities; (4) financial and non-financial education funds. In the current period, the gaps between different areas, industries, cities and countryside resulted by unbalanced economic development are the main reasons that hinder the balanced development of education. As widely known, the educational input of one place is the key index to measure its economic development level while education budget on each student is the key point to evaluate the level of educational input. In China, the education budget on each student between different regions is still very unequal. According to the “Education Statistical Yearbook in China” in 2000, the average education budget on elementary school students in Shanghai is the highest (3106 Yuan), while the budget in Guizhou is the lowest (363 Yuan). The gap between cities and countryside is huge; even in the economic developing areas of Guizhou, the average budget for elementary school students in cities is 375 Yuan, while the budget in the countryside is only 208 Yuan. These factors result in a shortage of material goods, experiment equipment and teachers. The priority for all is to solve the problem of teacher resource shortage.

Contents of Teacher Shortage

(1) Ages and Knowledge

It is difficult for quality-oriented education to make progress, especially in rural schools. This problem directly relates to the aging of teachers. Most primary and middle schools are facing a severe problem of the aging of teachers, which results in the aging of degree and knowledge structure. Thus, the psychological problem occurs, which means that most old teachers who are treasures of education with abundant experience and professional spirit do not want to participate in continuing education and lack enterprising spirit and competitive awareness under the influences of family burden and social atmosphere. Among them, those above the age of 50 hope to retire as early as possible, whereas those between the age of 40 and 50 do not want to accomplish much in education and just want to stay in a stable post. All these manifest the rigid education thought and developing teaching means, which can be very worrying.

(2)Subject Structure

There is an unbalanced relationship between subject structure and faculty in rural schools, which is another reason for the problem of teacher shortage. For example, the resources of Chinese and mathematical teachers are usually sufficient while the resources of music, art, PE, English and science teachers are often in shortage. Some schools even have not set up English course. Also, music, art, and PE courses are set up as minor subjects with only one or two classes within one week; even worse, they are sometimes taught by Chinese or maths teachers. This will lead to an unbalanced development between courses. Students with unbalanced learning may encounter some restrictions in their future growth.

(3)Faculty

Instability of faculty accelerates the reduction of teacher resources. The fact is that inconvenient transportation, inaccessible information, underdeveloped accommodation and low social status prevent teachers from teaching in rural schools. Teachers who have taught there may just want to stay for one or two years. As there are a small number of teachers in rural areas, overloading work is very common. For example, one teacher usually has to bear lots of courses and work for long hours a day. Some teachers have to shoulder the whole curriculum teaching of the class due to a small quantity, which indicates severe unbalance between responsibility and profits. Due to the shortage of teachers, some schools even hire substitute teachers who graduate from college or professional schools without any formal teaching certificate. As consequences, the teaching quality may reduce and students' future development may be hindered. The teacher-student ratio is another index to measure the teacher shortage problem. According to the Chinese Education Law, the teacher-student ratio should be 1:19 in cities, 1:21 in the countryside and 1:23 in rural areas.

1.2 Relevant Theories of Turnover

The theories about turnover reasons help us explain why teachers are leaving their field in rural areas. A way to describe turnover is “how long an individual tends to stay.” High turnover rate implies that employees feel unsatisfied with their compensation or work. It can also indicate unhealthy or unsafe conditions or a lack of career opportunities. The theories about the reasons for teacher’s turnover can be divided into two main parts: the theories based on individual factors and those based on environmental factors.

1.2.1 The Theories Based on Individual Factors

(1) Equity Theory

The equity theory was first proposed by John Stacey Adams in 1963. He declared that employees seek to maintain the balance between inputs and outcomes and are opposed to the perceived inputs and outcomes of others (Adams, 1965). This can be illustrated by the following equations:

$$\frac{\text{Individual's outcomes}}{\text{Individual's inputs}} = \frac{\text{Relational partner's outcomes}}{\text{Relational partner's inputs}}$$

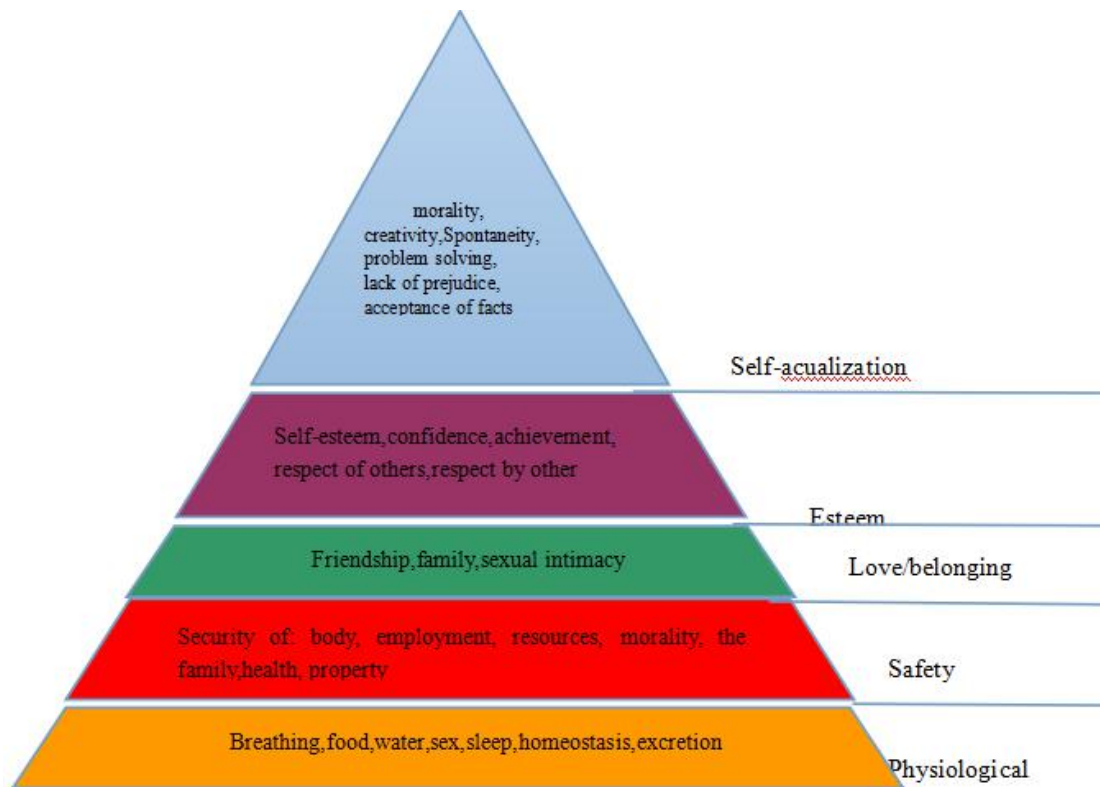
Teachers want their work performance and contributions to be adequately rewarded through payment. If he or she feels underpaid, he or she will have hostile feeling towards school, which may lead to the low performance of teachers or even resignation. Equity theory is useful to predict teacher’s absence and turnover rates.

(2) Individual Need Theory

Created by David McClelland, the need theory attempts to explain the needs for affiliation, achievement, and power. The need theory is related to Maslow’s hierarchy of needs, Alderfer’s existence, relatedness and growth (ERG) theory, as well as Deci and Ryan’s self-determination theory (SDT). The below figure is an interpretation of

Maslow's hierarchy of needs:

Figure 3 Maslow's Hierarchy of Needs



Source: Wikipedia, Maslow's hierarchy of needs

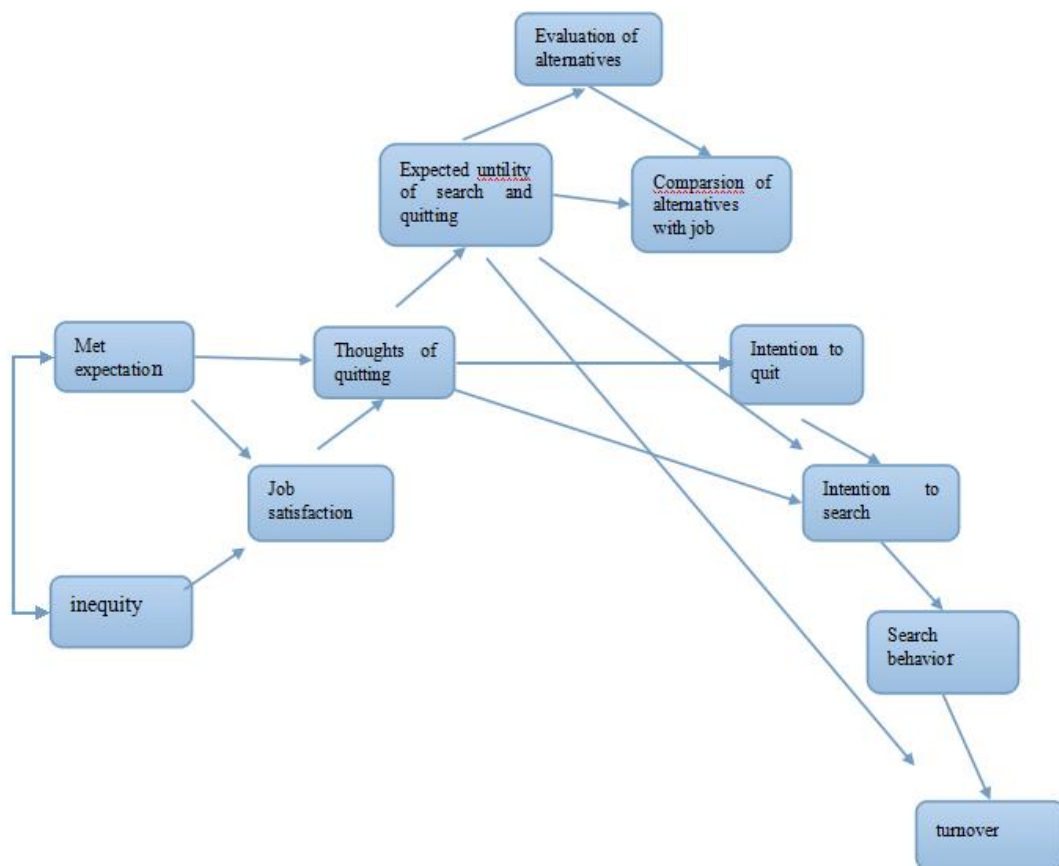
Maslow's hierarchy of needs explains why teachers do not like to leave their friends and family to work in remote areas where there is a lack of safety and inconvenience in working and living.

Alderfer (1972) identified three main groups of core needs: (1) existence, (2) relatedness, and (3) growth. The first need is similar to Maslow's physiological needs and safety needs. The second need is concerned with an individual's desire to maintain an important interpersonal relationship. The third need satisfies an individual's desire for personal development. It is also very useful to explain teacher's high turnover rate.

In Ryan and Deci's SDT, three needs provide the basis for integration and self-motivation: (1) competence, (2) relatedness, and (3) autonomy. According to the theory, an individual's feelings of competence will boost intrinsic motivation when he or she is accompanied by a sense of autonomy (Ryan & Deci, 2000).

Over the years, a large number of researchers have been exploring the various aspects of turnover. According to Mobely (1977), people become dissatisfied with their current jobs, have thoughts of resignation, search for alternatives, compare other options with their current job utilizing an expected-value-like decision process, and choose to leave if these alternatives are better than their current one.

Figure 4 Mobely's Turnover Model

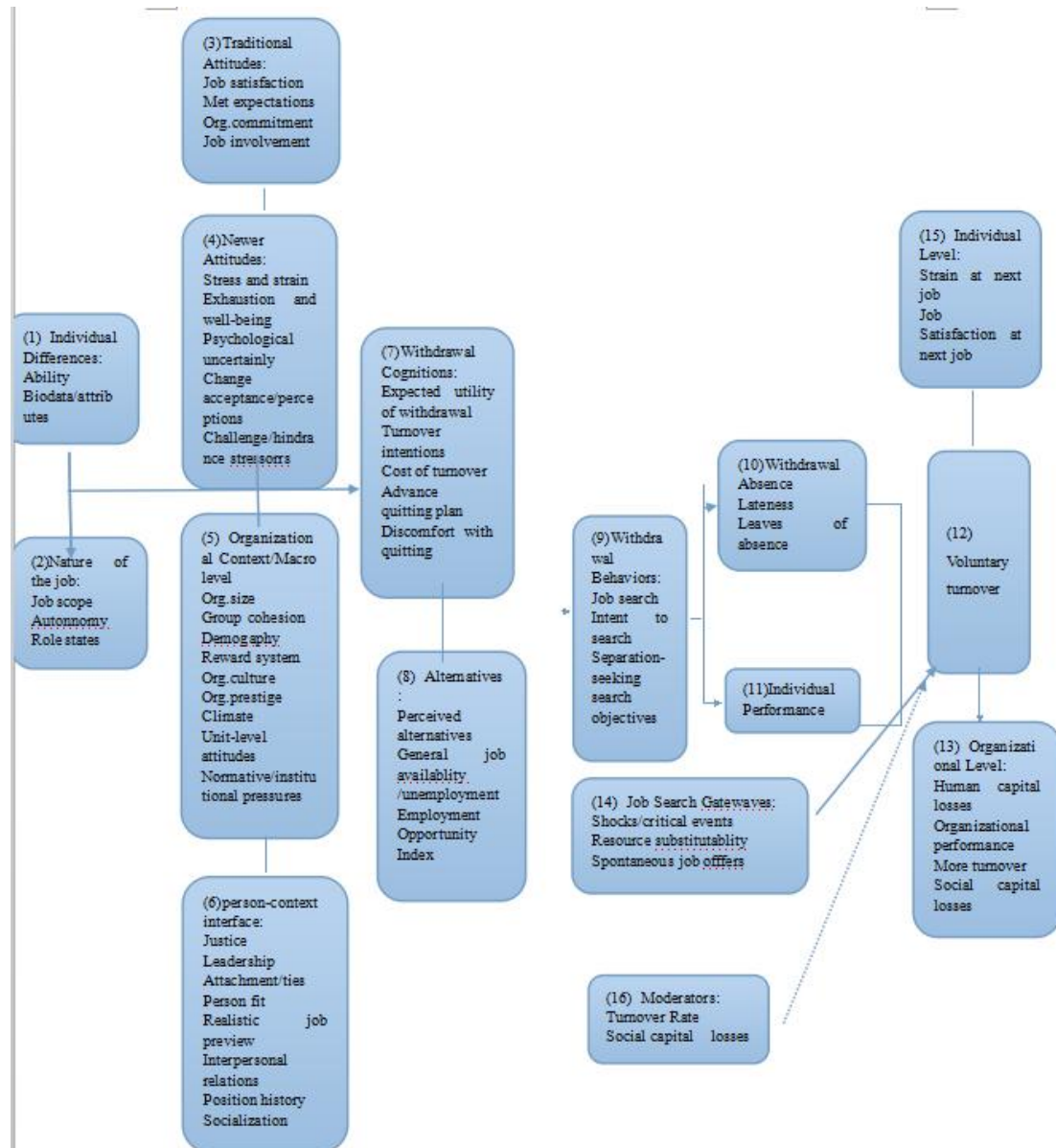


Source: Hom, Griffeth, and Sellaro (1984)

In the past three decades, the researches on turnover rate have experienced considerable theoretical expansion. Individual differences, stress, and change-related attitudes, research studies about unfolding models, organisation context, the

person-context interface, job embeddedness, the dynamic model of the turnover process, etc., have deepened and enriched the contents of the turnover theory. The following figure shows the present turnover model:

Figure 5 Present Turnover Model



Source: Brooks, C., Terence, R., Thomas, W., & Marion, B. (2008)

(3) Career Anchor Theory

Career anchor was first defined by MIT professor, Edgar Schein: “A career anchor is that one element in a person’s self-concept that he or she will not give up, even in the

face of difficult choices.” (Schein, 1990, p. 18) Career anchor is considered as a mixture of a person’s motives, values, and how he or she sees his or her personal competence.

Schein (1996) in his research of the mid-1970s identified 8 possible career anchor constructs:

- technical/functional competence
- general management competence
- autonomy/independence
- security/stability
- entrepreneurial creativity
- service/dedication to a cause
- pure challenge
- lifestyle

In particular, the 8 career anchors are illustrated in the following table:

Table 2 Schein’s Eight Career Anchors

Career anchor	Career Anchor Description
Management	--primarily concerned with managing others. Individuals with this anchor wish to be generalists rather than a specialist in a particular occupation or function.
Technical Post	--in contrast to management post. This anchor values expertise with functional skills.

Security/Stability	--a person with this career anchor usually makes a reliable employee. Under a predictable working environment, these people respond positively to organisation-defined career paths.
Autonomy/Independence	--the major feature here is having control over work activities and determining one's pace and schedules. Individuals with this anchor are less likely to have the ambition about rising to the top.
Creativity/Entrepreneurial role	--the anchor is to do with creating a product or service, or indeed an organisation. Individuals place a high value on autonomy and on being managerially competent in exercising their talents.
Pure challenge	-- Individual with this anchor likes conquering, overcoming and solving problems and winning. It is not about the work itself, but the process of succeeding that motivates them.
Lifestyle	-- The final anchor aims to integrate the needs of staff, family, and career. They seek flexibility and an organisation which understands their strong desire for balance. More people have been identified in this category.

Source: Schein (1990)

The career anchor theory helps us explain why some teachers with similar backgrounds, education, and professional training would make different career choices. For instance, some teachers prefer to stay in rural schools while some chose to leave.

1.2.2 The Theory Based on Environmental Factors

(1) Theory of Job Embeddedness

Job embeddedness was first put forward by Mitchell et al. (2001). Job embeddedness can be distinguished from turnover as it emphasises on the factors that make an individual remain at the same job. Mitchell et al. (2001) considered that job embeddedness consists of three key components: (1) links, (2) fit, and (3) sacrifice.

Fit

Mitchell et al. (2001) offered the following definition of fit:

“Fit is defined as an employee’s perceived compatibility or comforts with an organisation and with his or her environment. According to our theory, an employee’s personal values, career goals and plans for the future must ‘fit’ with the larger corporate culture and the demands of his or her immediate job (such as job knowledge, skills and abilities.)” (p. 9)

It means that the better fit a teacher has in his or her school or community, the more embedded he or she will be in his or her job. Regarding this theory, policy-makers should try to help teachers to adjust to their new environment through different policies.

Links

The second aspect of job embeddedness is links. Links are the connections that an individual has with an organisation, the surrounding community, and other people. The more links a teacher has with his or her school or surrounding community, the more embedded he or she will be in his or her job.

Sacrifice

The third component of job embeddedness is sacrifice. “Sacrifice captures the

perceived cost of material or psychological benefits that may be forfeited by leaving one's job.” (Mtitchel, 2001, p. 10) That is to say, the more a teacher gives up when leaving a job, the more difficult it is to sever employment with the school.

(2) Theory of Compensating Differentials

The theory of compensating differentials has enjoyed a long tradition in labour economics, dating back to the opus of Adam Smith. This theory is utilised to analyse the relationship between the wage rate and the unpleasantness, risks, or other undesirable attributes of a particular job. Jobs can differ along some dimensions. Some jobs offer health insurance benefits; some have long working hours or expose workers to physical risks; and some jobs are only available in polluted cities. The theory of compensating differentials is on the basis of the simple premise that there is no ‘free lunch,’ as described by Chambers (1981):

“The basic notion... is that individuals care both about the quality of their work environment as well as the pecuniary rewards associated with particular employment alternatives, and that they will seek to attain the greatest possible personal satisfaction by selecting a job with the appropriate combination of pecuniary and non-pecuniary rewards. Similarly, employers are not indifferent as to the characteristics of the individuals to whom they offer particular jobs. The result of these simultaneous choices is the matching of individual employees with employers which reveal implicitly the differential rates of pay associated with the attributes of individual employees and the working conditions offered by employers.”
(p. 332)

Rosen (1986) and Chambers (1981) introduce compensating differentials within the context of rural teacher's recruitment. They concentrate on the supply and demand.

A teacher is facing a choice between two jobs: one is working in a rural area while another is working in an urban area. In this case, ‘ruralness’ is a factor, R, for which

teachers must be compensated; R can have a value of either 1 or 0 and the latter one implies an urban job.

Teachers' preferences are represented by the following utility function which he or she seeks to maximise:

$$U = u(W, R)$$

If this equation is true, the wage (W_r) is high enough to compensate a teacher for working in the rural area. The positive difference between the rural and urban wages ($Z = W_r - W_u$) represents the teacher's personal valuation of 'ruralness.'

Figure 7

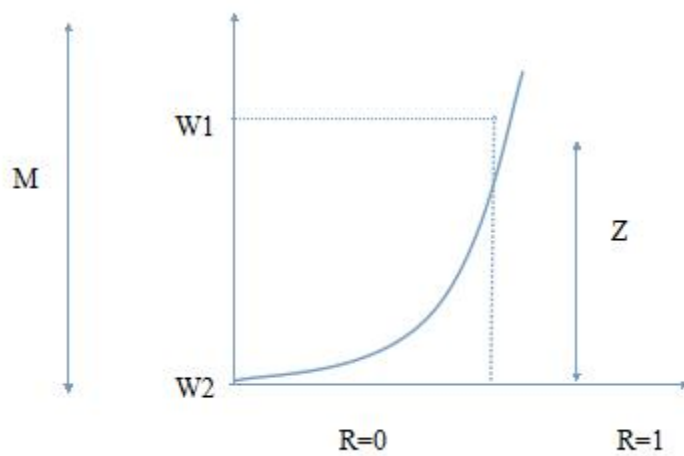


Figure 8

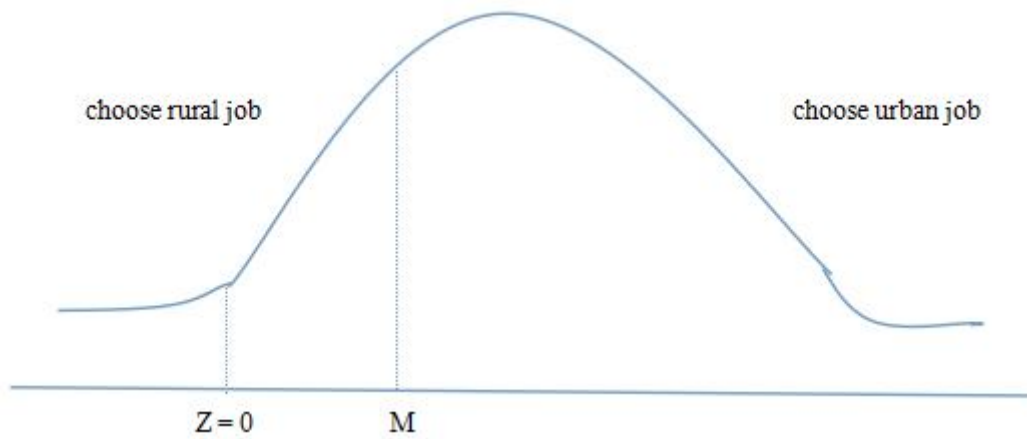
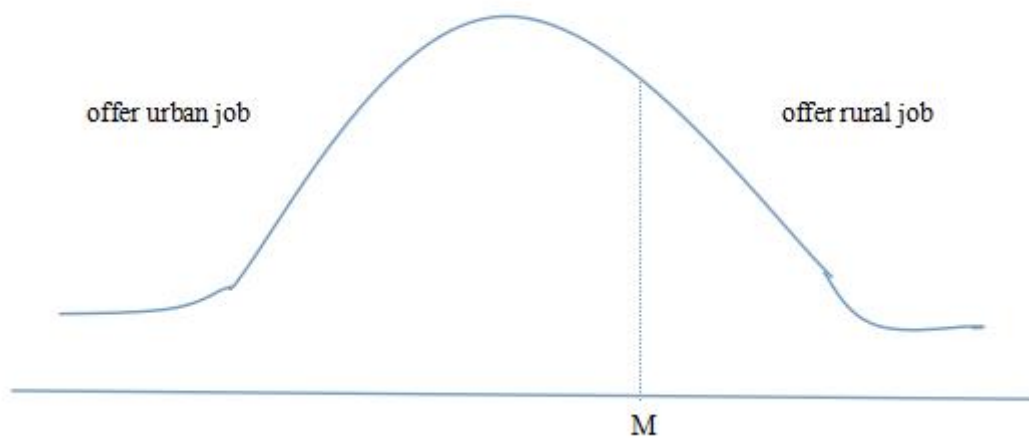


Figure 9



Note: Adapted from Rosen (1986)

W is wage; M is wage bonus

The rural salary (M) is located along the horizontal axis. Teachers that value Z over M will prefer urban jobs as M is insufficient to compensate him or her for working a rural job. Similarly, teachers who value M over Z are likely to choose rural jobs. An increase in M results in an increase in the supply of teachers who are willing to work in rural areas.

Rosen (1986) found that there is the equilibrium in teacher's labour market when there is equality between the demand and supply for teachers in each type of job. In the competitive labour market, the value of M adjusts to equalize the partitions of Figure 7 and Figure 8. In developing countries, if salary and other incentives are not sufficient, few teachers will supply their services to rural areas, or the teachers who apply for rural jobs will be less qualified.

The equations for teacher's wage are shown in the following form regarding the theory of compensating differentials.

Wage = f (teacher's characteristics, work's characteristics and locational characteristics).

The theory of compensating differentials can help analyse whether or not salary relates to teacher recruitment and how salary influences teacher recruitment. Analysing teacher's characteristics, job's characteristics, and locational characteristics can also help policy-makers in deciding the wage policies for teacher's recruitment and retention.

(3) The Achievement Motivation Theory

McClelland (1958, 1961) proposed the achievement motivation theory, addressing the urgent need for achievement, and dividing the higher level of needs into three main categories:

- a) Need for power. This can be further divided into needs for personal power and social power. Individuals with greater needs or desires for power are more likely to have control over and impacts on others.
- b) Need for achievement. This refers to an individual's desire to achieve his or her given goals to develop a sense of achievement by undertaking challenging work.
- c) Need for affiliation. This refers to the desire to develop favourable interpersonal relationship.

(4) The ERG Theory of Motivation

Alderfer (1969) proposed the existence-relatedness-growth (ERG) theory of motivation based on Maslow's hierarchy of needs. To be more specific, existence refers to physiological and security needs; relatedness means the needs for meaningful social and interpersonal relationships; and growth refers to the needs for self-actualisation and self-esteem. Unlike Maslow's hierarchy of needs, the ERG theory of motivation indicates that different needs can coexist at the same time and even skip levels.

1.3 Theory of Job Satisfaction

All the theories as mentioned above can be narrowed down to the satisfaction for the current situation. Thus, this part aims to discuss the issues of teachers' satisfaction based on relevant theories of individual and environmental factors.

Hoppock (1935) conducted an in-depth study on job satisfaction and wrote the book *Job Satisfaction* after measuring the job satisfaction of employees in various companies. Hoppock proposed the concept of job satisfaction and defined it as an individual's direct feeling towards his or her job related to a combination of physiological, psychological and environmental factors. In particular, he stated that job satisfaction could be greatly affected by specific factors, such as stress, work conditions, and leadership styles.

According to Schaffer (1953), an individual has 12 basic needs, including recognition, emotional needs, control, economic needs, and security so that an individual can achieve satisfaction at work. Furthermore, the study was based on the theory of need which states that an individual can only move forward to higher levels of needs after the lower level of needs is met.

Porter (1961) proposed five categories of needs for an individual's satisfaction,

including social needs, security needs, autonomy needs, self-actualisation and esteem needs. The study believes that these needs are based on material needs.

Weiss, Dawis, England, and Lofquist (1967) composed the Minnesota Satisfaction Questionnaire (MSQ) which consists of two subscales to measure intrinsic satisfaction, extrinsic satisfaction, and general satisfaction. To be more specific, MSQ involves varieties of dimensions to measure job satisfaction, including ability utilisation, activity, achievement, authority, advancement, company, compensation, co-workers, creativity, independence, moral values, recognition, responsibility, security, social service, social status, supervision (HR), variety and working conditions.

Friedlander and Margulies (1969) also proposed several dimensions that make up job satisfaction, including social and technical environmental factors, recognition factors and self-actualisation factors. Specifically, the present research holds the belief that the recognition of teachers stems from leaders, co-workers, parents and community/society.

Hackman and Oldham (1976) indicated that job satisfaction involves various factors, including work itself, the value of work, the level of autonomy and pay. The research believes that an individual's work value can be reflected through various aspects, for example, income, achievement, social status, and personal contributions; the **realisation** of work value is a long-term process that may require decades of work.

According to Agho, Mueller, and Price (1993), job satisfaction involves support from superiors (leaders), distributive justice and co-worker relationship, in addition to the conflict between work and family, as well as working time and organisational policy and regulations. For example, it is believed that the support from family can to some extent promote satisfaction at work.

1.3.1 Measurement

The measurement of job satisfaction involves the measurement of general satisfaction and the measurement of satisfaction towards different factors or dimensions of work. For instance, some dimensions of work include work, payment and welfare, leadership and management, promotion opportunity, and co-workers. Various tools have been developed by scholars to measure job satisfaction.

(1). Weiss, Dawis, England, and Lofquist (1967) developed the MSQ which includes short-term scale and long-term scale measurements of intrinsic, extrinsic, and general satisfaction based on 20 dimensions. To be more specific, the long form is applied to measuring an individual's general satisfaction and the satisfaction towards 20 dimensions of work which consists of 120 questions. The short form is based on around 20 major items which can be utilised to measure the satisfaction levels of individuals for each item. A 5-point Likert scale with a range of answers from "very satisfied" to "very dissatisfied" is applied in the measurement. Generally, the MSQ is favourable since it can provide a comprehensive and detailed measurement of the general satisfaction and specific dimensions; however, it includes plenty of questions that require much time and patience from the participants. Therefore, the short form is commonly used.

(2). Poter's Needs Satisfaction Questionnaire (PNSQ) is more applicable to the management of personnel. The items in PNSQ are related to management; hence, it is more suitable to measure the satisfaction of personnel management. More specifically, each item has two questions to measure the level of satisfaction. Besides, the calculated satisfaction degree can be compared with the work importance score to indicate the general perception of tastes.

(3). Smith, Kendall and Hullin (1969) developed the Job Descriptive Index (JDI) which can be used to measure the satisfaction of individuals regarding to the aspects of work, including pay, work itself, promotion opportunities, co-workers, and superiors. The tastes are required to make judgments about each question in the

questionnaire based on the actual situation.

(4). The SRA Employee Inventory (also known as the SRA Attitude Survey) was developed by The Chicago Science Research Association (1973), involving 44 items to measure an individual's job satisfaction based on 14 dimensions.

(5). Hackman and Oldham (1975) developed the Job Diagnostic Survey to measure an individual's general satisfaction, work motivation and job satisfaction that involves work security, social relationships, pay, supervision, growth, and other dimensions. It can also measure growth, needs, strengths and job characteristics.

(6). Hackman and Lawler (1971) developed the Job Satisfaction Inventory to assess an individual's job satisfaction through a set of factors, including growth and development, self-respect, independent thinking and action, supervision, work pay, work security, work contribution, promotion, friendship, customer attitude, working power, etc.

1.3.2 Influencing Factors on Job Satisfaction

The factors that influence job satisfaction can be separated into two categories, including demographic variables and work related situational variables. Specifically, the demographic variables mainly include gender, age, educational background, income and occupation while the work related situational variables are varied based on the studies of different scholars. They include work, room for development, benefits, leadership, co-workers, work stress and psychological factors.

(1). Work. The joy and sense of achievement obtained at work will directly affect one's general satisfaction at work. To be more specific, the happier an individual feels at work and the higher the sense of achievement an individual develops, the higher level of job satisfaction the individual is likely to have.

(2). Development Space or Promotion Opportunity. At work, an individual is mainly

concerned about promotion opportunities and career development. To be more specific, if there is not enough space for development, individuals may have decreased enthusiasm about the job and generate dissatisfaction towards their job.

(3). Benefits Package or Pay. Obtaining pay is the most direct motive for an individual to work and is also one's means of survival. Furthermore, one's level of payment also indirectly reflects the assessment of an individual's performance. When individuals work hard, they expect to obtain corresponding pay. Therefore, the more the payment is, the more satisfied an individual will be at work.

(4). Leadership or Supervision. Praise and admiration from leaders or superiors directly reflect how an individual is assessed and approved. The behaviours and attitudes of leaders will directly motivate employees at work, and employees will have greater senses of achievement. In return, staff's satisfaction at work would be promoted.

(5). Co-workers. Favourable relationship with co-workers will not only enhance teamwork and coordination but also make members feel happy. Favourable co-worker relationship is beneficial to the promotion of job satisfaction.

(6). Work Stress. Excessive workloads can make an individual feel depressed and unhappy at work, while monotonous work can make an individual feel bored and lack of enthusiasm. In this case, the adjustment of stress at work will decrease an individual's dissatisfaction. However, this does not necessarily mean that less stress equals to a higher level of job satisfaction.

(7). Psychological Status. A positive status will help an individual to be calm at work and promote staff's satisfaction. On the contrary, negative status can easily result in resistance to work and cause job dissatisfaction.

1.3.3 Job Satisfaction of Teachers

According to a study conducted by Rudd and Wiseman (1962), pay, co-worker relationship, teacher-student relationship, and workload were several factors that have significant impacts on teachers' life and job satisfaction. The present research holds the view that it is difficult to define the level of teachers' satisfaction towards students by judging students' quality.

Simmons (1970) divided teacher's job satisfaction into two categories, including satisfaction with work content and satisfaction with the work environment. To be more specific, satisfaction with work content involves the teaching process, such as the nature of the job and teaching performance, while the environmental factors involve the work situations, such as pay, interpersonal relationship, and school policies.

Holdway (1978) analysed the factors that affect the perceptions of teachers toward their job and the correlation between the influencing factors and teacher's job satisfaction. Furthermore, factors that lead to job satisfaction amongst teachers are mainly intrinsic factors, such as perceptions towards job, the sense of achievement at work, career development and the level of excitement at work. Factors leading to job dissatisfaction among teachers are mainly extrinsic factors, for example, interpersonal relationship, administrative management, relevant policies, and social attitudes. As indicated, a favourable interpersonal relationship is beneficial to the promotion of teachers' job satisfaction.

Smilansky (1984) investigated 36 teachers in Israel, finding both intrinsic and extrinsic factors related to teacher job satisfaction and work stress. The research findings are consistent with those of Holdway (1978). Nonetheless, the research also indicates that some factors, like student's relationship, utilisation of work time and degree of workload, are correlated with not only job satisfaction but work stress as well. In this case, Smilansky (1984) suggested that both intrinsic and extrinsic factors

should be adopted to indicate the factors associated with teachers' job satisfaction and work stress.

Olanrewaju (2002) investigated 189 full-time teachers and analysed the relationship between satisfaction/dissatisfaction and motivation/hygiene. The findings support the conclusions of Herzberg's motivation-hygiene theory. More specifically, the motivation factors include work achievement, self-cognition, work itself, and growth, while the hygiene factors include pay, mentors' capabilities and skills and work conditions. Furthermore, the research also found that satisfaction and dissatisfaction are different based on different demographic variables.

Chen and Sun (1994) measured job satisfaction of teachers from primary schools in China, finding that these teachers are more satisfied with the nature of their job, interpersonal relationship and investment in work. However, they have a lower level of satisfaction as a result of leaders' poor management, low pay, lack of promotion and underdeveloped working and living conditions. They also found that female teachers tend to have higher level of job satisfaction in comparison to male teachers.

Yuan (1995) investigated middle school teachers from the Pearl River Delta in China and analysed the relationship between job satisfaction of teachers and their intentions of changing jobs. The research found that these teachers have higher a level of satisfaction toward their co-workers, leaders, and work yet a lower level of satisfaction towards pay and social status.

Feng (1996) emphasised on teachers' job satisfaction. Five indexes of teacher's job satisfaction have been identified in this study, including work strength, self-actualisation, pay, co-worker relationship and relationship with the leader. Specifically, the research indicated that teachers tend to have lower level of satisfaction concerning pay and work strength as well as a higher level of satisfaction concerning self-actualisation. Also, female teachers tend to have higher job

satisfaction levels than male teachers.

Chen (1998) conducted a research on the indexes to measure job satisfaction of middle school teachers. This study mainly identifies various dimensions of work achievement, leadership and management, educational system, student quality, social environment, social status, co-worker relationship, income and welfare, work stress, population, work environment, and work conditions. To be more specific, the research results have indicated that these teachers are relatively satisfied with co-worker relationship and social recognition as well as have a moderate level of satisfaction regarding social position; however, they are dissatisfied with the rest of the dimensions.

Zhang (2000) developed a job satisfaction questionnaire based on the JDI scale of Smith et al. and conducted a survey on the job satisfaction of 461 primary school teachers from Shanghai. According to the result, teachers were satisfied with their jobs; they were relatively satisfied with work, co-worker relationship, and leadership, yet dissatisfied with income, social recognition and promotion opportunities; male teachers were more satisfied with income than female teachers.

According to the research carried out by Xu and Shen (2001), primary and middle school teachers tend to have a higher level of satisfaction concerning co-worker relationship and job nature and also have higher level of dissatisfaction concerning work conditions, pay, leadership management and promotion opportunities. Furthermore, Wang (2003) developed a satisfaction questionnaire for teacher's job and conducted a survey in middle schools of Shandong, China. It shows that an important factor to attract teachers to teach is the job nature. Besides, the research also shows that teachers are dissatisfied with their work pay and work strength.

Zhu and Yang (2004) developed a satisfaction questionnaire about teacher's job to

investigate 200 teachers in Taiyuan, China. As a result, the following conclusions can be made: teachers with different years of teaching experience tend to have significant differences in job satisfaction. More specifically, teachers with fewer years of teaching experience tend to have higher level of satisfaction with work pay than those with longer years of experience; teachers tend to have higher level of satisfaction during their early years of teaching; and with the passage of time, these teachers tend to have decreased level of satisfaction concerning their job.

Song (2005) developed a questionnaire of teacher satisfaction, test of stress scale and professional reference as measurement tools to investigate primary school teachers in rural areas. The research found that primary school teachers in rural areas tend to have a lower level of satisfaction with development space, income or pay, and other material factors. It is also found that these rural teachers tend to have a higher level of satisfaction concerning promotion, leadership, teaching method, co-workers, and their general working conditions.

Hu (2007) conducted a large-scale investigation of middle school teachers in seven districts of Beijing, China. Middle school teachers are most satisfied with interpersonal relationship at school (including the relationship with co-workers and students); they are comparatively satisfied with social recognition and leadership management yet dissatisfied with self-actualisation and development space; they are most dissatisfied with the perceived unfair pay. Besides, the research indicates that the impact of gender on job satisfaction is not significant, while the participation of teachers in school's decision-making process is the most important influencing factor.

Based on the study conducted by Gan and Jin (2008), middle school teachers in rural areas with higher social recognition tend to have a higher level of job satisfaction toward each dimension compared with those with lower social recognition.

1.3.4 Influencing Factors on Teachers' Job Satisfaction

Many demographic factors may influence teacher's job satisfaction, including gender, age, educational background, material status, teaching experience, occupation and motive to teach.

(1). Gender. All the studies on job satisfaction involve the factor of gender. However, regarding the great differences in regions or industries, gender cannot be used as the only variable. It means that it is not possible to indicate whether males or females are more satisfied than each other. Therefore, the research should be based on actual situation. According to Herzberg, there is no unified conclusion concerning the difference between job satisfaction of males and females.

(2). Age and Teaching Experience. Older teachers tend to have a higher level of satisfaction than young teachers as older ones are more likely to develop a sense of achievement during work and have more confidence in their self-value. Moreover, the rich working experience of older teachers makes them more competitive in the job market when seeking higher positions and obtaining opportunities for self-actualisation. In addition, with the growing age and year of service, older teachers tend to have less enthusiasm and expectation than the younger ones; thus, they are more likely to be satisfied.

(3). Education Background. A great number of studies have indicated that there is a significant correlation between education background and job satisfaction. To be more specific, the more education an individual receives, the greater capability the individual is likely to have; therefore, they will have higher demands and expectations for their jobs. On the contrary, with lower level of education, the demands and expectations of the job will be lower accordingly. In this case, if two individuals with high and low levels of education respectively have the same position and the same pay, individuals with a lower level of education tend to have a higher level of satisfaction with their job.

(4). Income. The higher the level of payment is, the higher the level of job satisfaction will be; therefore, there is a positive correlation between income and job satisfaction. However, if increasing pay is used to satisfy individuals, the effect of this material motivation will decrease, which will diminish the marginal effect.

(5). Occupation. At the workplace, a higher position means a higher level of pay and welfare, a greater sense of achievement and more development opportunities. Thus, there is a positive correlation between position and job satisfaction; hence, those with higher positions tend to have a higher level of job satisfaction.

(6). Marital Status. There is no unified conclusion concerning the impact of marital status on job satisfaction. Some researchers indicate that the unmarried individuals tend to have a higher level of satisfaction toward their job; however, some indicate that the married ones tend to have a higher level of job satisfaction.

(7). Co-worker Relationship. At the workplace, cooperation is inevitable and necessary. To be more specific, favourable relationship with co-workers will not only be beneficial to the completion of work with high quality and efficiency but also can help decrease anxiety and stress at work. Besides, the intensive relationship between co-workers will cause conflicts at work, high turnover rate as well as reduction of work quality and efficiency.

(8). Leader Behaviour. The behaviours of leaders are likely to have a great impact on their subordinates and other employees. To be more specific, praise and care from leaders will promote employee's enthusiasm at work, which will promote their work efficiency and quality. On the contrary, if employees cannot obtain approval from leaders, their enthusiasm at work will be decreased, which will negatively affect job satisfaction.

(9). Social Recognition. Social recognition has a great impact on teachers' job satisfaction. In general, teachers are highly approved in the community and have heightened social statuses. However, teachers in rural areas are in a totally different situation. Due to the limitations of pay, working condition and development space or opportunity, the social position of rural teachers is comparatively lower; thus, teachers with a higher level of education are unlikely to teach in rural areas. Generally, in relevant studies on teacher's job satisfaction, how teachers are recognized or approved by the community or society plays an important role.

(10). Work Stress. There is a significant correlation between work stress and job satisfaction. In the light of Feng (1996)'s research about the work stress of teachers, the more stress a teacher perceives, the lower level of job satisfaction the teacher will have.

(11). Motivation to Teach. One's value orientation will affect the choices of an individual. According to the study of Chen and Sun (1994) concerning motives for teaching, teachers who love their teaching career are more likely to have a higher level of job satisfaction than those who choose to teach for other reasons.

1.4 Teachers' Current Conditions in Rural Areas

1.4.1 Finance

According to Teacher's Law of the People's Republic of China (PRC), the average salary of teachers in one area should not be lower than that of local civil servants. As a matter of fact, the average salary of teachers is not equal to that of civil servants. With respect to organs and units, the salary and subsidies of civil servants are included in the financial budget, while those of teachers are not since schools are wholly-government-sponsored institutions without any independent income. A sampling survey revealed that nearly 50% of teachers in rural areas have complained

that they had not received allowance or subsidies on time or in full amount. In the past, this problem was solved by education fees. However, fees are now prohibited with the execution of the new compulsory education system. As a result, rural teachers have lower income level. In addition, teachers tend to have significantly different salaries in urban and rural areas. The average income of rural teachers in primary schools and junior middle schools is only half of that of urban teachers. It shows that the salary in rural areas of Western China is even much lower. Rural teachers tend to suffer more stress from work and shoulder more family burdens than urban teachers, yet gain lower income, which greatly dampens their enthusiasm and satisfaction towards their work. Meanwhile, securities for rural teachers are far from comprehensive, especially regarding housing, medical and insurance securities. The local government cannot provide houses for teachers, especially in rural areas of Western China. A majority of teachers in these areas have no place to live, and the living conditions are very limited. Furthermore, lots of rural schools cannot pay premiums for medical insurance. Under such harsh living conditions, it is difficult for teachers to work efficiently and carefully.

1.4.2 Ineffective Effects of Rural Teacher Training

The *Suggestions on the Status of Teachers* was published by UNESCO in Paris in 1966, stating that education is a kind of procession, and teachers must acquire expertise, skills and a high sense of responsibility. This profession requires that teachers should have strict and continuous learning to gain and maintain specialized knowledge and techniques. In recent years, as more attention has been paid to the education of China, teachers have an increasing number of opportunities for training. They can benefit a lot from the new training programme designed for primary and secondary school teachers. However, the training for rural teachers is far less than satisfactory, and the reasons may be the following:

(1). In rural areas, such as counties, teacher's salaries are mainly from financial allocations, and there is no channel to collect funds to establish training institutions for teachers. Training institutions for county teachers barely have funding to carry out continuous education for primary and secondary school teachers and to establish special funds for teachers' training in most nations. As a result, these institutions have to charge certain fees for rural teachers' training. In Western China, the situations are worse since teachers get lower incomes and have to pay for training fees, which hinders teachers' enthusiasm to attend the training.

(2). The ratio of teachers with high teaching level is relatively low in Western China. In fact, a number of teachers still have traditional teaching concepts, which not only lowers their teaching abilities but also results in incorrect teaching philosophies about teaching, students, and quality. They can complete the teaching tasks by only utilizing the lecture method, in which teachers speak while students listen. Consequently, they tend to have no enthusiasm to attend training; even when they do attend the training, they only do this for formality. Under these circumstances, the training cannot achieve the desired effects.

(3). The experts who carry out training for rural teachers are mainly teachers from universities. They tend to have little knowledge about elementary school education. Consequently, their training is far away from the actual rural teaching. The new curriculum requires innovation of concepts and practices, and the expert demonstration courses pay attention to everything concerned. Nonetheless, the training is irrelevant for rural teaching due to the lack of hardware facilities, including computer devices, projectors, and other multimedia equipment. There are differences in all the aspects, and there is a serious lack of experienced teachers. If the knowledge of training cannot be applied to the actual operation, it will be completely useless.

1.4.3 Decreased Quality of Teachers in Rural Areas

First of all, there has been a failure to attract excellent teachers to teach in rural areas due to the low level of salary and bad welfare. That is to say, teachers are in high demand in rural areas. From 2006 to 2007, the national superintend-and-direct group inspected eight provinces and regions, including Shanxi Province. The result revealed that there are surplus amounts of teachers in cities, and there is a lack of teachers in rural areas of Shanxi, Anhui, Jiangxi and Guangxi, and Shaanxi provinces. Particularly, some rural areas, such as remote and poverty-stricken areas, alpine, mountain, and pasture areas, are in lack of teachers among which English, music, art, physical education, and computer teachers are in urgent demand. To solve these problems, lots of governments recruit people to work as teachers, even though some of them are not qualified and do not have adequate professional skills. In addition, many town governments are not able to hire enough qualified teachers due to their limited financial capabilities. Certainly, some town governments intend to recruit substitute teachers to cut down the expenditures. Consequently, substitute teachers are undertaking more and more teaching tasks and mental stress, and the phenomenon of aging teachers has become serious. Finally, there are some institutional issues. The education departments in rural areas fail to efficiently manage teachers that some people on regular payroll fail to participate in teaching work, and those who engage in teaching cannot find a position in institutions. Consequently, teachers cannot be supplemented by the education system and even worse, the quality of rural teachers is getting worse.

1.4.4 Decreased Morale and Enthusiasm of Teachers in Rural Areas

Compared to cities, rural areas are relatively enclosed and have little communication with the outside world, especially the areas with severe environments and blocked traffic. In this case, it is easy for teachers to become occupationally tired. With imperfect teaching facilities in rural areas, t rural students' complex background and

relatively lower thirst for knowledge have made it difficult for rural teachers to achieve progress in teaching. As a consequence, rural teachers tend to have a low degree of recognition in the society, which dampens their job satisfaction. For this reason, the quality of teachers is steadily decreasing.

1.4.5 Loss of Teachers in Rural Areas and Ecology of Education

It is a widespread phenomenon that there is a shortage of young and middle-aged teachers in small and medium-sized schools in rural areas, especially in extremely remote and poverty-stricken areas. According to the 2008 National Education Inspection Report, 92.5% of head teachers in poverty-stricken areas state that the loss of teachers at the age of 35 or below is severe, and 74.6% report that the lost teachers are mainly teachers. Some studies reveal that there is a lack of teachers in rural primary and secondary schools in a county of Chongqing City, and around 5% to 10% of excellent teachers go to cities or key schools every year; meanwhile, there is no graduate from key universities coming to that county. The result of a study on 10 rural schools showed that 269 teachers transferred out, and 132 teachers remained in these schools in 2009; in 2010, 248 transferred out, and 175 remained; and in 2011, 292 transferred out, and 201 remained. With no doubt, the proper mobility of teachers is necessary as it can arouse teachers' enthusiasm for work to some extent, especially for those who need to be transferred. This reflects the importance of humane care. As indicated by Chapman (1994), it is easy for teachers to be self-satisfied in stabilized status, which will prevent them from taking in new concepts, materials, and methods.

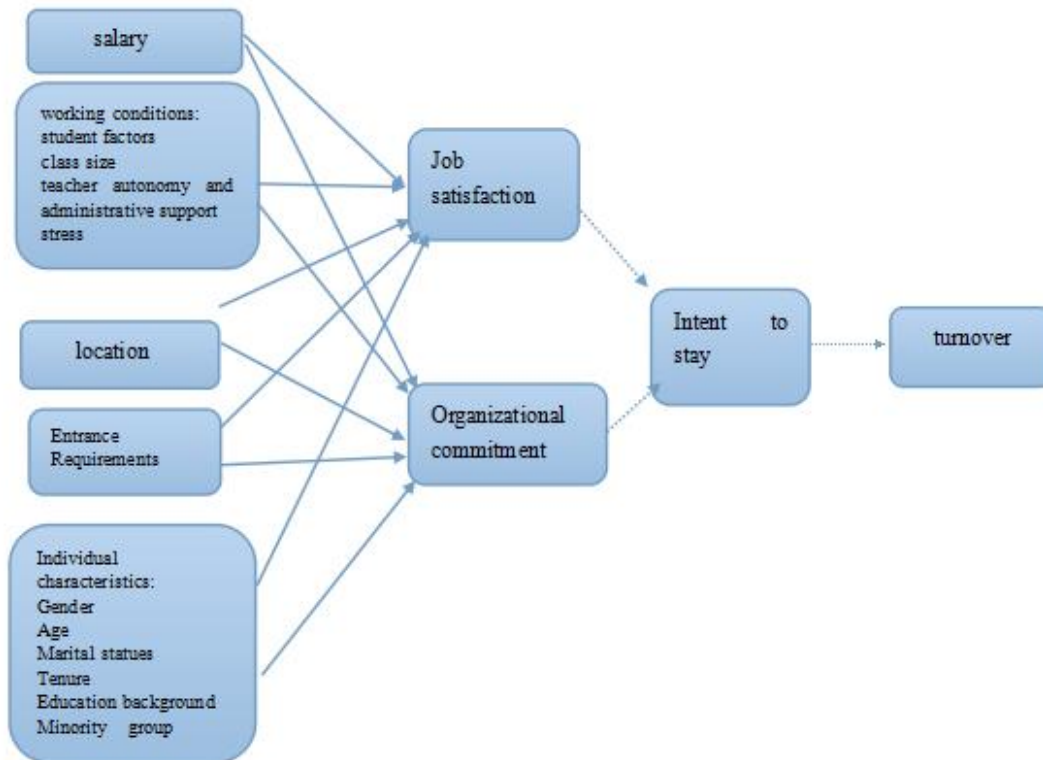
Based on the current conditions of the severe loss of teachers, the mobility of teachers is unfavourable in rural primary and secondary schools. The loss of teachers can be divided into dominant and implicit losses. The former one refers to the fact that excellent teachers leave rural primary and secondary schools and go to urban schools or engage in other occupations. As indicated by relevant research studies, the lost teachers in rural primary and secondary schools are mainly young or middle-aged

teachers and academic leaders around the ages of 30 to 40 years-old. This greatly bothers head teachers in these rural schools. If all the experienced teachers leave, the education quality in rural schools will be reduced. The loss of teachers makes the situation in rural areas even worse. As indicated by some researchers, at present, the teaching in rural areas become worse and a vicious circle has developed due to the severe lack of teachers, improper age structure, imbalanced disciplinary structure and low educational degree. This has caused damages to the ecological system of teaching in rural areas and brought unprecedented crises to them. Practices have proved that the frequent loss of excellent teachers in rural areas is a non-normal flow state which has affected the teaching quality in rural schools. The so-called ‘covert loss’ refers to the phenomenon of some teachers putting their major efforts into other industries; therefore, they cannot teach wholeheartedly, and often hold careless and irresponsible attitudes. At the same time, as the school management system is imperfect, inadequate teachers cannot “loss away” while high-quality teachers cannot be introduced. This finally leads to the fact that rural teachers are not effectively protected in terms of quantity and quality. Likewise, rural school’s teaching staff is always in a state of contraction.

1.5 Causal Pathways

Based on the above research, a causal model is developed. The dashed lines represent the influences of different factors on teacher’s turnover. The below model is not analysed in this study.

Figure 6 Causal Pathway Model for this Study



Alwin and Hauser (1975) found that, once a path model is identified, causal effects of each causal variable (Z) on the endogenous variable (Y) can be computed by ‘decomposing’ its correlation (r_{yz}). The following equation shows that this can be achieved through algebraic expansion:

$$r_{yz} = \sum_i p_{yx_i} r_{x_iz}$$

As shown in the above model, in order to concentrate on the study of rural teacher’s turnover rate and retention in rural areas of Guizhou, it is vital to identify the characteristics of current policies, environment and teachers.

1.5.1 Individual Factors

Firstly, it is important to know teachers’ gender, age, teaching experience, marital status, etc.

(1). Gender

In China, 79.39% of primary school teachers and 64.4% of secondary school teachers are female (China Youth Daily, 2012). Berry (1986) has conducted a simple

descriptive study, asking 80 seniors from 6 different universities to discuss why they were not willing to teach. The study found that compared to males, females were more likely to choose teaching as their career as they think this is more conducive to raising a family than a career in other industries.

Donnelly and Quirin (2006) found that women experience a large number of ‘shocks’ in life, such as pregnancy and parenting that force them to leave their professional field. Murnane (1991) conducted a regression analysis on 30,614 Michigan teachers from 1974 to 1986, 50,502 North Carolina teachers from 1972 to 1985, and 2,639 American college graduates who participated in the National Longitudinal Survey from 1967 to 1985. According to the finding of the study, when teachers face alternative job opportunities, it is less financially attractive for women than for men; also, the family-friendly working schedule of teaching is more attractive to women who want to keep their job and take care of children.

Adams (1996) found that female teachers were 37% more likely to change their jobs in the district than male teachers. On the other hand, Ingersoll (2001) found that male teachers were less likely to change their job than female teachers.

(2). Age

According to Ingersoll (2001), age is the strongest predictor of teacher’s turnover. More specifically, teachers under the age of 30 and over the age of 50 were more likely to leave their position than teachers at other ages. Young teachers were found to be 171% more likely to leave than middle-aged teachers.

Adams (1996) employed a regression analysis on 2,327 primary school teachers who were hired by a large school in Texas between 1985 and 1991. These teachers had a variety of ages and teaching methods. The study found that the overall median length of a teacher staying in one place was 71 months, and 25% of them would quit their job within two years. Teachers who began teaching before the age of 40 were 43%

more likely to quit their jobs than those who began to teach after the age of 40.

Dworkin (1980) conducted a simple correlational research on 3,064 public school teachers in the Southwest USA in the late 1970s. The study found that teachers under the age of 36 and over the age of 56 were more likely to consider leaving than those from 36 to 56 years old.

(3). Tenure/Seniority

Hanushek, Kain, and Rivkin (2004) conducted a simple descriptive study and a regression analysis on 378,790 Texas teachers between 1993 and 1996. The study found that 29% of teachers in their first two years and 25% of teachers left their school in the range between 3rd and 5th year of their teaching careers. Additionally, 16% in the range between 11th to 30th year of their career and 27% with over 30 years of teaching experience left their jobs. A total of 18% left the public school system completely in their first two years of teaching, and 24% of teachers with over 30 years of experience left the public school system completely.

(4). Marital Status

Married teachers in rural areas face the awkward problem of limited opportunities for their spouses to find a job in their working location. For teachers with children, their children tend to have limited opportunities to receive a good education.

Stinebrickner (1998) conducted a regression analysis on 341 individuals who had participated in the National Longitudinal Survey of the High School Class in 1972 and were certified to teach. They were followed until 1986. The study discovered that marriage could shorten the length of teachers' teaching career while having children can lengthen it. Stinebrickner (2002) found that married female teachers were 1.94 times more likely to leave their job than unmarried female teachers. Female teachers with a new-born baby were eight times more likely to leave their job than those without any new-born child.

(5). Minority Group

In Guizhou, the minority groups account for over 37% of the population, and most of the minority groups have their own language. A majority of the studies (for example King, 1993) have suggested that hiring more minority teachers could be a desirable goal. Dee (2004) found that an additional year with a teacher of the same race is likely to increase student's performance by 2% to 4%. Ingersoll (2001) combined a simple descriptive study and a regression analysis on 5,643 teachers who have participated in the 1990-1991 Schools and Staffing Survey and the 1991-1992 Teacher Follow-Up Survey. The study found that minority teachers were less likely to quit teaching compared to other teachers.

(6). Education Background

In China, 35.7% of teachers have an associate degree (3.63 million), 55.7% have a bachelor degree (5.66 million), and 0.8% have a master degree (83 thousand) (Chinese Educational Research Database, 2010). The data in America shows that 41% of teachers have master degree (Strizek, et al. 2006). Chinese teachers' degree attainment is weak. In Chinese rural areas, a high proportion of teachers do not have high education level. In fact, most of them only study at schools and get secondary specialized school diplomas after graduation. In fact, there is no university or normal specialized postsecondary college in the UK; however, in China, every province has its normal university and almost every big city has its own normal specialized postsecondary college. Most Chinese teachers are from these universities and colleges.

Adams (1996) found that teachers with a bachelor degree are 68% more likely to leave than those who do not have. Rees (1991) conducted a regression analysis on 49,396 full-time, tenured teachers in New York who were under 55-years-old and taught between 1975 and 1978. The study concluded that highly educated teachers are more likely to quit teaching.

Kirby, Berends, and Naftel (1999) utilised the regression analysis to study the data around 98,951 public school teachers in Texas from 1980 to 1996. They concluded that teachers with a higher degree at entry tend to have higher attrition rate than those with a lower degree at entry.

Shin (1995) used a technique called “survival analysis” to study 455 current teachers and 331 former teachers who participated in the 1986 follow-up questionnaire in National Longitudinal Study of the High School Class in 1972. The study found that average stay in teaching is higher for teachers with master degree (10.60 years) than those with a bachelor degree (5.24 years), doctoral degree (2.98 years), and associate degree (2.96 years).

Theobald (1990) found that male teachers with graduate degrees are 50% more likely to leave their positions than those without these degrees. Graduate degrees were not found to be significantly related to teacher’s turnover rate for females.

Ballou (1995) discovered that graduate students of more selective institutions are less likely to be hired as public school teachers after applying for these positions. The candidates from more selective colleges are less likely to stay in their teaching positions for long-term.

According to Arnold, Choy, and Bobbit (1993), mathematics teachers are 3 times more likely to quit teaching than those of other subjects. Similarly, Ingersoll (2001) found that mathematics and science teachers are more likely to leave their teaching positions compared with those of other subjects.

1.5.2 Environmental Factors

Currently, there are many academic analyses to study the reasons for the loss of rural teachers. They assume the perspectives of sociology, management, economics, psychology, ethics, etc. Thanks to these multi-disciplinary research perspectives, the loss of rural teachers at primary and secondary schools can be comprehensively analysed, which can be regarded as a complex educational and social phenomenon. Based on the principles of ecology, particularly the ecosystem, ecological balance, coordination and other principles, mechanism of evolution and educational ecology, studying various educational phenomena and their causes can promote the development of education as well as reveal the educational trend and direction. From the perspective of educational ecology, the reasons that cause the loss of teachers in rural primary and secondary schools can be analysed. Educational ecology can help us profoundly identify the loss phenomenon of rural teachers and offer intellectual support to build the rural teacher teams in a healthy, harmonious and sustainable way.

The reasons that cause the problem of teacher shortage are very complicated. The schools that find it difficult to recruit and retain teachers, especially highly qualified teachers are those in remote and underdeveloped regions (especially those serving minorities). Generally, literature shows that the problem varies based on different economics, geographies, demographics, and subject areas. The rural-specific literature identifies four main factors related to teacher recruitment and retention in rural areas: (1) salary; (2) working conditions; (3) location; and (4) entrance requirements (for example, many rural teachers need national certifications to teach).

(1)Salary

The law of limiting factor is a basic principle of the education ecology. It proposes the limiting factors from objective realities, regardless of when we study individual ecology, group ecology, or educational ecology system, based on the ecology of education. The so-called ‘limiting factor’ means the factors which can reach or exceed the limit of biological tolerance factor. When a certain amount of ecological factors

cannot meet the minimum demands of individuals, although the action of other ecological factors is very modest, individual growth will be significantly limited. As for school ecosystem, the most important limiting factors are energy flows and information flows. When energy flows are in great lack, or below the basic needs of running the school system, the size, quantity, and quality of school education will be limited. For the rural school system, low energy flow— educational resource and funding— is a limiting factor that affects the development of rural schools. In terms of their wages and social benefits (health care, housing, continued education, etc.), teachers' life quality is an important factor that affects their survival and development. There is an insurmountable gap between rural teachers and urban teachers in terms of salary and benefit. Rural teachers in China still earn less money compared to civil servants or staff in other units. This gap, to some extent, dampens the working enthusiasm of teachers in rural primary and secondary schools, resulting in loss of rural primary and secondary teachers.

The research provides strong support for the conclusion that salary plays a significant role in teacher recruitment. “The most effective recruiting tool for rural schools would be to offer competitive salary compared to those in larger and richer venues.” (Osterholm, Horn, and Johnson, 2006, page 3)

Chevalier, Dolton, and McIntosh (2006) conducted a survey on 1960, 1970, 1980, 1985, 1990, and 1995 cohorts of graduates surveyed for 6 to 11 years after graduation in the U.K. The study found that relative wages in teaching have a crucial impact on the likelihood of graduates choosing to teach. School exam performance, the subject of degree, class of degree, the postgraduate qualification, type of school, parents' occupation, region and gender all have significant influences on the entry decision. This suggests that wages have the strongest influence on the supply of teachers when teacher's earnings are relatively low.

In October 1979, Manski (1987) conducted a study on 2,952 respondents from the National Longitudinal Study of the High School Class who had obtained academic degrees and were working in America. The study estimated the weekly earnings equation as a function of gender, academic ability, and occupation. A \$25 increase in weekly earnings (an increase of approximately 10%), was found to increase the supply of teachers from 19% to 24%. A \$100 increase in weekly earnings (an increase of about 40%) was found to increase the supply of teachers from 19% to 44%. Therefore, wage elasticity of supply ranges from 2.4 for a small salary increase to 3.2 for big change.

Dolton and Mavromaras (1994) conducted a study in the UK on around 1970 and 1980 graduate cohorts who provided information from 1970 to 1977 and from 1980 to 1987, respectively. The sample sizes for these years were 3,990 and 4,980, respectively. The study used selectivity terms in teacher and non-teacher wage equations and finally utilised predicted earnings in a structural form for entry decision and continuation. The study found that a 10% increase in relative teacher earnings would increase the probability of being a teacher by 9.67% for men in 1970, 1.37% for men in 1980, 3.03% for women in 1970, and 2.38% for women in 1980. 12% (32%) of 1970 men (women) chose teaching, and the percentage would fall to 6% (16%) in 1980.

Allred and Smith (1984) conducted a study on 2,346 rural teachers and 11,785 urban teachers in Utah from 1980 to 1981. The study included 233 rural school teachers and 601 urban school teachers who had left their schools to follow the completion of the school year. The study found that 43% of teachers who left rural schools considered salary as the major reason for leaving.

Jiang (2003) found that salary is the primary factor for teacher attrition in poor regions after investigating Jingzhou County, Hubei Province, China. Ingersoll and Alsalam (1997) analysed data about 53,347 America teachers in 11,589 schools who

participated in the 1990 to 1991 Schools and Staffing Survey. They discovered a positive association between higher salary and teacher's satisfaction with their decision to teach. In 2001, Ingersoll conducted a regression analysis about the relative impacts of different factors on teachers' retention or attrition. This study involved data from 5,643 teachers who participated in the 1990 to 1991 Schools and Staffing Survey and the 1991 to 1992 Teacher Follow-up Survey in America. The research found that there were negative effects between low salary and teacher's turnover.

Grissmer and Kirby (1997) conducted a regression analysis on over 43,000 teachers in Indiana, America from 1965 to 1988. They found that a 10% increase in salary is closely associated with a roughly 10% reduction in teacher attrition. Another study carried out by Corcoran, Schwab, and Evans (2004) found that teachers are more likely to choose teaching when the origination salary is higher than that in other occupations, such as business-related jobs. By drawing upon multiple data sources, Bacolod (2005) found that highly qualified teachers are particularly sensitive to job hopping when higher salaries are involved.

(2) Working Conditions

Salaries are not the only factor that influences individuals' decisions about whether they will teach or not and where to teach. Working conditions also have a significant influence on teachers' job decisions. Generally, the literature that relates to working condition can be categorized into five groups as follows:

- 1) Student factors, such as achievement, discipline, attitudes, diversity and student poverty
- 2) Class size
- 3) Teacher autonomy, peer support, and administrative support
- 4) Stress
- 5) Other factors
- 6) Excessive Workload
- 7) Marginalised Niche of Rural Teachers

In schools' education ecosystem, teachers, as ecological individuals, are limited in terms of their work endurance and tolerance. If this threshold is exceeded, the survival state of teachers will be threatened as humans tend to pursue happiness and avoid suffering. Due to a severe shortage of teachers in rural primary and secondary schools, as well as teachers' heavy tasks, some teachers even need to take on cross-grade or cross-curricular teaching tasks with excessive course load and long working hours. There are even class contract systems practiced in some rural primary and secondary schools where one or two teachers take on full responsibilities for a class. It means that all the courses and work in this class is overtaken by teachers under contract. This task, with high strength, would overwhelm teachers' work capacity of endurance and tolerance. If these teachers are also undertaking teaching, research or administrative tasks, they will suffer from great pressure.

Niche as an ecological concept originally means the relative spatial position, time location, function, status, role, etc. of a species in biocenosis or ecosystem. As for the ecology of education, teacher niche can be defined as the occupation of teaching and the utilisation of various educational resources, such as human resources, intelligence resources, material resources, financial resources and information resources. For quite a long period, due to the unbalanced development between urban and rural areas, urban schools or quality schools have rich educational resources, whereas rural schools have scarce educational resources. According to ecology, the ecotopes in higher ecological chains are based on the ones in lower chains to absorb survival elements. Therefore, urban schools or quality schools with rich educational resources and higher position in ecological chains naturally possess a higher quality of educational resources than rural schools, which widens the gap of educational resources between the two. If things continue in this way, rural schools would be left behind with disadvantages; likewise, teachers from rural schools would also be squeezed into the marginalised niche. This so-called 'niche' would accelerate the loss of rural teachers. Firstly, rural teachers would ferment impulsion to urban schools or high-quality schools due to their low social status, seldom support from family and

society, as well as low public reputation. In the second place, rural teachers would be actively mobilised to urban schools or high-quality schools. For instance, their unsettled problems of housing, medical treatment and their children's entrance and employment should contribute to their loss due to the unbalanced situation between effort and reward. Finally, rural teachers seldom have the opportunity to acquire abundant information and further study, let alone development space, due to the restrictions of geographical, cultural, economic, and other conditions. As a result, rural teachers with professional ambition tend to choose urban schools or high-quality schools for better development and more career opportunities, which finally results in the severe lack of rural teachers.

A number of studies have shown a correlation between poor student achievement and teacher attrition. Hanushek, Kain, and Rivkin (2004) conducted a study and a regression analysis on 378,790 Texas teachers in America between 1993 and 1996. They focused on the factors that have great influences on teacher attrition. The study found that student achievement as one of the most influential factors is even more influential than class size or teacher salary. Excellent student achievement is correlated strongly with the reduced teacher attrition.

Ingersoll (2001) found that 18% of teachers who chose to change to a different school and 30% who left their profession cited student discipline matters as an important reason for their decision. Similarly, 10% of teachers who changed schools and 38% who left their profession cited lack of student motivation as an important factor. Ingersoll also found that teachers' turnover rate in high-poverty public schools was 45% higher than the turnover rate in more affluent schools.

Carroll, Fulton, Abercrombie, and Yoon (2004) found that teachers prefer to choose schools with more wealthy and high-achieving students instead of schools serving a number of low-income students. One potential reason for that is the former ones often offer higher salaries and better facilities, and the latter ones often have poor facilities,

such as inadequate textbooks and science equipment.

Class size is another crucial element in teachers' decision-making. Grissmer and Kirby (1992) carried out a regression analysis on approximately 43,500 teachers in 1965 and around 52,000 teachers in 1988. Based on the survey which lasted for 23 years, a correlation between teacher attrition and class size was found. The average class size in Indiana public schools decreased from 25.8% in 1965 and later increased from 19.5% in 1986. The average rate of teacher attrition during that period drastically fell from 12.4% to 5.6%.

Beaudin (1995) conducted a regression analysis on 898 teachers from public schools of America who started their teaching career from the early to mid-1970s, left within the first four years, and returned by 1985. He found some factors that would affect whether a teacher would return to their original profession. One of these factors is student-teacher proportion. It was found that every increase of one student in a teacher's original district relates to a 1.7% increase in the likelihood of their return.

The distinction between many factors is artificial. For instance, the size of class and discipline usually interrelate to each other. The smaller the class is, the easier it probably is for a teacher to avoid disruptions by paying more attention to students. Thus, in my study, each set of factors are relevant to one another. However, the distinctions are very useful since they capture some conditions that differ from one school to another and may relate to teachers' job satisfaction.

Teacher autonomy and administrative support also have significant effects on teachers' job decisions. Gritz and Theobald (1996) did a regression analysis on 9,756 white teachers in America who became teachers between 1981 and 1990. It was found that new teachers were more likely to leave their first position and leave the public school system, where there was an increase of paperwork without an increase of salary or benefits. The researchers thought that this result could be explained by the hypothesis

that young teachers feel they have less autonomy than others. The study also discovered that new teachers are more likely to leave their positions where there was an increase of central administration.

Shun and Ma (2007) found that, among teachers with management capabilities, only a few were willing to work in rural areas as there was no opportunity for promotion. Ingersoll and Alsalam (1997) conducted a regression analysis on 53,347 teachers from 11,589 schools who had participated in the 1990 to 1991 Schools and Staffing Survey in America. They found a positive correlation between teachers' satisfaction and their decision to become a teacher and the degree of teacher's autonomy and faculty influence perceived by teachers in their schools.

Furthermore, teachers' fellows to some extent influence their decisions. Shields, Humphrey, Wechsler, Riel, Tiffany-Morales, Woodworth, Youg, and Price (2001) conducted a study on teachers from California schools. According to the findings, senior and credentialed teachers complained that their colleagues were in lack of professionalism and did not have sufficient credentials; and they had to make up for the teaching inadequacies of their colleagues.

The stress of work also plays an important role in influencing teachers' decisions. Changbaoning (2007) analysed the data of 2,672 teachers who participated in his survey in Ganshu Province. He found that high level of stress is an important factor in teacher's turnover rate of rural areas. Teachers tended to feel overwhelmed by a great amount of paperwork as well as the limited time to prepare and plan their teaching contents.

A number of literature have shown that policies that decrease class size, attract effective administrators, and increase preparation time and supply funds to renovate facilities can promote the working conditions and, thus, help recruit teachers.

(3)Location

Besides salary and working conditions, the location of school has a great influence on the recruitment of teachers. Ankrah-Dove (1982) indicated the following:

“Remote rural areas are in a very real sense on the periphery, far from the centers of political, economic and culture life.” (P5)

Teachers are confronting many problems in rural areas, for example, isolation. They are facing the lack of safety, cultural resources, access to transportation, etc. In a study conducted by university students in Fujian Province, China, Zhong (2007) found that 78.59% of graduates choose to work in urban areas and 58.53% of graduates are more likely to work in big cities in their first year.

According to the research conducted by Loeb and Reininger (2004) in America, most teachers preferred to teach in locations close to where they grew up. Among all the public school teachers who chose to move from one school to another in the periods of 2003-2004 and 2004-2005, 26.2% cited closeness to home as an important factor in their decision to move. For those who left, 11.2% cited changing residence as important. Even though teachers had gone far away to receive education, they tended to come home to teach (Loeb and Reininger, 2004).

Collins (1999) identified four factors that make teachers leave rural areas: (1) geographic isolation; (2) climate/weather; (3) distance from family and larger communities; and (4) inadequate shopping.

(4)Entrance Requirements

In addition to factors like salary, location and working conditions, the requirement for entry into teaching can also affect teachers' decisions. Although the requirements of teacher's preparation and certification could enhance students' abilities by increasing knowledge and skills, they also increase the cost of tuition and the opportunity cost of

time. The costs could be very high for some teachers, which decreases the number of applicants.

The past two decades have witnessed a number of policies in teacher education of China— formal preparation, licensure, certification, and accreditation. The Chinese government consider that these changes are vital for our education system. However, this has caused an intense debate about how various approaches make a difference in recruiting and supporting teachers. Zhou (2007) argued that the current accreditation criterion is unfair for rural teachers. In fact, it has become a barrier to teacher recruitment and retention in rural areas.

Walsh (2001) argued that teaching does not require highly-specialized skills and knowledge and that such skills can be learned from on the job training. Weiner (2007) aimed to privatize education, reduce the power of teaching profession and allow greater inequality in offering services to students.

In fact, as rural teachers are separated by a long distance from universities and educational facilities, it is difficult for them to obtain necessary certifications for all the subject areas they teach. A large number of rural teachers in Guizhou have not been certified to teach yet.

1.6 Effective Practices for Teacher’s Recruitment and Retention in Rural Areas

Concerning the practices of teacher’s recruitment and retention in rural areas, abundant studies have been conducted from different perspectives and are deeply rooted in different nations and regions. Based on the literature of these studies, it can be seen that effective practices of teacher’s recruitment and retention share some common features. Thus, this section will try to review the literature regarding the effective practices of teacher’s recruitment and retention in rural areas.

1.6.1 Strategic Practices of Teacher Recruitment and Retention in Rural Areas

The strategic practice involves an integral process of planning, decision-making and implementation. To be more specific, to conduct effective strategic practice, the needs should be firstly analysed based on accessible data so that strategic plans can be made; afterwards, decisions can be made based on the analyses and plans so that resources can be effectively allocated and utilised to achieve the maximum results. Murphy and DeArmond (2003) addressed the shortage of teachers at a district level during the period from 1999 to 2002 in America and indicated that there was a severe lack of strategic approaches. Their investigation demonstrated that intradistrict or targeted subject area incentives are rarely adopted by those districts of America to attract teachers to schools; besides, the research indicated that the across-the-board salary increase has been commonly regarded as an effective policy to recruit and retain teachers.

In particular, as recommended by Murphy and DeArmond (2003), organisational barriers should be removed between the districts in America and recruitment policies with higher flexibility and responsiveness should be adopted. In addition, different districts can join to develop specific human resource institutions focusing on the recruitment and retention of rural teachers. Furthermore, based on the literature, more creative solutions will be adopted by developing relevant strategic alliances. For instance, about a decade ago, to solve the problem of teacher shortage for small scale schools in the districts, an approach was established by the joining forces in rural areas, especially rural schools. In this case, a distance-learning network was built up based on the alliance between different districts. Through the network, a teacher can be hired by schools from different districts at the same time as one teacher can teach different classes at the same time on the Internet platform (Education Commission of the States, 2001).

1.6.2 Specific Practices of Teacher Recruitment and Retention

As indicated by Murphy and Dearmond (2003), a simple one size for all approaches cannot deliver effective solutions for the recruitment and retention of teachers in different schools or areas. On the contrary, the recruitment and retention practices should be planned, decided, and implemented regarding the characteristics of specific schools to develop the best strategies to attract the most appropriate staff.

1.6.3 Sustainable Practices of Teacher Recruitment and Retention

Sustained practices of teacher recruitment and retention refer to the continuous practices after the teachers have been recruited. To be more specific, the recruited teachers should be assessed constantly, and corresponding adjustments should be made to ensure that they can better fit into schools. As indicated by Ingersoll (2001), school administrators may need to be trained about how to effectively support teaching staff at work and help them fit into school culture in order to retain the recruited teachers. In particular, according to Lemke (1994) and Ingersoll (2001), re-culturing is a sustainable approach for recruitment and retention of teachers. This approach is about how to shift or alter the teachers' perceptions and attitudes toward their job and how they spend time.

Furthermore, the retention of high-quality teachers involves various stakeholders to take the responsibility, such as school principal and supervisors (mainly school administrators), teachers and the government (policy-makers or decision-makers). In particular, this approach for teacher's retention requires the collaboration between different stakeholders or parties. In addition, it relates to the school culture and general atmosphere or climate at school, since all the stakeholders determine the organisational culture of school.

1.6.4 Community Rooted Practices of Teacher Recruitment and Retention

The recruitment and development of local staff have been proposed and used as a major strategy in human resource management, to solve the severe problem of workforce shortage. Regarding the case of teacher recruitment in rural areas, the recruitment approach of the community-rooted local human resource has also been effective in recruiting and developing workforces with high potential. To be more specific, as teachers are selected locally in the communities of rural areas, they are more familiar with the local environment and conditions than those recruited from other areas. It means that the locally recruited teachers will be more capable of adjusting to the school culture and the local environment (Hammer et al., 2005). Furthermore, in this case, the locally recruited teachers will not have to experience the isolation caused by entrance into a new place. Many studies have indicated that isolation is a major barrier to the recruitment and retention of teachers, especially in rural areas (Collins, 1999). According to the Schwartzbeck (2003)'s investigation, supervisors and administrators in rural areas of America have addressed the importance of the isolation issue as it has a profound impact on teachers' recruitment and retention, especially in rural areas. Furthermore, it has indicated that the three most crucial factors that influence the recruitment and retention of teachers in rural communities are low pay, geographic isolation, and social isolation.

Effective teacher retention practice in rural areas requires several specific capabilities, and one of the most important capabilities is to establish roots in the community. As indicated by Bornfield et al. (1997), the rootedness of teachers in the areas is the most important influencing factor. To be more specific, if teachers have successfully set foot and established deep and close bonds in the area, it will be difficult for them to make a decision about moving as the community has already offered home to them. From this perspective, the community - rooted practice of recruitment and retention is critical to the education of rural areas.

1.6.5 Policies on Teachers' Recruitment and Retention

The following table shows the approaches to the problem of rural teachers' recruitment in 26 countries over the past two decades.

Table 3 Rural teachers' recruitment in different countries

Country	Policy
Brazil	40 days of unpaid holidays in 200 school days a year (San Paulo)
Chile	To double teachers' salary; To increase the subsidy for every pupil in public and private schools.
Mozambique	Bonus payments up to 100% of salary.
Lesotho	A flat bonus of 275 Maloti per month to locate in a mountain area.
Uganda	Hardship allowance of 20% of salary for "hard-to-reach" areas.
Bangladesh	Special training for rural service
Argentina	Up to 80% bonus on base salary
Colombia	Special training for rural services
Costa Rica	Salary bonus and extra time toward retirement
Egypt	Seniority requirements are reduced by 2-4 years for new positions; longer vacations; traveling allowance for teachers and their families; recruitment of local women.
Guyana	Accelerated promotion opportunities; traveling allowances to purchase consumer goods.
Honduras	Three years of rural service is counted as five years in the calculation of seniority, 25% of base salary as a bonus.
Iraq	Free housing

Jamaica	Rise two steps in pay scale
Libya	Payment of some traveling and moving expenses
Mexico	Reduced-rent housing; in some cases, houses are built for teachers; compensation for damage caused by crime; opportunities for the damage caused by crime; opportunities for advanced training.
Nicaragua	Special training for rural services
Nepal	Up to (and occasionally exceeding) 100% of base salary as bonus
Pakistan	Housing clusters for female teachers
Philippines	Up to 25% of base salary as bonus
Senegal	Housing allowances
Sierra Leone	Housing allowances
Syria	Loans for house purchase; compulsory rural service at the beginning of the career.
Venezuela	20% pay raise for teachers with 12 years of rural service; special training for rural service.
Zimbabwe	Loans for house purchase.
Japan	Up to 25% of base salary as bonus

Sources: QinYuYou (2012); McEwan, P (1999); International Labour Office (1991); Carnoy & McEwan (1998); Reeves, C (2003); Mulkeen, A (2005)

The above table shows that foreign nations have adopted a vast array of recruitment strategies, including wages and bonuses, holidays, subsidised rural housing, in-service training, and even the payment of some traveling and moving expenses.

A large number of documents and researches were made over the past 2 decades in China. It has been proven that schools in poor regions are in great lack of teachers. Governmental data show that there were 705,000 Dai'ke teachers in primary and secondary schools nationwide in 2001 (teachers who are not on government payroll, but are locally funded and appointed without formal teacher certification), accounting for 6.6% of the total teaching staff. They mainly concentrated in rural areas. Data from Chinese governmental website show that the shortage number of teachers in Guizhou was 164,000 in 2006 and there were still 22,300 Daike teaches at schools (News, 2006). It was found that in one underdeveloped region, Bijie of Guizhou Province, the shortage number of teachers was 3,184 (Che, 2009).

Ingersoll (2003) found that the problem of teacher shortage has led to the problem of high teacher attrition rate as the high rate of attrition is thought to have a greater influence on teacher shortage than inadequate supplies for new teachers. The 2008 Chinese National Education Report pointed out that teacher attrition is a serious problem in poor regions. A total of 38.7% headteachers in poor regions claimed that there was a high rate of teacher attrition in recent three years; among the turnover teachers, 74.6% are high-quality teachers, and 92.5% are young teachers (under 35 years old). Minerick, Thornton, and Perreault (2003) noted the following:

“The attrition of young teachers is a terrible loss of human capital. It disrupts programme continuity, hinders student learning, and increases costs. In essence, attrition of new teachers is a major barrier to continuous school programme, thereby creating ceiling effects for student achievement. We believe that teaching can and should be a lifelong career.” (P234.)

The problems of teachers' shortage and attrition in rural areas are inevitable. Teacher's shortage and attrition are restricting the development of rural education. To address the problems of teacher's shortage and attrition, the Chinese government and

non-governmental organisations (NGOs) have made all kinds of efforts over the past twenty years. The government has turned to financial incentives to recruit and retain new teachers. Policies have been enacted to increase the retention rate by raising teacher’s salary and improving working conditions. It develops strategies to recruit and appoint teachers from universities—including free tuition schools to rural areas. NGOs typically provide subsidies and training to teachers who choose to teach in rural schools. The below table shows the policies for teacher’s recruitment and retention in rural China:

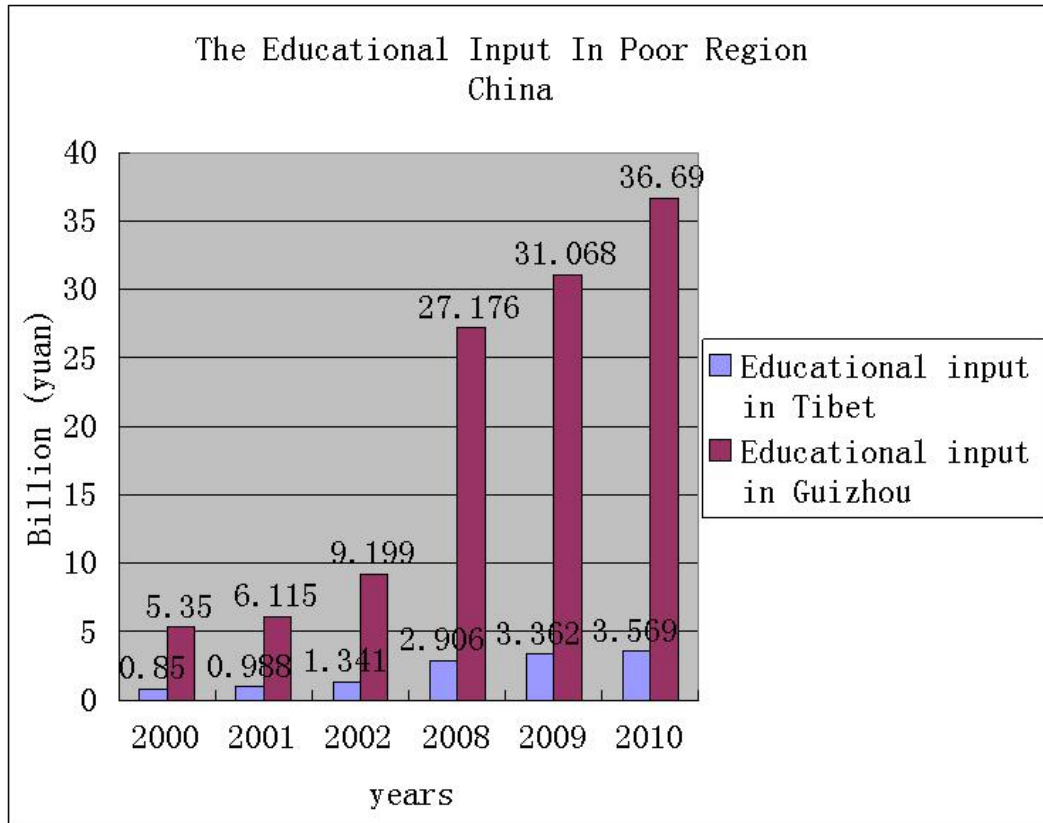
Table 4 Policies of Teacher Recruitment and Retention in China’s Rural Areas

Year	Policy
1994	The government passed the Teacher Law. Teachers have been given, by law, a status equivalent to civil servants in terms of pay and remuneration.
1995	The Education Law of 1995 specified that the state should support educational development in minority group regions, remote border areas, and poverty-stricken areas. The central government has increased investment in rural regions since 1995.
2003	The government launched the “Go to West—College Graduates Volunteer Programme”. The government recruited volunteers to work in rural areas of 12 western provinces. Also, the government offered insurance, training, and subsidization.
2004	The government initiated a programme that encouraged urban college graduates to work in rural schools for three years to qualify for a 2-year government subsidised master degree.

2005	<p>The government announced that it would spend 218 billion Yuan to help improve education in rural areas in the following 5 years. A mechanism would be established to ensure the salary of primary and middle school teachers in rural areas.</p> <p>The amended Compulsory Education Law required urban teachers to work in rural schools to become eligible for promotions.</p> <p>Teachers in special post policy. The government set up special funds to subsidize teachers in rural areas. From 2012, the standard subsidy for every teacher was 27,000 Yuan per year in Western China and 24,000 Yuan per year in Central China.</p> <p>Tuition exemption policy at university. The government provided 4 years of subsidization, free of tuition and accommodation fees in 6 universities. In return, graduates must teach in rural areas for at least 2 years.</p>
2008	Teach for China. Newly graduated college students were recruited to rural schools.
2009	A new teacher salary policy was put into practice. The government also invested 12,000,000,000 Yuan in increasing teacher's salary.

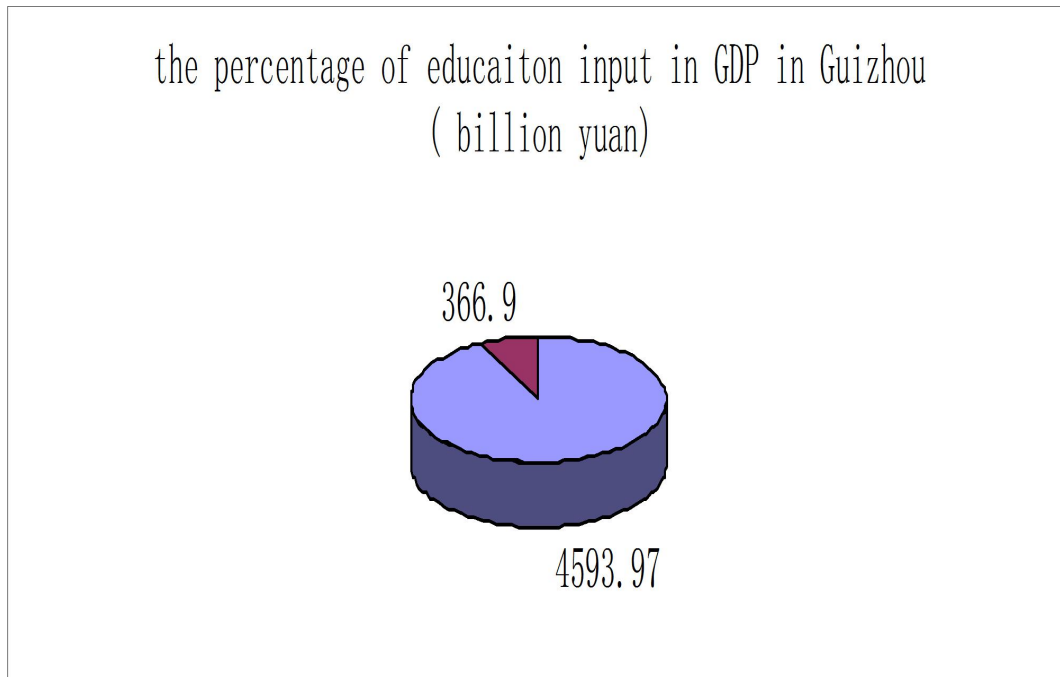
To help Guizhou Province to develop education, the Chinese government has increased their financial input into education. Government figures show that the input in education is increasing on a yearly basis.

Figure 10 The Educational Input in Poor Regions of China



The above chart also shows that the educational input in Guizhou was much more than that in Tibet. This amount of economic investment was considerable. The financial input in education in Guizhou was 366.69 billion Yuan in 2010. 12.87 billion Yuan of the financial input was from the central government, and the remaining amount was from the Guizhou government. In terms of the percentage of GDP spent on education by the central government and the Guizhou government, the Chinese government has spent a lot of money on education.

Figure 11 Percentage of Educational Input in GDP of Guizhou, China



Investment can be divided into three types:

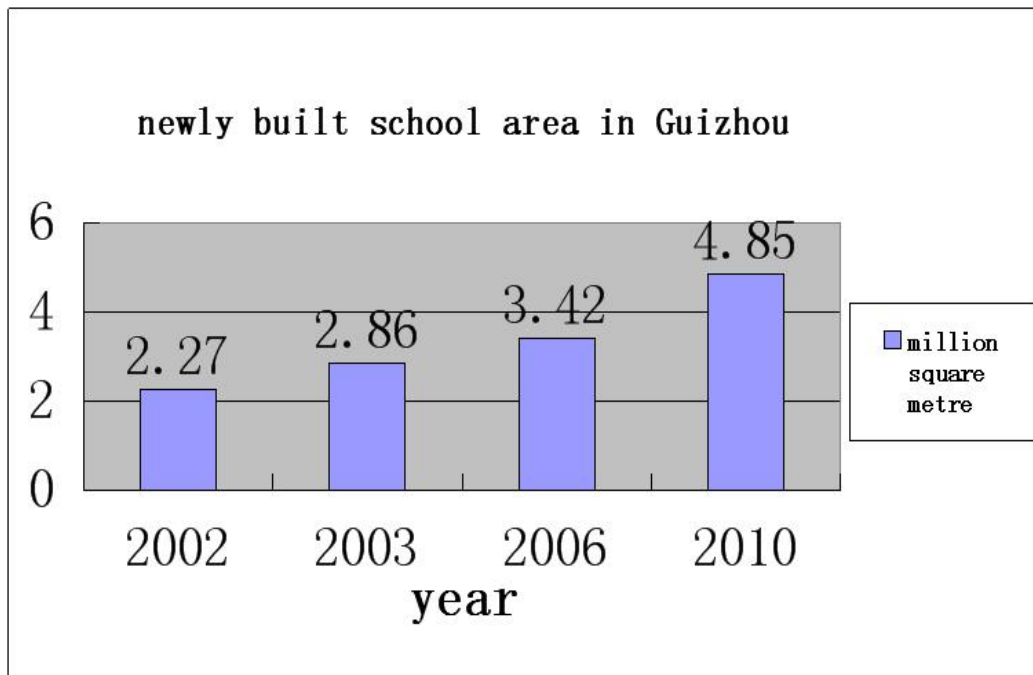
(1) Infrastructure

The Chinese government has attached great importance to building schools and improving educational facilities. By the end of 2010, there had been 12,422 primary schools, 1,617 junior middle schools, 444 high schools and 47 universities and colleges in Guizhou.

By the end of 2008, Tibet had 1,017 schools, 885 of which were primary schools, 96 were junior middle schools, 23 were high schools, 7 were technical secondary schools and 6 were universities and colleges.

Project Hope is a Chinese public service project organised by the Communist Youth League (CYL) Central Committee, aiming to build schools in poverty-stricken rural areas of China. By 2011, it had built more than 1,900 'Hope Primary Schools' in Guizhou Province, which was the largest number in poor areas of China.

Figure 12 Newly Built School Areas in Guizhou, China



(2) Doubling Teachers' Salary

In China, teachers have legally been given a status equivalent to civil servants in terms of remuneration and pay. Those teachers who are deployed in inaccessible and underdeveloped rural areas are provided with hardship allowance and subsidised housing fund. Social security benefits, including medical insurance and pensions, are systematically extended to cover most of the provinces.

To attract more teachers to teach in rural areas, the government has increased teacher's payment to reach the same level of local civil servants. Since 2009, rural teachers' payment had doubled from an average of 1,000 Yuan to around 2,000 Yuan per month in 2012. The average monthly income for a farmer in Guizhou was 350 Yuan. That is to say, teachers' average salary was approximately five times more than that. In Tibet, teacher's average salary was even higher and had increased from 3,900 to 6,000 Yuan over the same period.

(3) Student Incentives: Free tuition, Lunch, and Payment

In 1986, the Chinese government passed a free education law, making nine years of education mandatory for all the Chinese children. According to “China’s Human Resources” issued by the Information Office of the State Council, the Chinese government began to adjust and improve the funding mechanism for compulsory education in rural areas in 2006. Since 2008, the government has been exempting students from tuition and other fees to promote compulsory education. The tuition and textbooks are now free to students in Guizhou.

As the Ministry of Education stated in June 2009, the Twelve Years Free Education Programme is currently promoted in regions with the budget to offer subsidies. The Twelve Years Free Education Programme had not been established as a nationwide programme in China at that time. Nonetheless, since the 2010 autumn semester, central and local governments have co-sponsored a programme to aid senior middle school students from poorer families. It was estimated that 20% of students from poor families could benefit from the programme.

After twenty years, the effect of the above policies in Guizhou is still ambiguous. Basic data, such as the shortage number of rural teachers, the gender of current teachers, and the age and education background of teachers, are not publically available. Information on the rural teacher recruitment and retention of Guizhou is still very limited. In the Google Scholar database, I input the following Chinese key words: “teacher recruitment,” “teacher retention,” “rural area,” and “Guizhou.” Only 8 reports were found, and none was academic thesis. I also searched the website of Chinese Department of Education and the websites of national and Guizhou organisations for information and data about rural teachers in Guizhou. These search results were also very limited.

Very few scholars have conducted research on teachers in rural areas of Guizhou. In fact, there are a number of deep-rooted reasons for this. As a south-western province

of China, Guizhou covers an area of 1,100 meters (3,600 feet) above the sea level and consists of over 90 % mountains. By December 7th, 2005, 3,468 villages still had no road leading to the outside world (CNR.CN, 2005). As a poor and economically undeveloped province, Guizhou had 680.22 billion Yuan (107.758 billion USD) of nominal GDP in 2012. The per capita GDP of 19,566 RMB (3,100 USD) ranked last in China (Wikipedia). Guizhou is demographically one of the most diverse provinces in China. 48 minority groups account for over 37.9% of the population, and most of the minority groups have their own language. A total of 55.5% of the province area is designated as autonomous regions for ethnic minorities. All these autonomous regions have their own policies. For example, Biasha is a unique minority group in China in which men can legitimately own guns. Figure 12 shows the map of Guizhou, China and figure 13 shows the major autonomous areas of Guizhou.

Figure13 Map of Guizhou China

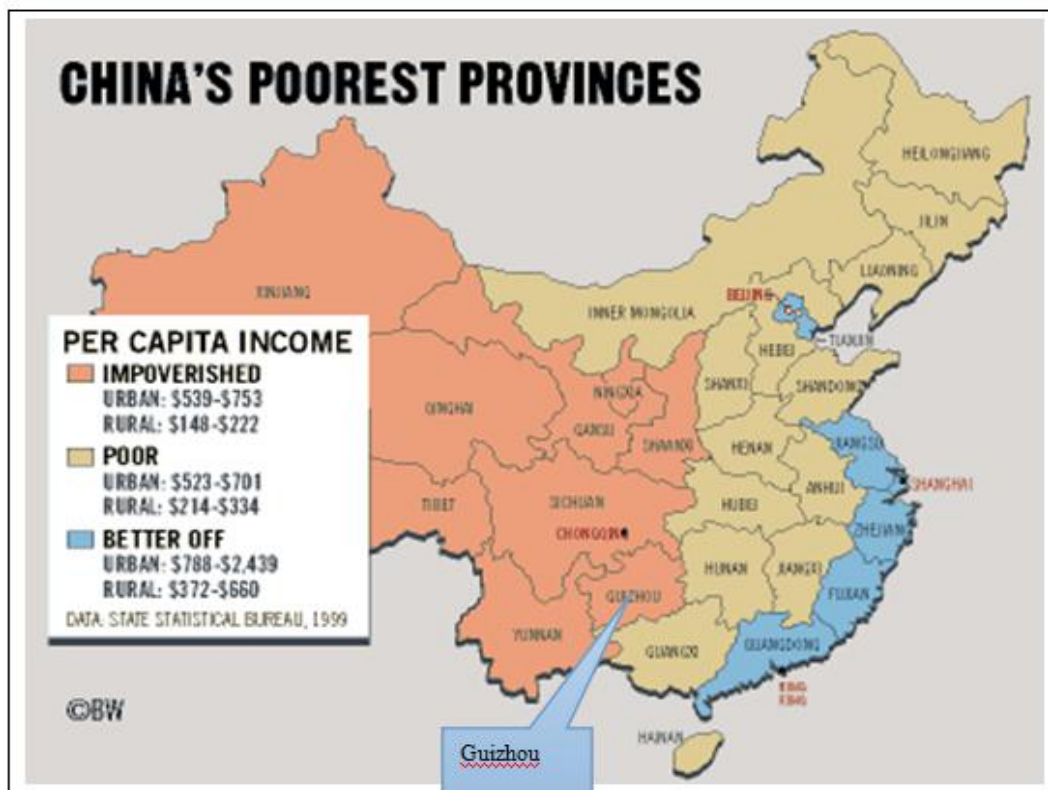
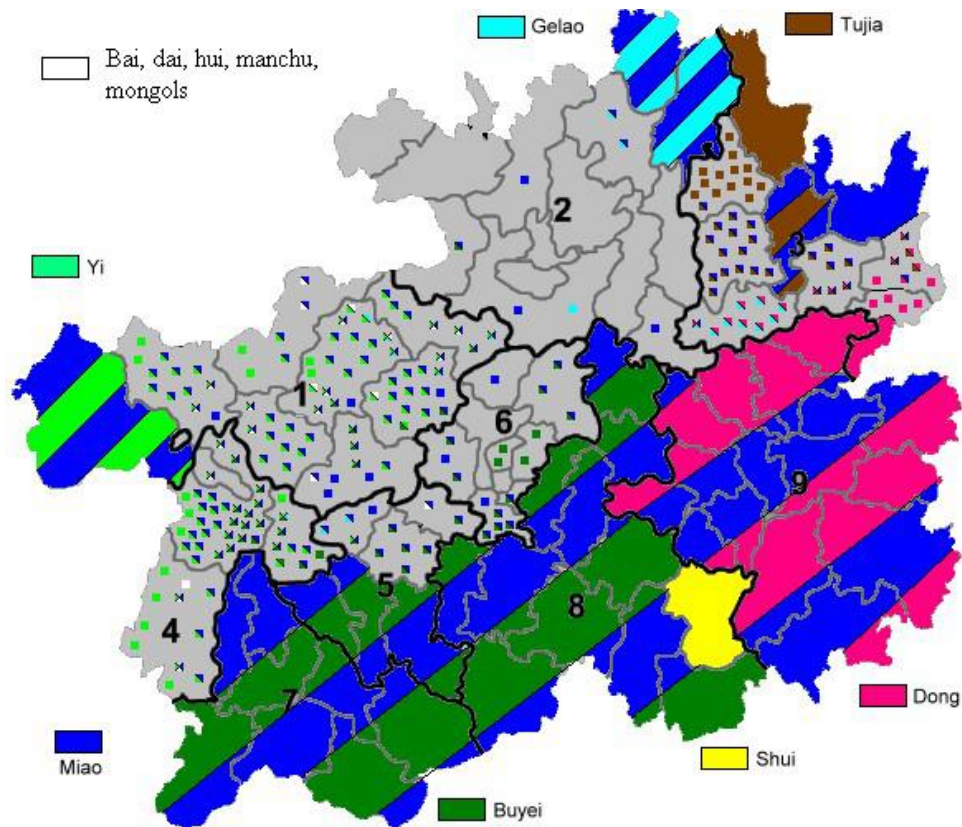


Figure 14 Major Autonomous Areas in Guizhou



Many factors, including poverty, remoteness, different cultures, language difficulties, etc. hinder the research on rural education of Guizhou Province. In order to conduct research on rural teachers in Guizhou, I became a voluntary teacher in a remote area of Guizhou from 2005 to 2011. 6 years of volunteer experience has helped me learn to speak the local dialect and obtain a great amount of useful information.

The aim of this study is to explore the challenges that rural schools in Guizhou are facing to recruit and retain teachers. It aims to provide a neutral and objective assessment on the recruitment and retention policies of current rural teachers in Guizhou. It also provides research-based information that improves our understanding of the factors related to the problem of teacher's shortage. The study tries to provide a reference for policy-related decision making in poor regions of China.

Chapter Two Research Methodology

2.1 Research Goal and Study Questions

This study aims to explore the challenges faced by rural schools in Guizhou, China in recruiting and retaining teachers. It seeks to provide research-based information to improve the understanding of the factors related to the teacher shortage problem in these rural areas. The study tries to supply an authentic and valuable reference for policy-making in impoverished regions of China. Based on the studies on the difficulties that rural schools in Guizhou are facing in recruiting and retaining teachers, this research tries to understand better why it is difficult for rural schools in China to improve quality. The relationship between the recruitment and retention of teachers and education quality is also studied in depth. Current policies of rural teacher recruitment and retention in Guizhou provide evidence about the limitations of the relevant education policies. The gathered information can provide more insights for headteachers of rural schools and the local government to improve their previous education policies and make changes to attract more teachers.

The study was designed to collect data over a 17-month period in order to answer the following questions.

1. Are there shortages of teachers in rural schools in Guizhou?

What policies have been made and implemented in Guizhou for rural teacher recruitment and retention? Have the policies been effective? What are the difficulties faced by rural schools in Guizhou to recruit and retain teachers?

This question was designed based on the theory of education resource management as mentioned in Chapter One. This question was designed to understand the current condition of teacher shortage. In addition, the first question will also focus on the details of teacher shortage through quantitative analysis, such as the age and knowledge of teachers, the course structure and the instability of faculty. Then the

questions about policies are utilised to understand the current policies and its validity.

2. What are the factors that influence teachers' decision-making about whether or not to enter and remain teaching in rural areas?

How can these factors influence teachers' decisions? What incentives have rural schools in Guizhou provided to recruit and retain highly qualified teachers?

This question was mainly designed to reveal the reasons for teacher turnover. A questionnaire survey was conducted to study the individual and environmental factors that make teachers leave.

4. What strategies have been developed for teacher recruitment and retention?

What are the strengths and weaknesses of these strategies? What education policies should be suggested to policy-makers?

This question was designed to know about the current policies that have been implemented and the direction of strategies in the future. Subsequently, some advice is provided in the process of enacting policies.

2.2 Discussion on Research Questions and How the Research Questions Can Be Addressed

The recruitment and retention of teachers in rural areas has been a nation-wide issue over the past years. The quality of teaching staff plays a critical role in promoting education in rural areas. As rural schools cannot provide satisfactory teaching and living conditions for teachers, many teachers are not willing to work in rural areas due to the low level of salary, small school size, geographic isolation, and other limitations in rural schools (Murnane and Olsen, 2000). The limitations as mentioned above have made it more difficult for rural schools to recruit and retain qualified teachers. Rural schools in China usually have a below-average percentage of highly talented and qualified teachers.

Many programmes, such as training programmes and technology programmes, have been developed by the government to help these rural areas improve their education quality. However, little progress has been made due to the lack of qualified teachers. These rural schools also have difficulties in keeping and improving the quality of their current teaching staff. Even though the Chinese government has made and implemented a series of policies to encourage more teachers to teach in rural areas, most of the rural schools in China are still facing challenges in recruiting and retaining teachers. Case studies on the special teaching conditions that influence teachers' decision to teach in rural areas play an important role in understanding the special education situation in these rural areas (Castetter, 2006). As the government has made great efforts to improve teacher recruitment and retention in rural areas while limited progress has been made, it has become increasingly significant for policy-makers to understand the challenges faced by the rural schools in China (Kinlaw, 2002). It can offer more directions for both headteachers of rural schools and policy-makers who should make more effective policies. It is also important to promote social stability and equity, which eventually will promote the establishment of a harmonious society and China's sustainable development.

In a recent study, DeYoung (2001) argued that teachers who are willing to spend their whole life in teaching in rural schools only occupy a small proportion (about 5.6%) of all the teachers working in rural schools. In fact, most of them come from rural areas. Based on the research findings, from the teachers' perspective, it was found that teachers' value on teaching in rural schools still needs to be rectified (Monk, 2007). The poor working and living conditions in these areas have contributed a lot to the challenges for rural schools to recruit and retain teachers (Faidley and Musser, 2001). Therefore, studying these challenges from the teachers' perspective can help policy-makers better understand why rural school teachers are not willing to stay and why it is so hard to recruit highly qualified teachers to work in rural schools (Haskelkorn, 2006). The research questions were designed to help

headteachers and teachers of rural schools to understand what they should offer, what they have missed, and what they should pay more attention to. These questions also provide more evidence to demonstrate the causes for teachers' outflow from rural schools through comparative and concrete analyses. Also, these research questions, especially the questions on the incentives for teachers to teach in rural schools, demonstrate that offering incentives to teachers is a significant strategy that should be well utilised by rural schools. As this research focuses on the challenges that rural schools are facing in recruiting and retaining teachers, the research questions can give more detailed and persuasive information about teachers in rural schools of Guizhou to reach the research goal.

As mentioned previously, the research questions are divided into three categories with regards to different aspects of the current situations of teacher recruitment and retention. These questions were designed to explore the challenges that rural schools are facing in recruiting and retaining teachers from different perspectives. The first category of research questions tries to study the challenges from the perspective of policy, starting from the effectiveness of the teacher recruitment and retention policies in Guizhou. Based on the objectivity of this research, the questions in the first category are consistent with the study objectives and can be used to explain the causes of the challenges in recruiting and maintaining teachers in rural areas of China. The second category of questions explores the challenges from the perspective of teacher. An analysis was conducted to study the factors that influence teachers' decision about whether or not to enter and remain teaching in rural areas of Guizhou (Luft, 1993). The answers to these questions can obviously provide more implications from the perspective of teachers for policy-makers in Guizhou to make more effective education policies. If rural schools can improve their education infrastructure based on teachers' requirements, teachers may be more willing to teach there. The third category of questions has been designed from the perspective of strategy. The strategies developed by policy-makers will be evaluated according to their practical performance. Through concrete analysis on issues on a case-by-case basis, it is easier

for policy-makers to determine what they have done, what they have missed, and what they should pay attention to in the future. As a whole, the research questions designed for this study are of great importance for all the involved stakeholders to understand the challenges that rural schools are facing in recruiting and maintaining teachers in rural areas in China from comprehensive perspectives.

Obviously, the research questions have some limitations. For example, some questions should be designed based on the influence of economic conditions on teachers' decision about whether to stay or leave. In addition, the research questions only focus on the challenges for rural schools of Guizhou by uncovering how policies have made it difficult to recruit and retain teachers. This makes the research questions less valuable than expected. Furthermore, some students could have been interviewed to collect more information and data.

In order to address the first research question:

1. Are there shortages of teachers in rural schools in Guizhou? What current policies have been made and implemented in Guizhou for rural teacher recruitment and retention? Have the policies been effective? What are the difficulties faced by rural schools in Guizhou to recruit and retain teachers?

Government officials were first interviewed. They were selected based on their different roles in the development of education in Guizhou to answer the following questions:

(1). What special policies have been made? Have the policies for rural schools been given priority?

(2). Did the policies meet the goals of teacher recruitment and retention in Guizhou?

If the policies met the goals of teacher recruitment and retention, the following questions would be asked:

What are the strengths of policies that help to fix the problem of teacher shortage?

If the goals of rural teacher recruitment and retention were not achieved by the

policies, the following questions would be asked:

What were the reasons that led to the failure of policies in solving the teacher shortage problem? In other words, what are the weaknesses of the policies?

- (1). Have you received any comment on the policies? Have you evaluated the effectiveness of these policies? If so, what have you found?
- (2). What problems did you meet when you implemented these policies, and what experiences have you gained?
- (3). What are the aspects that you think should be changed in making education policies in rural schools of Guizhou? Why?

These interviews with officials were designed to make the research meaningful. They can provide concrete reflections from policy-makers on the policies.

9 primary school headteachers were interviewed. They were selected based on the differences in various problems and policies in teacher recruitment and retention to answer the following questions:

- (1). Did the policies meet recruitment and retention goals in your school?

If the school was not short of teachers, the next question would be as follows:

What are the strengths of policies in fixing the problem of teacher shortage?

If the policies did not meet the recruitment and retention goals of school, the following question would be asked:

What are the reasons that make the policies fail to solve the problem of teacher shortage? In other words, what are the weaknesses of these policies?

If the school was still short of teachers, the following questions would be asked:

How will you plan to fix the problem?

- (2). What were the difficulties you faced when attempting to recruit and retain highly qualified teachers? Are there shortages of teachers in your school now? What are the influences?
- (3). Have you experienced an outflow of talented teachers?

If there was an outflow of teachers, the following questions would be asked as below:

How many teachers do you lose every year? Why were they leaving?

If there was no outflow of teachers, the following questions would be asked:

Why did teachers decide to stay? Why did they leave?

(4).Have you received any comment on the policies? Is there any special policy that you think is valuable to attract and keep teachers?

(5).Did you meet any problem when implementing these policies?

(6).What will you plan to do in the future? Are there new concerns that should be taken into consideration for future policy-making?

As school headteachers are the direct policy-makers for the recruitment and retention policies, they fully understand that the policies they make and implement can directly influence teachers' decisions about whether to continue teaching in rural schools (Murnane, 2001). These questions can provide implications for both successful and unsuccessful policies to headteachers in order to address the teacher shortage problem and retain talented teachers. The difficulties faced by rural schools of Guizhou in recruiting and retaining teachers have become clear. The answers to the research questions provide reliable information and data for a neutral and objective assessment on the current policies of rural teacher recruitment and retention in Guizhou.

Similar questions were asked to 41 teachers (21 females and 20 males). The difference is that the teachers answered the questions from the teachers' perspective, while headteachers answered from the perspective of managerial level. Before the teachers and headteachers were interviewed, a form was prepared to collect information about the school in which they were currently working (see appendices). According to the form, information can be obtained about the numbers of current students, current teachers, male and female teachers. All the information is helpful to answer the first research question. For example, the government requires that the teacher-student ratio should be lower than 1:23. By comparing the number of students

and the number of teachers in one school, the number of teacher shortage can be determined.

2. What are the factors that influence teachers' decision-making about whether or not to enter and remain in teaching? How do these factors affect teachers' decisions? What are the incentives provided by rural schools in Guizhou to recruit and retain highly qualified teachers?

In order to address the second research question, the following questions were asked:

(1). Why did you choose to teach here? Please provide the reasons for your preference. (Why did you and how did you make the decision about whether or not to teach and where to teach?)

(2). What do you think of working here? Why?

(3). Have you ever changed your primary opinion about working here?

If the participant indicated that their option had changed, the following question would be asked:

What made you change your opinion about teaching in rural schools?

If the participant indicated that their option had not changed, the following question was asked:

What made you persist in your belief about teaching here?

(4). How did you make the decision between staying and leaving? Why?

(5). What are the factors that influence your turnover intention? Which is the most important one that forces you to make a decision between staying and leaving? Why?

(6). What problems are you facing when working and living in rural areas? Have the schools provided any solution to these problems?

(7). How did you solve the problems in this rural area? What are the difficulties that you have experienced?

(8). Would you like to teach here for your whole life?

If the answer to this question was yes, the following question would be asked:

What are the reasons that make you decide to stay here for your whole life?

If the answer to this question was no, the following question would be asked:

What are the factors that make you feel unsatisfied and want to leave?

(9). Do you have any comment on the recruitment and retention policies in your school?

The following questions were printed for teachers to answer on a piece of paper during the rest of the time.

Do you think these facilities are enough for high-quality teaching?

Do you have any idea for your current working conditions?

How do you feel about the students here, considering their enthusiasm, the quality of class activities, and the quality of homework and grades?

Do you think there is any difference between teaching in rural schools and teaching in cities? If so, please list some differences. If not, please provide an explanation.

More questions were asked to teachers according to their responses. These questions were designed to identify exactly what the most attractive or important factors or were to help teachers make the decision to stay or leave. The interview has been a commonly used qualitative method to gather reliable information and data. It is important for the researcher to design questions about the teaching experiences of teachers, especially in rural areas with tough teaching conditions. The experiences from teachers about the policies can provide important information for the researcher to examine the effectiveness of policies. Analysing data from the perspective of teachers was an effective way to learn about the influence of the teacher recruitment and retention policies. By understanding the challenges involved in teacher recruitment and retention from the teachers' perspectives, evidence was gathered about what schools headteachers and policy-makers should focus on to make more effective policies (Murnane and Olsen, 2009). In addition, policy-makers will recognize the factors that forced or motivated teachers to teach at rural schools in Guizhou and teachers' requirements to remain in their positions. Such in-depth study can also help reveal the challenges faced by rural schools when attempting to recruit and retain teachers and what has been missed by policy-makers and schools in the

policy-making processes. From different perspectives, the serious recruitment and the retaining situation in rural schools of Guizhou can be better understood.

3. What strategies have been developed for rural teacher recruitment and retention? Which ones are effective, which ones are ineffective, and what strategies can be developed to promote the recruitment and retention of teachers in Guizhou? What are the strengths and weaknesses for the strategies? What education policies should be suggested to policy-makers?

The third research questions were asked directly to teachers, headteachers, and government officials. When participants pointed out a strategy that promoted the recruitment and retention of teachers, the researcher asked them about the particular reasons for the effectiveness of these strategies. Each participant provided his or her suggestion(s) about teacher recruitment and retention. Besides, the following questions were asked:

1. What kind of support do you expect from both the government and school?

After collecting data from the questions above, the researcher asked the government officials and headteachers the following questions:

Have teachers' demands been met?

If the demands have been met, how will you do?

If not, please give the reasons. What kind of help do you need to meet teachers' demands?

2. According to a list of policies from foreign countries, please tell me which policies attract you or which policies you think will help attract teachers. Tell me your reasons. (The researcher attached different policies from foreign countries. See appendices.)

Policies such as:

Travel allowance for teacher and family

Accelerated promotion opportunities

Three years of rural service counted as five years in the calculation of seniority.

Housing allowances

Free housing in the rural area.

Extra time toward retirement

40 days' unpaid holidays in 200 school days a year

Special training for rural service

3. Have you found strengths or weaknesses in these policies? Please give some examples.

4. Are there some policies which have not been mentioned yet you consider important in recruiting and retaining qualified teachers? Please explain.

5. Do you have any suggestion for policy-makers?

All these questions are of the same importance in making the study complete and meaningful. However, the last research questions have more implications for the strategic improvement that should be achieved to overcome the difficulties in recruiting and retaining teachers. These questions provide the research-based information to solve the teacher shortage problem in rural areas. Almost all the possible factors that influence teachers' decisions about whether to work in rural schools or not and the factors that force or motivate them to leave or stay can be obtained by asking these questions (Lemke, 1995). The interviews were held with headteachers, teachers, and policy-makers to help collect more information through face to face communication. It should be noted that there may be some key information the interviewees have not provided due to some special reasons. Therefore, the collected information may not be as reliable as expected. According to the results of the interviews, this research compares different views about the

recruitment and retention policies in rural schools of Guizhou. The questions were all about the supply and demand of teachers in rural areas after specific policies had been developed and implemented. By asking which strategies were the most influential, the researcher provided advice to policy-makers about which strategies should be strengthened and which ones should be abolished.

These questions can also provide details about the subject of the qualitative research. As they are based on naturalistic observation, they can open a discussion for the interviewees to provide more useful information. In addition, before the interviews were conducted, emails or letters had been sent to the interviewees to inform them of the protection of privacy which is a precaution for a successful interview. Even though interview has been praised as one of the most effective and widely used methods to collect information, it still has limitations. In addition, emotional changes may have negative influences on the authenticity of interview results. The interviewer should take this factor into consideration when evaluating the value of the research.

2.3 Methods and Data

Ethnographic data for this study were collected as part of a field study on rural teachers' living conditions in Guizhou Province between 2013 and 2014. The study included field study on 47 primary schools and in-depth interviews with 41 teachers, 9 headteachers and 4 government officials. In addition, 200 questionnaires were collected from teachers. An agreement has been signed with the interviewees and participants of the questionnaire surveys for the protection of their privacy. The following table shows the frame of the study:

Methodology	Research Goals	Sampling	Data Collection Methods
--------------------	-----------------------	-----------------	------------------------------------

qualitative research and quantitative research methods were used together	To explore the challenges that rural school in Guizhou are facing when recruiting and retaining teachers. It tries to supply a reference policy-making concerning teacher recruitment and retention in poor regions of China.	Setting: Guizhou A field study of 47 schools Interview participants: 41 teachers, 9 headteachers and four government officials. Questionnaires participants: 100 urban teachers. 100 rural teachers.	Field study Interviews Questionnaires Data collected from books and academic journals.
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2.3.1 Quantitative Data Capture

“Quantitative research refers to the systematic empirical investigation of social phenomena via statistical, mathematical or computational techniques” (Given, 2008). Quantitative research typically uses a representative sample which allows for the generalization of the findings. Data from quantitative research is statistically reliable. Quantitative methods are important as they offer measurements of progression in studies, for example, in the case of literacy rates and income stability. Quantitative methods make it possible to easily summarize, analyse, and compare the results (Moore, 2001). The researcher asked a narrow and specific question and collected numerical data from the participants. Subsequently, the researcher analysed the data.

By using quantitative methods, researchers collected data in the form of numbers. The provision of descriptive data allowed researchers to derive facts from differences in groups and demographics. Statistical analysis is the most commonly used method in quantitative research. During the research process, researchers can interpret and

explain the collected data to uncover useful and meaningful contents to the research of Needs Assessment or Baseline Survey. “It is independent of the researcher, and one should get similar results no matter who carries out the research” (Morse, 2005). In this process, the researcher was required to provide accurate numbers about all the subjects that may be used to gather statistics. The research findings should include numbers that are as accurate as possible. In spite of some errors, quantitative research can also provide implication on how many different factors or groups have made contributions to the research topic. Statistical significance makes quantitative research the first choice for many researchers. A quantitative approach was also adopted in this research. The researcher utilised questionnaire survey to gather information about how varied intentions have contributed to teacher’s turnover rate, what influences different policies have had on rural schools in attracting and retaining highly-qualified teachers, and how many different factors have contributed to the increasing challenges in recruiting and retaining teachers in rural schools of Guizhou. Based on the statistical analysis, findings could be more persuasive.

By sampling, the researcher can strengthen the statistical power of the findings. Through the good control of sample size, the researcher can better understand what matters and how much it matters in these samples. Effects of the samples are also presented with a number, which gives a clear numerical explanation on the answers. For example, answers from the teacher samples finally reveal the important factors that make them stay or leave and the influences from different challenges in teacher recruiting and retaining in rural schools of Guizhou. This offers important information for the researcher to understand why these challenges have existed and what effects they may have. These findings also provide the reference for policy-makers on how they should make further decisions with consideration of different factors at different levels of significance. The headteachers can also be inspired what should be paid more attention to in recruiting and retaining teachers. These representative samples have been characterized by their different roles or characteristics in the research. They can provide data from different perspectives, which allows the researchers to

understand the special topic.

A total of 200 primary school teachers participated in the survey with valid feedback during the summer and autumn of 2013. The response rate was 100%. All the teachers were from “Qian Xiao Wan Shi”, a programme organised by the CYL in Guizhou. The programme aimed to train more than 10,000 Guizhou teachers among 1,000 schools. By 2012, 6,246 teachers from 5,000 schools received training in this programme. 100 questionnaires were distributed to more than 800 teachers during the summer vocation training in 2013. After learning about the research background and purpose of the study, a large number of teachers volunteered to fill the questionnaires. That is the reason that there was a 100% response rate. When a government official was interviewed, he suggested the researcher to collect data from urban teachers as well because it could help me compare the different samples. Finally, the 100 urban teachers and 100 rural teachers volunteered to participate in the survey. It is noteworthy that the 100 rural teachers were from 100 different rural schools in Guizhou Province.

The questionnaire consisted of 32 items and was divided into three main sections, corresponding to the three main research questions. While many of the items required rankings on a four or five-point Likert scale, space for extended comment was provided for each set of items at the end of each section. At the end of the questionnaires, respondents were offered the opportunity to have an in-depth interview, and a majority of respondents indicated their willingness for the interview.

(1). Current Condition of Educational Resources Arrangement

What policies have been made and implemented in Guizhou for rural teacher recruitment and retention? Have the policies been effective? Are there shortages of teachers in rural schools in Guizhou? What are the difficulties faced by rural schools in Guizhou when attempting to recruit and retain teachers?

On March 27th, 2006, the Chinese Department of Education claimed that the government was going to dismiss all the Daike teachers in a short time (Daike teachers are those who have no official teaching certificate). At that time, there were more than 446,000 Daike teachers, which can be regarded as a signal to show that the recruitment and retention policies were effective. Only when qualified teachers had been found to take the place of Daike teachers, could the Daike teachers be dismissed completely. Therefore, the amount of Daike teachers is an important index which can be utilised to evaluate the effectiveness of the current recruitment and retention policies. The following four questions from our questionnaires focus on the first research question.

Are there shortages of teachers in your school now?	Yes	No
How many teachers are in lack of in your school?		
1-2	3-5	6-8
	9-10	11+
Is there any Daike teacher teaching in your school now?		
Yes	No	
Do you have any teaching certificate?		
Yes	No	

The fourth question was designed to evaluate the effectiveness of both teacher recruitment policies and teacher training programme. These four questions are about how policy-makers have made recruiting and retaining policies to improve the teaching quality in rural schools. Additionally, the quality of teaching staff can be clear as some questions were designed to determine whether teachers in rural schools of Guizhou are well qualified. In some sense, the related answers have a close relationship with the challenges faced by rural schools in Guizhou. These questions for the headteachers of schools are important to determine how the quality of teaching staff can influence the teaching practice in rural schools.

Meanwhile, it is necessary to find out the percentage of current teachers in rural areas

that were recruited by government policies and programmes. How long would these teachers stay in rural schools? The percentage is an effective index to evaluate the performance of the recruitment policies. And the time they plan to stay is an index to evaluate the performance of the retention policies. On this topic, two questions are designed.

Were you recruited through policies or programmes?

Yes No.

If you were recruited through policies or programmes, how long will you plan to remain teaching in rural area?

Under 3 years 3-5 years
6-10 years 10 years +

Teachers' evaluation on policies and turnover intention are also important since they reveal the effectiveness of policies. The two questions in the questionnaire were designed for this purpose:

Are you satisfied with the current policies or programmes?

Very not satisfied Not satisfied Neither
Satisfied Very satisfied

Do you have any turnover intention?

Yes No

Besides, three questions in the questionnaires helped me know more about the subject of teacher shortage:

Which subject are you teaching now?

Chinese Mathematics English Morality
PE Music Art Science other

Do you think your major match the subjects you are teaching?

Yes	No			
Which subjects are short of teachers in your school?				
Chinese	Mathematics	English	Morality	
PE	Music	Art	Science	other

The three questions above were designed to investigate the course structure as mentioned in Chapter One, and will be used to measure the deficiency of teachers for certain courses.

There is a big difference between Chinese primary education and the UK primary education. In Chinese cities, a teacher's major in university determines which subject he or she will teach in his or her teaching career. That is to say, primary school teachers only teach a single subject. For example, a teacher whose major is math will only focus on teaching math. In rural areas, due to the lack of teaching staff, many teachers have to teach different subjects. For some subjects, such as art and music, there are very few qualified teachers in rural areas.

(2). Reasons for Teacher's Turnover

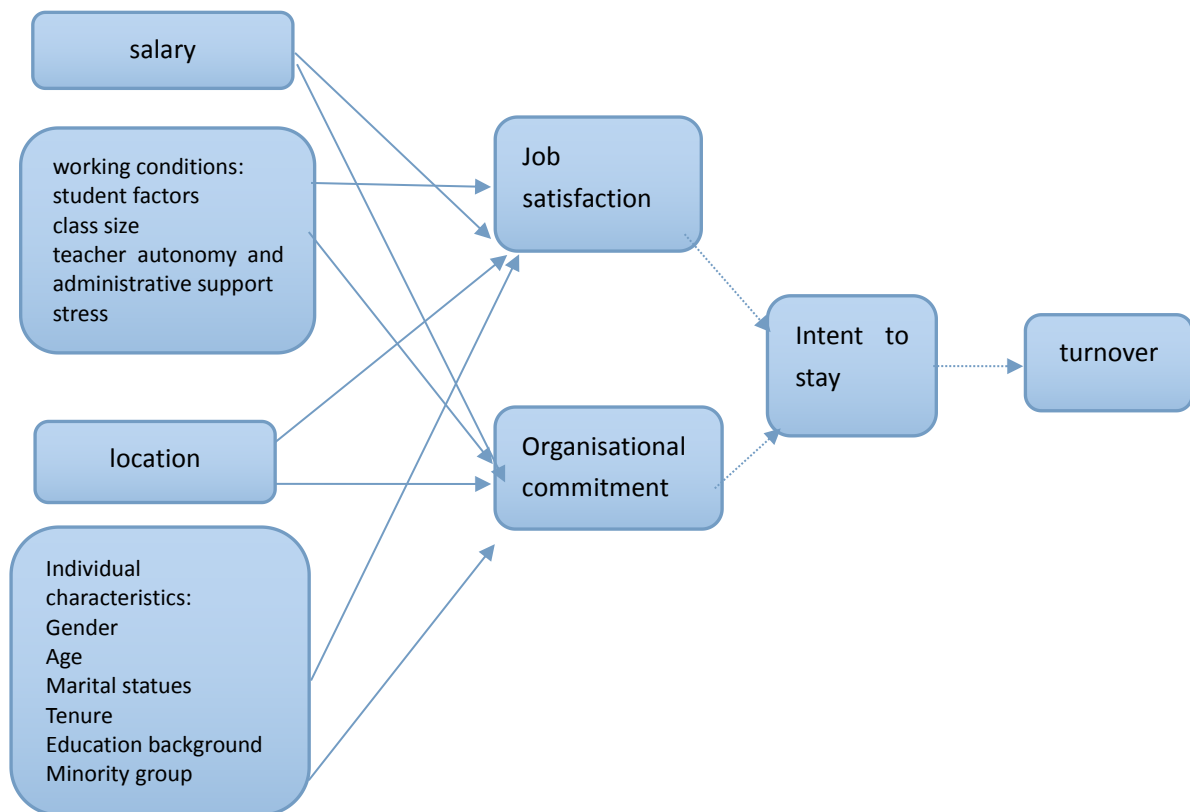
. What are the factors that influence teachers' decision-making about whether or not to enter and remain in teaching? How do these factors influence teachers' decisions? What incentives have rural schools in Guizhou provided to recruit and retain highly qualified teachers?

The second question was designed based on teachers' satisfaction as mentioned in Chapter One to investigate the various factors that impel teachers to leave, including individual factors and environmental factors. In this study, individual factors are the characteristics of teachers (gender, age, people, background, experience and marital status) and environmental factors are salary, working condition and location.

Although the factors that influence teachers' decisions about whether to teach or

continue to teach in rural areas are varied among individuals, several main factors relevant to teacher turnover in rural areas (see the literature review) are examined. Teacher retention is usually measured by turnover rate. Job satisfaction is an important issue in turnover studies. Tianja and Emily (2005) found that job dissatisfaction leads to attrition and thus exacerbates the problem of teacher shortage in rural communities. Educational economists Chambers and Fowler (1995) indicated that the job satisfaction of teachers involves both monetary and non-monetary rewards.

These factors can be broadly categorised as teachers' characteristics: salary, working conditions, and location. A model was built in the study to show these factors. Dashed pathways represent the influences of different factors on teacher turnover.



Alwin and Hauser (1975) found that, once a path model was identified, the causal effects of each causal variable (Z) on the endogenous variable (Y) can be calculated by decomposing its correlation (r_{yz}). The following equation shows how it can be achieved through algebraic expansion:

$$r_{yz} = \sum_i p_{yxi} r_{xiz}$$

As shown in the model above, to study rural teachers' turnover and retention in Guizhou, it is vital to understand the characteristics of current teachers. In this study, data about teacher gender, age, teaching experience, native place, marital status, etc. were gathered.

Individual Factors

To answer the second research question, data about teachers' characteristics were collected through the following questions:

Teachers' characteristics	Question
Gender	Gender: Male Female
Age	Which age group are you in? 24 and under 25-34 35-44 45-54 55+
Marital status	What is your marital status? Married Unmarried
Seniority (Years of teaching experience)	What is the length of your teaching experience? 3 years and under 4-10years 11-20years 21-30years 31years+
Ethnic Group	Which ethnic group are you in? Han Miao Buyi Dong other
Degree	In what degree group are you? Associate degree Bachelor degree Master degree Secondary specialized school diploma

Training Teaching	in	What is your education background? Normal school Specialized Postsecondary College University Other college or university (There is no normal university in the UK. In China, the majority of teachers are from normal universities.)
Major		What is your major? Chinese Mathematics English Morality PE Music Art Chemistry Physics other
Experience Other Job	in	Have you been employed in other job before you become a teacher? Yes No
Native Place		Where were you born? City County Town Village Related Question: Where do you prefer to teach? City County Town Village

Environmental Factors

The following questions refer to the salary issues:

What is your current salary?

Less than 1000 1000-2000 2000-3000 More than 3000

What is your expected salary?

1000-2000 2000-3000 3000-4000 More than 4000

Are you satisfied with your current salary?

Very not satisfied Not satisfied Neither
Satisfied Very satisfied

Will you change a job if other positions offer you the expected salary?

Yes

No

These questions were designed to study what the expected salary of teachers is, what the difference between the currently provided salary and the expected salary is, and to what extent salary influences teachers' decision about teaching in rural schools of Guizhou. Salary is one of the most influential factors that affect teachers' decisions about where to teach. The questionnaire surveys that study teachers' salaries are of importance as they provide an in-depth understanding of teachers' expected salaries in certain places. Questions were designed to provide indications about the level of salary that will make teachers quit their teaching job. The findings were expected to demonstrate the role that salary plays in addressing the teacher shortage problem in Guizhou rural areas. Also, these questions can provide information for policy-makers to better understand how to improve policies on salary and how to reduce the negative influences of salary on teachers' recruitment and retention in rural schools of Guizhou.

The following questions refer to the working conditions:

What is your class size now?

Under 30

30-40

40-50

50-60

60+

What is your ideal class size?

Under 30

30-40

40-50

50-60

60+

The questionnaires were designed to identify the gap between the actual class size and idea class size for teachers in rural schools of Guizhou. In fact, actual class size usually exceeds the standard, especially in rural schools. Some of the rural classes even have 60 to 70 students, which increase the difficulties for teachers to improve the teaching quality.

The following questions refer to other factors:

Which factors will influence your decisions between teaching and leaving in rural

area of Guizhou?

Salary

Attributes of students

Class size

School culture

Facilities

Teaching assignments

Leadership

Safety

Teacher peers

Family reason

Entrance requirements

Please rate the following areas by the level of importance with 1 being most important and 5 being least important.

	1	2	3	4	5
Salary					
Attributes of students					
School culture					
Class size					
Facilities					
Teaching assignments					
Teacher peers					
Leadership					
Safety					
Family reason					
Entrance requirements					

These additional questions play a critical role in helping the researcher to learn how other factors influence the difficulties in teacher recruitment and retention in rural schools of Guizhou. These additional factors are of importance to help the researcher gather more information about the different causes of the difficulties in rural education. The headteachers and policy-makers benefit from this information and become more effective in the decision-making processes. These questions were designed based on the previous studies on related difficulties in rural areas of China and Western countries. The questionnaires as the most important quantitative method used in this research can help explore the challenges faced by the researcher when attempting to recruit and retain teachers in rural schools of Guizhou.

4 variables were used in the analysis: teacher characteristics, salary, working conditions, and location. In the study, a logit model was used to estimate the teacher turnover intention:

$$\eta_{ts} = \beta_0 + X\beta_1 + Y\beta_2 + Z\beta_3 + G\beta_4$$

Here, η_{ts} is the teacher turnover intention for teacher, t in school, s . The random effects logit model is used to analyse the effects of teacher characteristics (X), salary (Y), working conditions (Z), and location (G) on four dichotomous indicators of teacher turnover intention. The logit model can be utilised to gather initiative information to explain some certain issues (Weijer, Dickens, and Meslin, 1997). The selection of variables plays a critical role in the accurate analysis of the data. The salary, working conditions, and other selected variables all have close relationship with s .

(3). Validity of Policy

What strategies have been developed? Which ones are effective and which ones are ineffective? What strategies can be developed further to promote the recruitment and retention of teachers in Guizhou? What are the strengths and weaknesses of these

strategies? What education policies should be suggested to policy-makers?

In order to answer the third research question, data were collected through the following questions:

The following policies are all from other countries. Which policies are attractive to you?

Travel allowance for teacher and family

Accelerated promotion opportunities

Three years of rural service counted as five years in the calculation of seniority.

Housing allowances

Free housing in rural area.

Extra time toward retirement

40 days' unpaid holidays in 200 school days a year

Special training for rural service

In quantitative research, multiple questions could help researchers study certain issues from different perspectives. The participants could provide more than one answer for the same question that the researcher can gather more information to enrich the research contents. The mentioned questions can help the researcher understand what policies are effective in attracting teachers. The gap between the expected policies by teachers and the actual policies can be explored through the mentioned questions. They could also reveal how these elements in the questions can attract teachers.

Although quantitative research has strengths, its weakness is also obvious. In the study, it is difficult to obtain a lot of information through questionnaires. *“Quantitative methods were the more familiar tools for exploration, and numbers and percentages were powerful arguments to drive change, predict events and determine action.”* (Cant, 1997) Self-reported information obtained from questionnaires may be inaccurate or incomplete. For example, in the third research question, the questionnaires were not helpful in identifying teachers' understanding and

suggestions for the education policies. In this case, qualitative research was involved in the study.

2.3.2 Qualitative Data Capture

Teacher shortage is a complex issue which can be defined in different ways. It can be defined as low supply of teachers and also be defined as high teacher turnover rate. It can also be defined as a lack of qualified teachers or a lack of teachers for certain subjects. Teacher satisfaction, in terms of their current teaching job, has a direct influence on the teachers' decision to stay or leave. Data from several simple questions are not comprehensive. In this case, qualitative research was applied in the study. A field study was conducted among 47 primary schools and in-depth interviews were conducted among 41 local teachers, 9 headteachers, and 4 government officials to collect data for the research questions (see qualitative research).

Qualitative research is a method of inquiry employed in many different academic disciplines, including social sciences, market research and further contexts (Denzin and Lincoln, 2005). Qualitative research can be used to effectively clarify and obtain information about the particular population. Strauss and Corbin (1990) argued that qualitative methods can be used to gain new perspectives on existing issues or gain more in-depth information that may be hard to quantify. Qualitative interviewing utilises open-ended questions that allow individual variations. Open-ended questions can evoke the responses that are meaningful, unanticipated, culturally salient, and explanatory in nature (Bogdan and Biklen, 1982).

“Structured interviews. Limited time and financial resources may lead some qualitative researchers to pursue other data collection techniques, such as a structured interview scheduled with open-ended questions. According to the theoretical and research literature, such questions may be formulated and organised in advance to address a specific research topic. For example, studies of adoption dissolution may include questions for adoptive parents who focus on such themes as parental

motivation for adoption, including knowledge of the child's past, initial attitudes toward the child, use of therapeutic resources, development of problematic behaviour, and other factors leading to dissolution. Interviewers are expected to take field notes or to keep a field diary of observations during the interview.”(Mcroy,1995) Qualitative data can provide more information for researchers to organise in-depth understanding of certain issues (Berg, 1989). The purpose of qualitative data is to get a rich and complex understanding of the specific social context and phenomenon. “Qualitative research differs from quantitative research in that the latter is characterized by the use of large samples, standardized measures, a deductive approach, and highly structured interview instruments to collect data for hypothesis testing.” (Marlow, 1993)

Patton (1990) considered that purposeful sampling is the dominant strategy for qualitative research. It seeks information-rich cases that can be studied in depth. Patton identified 16 types of purposeful samplings, including snowball or chain sampling, extreme or deviant case sampling, typical case sampling, confirming or disconfirming case sampling, maximum variation sampling, important case sampling, and convenience sampling (Patton,1990, P 169-183). Qualitative research can help researchers present their theses with analytical thinking, while quantitative research can provide more empirical support for academic writing. By combining the two different research approaches, researchers can deal with the complex research topics and issues with effectiveness. Such a mixed method has been accepted by researchers in recent years. In this study, the researcher has tried to use both qualitative and quantitative research methods. In the researcher’s view, the challenges faced by rural schools in Guizhou are a complex issue that should be handled with patience. The Chinese government has tried to enhance the quality of education in rural areas, and this problem has not been solved for many years. These challenges are too complex to be resolved. In this way, it is important to use effective methods to explore these challenges. As previously mentioned, a mixed method can help the researcher explore the challenges and implications for policy-makers through collecting effective

information and reliable data.

The most useful strategy for this study is the maximum variation sampling. This sampling method aims to select the study units that represent a wide range of variation in the area of interest. Patton describes this strategy as follows:

“aims at capturing and describing the central themes or principal outcomes that cut across a lot of participants or programme variation for small samples. A great deal of heterogeneity can be a problem because individual cases are so different from each other. The maximum variation of sampling strategy turns apparent weaknesses into strengths by applying the following logic: any common pattern that emerges from great variation is of particular interest and value in capturing the core experiences and central, shared aspects or impacts of a programme.” (Patton, 1990, p. 172)

“The paradigm of scientific inquiry in social work is still primarily viewed to mean quantitative methodology. The merits of qualitative methods are now being acknowledged by most authors of leading social work research texts (Silberman, 1994). The qualitative research method investigates how and why decision is made not just what, where and when. Qualitative approaches also have the advantages of flexibility to conduct in-depth analysis, and the potential to observe a variety of aspects of a social situation.” (Babbie, 1986)

Therefore, smaller yet more focused samples are more often used than large ones. In this study, a field study was conducted among 47 primary schools in Guizhou. Additionally, 41 teachers, 9 headteachers from 47 primary schools, and 4 government officers volunteered to participate in the face to face interviews. Figure 3 shows the sampling areas.

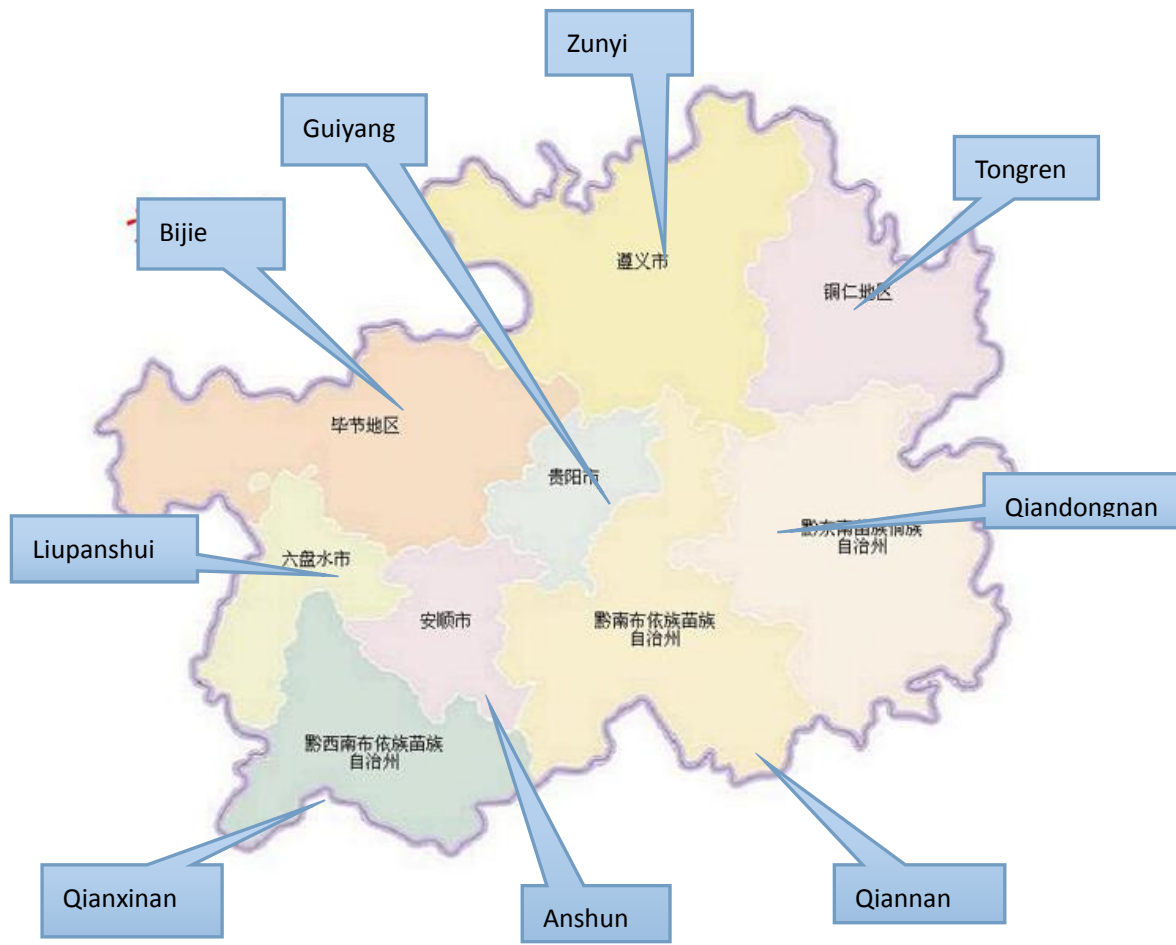


Figure 15

Guizhou consists of 9 prefecture-level divisions, as shown in the figure above. 47 primary schools selected from 9 divisions were involved in the study. The following table shows the regions of these schools.

Table 5: Name of Divisions and Regions of 47 Primary Schools

Name of Division	Number of Schools
Guiyang	1
	4
	2
Biejie	5
	6
	7
	8
	9
	10
	11
	12
	13
	14
	Zunyi
16	
17	
18	
Tongren	19
	20
Liupanshui	21
	22
	23
	24

	25
	26
	3
Anshun	27
	28
	29
	30
	31
	32
Qianxinan	33
	34
	35
	36
	47
Qiannan	37
	38
	39
	40
	41
	42
Qiandongnan	43
	44
	45
	46

Table 6: Locations of 47 Schools

City	County	Township	Village
1	18	41	12
4	44	14	47
2	3	42	21
		37	5
		38	6
		15	7
		22	35
		16	43
		39	33
		8	19
		9	45
		20	23
		27	24
		17	10
		30	11
		36	40
			28
			12
			13
			32
			29
			25
			31
			46
			26
			3

Selection of Participants:

Participants from the 47 schools were identified for the purposive sampling (Patton, 1990). When selecting teachers, the researcher tried to cover the heterogeneity shown in teachers in terms of gender, education background, age, and qualification to describe the common patterns and diverse variations (Miles and Huberman, 1994)

41 teachers (27 males and 14 females)

<i>Daik</i> e teachers	Volunteer teachers	<i>Gongban</i> teachers (teachers are recruited and paid by the government)
10	9	22

4 Government Officials

Name	Post
A	Educational bureau director in city one.
B	Township head in township one.
C	Director of project E-College Graduates Volunteer Programme at Guizhou
D	Programme director of project F- Teacher Training Programme at Guizhou.

Langford and Cleary (2005) defined a mixed method to collect, analyse and integrate both quantitative and qualitative data. The advantages of this mixed method lie in the greater insights on the interesting study focus. In combination of the benefits of both qualitative and quantitative approaches, a rigorous and persuasive mix method project is usually provided for researchers to pursue valid results. Collecting and analysing both qualitative and quantitative data provide insightful interpretations of empirical results to the researcher. A mixed research approach can make unique contributions to

certain research. Lemke (1995) argued that, apart from using computer software to analyse quantitative data, participants in interviews and other related methods can help researchers analyse their topics and conclude their findings with reliable and persuasive evidence.

By employing a mixed method, the researcher can provide both quantitative and qualitative data for the challenges faced by rural schools in Guizhou and for the effectiveness of the current policies. Both subjective and objective data were collected with quantitative and qualitative methods. Results obtained from the interviews and questionnaires were believed to be reliable, as the participants invited were those most relevant to this topic. The qualitative methods provided a more in-depth understanding of the recruitment and retention situation of teachers in rural areas. It is apparent that the researcher used every approach possible to provide accurate data, which allowed for the provision of insightful analysis on the challenges and policies. By taking advantage of both quantitative and qualitative methods and by eliminating the disadvantages, the researcher utilised a mixed research method to analyse the topic.

In this research, the researcher used both qualitative and quantitative research methods to obtain information and data. *“Data reduction. Interview questions and responses are typically tape-recorded and then transcribed verbatim before analysis begins. Transcription is extremely time-consuming” (Marlow, 1993).*

Data collection refers to the process of reading, selecting, and gathering available and useful information from the most recent studies for the researchers to rely on in order to enrich their study (Corbin and Strauss, 2007). This process can directly influence the quality of a study as data collection plays a critical role in ensuring that all the approaches and samplings of the study have been finished with meaning and accuracy. Data collection from books and academic journals is regarded as an effective method to avoid false or ineffective data. The researcher tried to collect data through

interviews, questionnaires, and related studies. This ensures that the researcher can analyse the challenges not only from original data but also from the data provided by other researchers, in order to reach a comprehensive final conclusion.

2.4 Procedures and Processes

2.4.1 Selecting and Formulating Research Questions

In order to select and formulate proper research questions, the first thing was to clarify the research aims and purpose. Based on the results of the proposed research, the researcher firstly designed some questions according to the related studies, and then asked a tutor for help to make sure that the designed questions were professional (Patton, 1990).

This part should be highlighted in every other procedure to ensure that every procedure and process should be consistent with the research questions. There are some principles that the research has taken into consideration in formulating and selecting research questions. First of all, the research questions should not be ‘out of time’. It means that the questions should relate to the issues that are being explored at present, or the issues have not been explored yet have become more and more influential. In this research, even though these three questions have been addressed in some studies, there are no direct studies on teacher recruitment and retention in rural schools of Guizhou. As education in rural areas has become one of the most challenging barriers to the continuous growth of China, the issue of teacher recruitment and retention is attracting more and more attention from researchers. Secondly, these questions should be meaningful and interesting. It means that the questions selected should have some meaningful objectives that may provide evidence for further research or provide some unique and useful findings or suggestions. The questions provided were designed to identify the challenges faced by rural schools in Guizhou when attempting to recruit and retain teachers. The researcher tried to offer some useful advice to attract more highly qualified teachers. The third principle is

‘solvable’. It means that the questions formulated for the research should have answers through the implementation of a series of research, data collection, and analysis methods. Considering the careful and detailed design of the research approach, this study will find reliable and persuasive answers to the research questions.

2.4.2 Literature Study

This research started with a literature review on teacher recruitment and retention in rural areas. In this part, the researcher spent 6 months reading books and journals to select the most useful information to enrich the research findings and provide support for analysis and discussion about the research questions (Coffey and Atkinson, 1996). The literature review part includes a review of theories about rural education, teacher shortage in rural areas, rural teachers’ demands, causes for the leaving of teachers from rural schools, and policies and strategies praised by both Western and Chinese researchers to improve recruitment. Factors that influence the recruitment in rural areas were studied. Models of recruitment, retention policies and strategies were evaluated. Furthermore, the government’s status in the recruitment and retention of teachers in rural schools was assessed. This process was finished before any method was utilised because the literature review can provide theoretical and modeling guides for the researcher. The principles for literature reviews should be followed. It is important for the researcher to select applicable theories and models in this report. More importantly, the differences and similarities of educational conditions in Western and Eastern nations should be compared for a comprehensive and in-depth analysis on the topic. The research findings of some researchers also provide preference. The research methodologies used by previous researchers can also help the author design the research approaches with reliability and accuracy.

2.5 Research Design

In the process of designing research objectives and questions, the first step was to

make an appointment with the teacher in order to make sure the objectives and questions meet the requirements of the course. The second step was to draft the objectives. The third step was to design questions. In the process of designing all the procedures and processes of the research, priority was given to the most effective methodologies considering the study goals. It took a long time for the researcher to identify how the research should be organised. Learning from the design procedures of other professional researchers can also provide some help (Neuman, 2000). The availability, suitability, reliability, validity, and confidentiality are all planned in this part, and details are also included to provide effective evaluation tools. The ethical issues are also an important part. All the ethical issues should be taken into account, and related ethical principles should be provided. Principles should be followed by providing available solutions for any possible ethical problem. The ethical issues, such as confidentiality, harm, privacy and emotion, can all influence the data collected with the research methods. Importance should be attached to this part to ensure that the ethical issues would not negatively affect the data collection or analysis processes.

In this procedure, it is necessary for the researcher to keep a draft for every process to review and improve the design later. It is important to provide something for the researcher to rely on to make sure that every procedure can be handled in a predictable manner. The researcher should not only be clear about the anticipated findings but also have a good knowledge of what methods can be used to reach the objectives and goals. The researcher should be responsible for every detail that may provide help for the research. In the design procedure of the research, an effective method learned from the most successful related research studies can be used to understand what should be paid special attention to, what should be given priority to and what should be coped with accuracy. This procedure is important because it enables the researcher to maintain control of every process by combining experience and knowledge with practice.

2.5.1 Methods Selection

To select the best methods, the researcher reviewed the strengths and weaknesses of all the possible methods. The methods used in this study were selected with regards to their roles in providing different kinds of data, such as quantitative data and qualitative data. The research approach gave a brief description of the definition and related evaluation on these selected methods to make sure that these selected methods could be tracked. Additionally, the methods were relevant to the study aims (Green and Thorogood 2004). To find out the most suitable qualitative and quantitative methods, a concrete analysis was conducted to justify the adoption of some approaches. Overall, the methods selected by the researcher were consistent with all parts of the research.

As previously mentioned, in this research, a mixed research methodology was used, combining qualitative and quantitative methods. On the one hand, this research utilised interviews and questionnaires to gather empirical data. On the other hand, this research used data collection to provide in-depth analysis on the research questions. This mixed method was utilised to strengthen the benefits of the methods and avoid their weaknesses. A mixed research method can help gather all the possible information and data to enrich the subsequent analysis and discussion. In addition, this could provide complete research findings and make the research more meaningful.

2.5.2 Sampling Design

The samples mentioned above can be classified into three different categories because the researcher planned to analyse the challenges faced by rural schools when attempting to recruit and retain teachers. Headteachers, policy-makers, and teachers are closely related to the aim of the study. The sampling process designed in the methodology part indicates that these samples were designed with accurate

consideration, and the representatives are selected from different rural schools. Even though the researcher has highlighted the recruitment and retention challenges for rural schools in Guizhou, the research findings also provide evidence for the difficulties of education in rural areas of China. The participants from different areas provide empirical data for the research by their roles. The samplings were designed with careful consideration. However, the researcher neglected the role of students and their families in teacher recruitment and retention.

2.5.3 Data Collection Plan

In the data collection procedure, the researcher attempted to collect data using both qualitative and quantitative methods. First of all, the researcher relied on the designed methodology to get the expected data. The interviews and questionnaires not only provide empirical data with the use of analysis software, such as Statistical Package for Social Science (SPSS) but also offer some qualitative data through the answers provided by the interviewed teachers, headteachers and policy-makers. Selection of participants, appropriate samples and resources can directly influence the data collection process (Kvale, 1996). In this part, the researcher planned to collect data from the first and second resources.

When the researcher collected data from the first resource, both research methods and research findings were used to enrich the research. The researcher believed that learning from useful research studies can provide not only useful data but also academic guidance for the research. It means that the researcher can learn from the structure and methodology of the theoretical models to prepare an academic final report. When collecting second data, the researcher tried to read all of the most recent studies in order to gather data as accurate as possible. In addition, collecting data from some official websites or reports is necessary to provide direct support for later analysis and discussion. The role of data collection was highlighted in this research because it can directly determine the effectiveness of the research findings. Another decision the researcher made in the data collection process was to ask for tutors' help.

Tutors were invited to give advice on data resources and research approaches. In the whole data analysis process, the researcher spent most energy and time collecting reliable and persuasive data.

2.5.4 Processing and Analysis

The processing and analysis procedure is defined in the process of analysing the gathered data with logical reasoning. In this process, all the planned and provided sources were applicable and useful. In the analysis procedure, logical reasoning and arrangement of the collected data and findings played an important role in organising an academic report and providing evidence to explore the answers to the research findings and discussion.

The researcher decided to analyse the collected data from both qualitative and quantitative methods, with the guidance of related studies. With references to some useful books and articles, the researcher was able to organise the overall research more effectively. In this part, comparison and concrete analysis is used to help the audience catch the information at their first sight. The researcher finally decided to organise all the elements and make the analysis in a logical, simple and manner.

2.5.5 Instrument Description and Development

Effective use of data analysis techniques is essential for a successful academic thesis. Through statistics, probabilities, and mathematical techniques, standard methods can be used to interpret the data (Kovach, 2010). There are three commonly used techniques: descriptive statistical analysis technique, exploratory data analysis technique, and confirmatory data analysis technique. To avoid the incorrect interpretation of the gathered data, mathematical techniques are used to reduce errors, and thus are often more accepted by researchers.

Descriptive statistical analysis refers to the analysis method that utilises demographics and descriptive statistical tools. By gathering information about size, age, job type,

gender, income, and so on, data can be obtained from the study of some representatives (George, 2002). This can provide clear numerical evidence for the research design. Completion percentage is a technique that provides additional information for proportion analysis of the data. This technique clarifies the criticality of different elements in a unit. The two techniques as mentioned above have been used in this research. For example, the researcher has tried to gather information relevant to a certain population size and job type, in order to classify the information into certain groups.

Histograms, box plots, scatter plots, Pareto charts, and stem-and-leaf plots are the commonly used techniques for exploratory data analysis. These techniques play a vital role in helping researchers support their hypothesis (Gallagher, Bagin, and Moore, 2005). In this research, Pareto charts was used to analyse the different challenges in recruiting and retaining teachers in different areas. Additionally, other kinds of charts were used to support the stated hypothesis. On one hand, these techniques can help the researcher be clear about the number of owners within the stated range. On the other hand, information about the numerical changes and relationships among different kinds of data collected can be understood better. In this thesis, these charts are carefully organised by the researcher to provide clear and simple descriptions of the data.

A confirmatory data analysis technique refers to the tests on the average and confidence intervals (Lincoln, 1995). This technique is often adopted to confirm that the relevant techniques are used properly and to examine the validity of the hypothesis. In this research, such techniques are utilised to ensure that the research can be organised with confidence and reliability.

All the techniques play different roles in data analysis and should be properly used to analyse the collected data and conduct detailed analysis. They have been widely accepted by researchers to enrich their research studies. In this research, the

researcher also provides good examples of the application of these useful techniques. This also ensures that the data gathered can be dealt with in a logical and academic manner. Also, in this research, the first two kinds of techniques are mainly adopted to provide persuasive data analysis through the use of effective analysis tools.

2.5.6 Exploring Answers and Discussion

The procedure of exploration and discussion is usually the core of a research study. It can directly determine the value of a study and reflect the author's view. In the process of exploration, reasonable answers should be sought out for the research questions based on the findings in the data analysis process (Zhang, 2002). It is critical for the researcher to extend the research with findings. All the processes included in this procedure are about how to make the research findings clear and provide powerful evidences for the researchers to freely express their opinions. This requires the researcher to think carefully and logically about the consistency of the answers and discussion.

The researcher in this research planned to explore the answers through the literature resources, the study of methodologies, and data collection. After these processes have been finished, the findings will be reviewed and organised. The answer to every research question should be accompanied by a logical explanation. Apart from the answers to the research questions, there are implications for headteachers and policy-makers concerning the challenges faced by rural schools in Guizhou when attempting to recruit and retain qualified teachers (Zucker, 2001). To make the answers more believable, the relationships between findings and implications should also be studied to make the overall presentation more professional. In the discussion part, it is necessary to give insightful opinions about the challenges for rural schools in Guizhou. Apart from the in-depth understanding of the causes for the existence of these challenges, the researcher tried to explain and discuss how these challenges have exerted their influences. Implications about these challenges are explored in the discussion part. Finally, implications, recommendations and the significance of

overcoming these challenges for headteachers and policy-makers are highlighted, and a call for the implementation of effective measures to solve these challenges is put forward.

2.5.7 Interpretation and Generalization

This part is about how the researcher should present findings and express ideas. The way that the researcher organise words has a direct influence on the professionalism of the final report. Both interpretation and generalization require the correct use of wording, grammar, and sentence structure (Woodward, 2002). Additionally, being easy to understand has been a common yet unwritten rule for academic researchers. It indicates that it is important for the researcher to present their findings as simply and easily as possible, with insightful implications. The contents of a research study after interpretation and generalization should be provided with logical thinking and careful organisation.

In this research, all the elements are present in a simple and understandable manner because this research has been organised to provide information for ordinary readers who may have no experience in such research. Since this research is a social scientific study, the reader may be anyone. Interpretation and generalization can help the researcher present findings and express opinions clearly with reliability and accuracy. The researcher decided to check every procedure and process three times to ensure that all the elements could be explained in an easy way. In addition, the researcher decided to use words, grammar, and sentence structure that are appropriate and accurate to guarantee that the value of the research will not be affected by errors that could have been avoided.

2.5.8 Evaluation

The evaluation part provides a good opportunity for the researcher to hold a fair view on their researchers regardless of the structure or contents. Through fair evaluation, it will be clear what researchers have achieved and what they have missed in the

research (Stake, 2008). Apart from structure and content, when selecting literature resources, collecting data, and designing research approaches, the researcher should also evaluate related theories. This ensures that every element and process has been dealt with fairly and appropriately. In the evaluation process, the researcher should examine all the research methods and processes used. All of the ethical issues should also be evaluated with regards to the researcher's methods to deal with these issues.

In this research, the researcher has done a good job in the evaluation procedure. The justified evaluation is provided, which shows that the researcher highlighted the fairness in every process of the evaluation. Also, for every evaluation process, the researcher tried to provide theoretical evidence to make readers believe in the research meaning. In this research, when the ethical issues are presented, they are examined based on the related ethical principles in academic writing. It implies that the researcher is capable of applying the related principles of academic writing into research design, which is the basis for a successful professional writing. The researcher planned to ensure that the evaluation process could be implemented with reliable and accurate justification and that every evaluation result could be tracked to help the researcher be more professional in academic research. Apart from the above-mentioned evaluation processes, the evaluation on the expression is also considered to provide readers with more evidence to critically examine the value of the research.

2.6 Ethical Issues

Orb, Eisenhauer and Wynaden (2001) considered that three ethical principles should be noted in qualitative research: autonomy, beneficence, and justice. Regarding the respect for persons, Capron (1989) claimed that the research should be guided by the principles of respect for people, beneficence, and justice. The researcher has the responsibility to secure the permission and interests of interviewees. At the same time, researcher should also have a duty to protect participants' rights, privacy, and

sensitivities. This principle indicates that relatively harmonious relationships with participants in a study can contribute to the quality of the results. In the study, an introduction to the study and outlines of interview questions were offered to all the participants before they made decisions about whether or not to participate in an interview. They were told that they were free to withdraw from the interview any time irrespective of the reason, and without any negative consequence. Only when the participants gave their consent, would the interviews begin. In this interview, polite words and manners were used to show respect for the participants. Also, the researcher decided that before he asked the interviewees and questionnaire survey participants for help, he would fully explain the participatory nature of the study. The researcher kept records of the possible considerations that make participants not willing to share their time and draft some resolutions to show respect for the participants. By this, it can be confirmed that the researcher has given priority to the ethical principle to ensure that this ethical issues can be coped with, and the negative influence on the quality of information and data can be eliminated. The researcher was careful and took the possible ethical considerations of all the participants into account. By this, it can be seen that the principle of respect has been highlighted by the researcher in this study.

The second ethical principle, beneficence, means doing well for others and preventing harm. The third principle, justice, refers to equal share and fairness. One of the features of justice is to avoid the exploitation and abuse of participants. Streubert and Carpenter (1999) asserted that researchers have an obligation to anticipate the possible outcomes of an interview and to weigh the benefits and potential harm. In this research, the beneficence principle refers to the fact that the research findings are valuable for both the participants and the readers. Justice means that all the participants should be treated with fairness (Ingersoll, 2001). The two ethical principles play an important role in encouraging participants' active responses to the research, interview, and questionnaire questions.

In the study, when teachers talked about their hardship in rural school, some of them became upset and anxious. For example, one teacher called himself a “loser” and could not help crying during the interview. In that case, the interview was stopped and consolation was offered. Also, when the researcher began the interview, the researcher should know exactly what can be brought out from the participants and how they can be protected from their concerned issues. This indicates that the researcher aimed to obtain benefits and avoid harm to all the participants. All the teachers were treated with fairness. In China, policy-makers seem to expect preferential treatment when taking part in activities. In this research, however, the researcher has treated them with the same manners as all other participants (Xue, 2001). Because the teachers are the central focus of the research, the researcher showed respect and fairness to gain more information from teachers.

Another ethical issue taken into consideration is confidentiality and anonymity. Anonymity means removing the participants’ names and other means of identification. Confidentiality means the protection of the data collected (Lewin, 2002).

“Research participants should understand how far they will be afforded with anonymity and confidentiality.” (BSA “Statement of Ethical Practice” Relationships with Research Participants. 1.b.ii)

“Everyone has the right to respect for his private and family life, his home and his correspondence. There shall be no interference by a public authority with the exercise of this right and is necessary in a democratic society.” (Human Rights Act 1998 – Art 8 ECHR)

This issue has always been highlighted in related research studies because confidentiality has a close relationship with privacy. If the researcher cannot deal with this issue effectively, he or she will suffer a lot. On the one hand, the researcher would not obtain authentic information if there is no promise of confidentiality. A lack of

confidentiality would cause the participants to reserve some information. On the other hand, if the confidentiality of the participants cannot be guaranteed, it will do harm to both participants and researchers. The participants may not be willing to give their actual views. If the researcher has not dealt with this issue well, he or she cannot effectively learn from the research, which will directly influence the research quality. Everyone has the right to protect his or her privacy and the privacy of others.

Researchers have the responsibility to protect the confidentiality of participants' data (Edmonds, 1982). Anonymity for the participants is provided in my study. As a result, the participants have confidence in the interviews and questionnaires, and many concerns from the participants can be reduced. Thus, it can benefit every part of the research. All the interview records and data are stored only in the researcher's computer that others have no access to the information in this study. All the data were only used for this study. The researcher promised not to keep it longer than necessary. An agreement was designed to guarantee that the interviewees would not violate their privacy so that they would not underperform during the interview process. These methods were undertaken with careful thinking. Before the interviews were organised, emails were sent to these interviewees to make them feel safe and relaxed. In this way, the researcher not only protected the privacy of the participants but also reduced the risks of errors and mistakes caused by the participants' worries about confidentiality.

Honesty is a principle requiring all the participants and researcher to be honest with each other (Converse and Presser, 2006). The researcher is responsible for telling all the necessary information about the study to the participants to ensure that the participants are willing to offer help after they have a good understanding of the research. The researcher explained the research goals, objectives, questions, and methodology to help the participants understand that this research was designed to provide beneficial suggestions for the development of education in rural areas of Guizhou. The researcher tried to make the participants understand that the research would be beneficial to them and could, indeed, bring more useful suggestions for the

involved stakeholders. Additionally, it is necessary to provide a relaxed and trusting atmosphere to ensure that the participants do not feel nervous or uncomfortable, which may affect the participants' performance. In an atmosphere where the participants are honest and willing to reveal anything they know, the researcher can obtain reliable answers to the designed questions. In this way, the honesty principle should be highlighted by the researcher to ensure that reliable and persuasive data can be obtained.

Doing no harm is also an important principle that should be dealt with seriously in research (George, 2002). Issue of safety must be taken into consideration during the interviews and questionnaire surveys. In addition, interviewees and participants for the questionnaire should also be guaranteed with safety. Relevant methods should be used to ensure that all the tools and techniques would not cause physical or mental harm to the participants. Polite manners are encouraged, which can make participants feel comfortable. The researcher should also ensure that any word he or she speaks and any action he or she takes will not do any harm to the psychological world of the participants. This means that it is necessary to take the emotional changes of the participants into consideration to reduce their influences on the accuracy of data collected.

The ethical principles mentioned pertain to qualitative research. Considering the ethical issues in the quantitative research, three principles should be taken into account. The first refers to the cause-effect relationship (Sykes, 2006). This principle requires that all the literature and analyses in the research should be logically reasoned. When the experiments for establishing causality are provided, it is necessary to ensure that the variables selected are related to the research questions. The variables selected should be independent. In this thesis, this principle is applicable to the population and sampling part. The researcher has tried to select independent variables to examine the challenges faced by the rural schools in Guizhou in recruiting and retaining teachers.

The second ethical principle for quantitative research is proper control of size. The size of literature resources, surveys, samples, interviewees, and questionnaires should all be appropriately sized to ensure that the research is not designed with mass. In this research, it is clear that the size is set according to the study experience. For example, 41 teachers were selected as the samples and this was an appropriate number for the research. The researcher has taken this principle into consideration in the research as he has explained why the sampling part was designed in that way.

The third principle is reporting both positive and negative results. This principle is a hard one to cope with as researchers tend to report positive and significant results only (Denzin and Lincoln, 2000). Even though these positive or significant research studies have provided powerful supports for the anticipated findings, they may not be comprehensive. Researchers tend to believe that only the positive results can contribute to future research. However, negative results can also provide evidences. This evidence may include some shortcomings of the research design or some misunderstood concepts. Although these negative findings may not contribute to the anticipated results, they can still provide help for future study. Therefore, it is necessary for the researcher to find a balance when reporting results.

As previously mentioned, this research has an evaluation procedure to evaluate all the elements of the research. It indicates that the researcher has taken some negative results of the research plan into consideration. In addition, in the methodology part, the researcher has provided a related evaluation on some particular processes. On the one hand, these evaluations can explain what has been missed and what should be emphasised on in the future study. On the other hand, they indicate that the researcher has reported both positive and negative results. However, in this research, the researcher has not explained how these negative research findings should be dealt with. Therefore, in future study, it is necessary for the researcher to take this ethical consideration into account.

In the study, qualitative research has strengths in providing understandings and descriptions of teachers' personal experience in recruitment and retention. However, it also has weaknesses. For example, it cannot be used to make quantitative predictions. Therefore, it might have lower credibility with some administrators and government officials (Fowler, 2005). The collection of quantitative data can remedy these flaws. That is why qualitative research and quantitative research methods were used together in this research. By using such mixed research method, the researcher can not only gather qualitative information and data but also use the information and data provided in quantitative research to make up for the weaknesses of the qualitative methods. Both empirical and analytical proofs can be available through such a research approach. As a result, the researcher can present both qualitative and quantitative findings to answer the research questions.

The researcher also used grounded theory to analyse the data. Grounded theory is a loosely structured and inductive approach which does not aim for the 'truth'. It attempts to conceptualize what is going on by empirical research (Glase and Strauss, 1967). Data analysis is an on-going part of data collection. At the same time, it is completed by my data gathering. When the participants were interviewed, the written data from the interview notes were conceptualized line by line. Coding was the first step in discovering the problem of teacher shortage and how it is being resolved. Next, more focused coding, categorisation, and comparisons of the data were conducted. In this process, patterns helped me understand the factors that influence teachers' decisions to stay or leave their teaching positions in rural areas. These processes were done during the interview and were designed to provide evidence for the findings. The researcher tried to make sure that all the information and data offered in the professional report can be tracked. The researcher kept records about all the processes to finish the research with reliable and believable actions (Bowling, 2001). On the one hand, these records provide important information that the researcher may have missed or problems that have not been realised. This can provide more implications

with which the researcher can enrich the research. Even though most of the contents of these records were the answers to the designed questions, the researcher recorded some emotional changes of the participants. For example, when the teachers were asked about why they chose to leave or stay, some exhibited pride, while some showed pressure. Even though these emotional changes would not be presented in the research, they can also provide useful guidance for the author to understand the teachers' opinions about teaching in rural schools. On the other hand, these records are consistent with the grounded theory because they make the researcher confident when the tutors or the readers have any question or doubt. The researcher can explain all the processes with concrete content with the use of these records. In conclusion, following the grounded theory enabled the researcher to provide a meaningful research result with regards to the research aim.

Chapter Three Data Analysis and Findings

The study was designed to collect data over a 17-month period to answer the questions put forward in Chapter Two as listed below.

1. Are there shortages of teachers in rural schools in Guizhou?

What is the current situation of policies about rural teacher recruitment and retention in Guizhou? Have the policies been effective? What are the difficulties faced by rural schools in Guizhou when attempting to recruit and retain teachers?

2. What are the factors that influence teachers' decisions concerning whether to enter and remain in teaching or not?

How can these factors influence teachers' decisions? What strategies have been adopted by rural schools of Guizhou to recruit and retain highly qualified teachers?

3. What strategies have been developed for teacher recruitment and retention?

What are the strengths and weaknesses of these strategies? What education policies should be suggested to policy-makers?

3.1 Arrangement of Current Education Resources in Guizhou

This issue mainly focuses on the teacher shortage problem which can be measured by two indexes as discussed in Chapter One. The first is the number of Daike teachers and the second is the student-teacher ratio.

3.1.1 Quantitative Analysis

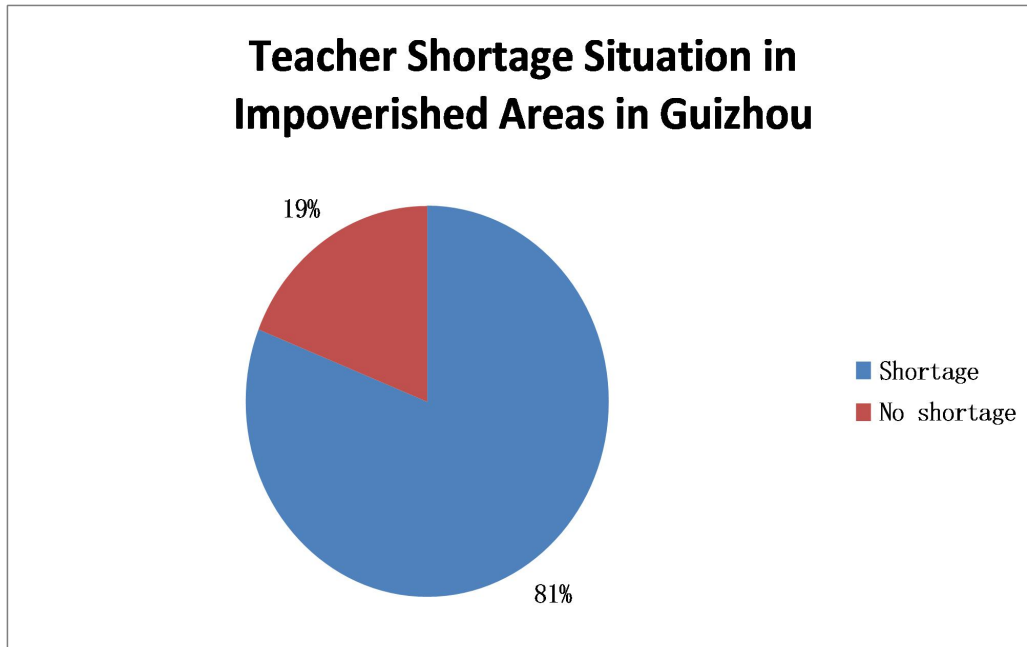
The first research question should be considered first. A questionnaire survey was implemented among 100 teachers from 100 primary schools in underdeveloped areas of Guizhou to assess the situation of teacher shortage. The data obtained from these questionnaires are shown as below:

Question:

Are there shortages of teachers in your school?

Yes No

Figure 16:



Question: How many teachers are in lack of in your school?

1-2 3-5 6-8 9-10 11+

The details of schools with teacher shortage are shown as below:

Figure 17:

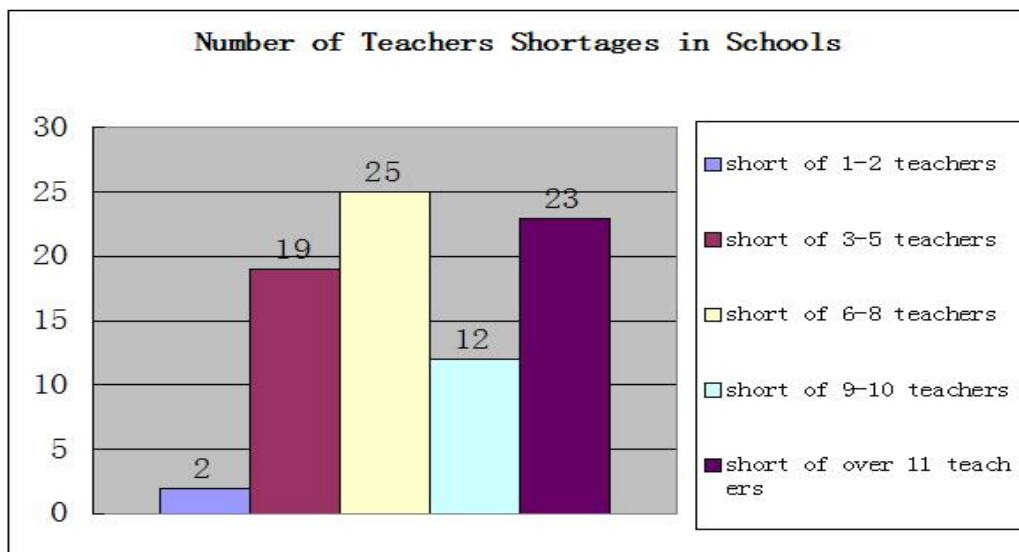


Fig. 16 and Fig. 17 show that the majority of primary schools in poor areas in Guizhou are short of teachers. 79% of schools are short of more than 3 teachers, and 23% of schools are short of over 11 teachers. The data indicate that, in rural areas in Guizhou, teacher shortage is still a common and serious phenomenon and only 19% of the surveyed schools are not having teacher shortage problem.

As implied by the survey results, in Guizhou, teacher shortage is a common problem faced by most schools. From the perspectives of teachers, the majority of the 100 surveyed primary schools in underdeveloped areas in Guizhou are suffering from the teacher shortage problem. The study results also indicate that education quality is far below the standard (Brown and Park, 2002). Most of the teachers who filled the questionnaires claimed that their schools were facing the teacher shortage problem. These teachers can provide authentic and important information about teacher's views on the education situation in rural areas of Guizhou. Policy-makers can also gather accurate and professional data about the problem of teacher shortage in rural schools of Guizhou based on these results as the teachers are familiar with the actual situations of teaching practices in these areas.

In addition, the teachers who participated in the questionnaire survey told the researcher that, even though every year their schools received new teachers to resolve the problem of teacher shortage, it seemed that this problem had never been resolved effectively. In almost every relevant study, teacher shortage is identified as one of the most server problems that limit the development of education in rural schools of Guizhou (Knight and Shi, 1997). Some teachers indicate that the ways to measure the number of lacked teachers in rural schools are the same as those in other areas, which results in many misunderstandings as the teacher shortage problem in rural areas is way more complicated than it seems to be. In this way, it is important for the researcher to design studies for more related factors and reveal how these factors have influenced the teacher shortage problem in rural schools of Guizhou. Considering the complicated education situations in rural schools, concrete and detailed studies have

become more important.

The results also show that 25% of the rural schools are short of 6 to 8 teachers while 35% of the schools are short of more than 8 teachers. These numbers shockingly uncover the situation of teacher shortage in rural areas of Guizhou, which indicates that most of the rural schools in Guizhou are suffering from the teacher shortage problem. These schools are also suffering from losses in education due to insufficient teaching resources, which results in the relatively lower level of education. The shocking numbers of teacher shortage indicate that this problem is more severe than it seems to be, as this seems to be the problem in every rural school. Such situation can directly influence not only the teaching quality of rural schools but also their survival in the future environment of fierce competition.

Teachers with rich experience and professional expertise can provide reliable information about the recruitment and retention situations in rural areas of Guizhou. They can authentically indicate how many teachers are needed. In this way, teachers' reflections are more valuable than information from other resources. To analyse the current situation of teacher shortage in Guizhou, accurate and reliable data are critical for the researcher to give a detailed explanation and discussion, which eventually benefits the suggested resolutions for the teacher shortage problem.

Due to the rich experience and professional expertise of teachers in education, they fully understand what qualities teachers should have and how many teachers would be suitable for the schools in certain subjects. The study results indicate that in addition to the overall shortage of teachers, a more noteworthy problem is teacher shortage in some certain subjects. Teacher shortage is a shortage of teaching resources in terms of quality and quantity. Therefore, it is necessary to consider all the possible and available aspects of teacher shortage to obtain a comprehensive understanding of the teacher shortage problem in rural schools. It is also important for all the involved stakeholders such as government officials and headteachers to make full use of the

collected data to work out the most effective strategies to resolve the teacher shortage problem. By collecting information from the participants, the researcher can not only learn about the current conditions of teacher shortage and the related causes but also understand teachers' needs in teaching in rural areas during the process of communication. In this way, this study is expected to provide more in-depth understanding of the teacher shortage problem in rural schools of Guizhou.

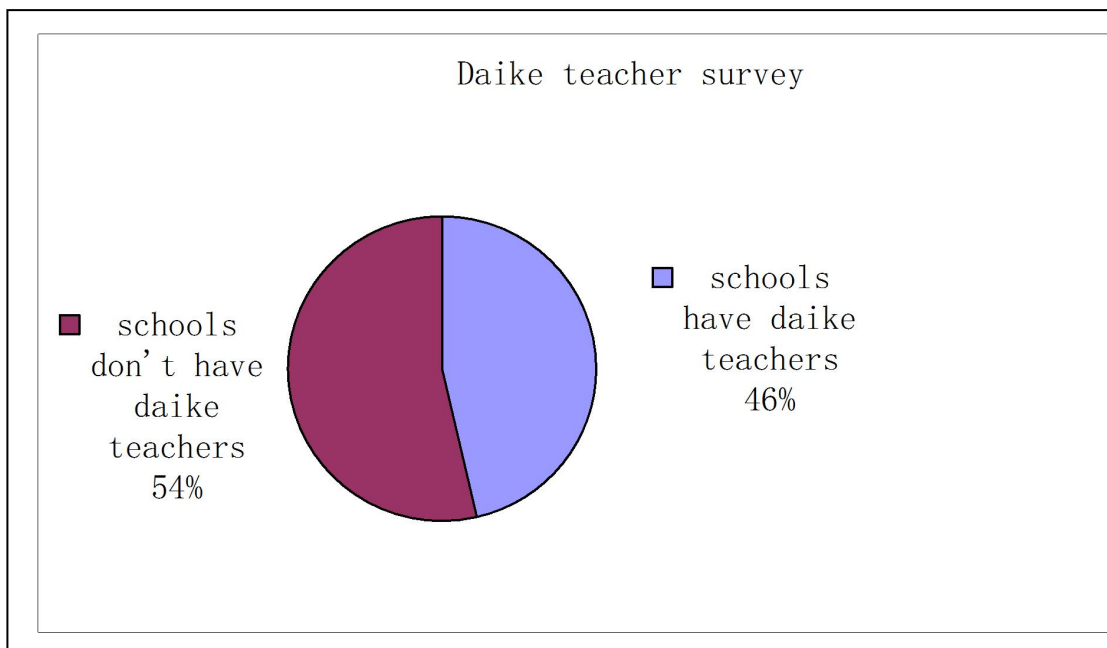
(1)The first index: the number of Daike teachers

In China, the number of Daike teachers (those who have no official teaching certificate) is an important index to evaluate the teacher shortage problem. The existence of Daike teacher originates from the shortage of certificated teacher.

Question: Is there any Daike teacher in your school now?

Yes No

Figure 18:

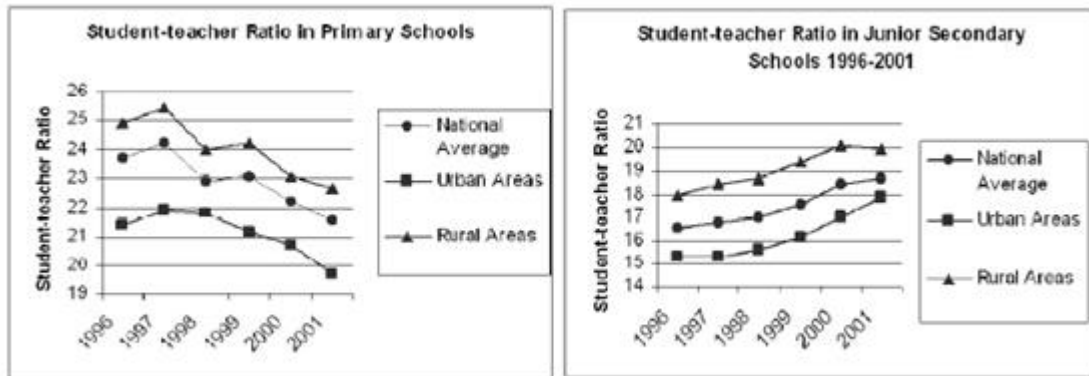


The results show that 46% primary schools had Daike teachers at the time when the questionnaires were filled. This figure is abnormal to some extent, for it has been illegal for schools to recruit Daike teachers since 2006. However, Daike teachers still existed in nearly half of schools according to the survey, which indicates that the teacher shortage problem has not been absolutely resolved among more than half of the surveyed rural schools. Recruitment of Daike teachers in rural schools is effective if there is no qualified teacher available in rural schools (West and Wong, 1995). Even though the recruitment of Daike teachers in China is illegal, the existence of Daike teachers indicates the fact that the related policies have not been effectively implemented and attracting more qualified and certificated teachers is still a challenge for rural schools of Guizhou (OECD, 2005). Meanwhile, the existence of Daike teachers indicates that teacher shortage in rural areas will not be an easy problem that can be resolved in a short time.

Nowadays, the recruitment of Daike teachers has almost become a commonly accepted method for rural schools in China to resolve the problem of teacher shortage. Indeed, these Daike teachers may temporarily relieve the teacher shortage problem in rural areas. However, they cannot radically resolve this problem (Sandefur and Edward, 1998). Once the Daike practice is strictly forbidden, rural schools would realise that they have missed many good opportunities to attract certificated teachers due to the illusion of sufficient teachers incurred by Daike teachers. Therefore, it is important for schools to develop a correct understanding of the roles these Daike teachers play in addressing the teacher shortage problem.

(2)The second index: student-teacher ratio

Figure 19 Student-Teacher Ratio in Primary and Junior Secondary Schools of Urban and Rural Areas



Based on the study results in this research, apparently, the government official has provided some unreliable information and data about the effects of government policies. By analysing the official's answers, it can be found that even though many government policies have been effectively implemented to recruit and retain teachers in rural schools of Guizhou, the real effects of these policies have been exaggerated. The government officials indicated that every year the government would organize special research groups to collect data to examine the effectiveness of government policies in resolving the teacher shortage problem. When the officials were asked to provide the resource of the data, they responded that most of their data came from the research data of educational departments in local government of Guizhou. On the one hand, the data from local educational departments in rural areas may be more formal and effective than the data from other sources. On the other hand, the traditional methods that local educational authorities use may have missed some details that can be better explained by professional researchers (Soeteven, 2006). This indicates that the local government has not done a good job in examining the effectiveness of the government policies in resolving the teacher shortage problem (Han, 2000). In the future, it may take more time to address this problem. The government officials should not only formulate effective policies but also attach importance to the measuring tools they use to evaluate the performance of the policies.

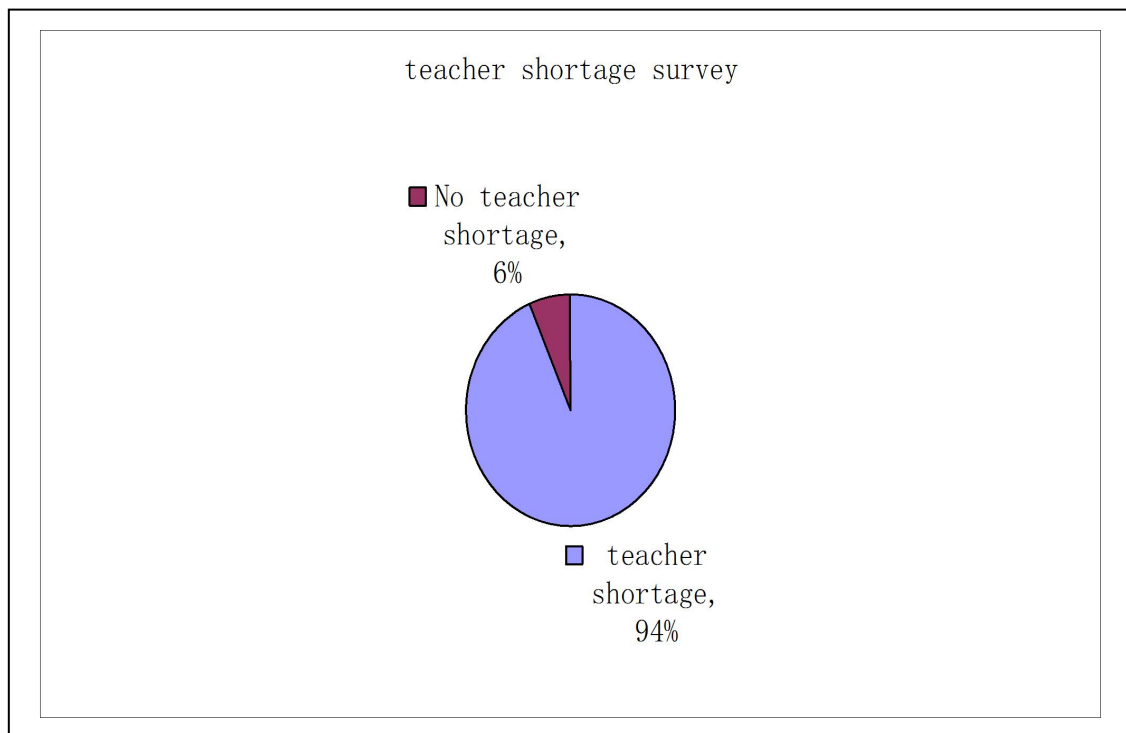
In terms of the teacher shortage problem, the government officials have given opposite conclusion to the survey results from teachers. To obtain authentic and detailed information, the researcher randomly chose 47 primary schools for field study. These schools cover all the 9 divisions of Guizhou Province. An average of 5 schools in each of these divisions was studied. The researcher chose 10 schools from Bijie in order to determine the authenticity of the situation claimed by the officials. The following table shows the data collected from each school.

Table 7: 47 Number of Current Students and Staff in 47 Schools (Raw Number)

Number of Schools	Number of Current Students	Number of Current Staff	Number of Staff Shortage
43	59	2	2
33	60	3	4
12	243	8	4
47	238	11	5
21	505	18	5
5	503	20	7
6	536	23	3
7	84	5	4
37	708	38	10
38	140	13	2
44	432	19	3
35	358	14	10
19	245	9	2
15	147	10	3
22	937	30	10
16	220	16	1
39	800	40	5

45	174	13	1
8	650	30	2
23	200	4	4
9	672	30	2
10	75	6	4
20	380	18	2
11	107	7	2
40	160	10	2
27	601	34	2
17	421	18	5
28	125	5	3
12	234	10	3
13	186	6	2
29	100	4	1
25	200	14	2
30	241	11	2
31	98	8	5
1	3866	181	0
2	2184	111	0
4	522	26	2
26	155	2	3
36	583	15	14
34	786	33	5
24	100	3	2
18	1200	62	0
42	382	26	5
14	1139	43	3
41	785	40	13
32	213	8	4
46	85	3	2

Figure 20: Survey on Teacher Shortage Problem



The survey results show that only 3 of the 47 schools were not short of teachers, which means that 94% of schools were in lack of staff. Among the schools with teacher shortage problem, 36 of them had Daike teachers teaching students in poor regions now. All the 10 schools from Bijie were found to be short of teachers and 9 of them had Daike teachers. These results are opposite to the officials' statement, which indicates that the officials, as representatives of policy-makers, are too optimistic about the effectiveness of the current recruitment and retention policies. The actual situations in Bijie are not satisfactory. The high percentage of Daike teachers in rural schools also indicates that, even though the government has made efforts to dismiss Daike teachers, the results are not as effective as expected. In addition, due to the lack of teachers, it is not easy to dismiss all the Daike teachers in a short time.

According to the analysis on the data obtained by the interviews with teachers and headteachers, it was found that the teacher shortage problem is more serious than expected. The reported number of current staff also includes the number of

non-teaching staff, such as retired teachers and doorkeepers. Besides, about the Chinese law on education, the teacher-student ratio should be 1:19 in the city, 1:21 in the country, and 1:23 in rural townships and villages. This means that there should be 1 teacher for every 23 students in rural areas. By comparing the current student number and current staff number, it can be found that more teachers are currently needed in rural areas. For example, the Shuigou primary school has only one teacher leader and one accountant without any full-time teacher. Only three schools are not short of teachers. However, the relatively large number of students in these three schools indicates that more teachers are needed to improve their teaching quality (Quaglia, 1996). The shortage number of teaching staff in the school is 3 as the current students can be divided into three classes and the three Daike teachers are currently teaching these classes. The school has 155 students. According to the teacher-student ratio of 1:23, Shuigou Primary School actually needs 8 teachers at the time. Under this situation, the staff shortage number in each school should be revised as below.

Table 8: Number of Current Students and Staff in 47 Schools (Revised Number)

Number of Schools	Number of Current Students	Number of Current Staff	Number of Staff Shortage
43	59	2	3
33	60	3	4
12	243	8	4
47	238	11	5
21	505	18	5
5	503	20	7
6	536	23	3
7	84	5	4
37	708	38	10
38	140	13	2

44	432	19	3
35	358	14	10
19	245	9	2
15	147	10	3
22	937	30	11
16	220	16	1
39	800	40	5
45	174	13	1
8	650	30	2
23	200	4	4
9	672	30	2
10	75	6	4
20	380	18	2
11	107	7	2
40	160	10	2
27	601	34	2
17	421	18	5
28	125	5	3
12	234	10	3
13	186	6	2
29	100	4	1
25	200	14	2
30	241	11	2
31	98	8	5
1	3866	181	22
2	2184	111	4
4	522	26	2
26	155	2	8

36	583	15	14
34	786	33	5
24	100	3	2
18	1200	62	0
42	382	26	5
14	1139	43	3
41	785	40	13
32	213	8	4
46	85	3	2

The new figure shows that only 1 school out of the 47 schools was not short of teachers at the time of the study. It should be pointed out that Shengfulu Primary School and Huanxi Primary School are in different situations. These two schools are both located in the downtown of Guiyang, the capital of Guizhou Province and the biggest city in Guizhou. The two schools are both among the top five schools with excellent reputation in Guiyang, and many parents would like to send their child to these schools. In spite of limited enrolment, lots of parents would spare no expense to buy a place for their child in these schools. The result is that a large number of students are enrolled. That is why both of these schools have more than 2,000 students. Shengfulu Primary School has even over 3,000 students. However, the number of teachers assigned by the government in each public school is fixed. Consequently, these schools are short of teaching staff, which is a very common phenomenon in top schools in cities. According to the regulation of Chinese Education Department, class size in primary schools should be no more than 45 students in each classroom. However, according to the field study in these top schools, all the classrooms had more than 50 students, and some large classroom even had over 60 students. This kind of teacher shortage is completely different from the teacher shortage in rural regions. In fact, when a teacher retires from a top school, many outstanding graduates and

qualified teachers would fiercely compete for the position. New data from Shenfulu Primary School show that 23 candidates compete for one teaching position.

The revised study results reflect that the teacher shortage problem in rural schools is actually more severe than it is usually described. The three schools without the teacher shortage problem actually need more teachers than it seems to be. The data indicate that to resolve the teacher shortage problem fundamentally, one of the most important preconditions is to have a correct understanding and accurate analysis on the actual situation of teacher shortage in rural schools of Guizhou. If policy-makers cannot accurately analyse the teacher shortage problem in rural schools, it is impossible for them to solve this problem effectively. Therefore, it is better for all the involved stakeholders, especially policy-makers and headteachers, to understand the conditions of teacher shortage in rural schools before any measure or action is taken.

3.1.2 Qualitative Analysis

(1) The first index: number of Daike teachers

To examine how long the method of recruiting Daike teachers has existed in rural schools, 10 participants with over ten years of teaching experience were interviewed. It was expected to uncover the hidden factors that cause the teacher shortage problem and some hidden issues about the current education system in rural schools of Guizhou, and even to reveal some unknown information about the government policies.

The interview questions were designed as follows:

In your memory, how long did Daike teachers exist in your school?

Do you think Daike teachers can contribute more when there are not enough professional teachers in your school?

What influence do you think Daike teachers made in resolving teacher shortage?

Do you think it is time to dismiss Daike teachers, considering the current situations of teaching staff in your school?

Compared with certificated teachers, what differences can Daike teachers make in teaching practice? What are the influences of these differences on the education development in rural schools of Guizhou?

Do you have any good suggestion for the demission of Daike teachers?

Daike teachers have existed in rural schools for more than ten years. The interviewees all agreed that Daike teachers are necessary when there are not enough certificated teachers for their schools. They believed that if rural schools cannot resolve the teacher shortage problem by the time all the Daike teachers are dismissed, the schools will suffer even more. One of the interviewed teachers noted that Daike teachers had made great contribution to the improvement of education in rural schools when many certificated teachers were not willing to teach rural schools. Some interviewed teachers even suggested that Daike teachers could not be dismissed until the teacher shortage problem had been resolved completely (Liu, 2004). One of the interviewed teachers indicated that, even though these Daike teachers could not provide enough professional teaching assistance for students, they were hard working and most of them had taken many courses in order to improve their professional skills. He also indicated that, in many rural schools, certificated teachers would help Daike teachers acquire professional teaching skills to improve the teaching quality. 8 out of 10 teachers even admitted in the interviews that Daike teachers sometimes performed better than professional teachers. One female teacher suggested that it was necessary to provide further education opportunities for Daike teachers who wanted to continue to teach in rural schools.

The existence of Daike teachers not only represents the current conditions of rural schools' ability to resolve the teacher shortage problem but also reflects the limitations in the Chinese education system and government policies. Apparently, according to the above study results, most rural schools in Guizhou have recruited

Daike teachers for years, and Daike teachers cannot teach students as effectively as certificated teachers. However, in fact, Daike teachers have made great contributions to the resolution of the teacher shortage problem. According to the perspectives and suggestions of the interviewed teachers, the policies of dismissing Daike teachers should be implemented in consideration of the current teaching resources of rural schools. Policy-makers should ensure that the dismissal of Daike teachers will not further worsen the teaching practices in rural schools. Effective and radical solutions should be taken to address the teacher shortage problem before Daike teachers are dismissed. It should also be noted that a number of Daike teachers even have performed better than certificated teachers in terms of addressing the teaching problems in rural schools. This indicates that the involved policy-makers should not neglect the contributions that Daike teachers made to rural education. It is of great necessity for rural schools to stipulate more effective and efficient policies to deal with the teacher shortage problem.

(2)The second index: student-teacher ratio

Under this situation, Mr. A, the educational bureau director of Bijie and the top official in charge of education in Bijie, was interviewed. Mr. A's answer can be summarized in 3 points:

Point 1: Generally, there has been no large-scale shortage of teachers in Bijie since 2009 mainly due to the recruitment and retention policies stipulated by the government. He pointed out that the Chinese government has made a series of policies to encourage excellent university graduates to make contributions to the education of Western China, including the famous “Go West” —College Graduates Volunteer Programme and Teachers policy.

Point 2: In Bijie, although a majority of schools are not short of teachers in terms of the teacher's number as a whole, there is still a shortage of teachers in certain subjects, such as art and music. The government is trying to work out effective policies to solve

this problem.

Point 3: Only a minority of schools in this area still have Daike teachers, and the government is dismissing these teachers to ensure teaching quality.

It is apparent that the government official provides opposite conclusions to the teaching situation of rural schools. It is also not consistent with the findings from most of the researches on the teacher recruitment and retention issue in rural areas of China. On the one hand, special attention should be paid to such great differences. On the other hand, it is necessary for the researcher to make more efforts to evaluate the reliability and effectiveness of the differing conclusions.

The government official seems to be too optimistic about the progress in resolving the problem of teacher shortage with the implementation of these policies. The mentioned findings indicate that rural schools usually need more teachers than expectation. The interviewed officials also told the researcher that they are confident in their ability to quickly resolve the teacher shortage problem in rural schools of Guizhou. He explained that, even though most of the rural schools are short of teachers, the increasingly richer teaching resources in China have increased the possibility to effectively and efficiently resolve the problem. This official also told the researcher that, apart from a series of policy, the government has also established funding to provide better work environments and further education opportunities for rural schools teachers.

3.2 Study on the Reasons of Teacher Turnover

According to the interview results from the teacher leaders, many of the rural schools not only have Daike teachers but also have retired staff to temporarily resolve the teacher shortage problem. The data show that many graduates are competing for one teaching position in top schools. That is to say, the imbalanced distribution of teaching

resources is an important cause for teacher shortage in rural areas. A number of teachers are competing for one position in some top schools while only a few candidates apply for the vacancy in some schools. Geographical location, safety, government policies, and teachers' willingness can all influence the effective resolution of teacher shortage problem in rural schools. By comparing the number of teachers and the number of students, it is apparent that the teacher shortage problem is more severe than suggested in many research studies. A large number of students in rural schools is another reason to prevent teachers from teaching there, as teachers have to shoulder much more workload and responsibility than those in cities.

The new data and the study results provide a lot of useful data and information for the analysis of the causes of teacher shortage problem, the factors that influence the effective implementation of government policies, teachers' willingness to teach in rural schools, and the current situation of teaching staff in rural schools. These results are from the studies designed by the researcher, and thus can provide reliable and valuable data for further related studies. Compared to previous studies, the researcher has given more details about the teacher shortage problem in rural schools of Guizhou. In this way, the gathered data can also be used to provide a more detailed explanation of the current situation of teacher shortage in rural schools of Guizhou.

These findings show the gap between the actual situation and the officials' reflections on the effectiveness of the teacher recruitment and retention policies. It is also a direction for the researcher to explore why the teacher shortage problem in rural schools is more complicated and serious than it is usually reported (Robinson, 2008). The government officials in China tend to give more positive reflections on the effects of recruitment and retention policies, which could eventually weaken the reliability of the government's research findings. It is necessary to evaluate the effectiveness of the government policies with more reliable evaluation methods.

A considerable number of students in rural schools are another cause to the teacher

shortage problem in rural schools of Guizhou. According to the regulation, more teachers should be allocated to rural schools with a great number of students. The actual situation, however, is that the same number of teachers are selected and appointed to rural schools and city schools. A large number of students in each class of rural schools and the relatively smaller number of teachers make the problem of teacher shortage more serious.

Schools with the teacher shortage problem are classified into two groups: the first group refers to the schools with no vacancy for teachers, such as Shengfulu and Huanxi primary schools, and the second group refers to the schools where no teacher is willing to apply for the vacancy. This study focuses on the latter group. In terms of the teacher recruitment and retention issue, the government recruited 5,668 volunteers to teach in Guizhou through the “Go West — College Graduates Volunteer Programme” in the past decades (Chinese Youth, 2013). Data from the Guizhou Department of Education show that the government recruited 11,003 teachers in 2012 and 14,046 teachers in 2013 through the Teachers in Special Post policy. Government officials claimed that the Go West and Teachers in Special Post Policy helped rural schools to solve the teacher shortage problem. Later, the question comes: why are there shortages of teachers in rural schools in these areas?

3.2.1 Validity of Policy

Teachers and headteachers from village schools claimed that “Volunteers from Go West never teach in our school.” No volunteer teacher from the Go West programme was appointed to the 26 village schools involved in the field study. To determine the reason for this, Mr. Malei, director of Go West at Guizhou, was interviewed. Mr. Ma told me that considering the safety issue, Go West mainly arranged volunteers to work in counties and towns. By 7th December 2005, there were 3,468 villages with no access to the outside world. In 2010, a young volunteer named Zhaoxiaoting died in a landslide at Guizhou. Thus, safety was the primary concern for the Go West programme.

With the government's recruitment and retention policies, hundreds of volunteers have been appointed to teach in rural schools of Guizhou. The imbalanced distribution of volunteers has reduced the actual effectiveness of these policies. Considering the safety issue, villages with no access to the outside world and villages with high possibilities of natural disasters and social attacks still do not have enough teachers in local schools (Wu, 2010). This fact indicates that, apart from the recruitment and retention policies, there are many things the government should do to help each rural school in Guizhou to resolve the teacher shortage problem fundamentally (Yang, 2004). The imbalanced distribution of volunteer teachers in rural schools can even result in resource waste as some schools may have no appropriate teaching positions for these volunteers. These results indicate that there are many limitations of government policies in helping rural schools of Guizhou resolve the teacher shortage problem. In future policy-making processes, such study findings can help policy-makers to be more careful and prudent in making recruitment and retention policies for rural schools of Guizhou.

A similar situation occurs in the Special Post policy. Considering safety and life convenience issues, a majority of teachers in this programme prefer to teach in county and township schools other than village schools. The researcher used SPSS to analyse the data. Analysis on variance (ANOVA) between the two groups is shown as below. One group is the schools located in counties and towns while another group is the schools located in villages. First of all, 18 schools with teacher shortage problem were chosen from the two groups. Then the shortage ratio (the number of staff shortage divided by the number of current staff) can be calculated.

Table 9: Shortage Ratio of the Two Groups

Group 1 (county and township)	Shortage Ratio	Group 2 (village)	Shortage Ratio
41	0.325	12	0.5
14	0.069	47	0.454
42	0.192	5	0.35
37	0.263	7	0.8
38	0.154	35	0.714
15	0.3	43	1.5
22	0.366	33	1.333
16	0.062	23	1
39	0.125	24	0.666
8	0.066	10	0.666
9	0.066	28	0.6
20	0.111	12	0.5
27	0.058	13	0.333
17	0.277	32	0.5
30	0.181	29	0.25
36	0.25	12	0.625
44	0.157	46	0.666
4	0.151	3	4

ANOVA

Village

	The Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12.235	16	.765	351.083	.042
Within Groups	.002	1	.002		
Total	12.237	17			

ANOVA shows that Sig is $0.042 < 0.05$, which means that, although the two groups are short of teachers, there is a significant difference between them. The teacher shortage problem is much more severe in village schools.

The results show that, for the advantages in safety and life convenience, teachers prefer to teach in county and township. That is to say, even though many teachers are willing to teach in rural areas, they prefer to teach in schools with the safe work environment and convenient conditions. In this way, although lots of teaching resources are provided by the government's policies, very limited resources can be utilised by village schools. To a very low extent, the teacher shortage problem in villages has been resolved. ANOVA between the two groups indicates that the teacher shortage problem in rural schools of Guizhou is different from the problem in counties and towns. This study focuses on the differences between different rural areas in terms of teacher shortage. Information for government officials to review their recruitment and retention policies is also provided. Concrete policies and plans are more important.

The regional difference in teacher shortage in rural schools of Guizhou is a topic worth in-depth study. In fact, in rural areas of China, there is no big difference among the education policies in resolving the problem of teacher shortage (Hannum, 1999). There are few detailed studies about the regional differences between towns and villages concerning the teacher shortage problem, as such differences can be usually neglected and are not significant. However, the facts as mentioned before demonstrate that there are big differences between towns and villages in terms of shortage ratio. This indicates that it is necessary and important to conduct a study on this topic. Such concrete and detailed findings can also provide more concrete information for policy-makers and headteachers to pay more attention to every detail involved in resolving the teacher shortage problem.

The differences in the groups indicate that there are various factors that lead to the teacher shortage in rural schools of Guizhou. Different shortage ratios in the two groups indicate that the situations of teacher shortage in rural schools of Guizhou are very complicated. It is necessary to fully understand the causes of the shortage to find more useful instructions. Despite the implementation of government policies and programmes, teachers in rural schools should take more factors into consideration in their decisions about whether to stay or leave.

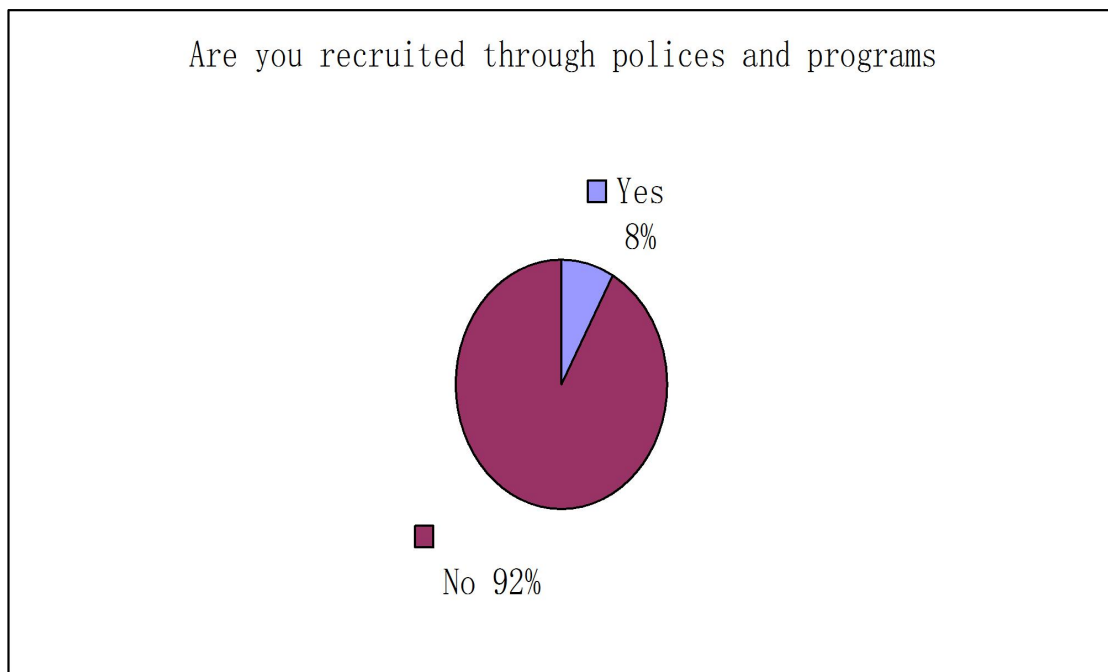
To determine the percentage of teachers recruited by the government policies and programmes, and the time these teachers would stay in rural schools, two questions were designed.

Were you recruited through policies or programmes?

Yes

No.

Figure 21: Teacher Recruitment Policies and Programmes Survey



The data show that only 8% of the 100 teachers surveyed were recruited through the government recruitment and retention policies. This result shows that the government policies and programmes are not as effective as expected in resolving the problem of

teacher shortage. Even though a series of government policies and programmes have been developed to improve teacher recruitment and retention in rural schools, these policies and programmes have not been effectively implemented as they have not helped rural schools recruit a sufficient number of teachers. Only few teachers were found to be recruited through policies or programmes, and most of them were found to be recruited in the traditional manner (Wen, 2003). Therefore, the recruitment policies made by the government have contributed little to the resolution of the teacher shortage problem in this area. This data show that the relevant policies have not been implemented with strict standards. It also indicates that the percentage of current teachers who were recruited by government policies and programmes is below the average value. Even though the government has made efforts to recruit and retain teachers in rural schools of Guizhou, the policies and programmes are not effective as expected.

The next question is “If you were recruited through policies or programmes, how long will you plan to remain in rural area?”

Under 3 years	3-5 years	6-10 years	10 years +
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Among the 8 participants, 6 chose under 3 years, 2 chose 3 to 5 years, and no one chose 6 to 10 years or more than 10 years. Most of the teachers were not willing to teach for more than 5 years in rural schools. This shows that more efforts should be made to attract more teachers to rural schools and to make them willing to teach in these areas for a longer period.

There is also another question: “What are the intentions that made you decide to teach in rural schools through policies and programmes?”

Making contribution to rural education

Among the 10 participants, 5 of them chose the second answer, 4 chose the first answer, and the rest chose the last answer. These answers reflect the uncertainty of the

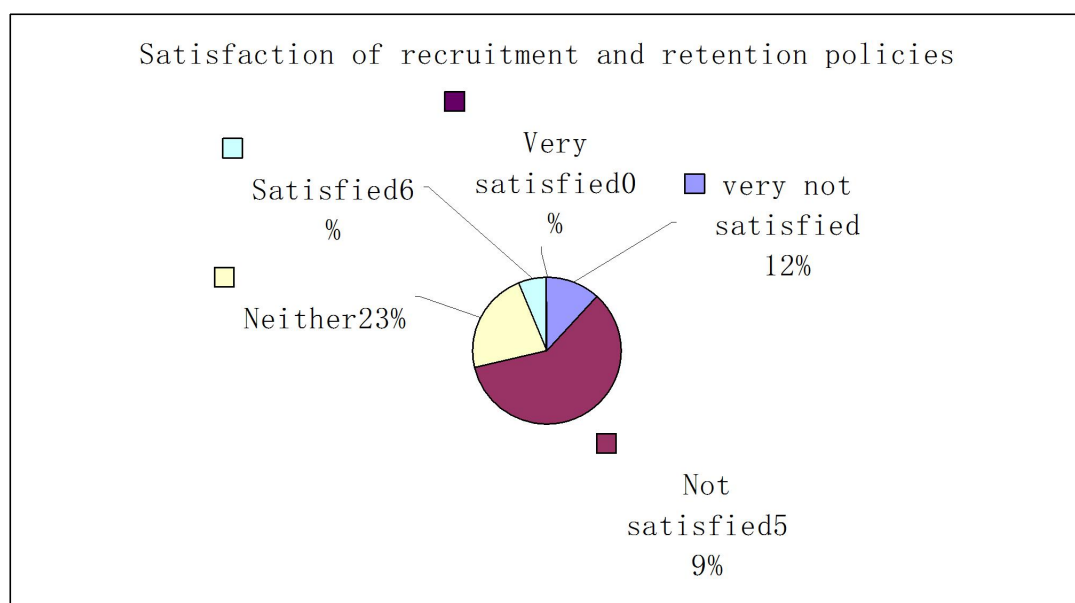
effectiveness of government policies and programmes in resolving the teacher shortage problem. Many government policies have promised that if teachers have worked in rural schools for at least X (3-10) years, they will have more chances to find a better job or be given privileges in turnover. One of the teachers who chose the second answer told the researcher that a main factor that influenced his decision to teach in rural area was the privileges provided by the Go West policy and other education policies. These teachers also indicated that they do not want to stay in rural schools for too long due to the underdeveloped teaching conditions in rural schools of Guizhou.

Two questions were designed to collect data about satisfaction with policies and turnover intention. The two issues are essential to evaluate the effectiveness of the retention polices.

Are you satisfied with the current policies or programmes?

Very not satisfied	Not satisfied	Neither
Satisfied	Very satisfied	

Figure 22: Satisfaction of Recruitment and Retention Policies



The data show that only 6% of the participants were satisfied with the current recruitment and retention policies, 59% were not satisfied and 12% were very unsatisfied. Even though the officials have confirmed that many effective policies have been implemented, most of the policies have not satisfied teachers working in rural areas. Thus, the needs of rural teachers should be carefully studied. It also indicates that the recruitment and retaining policies have not been made or implemented with effectiveness (Rowe, 1997), as more than half of the teachers are not satisfied with the current recruitment and retention policies in rural schools of Guizhou. To some extent, this causes teacher's unwillingness to work in rural areas for long period.

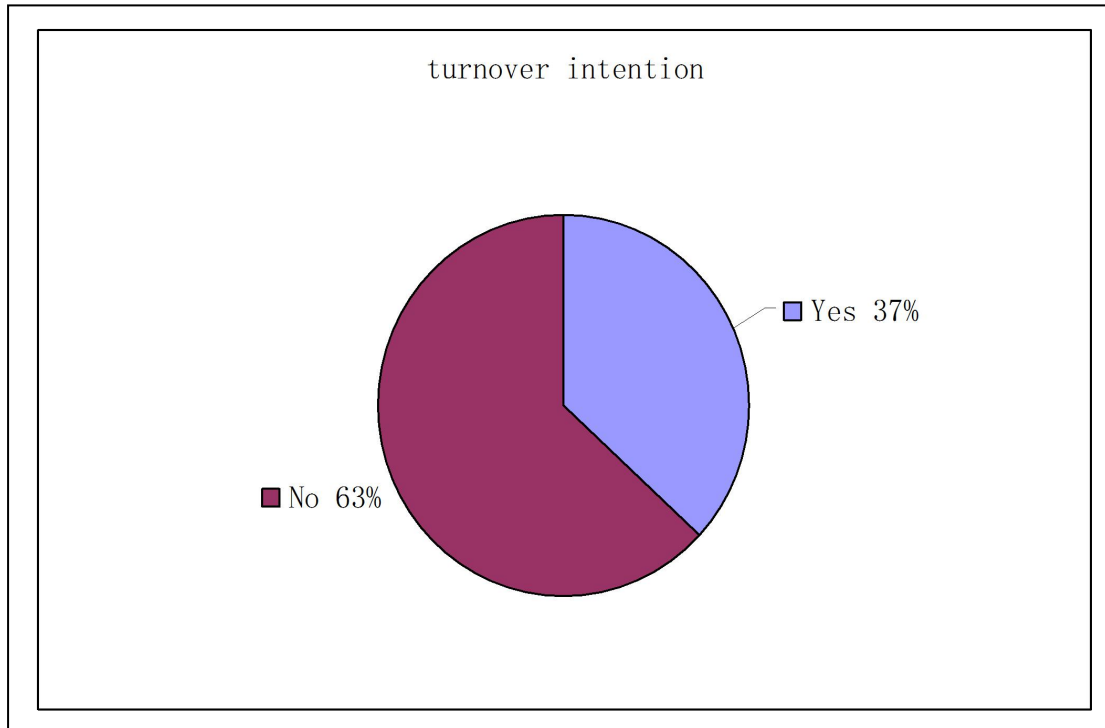
The large percentage of teachers who are not satisfied with the current policies is obviously in contrast to what the government has described in terms of the effectiveness of the current policies. Results show that most of the participants held negative views on the effectiveness of the government policies. One of the participants told the researcher that, even though the government has carried out a series of policies and programmes to resolve the teacher shortage problem in rural schools, he could not see any beneficial effect that these policies have made on teachers' decisions to teach in rural schools. The reason for that is most participants were not satisfied with the recruitment policies in rural schools. That is to say, the current policies are not as effective as expected. Furthermore, there are many potential limitations in the current policies (Tianyou and Zhang, 1998) and policy-makers have not implemented these policies taking teachers' personal needs into consideration. In other words, these policies have not focused on the radical causes of the teacher shortage problem in rural schools. With possible changes or adjustment, these recruitment policies may become less and less meaningful and valuable in the future, which will eventually pose a great threat to the sustainable development of education in rural areas.

Do you have turnover intention?

Yes

No

Figure 23: Turnover Intention Survey



The study results show that 37% of teachers in rural schools have turnover plan while 63% of them have no such plan. In spite of this result, teacher shortage is still a serious problem. Even though teachers in rural schools of Guizhou have barely considered changing their jobs due to the influences of internal factors, there must be some external factors that force them to leave. The data indicate that there is a high level of possibility for effective policies to retain teachers in rural schools of Guizhou (Everette and Ben, 1967). This finding is good news for the resolution of teacher shortage in rural schools. Compared to the dissatisfaction with the government policies, this finding indicates that many rural teachers do not have any turnover intention. This means that it is more likely for rural schools to retain teachers as long as they can make and implement effective methods.

3.2.2 Environmental Factors

According to Chapter Two, environmental factors are mainly location, salary, and working condition which are analysed in this section in details.

(1) Location

When asked why it is difficult to recruit and retain teachers, the interviewees said a common word: “remoteness”. Most interviewees regarded remoteness as the major factor that affects teacher recruitment and retention in poor regions of Guizhou. SPSS was adopted to analyse the correlation between remoteness and teacher shortage in the study. Driving hours are used to measure the remoteness of the 24 schools which were classified into 3 groups. Group 1 includes schools that can be reached from a city within 3 hours by car. Group 2 includes schools that can be reached from a city in 3-6 hours by car. Group 3 includes schools that can be reached from a city within 6 or more hours by car. The following table shows the data about the three groups.

Table 10: Group 1 Driving Hours

Group 1

Number of Schools	Shortage Ratio	Driving hours to Guiyang City (hours)
4	0.076	1
38	0.153	2
44	0.157	2
27	0.058	2.2
17	0.277	2.5
29	0.25	3
16	0.151	2
42	0.192	1.4

Table 11: Group 2 Driving Hours

Group 2

Number of Schools	Shortage Ratio	Driving hours to Guiyang City (hours)
12	0.5	3.5
47	0.454	3.5
29	0.3	4
24	0.666	4.5
26	0.333	5
32	0.5	5
13	0.333	5
22	0.366	5

Table 12: Group 3 Driving Hours

Group 3

Number of Schools	Shortage Ratio	Driving hours to Guiyang City (hours)
5	0.35	7
35	0.714	9
43	1.5	7
28	0.6	9
31	0.625	9
46	0.666	9
41	0.325	6
36	0.933	8

Correlations

		Shortage	Remoteness
Shortage	Pearson Correlation	1	.691**
	Sig. (2-tailed)		.000
	Sum of Squares and Cross-products	2.329	13.221
	Covariance	.101	.575
	N	24	24
Remoteness	Pearson Correlation	.691**	1
	Sig. (2-tailed)	.000	
	Sum of Squares and Cross-products	13.221	157.238
	Covariance	.575	6.836
	N	24	24

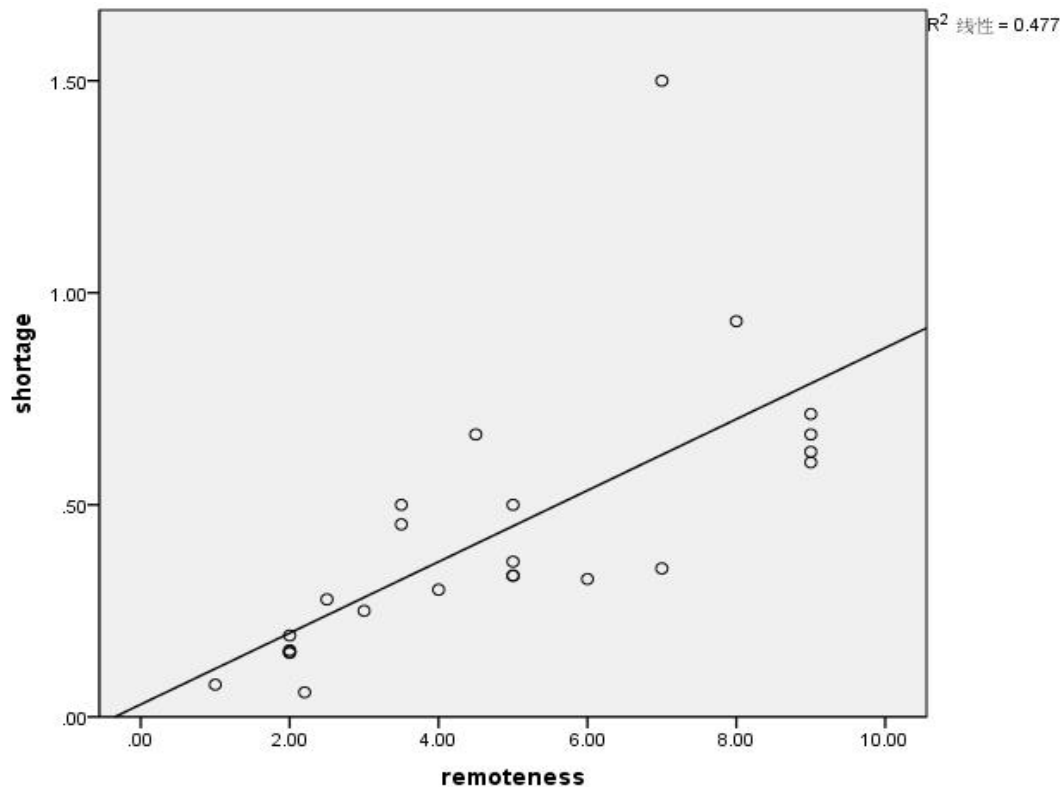
g**. Correlation is significant at the 0.01 level (2-tailed).

The results show that R is 0.691,

$0.5 < |R| < 0.7$

$p < 0.01$

It means that there is a moderate positive correlation between teacher shortage and remoteness.



The moderately positive correlation between teacher shortage and remoteness based on the SPSS analysis results shows that, even though remoteness has a close relationship with teacher shortage in rural schools, it cannot be taken as the radical cause for the problem. The different hours for teachers to travel to school indicate that distance is an important factor that influences teachers' willingness to teach in rural schools. The relatively disadvantageous natural conditions, especially geographic limitations, have become a major consideration for teachers to make the final decision. However, this is not the radical cause for teacher shortage either. It is necessary to take more factors into consideration to explain why the problem of teacher shortage in rural schools is more severe than expected.

The results show that most rural schools are distant, and it takes at least 1 hour to reach the schools. For most schools, it takes 3 to 5 hours for teachers to reach the destination from the nearest cities. In some cases, it even takes 9 hours. The positive correlation between teacher shortage and remoteness indicates that there is a close

relationship between teacher shortage and remoteness (Robinson, 2008). Also, it indicates that, among most of the rural schools, long traveling time is a major factor that increases the difficulties in resolving the teacher shortage problem. The long driving hours for rural schools have had great influences on teachers' willingness to teach at rural schools. Additionally, the long distance reduces the amount of time that teachers spend on teaching, which further affects their teaching quality. To some degree, this has made the teacher shortage problem ever worse. This finding is believed to be an important source of information for policy-makers to provide new direction in the resolution of the teacher shortage problem.

(2)Salary

A large number of studies provide strong support for the conclusion that salary plays a vital role in the recruitment of teachers.

What is your current salary?

Less than 1000	1000-2000	2000-3000	More than 3000
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What is your expected salary?

1000-2000	2000-3000	3000-4000	More than 4000
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Are you satisfied with your current salary?

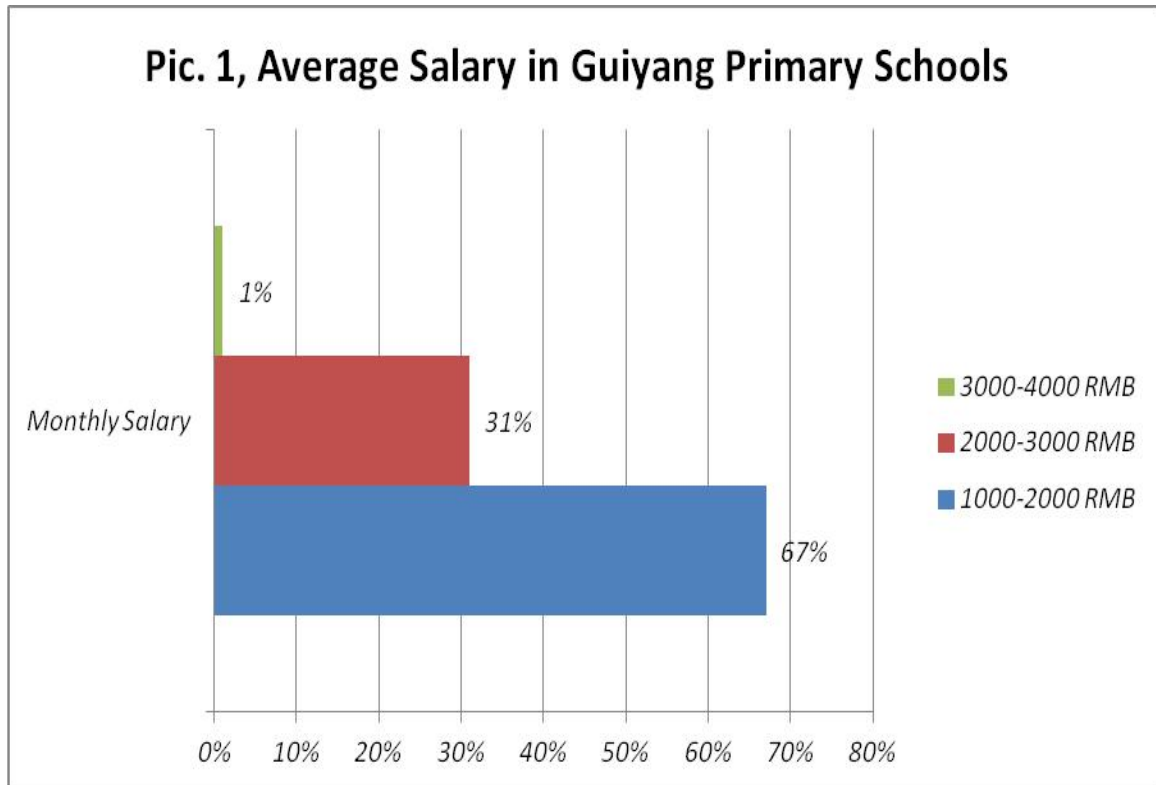
Yes	No
-----	----

Will you change a job if other position offers you the expected salary?

Yes	No
-----	----

From a job website, the average monthly salary for new teachers in Guiyang is 1,800 RMB. The highest paid teachers get a salary of around 4,000 RMB (pic 1). Graduates with higher degrees and more opportunities intend to choose other jobs which could provide them with a higher salary and better benefit scheme.

Figure 24: Average Salary in Guiyang Primary Schools

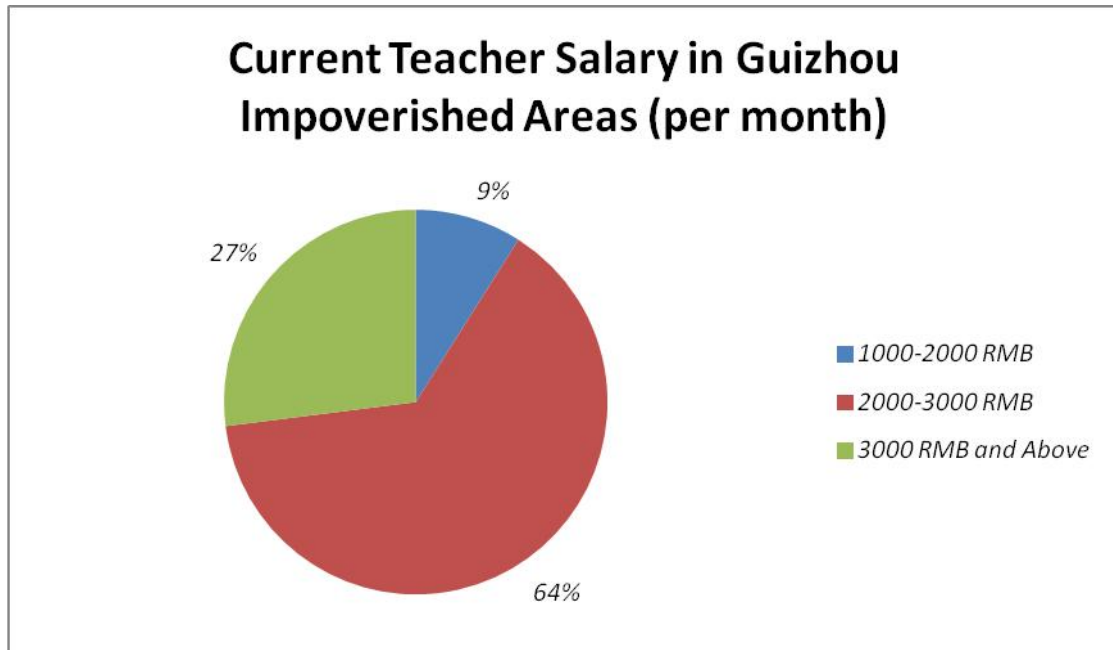


The result shows that 67% of the primary school teachers' salaries are between 1,000 to 2,000 RMB.

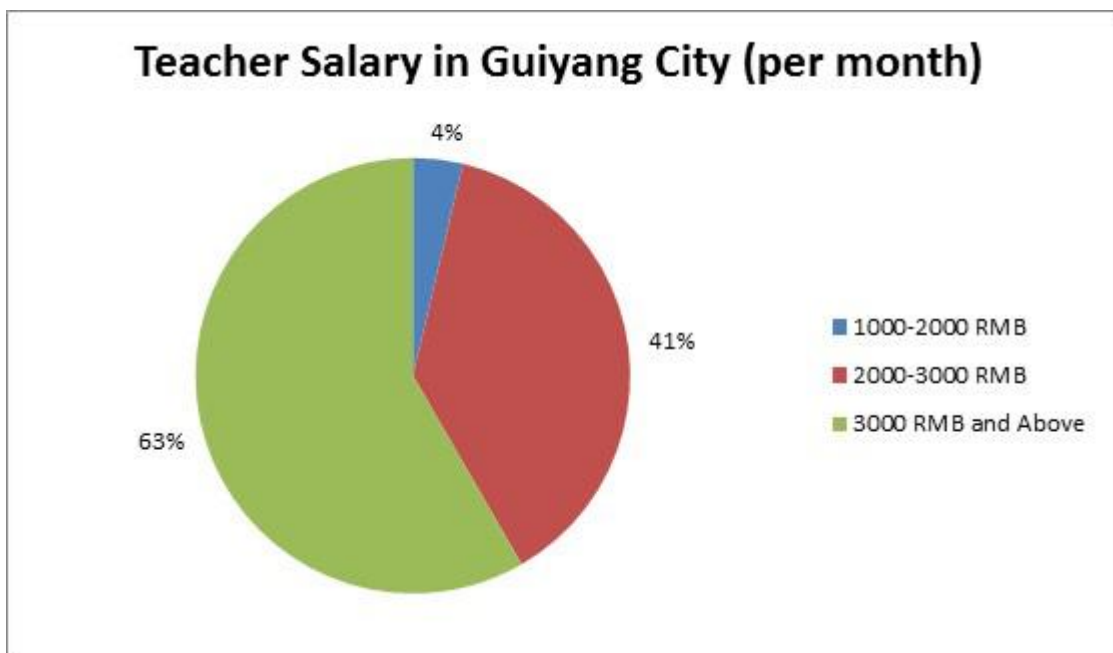
In China, the salary level in primary schools is relatively low, as it is commonly accepted that primary school teachers do not have that much workload as teachers in middle schools and high schools do.

An investigation was conducted to reveal the current situation of teachers' salary in the impoverished areas of Guizhou. The results are shown as below:

Figure 25: Current Teachers' Salaries in Guiyang and Impoverished Areas of Guizhou



In Comparison to Teachers' Salaries in Guiyang:

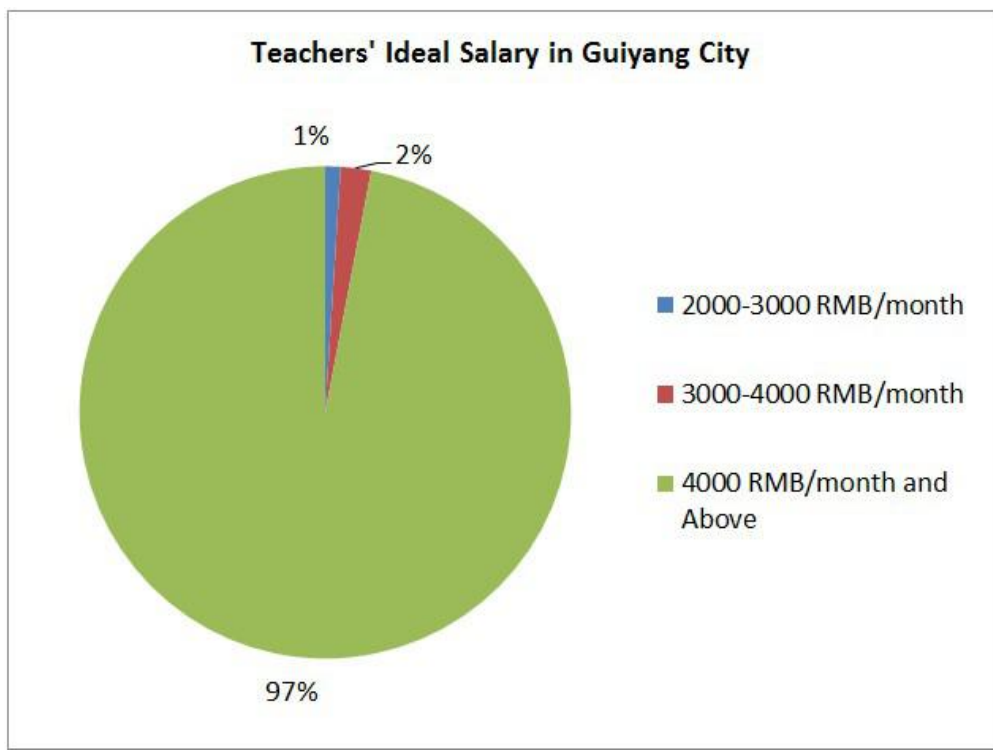
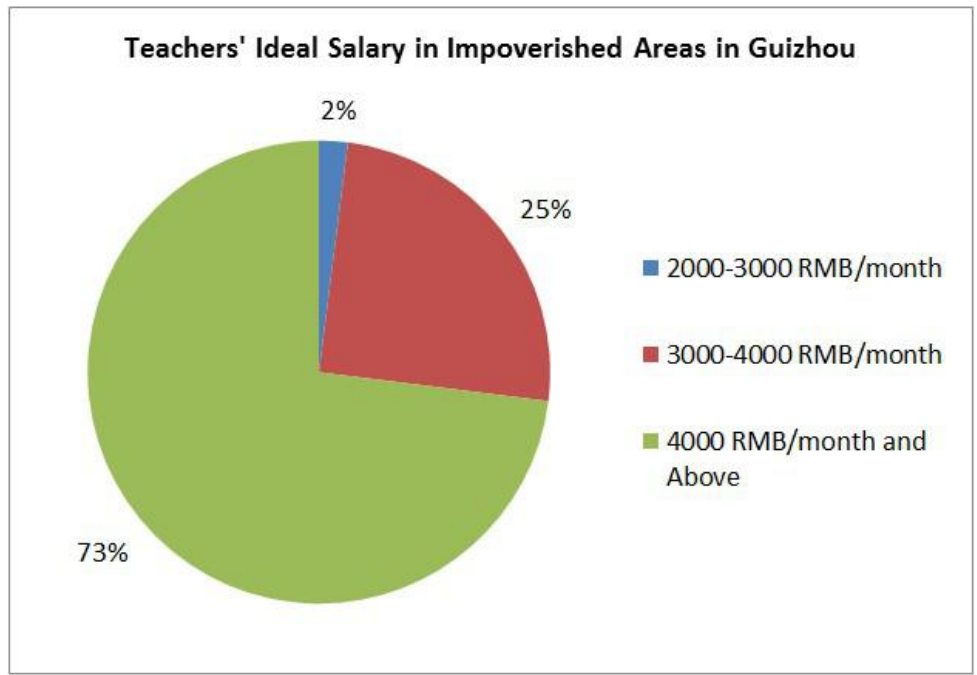


The above figures show that teachers' salaries in Guiyang City are higher than those in impoverished areas of Guizhou. 63% of teachers' salaries are more than 3,000 RMB per month, and this percentage in impoverished regions is only 27%. 64% of teachers in impoverished areas have salaries from 2,000 RMB to 3,000 RMB, which is about 1000 RMB or 2000 RMB less than the teachers in urban areas. Most of the teachers in impoverished areas have been paid with a salary at average level, and

teachers in urban areas have been paid with a salary at higher level.

Based on the questionnaire survey, the data about teachers' ideal salaries are shown as below.

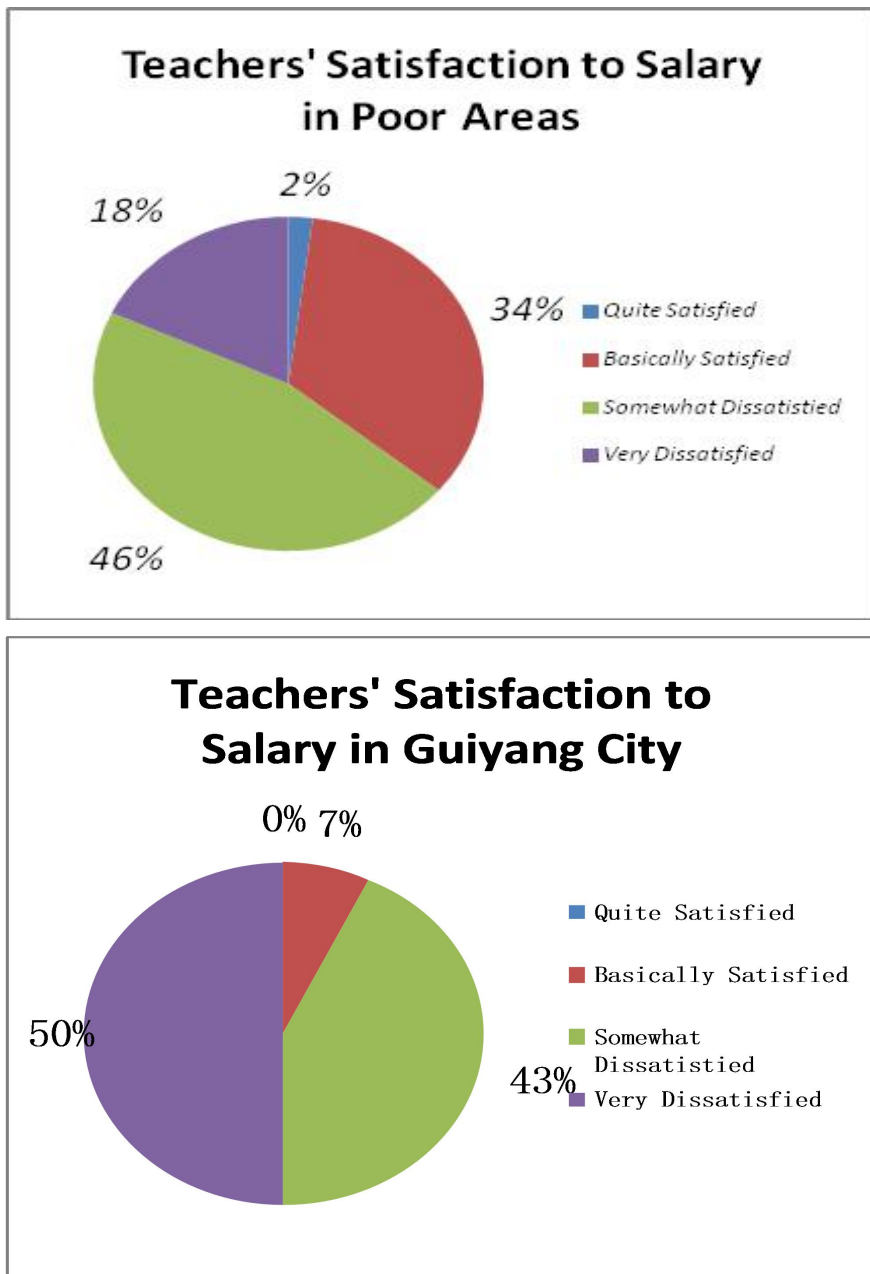
Figure 26: Teachers' Ideal Salaries in Guiyang and Impoverished Areas of Guizhou



Zoom analysis was employed to study the data. According to the findings, the proportion of teachers who wished to be paid over 5,000 RMB per month in Guiyang City was 78%. This also shows that teachers in both city and rural areas of Guizhou have an ideal salary of over 4,000 RMB. This is much higher than the expected salary of teachers in impoverished areas.

Data from the survey on teachers' satisfaction with salary are shown as below:

Figure: 27: Teachers' Satisfaction with Salary in Guiyang and Impoverished Areas Guizhou



According to the above data, although teachers' salaries in impoverished areas are lower than those of teachers in Guiyang City, teachers' levels of satisfaction with their salaries in impoverished areas are higher than those of teachers in Guiyang city. 36% of rural teachers are satisfied with their current salaries while only 7% of Guiyang teachers are satisfied with their salaries. Among the interviewees, 8 of them said that they were satisfied with their current salaries. They explained that they did not need much money to support their lives due to the relatively low consumption standards and their current living conditions in rural areas. In addition, teachers in rural areas tend to be more satisfied in their psychological world, which lowers their requirements on the salary. This result does not match the study results of many previous studies, which indicates that salary plays a vital role in teachers' recruitment in rural areas. As a result, it is necessary to review and re-evaluate the role that salary plays in teachers' recruitment in the analysis of research results.

(3) Working Condition

What is your class size now?

Under 30	30-40	40-50	50-60	60+
----------	-------	-------	-------	-----

What is your ideal class size?

Under 30	30-40	40-50	50-60	60+
----------	-------	-------	-------	-----

The table below is from the questionnaire distributed to teachers in impoverished areas of Guizhou about their current class size.

Table 13: Current Class Size

Under 30 students	11%
30 to 40 students	16%
40 to 50 students	14%
50 to 60 students	33%
Over 60 students	26%

Teachers also told the researcher their ideal class size. The data are shown as below:

Table 14: Teachers' Ideal Class Size

Under 30 students	24%
30 to 40 students	58%
40 to 50 students	18%
Over 50 students	0

The results show that the ideal class size for the majority of teachers is 30 to 40 students in each class. However, 33% of the classes in rural schools of Guizhou have more than 50 students, and many classes (26%) even have more than 60 students. On the other hand, considering the ideal size, no one chose the option of over 50 students. It means that the class size in rural schools of Guizhou is far away from the ideal size, and many of the teachers in rural schools may not be satisfied with their current class size. The relatively large class size means that each class in rural schools needs more teachers than stipulated in related regulations and rules.



Figure 28 School Building



Figure 29 Teacher's Bed Room

The above two pictures show a school building and a teacher's bedroom in a rural area of Guizhou. These pictures which show the working and living conditions of Guizhou rural areas may explain why most teachers prefer to teach in urban schools rather than rural schools. This is also another cause for the teacher shortage problem in rural areas.

3.2.3 Individual Factors (Teacher's characteristics)

(1) Gender

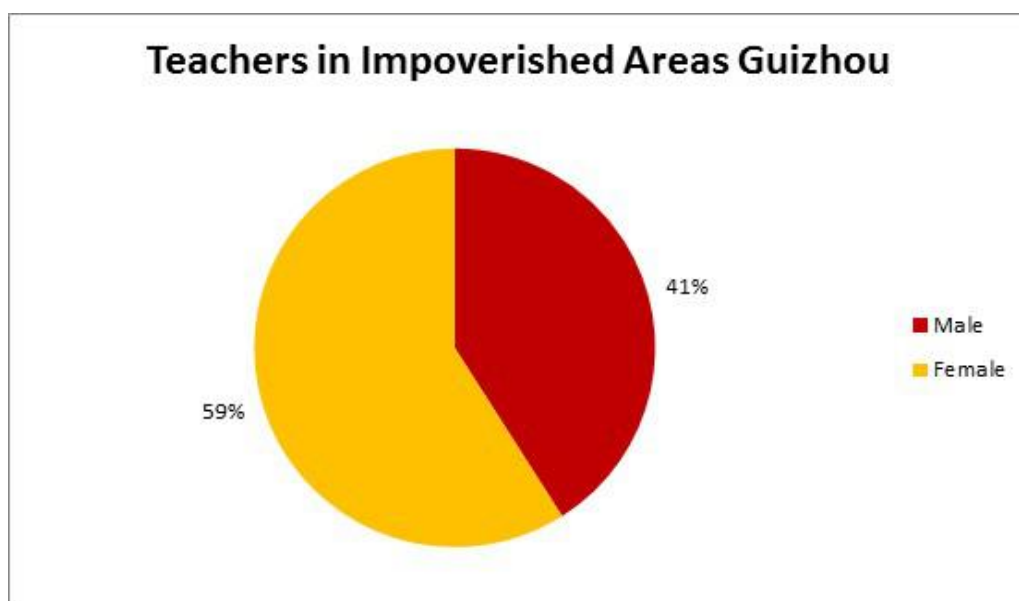
Male Female

In China, 79.39% of primary school teachers and 64.4% of secondary schools teachers are females (Qiu, 2012). The imbalance of gender in rural school teachers can provide important information about the different views among female and male

teachers about teaching in rural areas. Also, the data collected through the answers to the questions indicate that policy-makers should make more efforts to balance the gender composition in the practices of teacher recruitment and retention. Such characteristic of teachers in rural schools of Guizhou can give more explanation about the difficulty in recruiting and retaining qualified teachers in rural schools of Guizhou.

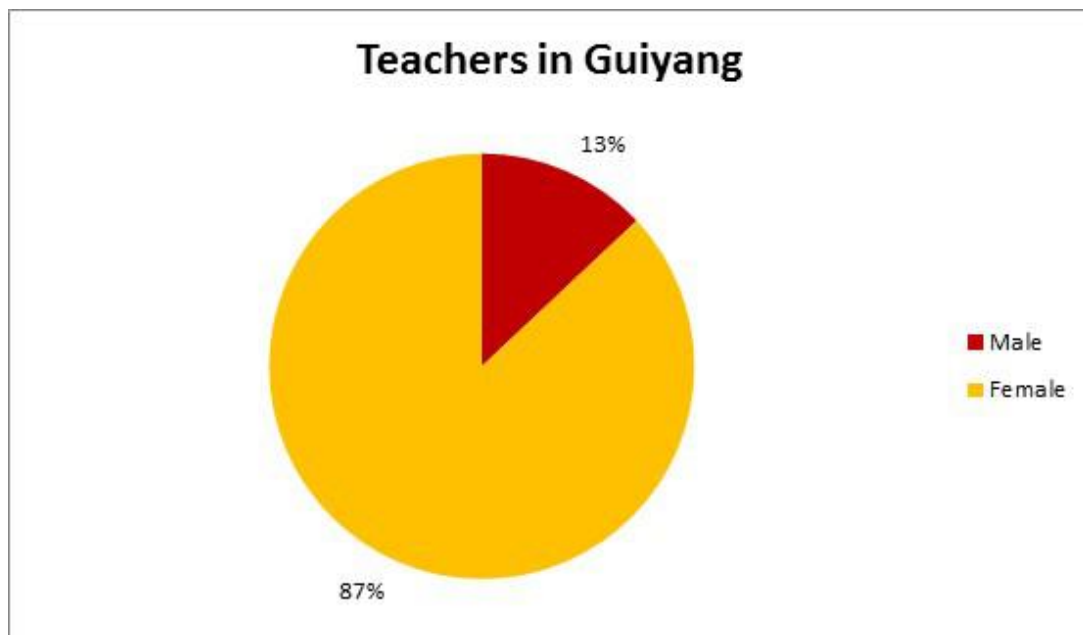
In this study, the following graph shows that 41% of primary school teachers in impoverished areas and 87% of primary school teachers in cities are females.

Figure 30: Teachers' Gender Composition in Impoverished Areas of Guizhou



Female teachers in rural schools, especially those from cities, occupy a relatively higher percentage while teachers from impoverished areas occupy a lower percentage. Teachers from the undeveloped areas are not willing to come back to rural areas for teaching. However, teachers from cities are more willing to teach in rural areas. This finding indicates that, to improve teachers' willingness of teaching in rural schools, teachers' origin places should be carefully considered.

Figure 31: Teachers' Gender in Guiyang



ANOVA

Rural Teacher

	The Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.201	1	5.201	26.845	.000
Within Groups	18.989	98	.194		
Total	24.190	99			

SPSS was adopted to analyse the data. ANOVA between the two groups— urban teachers and rural teachers is presented. As shown in the above table, Sig < 0.05. Therefore, the two groups are significantly different.

46 schools of the 47 schools under study had the teacher shortage problem. In 37

schools, the number of female teachers was less than that of male teachers. 3 schools had equal numbers of female and male teachers. Only 4 schools had more female teachers than male teachers. At the same time, 4 village schools did not have any female teacher. The unbalanced gender structure in rural areas has a close relationship with teachers' willingness to teach in rural areas (Hanushek, 2005), which can also be explained with the help of social norms. The Chinese cultural system plays a critical role in explaining teacher's shortage in rural schools of Guizhou. Teachers' opinions on the value of teaching in rural areas can be greatly influenced by related teachers or professionals. The cultural factors that influence female and male teachers' decisions to teach in rural schools can provide an important reference to policy-makers as teachers' actual needs to stay in rural schools can be clarified by them.

The gender composition in rural schools indicates that most teachers who are willing to teach in rural schools are females. Females who are born to be friendly and kind are not only easily accepted by students but also can easily be influenced by the situations of teacher shortage in rural schools (Zhang, 2002). However, the large number of female teachers may have negative influences on the teaching quality in rural schools. In fact, most students in rural areas are not easy to control, which increases the challenges for female teachers. It may also explain why it is still hard to deal with the teacher shortage problem. Based on the situation, it is suggested that policy-makers should take gender issue into consideration when making policies of teacher recruitment and retention. It is also necessary to increase the proportion of male teachers in rural schools. Gender balance is a basis for the effectiveness and efficiency of education in rural areas.

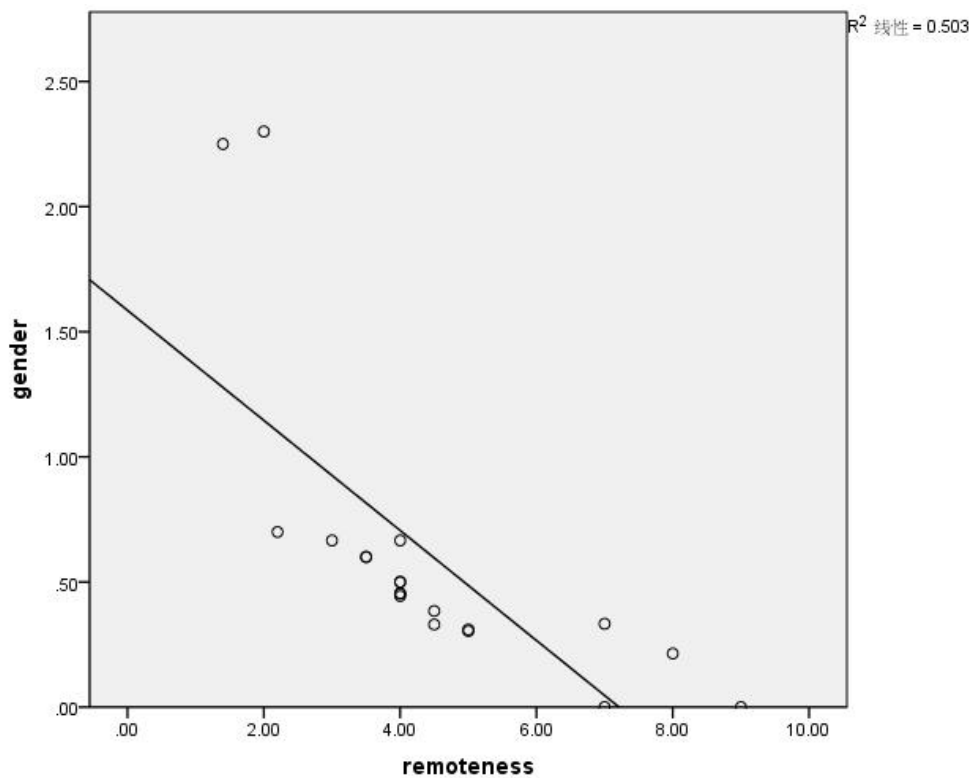
SPSS is adopted to analyse the correlation between remoteness and gender ratio. First of all, 20 schools with the teacher shortage problem were randomly selected. Subsequently, driving hours, which had been tested by the researcher, were used to measure remoteness. The number of female teachers is divided by the number of male teachers to come up the gender ratio. The following table shows the original data.

Number of Schools	Drive hours to Guiyang City	Number of Female Teachers	Number of Male teachers	Gender ratio
43	7	0	2	0
12	3.5	3	5	0.6
21	4.5	5	13	0.384
5	7	5	15	0.333
19	8	2	7	0.214
16	4	5	11	0.454
45	4	4	9	0.444
8	5	7	23	0.304
27	2.2	14	20	0.7
28	3	2	3	0.666
42	1.4	18	8	2.25
3	2	23	10	2.3
46	9	0	3	0
37	5	9	29	0.310
12	3.5	3	5	0.6
20	4	6	12	0.5
23	4.5	1	3	0.33
15	4	4	6	0.666
26	4	2	4	0.5
16	4	5	11	0.454

Correlations

		Remoteness	Gender
Remoteness	Pearson Correlation	1	-.710**
	Sig. (2-tailed)		.000
	Sum of Squares and Cross-products	72.392	-15.914
	Covariance	3.810	-.838
	N	20	20
	Gender	Pearson Correlation	-.710**
	Sig. (2-tailed)	.000	
	Sum of Squares and Cross-products	-15.914	6.950
	Covariance	-.838	.366
	N	20	20

** . Correlation is significant at the 0.01 level (2-tailed).



Data of the above table show that R is -0.710

$0.7 < |R| < 0.9$

$p < 0.01$

It shows that there is a strong negative correlation between remoteness and female teacher ratio. That is to say, most of female teachers are not willing to teach in remote rural schools. In rural schools with longest driving hours from cities, most of the teachers are males. This shows the influence of distance and gender on the regional differences in rural schools of Guizhou with the teacher shortage problem. The negative correlation between remoteness and female ratio indicates that even though female teachers occupy a greater percentage of the number of teachers in rural schools, most of them are not willing to drive long hours to teach. The relatively high gender ratio clearly shows the influence of distance on teachers' decision about teaching location. As mentioned previously, most of the rural teachers are females. To some degree, this has intensified the teacher shortage problem in these remote areas. It is necessary to change the imbalanced gender distribution in rural teachers. Meanwhile, policy-makers should also make more efforts to increase the number of male teachers in rural areas (Willis, 1979).

Why does the number of male teachers exceed that of female teachers in remote rural schools? To answer this question, 21 male teachers were interviewed. 13 of them mentioned "job opportunities." In remote and underdeveloped regions, the majority of people live by farming, and there is barely any other job opportunity for men. The average monthly income for a farmer in Guizhou is 350 Yuan (Guizhou Daily, 2011). Compared to farming, teaching is a well-paid job. In this study, the average monthly income of rural teachers in Guizhou was found to be more than 2,000 Yuan, which is 5 times higher than the income of farmers. Therefore, being a teacher is a good choice for a man. However, more job opportunities are available in towns and cities, especially big cities. Teaching is not a highly-paid job in a city. In the 2011 Chinese Income Survey, teacher ranked 14th in all the 15 jobs. When men are facing many

options in the job market, most of them will not consider teaching as a career. This phenomenon involves many aspects in terms of society, economy, and culture. In China, men carry the main burden of earning money to support family and teaching is not a lucrative profession. Meanwhile, in most Chinese people's eyes, elementary teaching is regarded as a 'women' work' and men should choose jobs that are more challenging and have more promotion opportunities. Increased social burden, desire for a relaxed life, and the intensified competition in cities can all influence males' decisions to teach in rural areas. This indicates that there are complicated factors, including cultural factors, that influence teachers' decisions about whether to teach in rural areas or not.

Why are there less female teachers in rural schools? This is also a complicated issue. For local women, traditional customs and poor education conditions prevent them from becoming a teacher. In many minority groups, people think that there is no need for girls to receive an education. For instance, in Changjiaomiao area, girls were not allowed to go to school until compulsory education was introduced by the government in the 1990s. In spite of the government's efforts, few girls completed the 9 years compulsory education. There was not a single female graduate in Changjiaomiao. In this case, it is impossible for native women to pass all kinds of examinations to become a qualified teacher. For the external female teachers, in consideration of safety and other issues, very few female teachers would like to teach in these areas (Jiang and Fen, 2002). Besides, women should be responsible for taking care of the family. Working in a remote and poor region means that a single female teacher may lose the opportunities to find a good life partner. And for a married woman, it is inconvenient to look after her family, especially taking care of her child. Females' unwillingness to work in rural schools has a close relationship with the great gap between the actual teaching environments in rural environments and their expectation. Nowadays, women teachers have begun to pay more attention to the teaching conditions and infrastructure conditions when making decisions about whether to teach in rural areas. In this situation, many rural schools that cannot provide

satisfactory working environments may lose a great number of qualified female teachers.

A correlation analysis between gender and turnover intention was conducted in SPSS. The result shows that the R value is 0.232, $|R| < 0.3$; $p < 0.05$.

This means that there is a weak positive correlation between gender and turnover intention.

Correlations

		Gender	Turnover
gender	Pearson Correlation	1	.232*
	Sig. (2-tailed)		.020
	Sum of Squares and Cross-products	24.190	5.600
	Covariance	.244	.057
	N	100	100
	Turnover	Pearson Correlation	.232*
	Sig. (2-tailed)	.020	
	Sum of Squares and Cross-products	5.600	24.000
	Covariance	.057	.242
	N	100	100

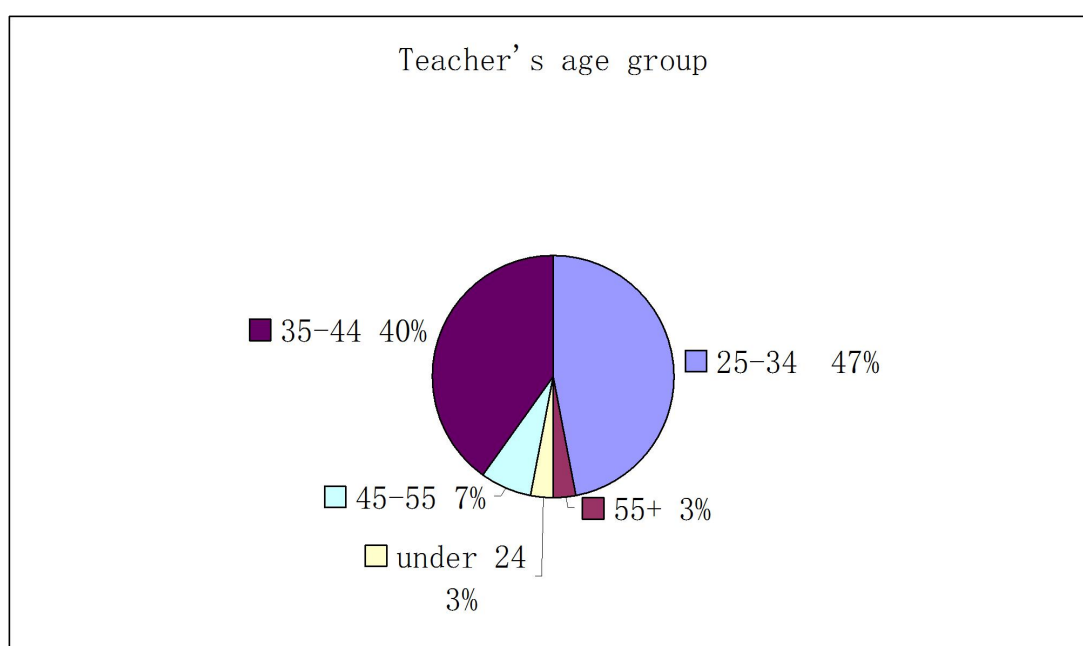
*. Correlation is significant at the 0.05 level (2-tailed)

(2)Age

Which age group are you in?

24 and under 25-34 35-44 45-54 55+

Figure 32: Teachers' Age Group



Based on the results as above, it can be seen that teachers in the age range from 25 to 35 years old account for a great proportion in impoverished areas of Guizhou (47%). Teachers in the age range from 35 to 44 years old account for 40% of all the rural school teachers in Guizhou. Those from 45 to 54 take up 7% and those under the age of 24 and above 55 only account for 3% respectively. On the whole, teachers in rural schools of Guizhou are relatively young, which is beneficial to increase the quality of education in Guizhou. The findings indicate that young teachers have contributed most to education in rural areas. This provides information about how policy-makers should change their focuses and what they should pay attention to, in term of the age structure of rural teachers.

Based on an in-depth research on the five groups of teachers at different ages, similar results can be found as the results of the research from Ingersoll and Dworkin: younger teachers are more likely to quit than those in other age groups.

Do you have any turnover intention?

Yes No

22 teachers in the group under the age of 35 chose “Yes”, while only 1 teacher in the group above the age of 45 chose “Yes”.

A correlation analysis between age and turnover intention was conducted by SPSS.

Correlations

		Age	Turnover
Age	Pearson Correlation	1	-.326**
	Sig. (2-tailed)		.001
	Sum of Squares and Cross-products	5650.760	-113.420
	Covariance	57.078	-1.146
	N	100	100
Turnover	Pearson Correlation	-.326**	1
	Sig. (2-tailed)	.001	
	Sum of Squares and Cross-products	-113.420	21.390
	Covariance	-1.146	.216
	N	100	100

** . Correlation is significant at the 0.01 level (2-tailed).

Data of the above table show that R is -0.328

$$0.3 < |R| < 0.5$$
$$p < 0.05$$

It means that there is a moderate negative correlation between teacher's age and turnover intention.

These study findings indicate that young teachers around 24 years old have little turnover intention, while teachers above 45 years old are more likely to have turnover intention. This indicates that policy-makers should provide convenience to attract more young teachers as this can be expected to improve teacher's retention (Huang, 2005). In rural areas, it is important for policy-makers to provide more satisfactory working conditions for these young teachers so that they will be more willing to work in rural schools for long period.

3 teachers under 24-year-old were interviewed. All of them indicated that teaching was just a temporary job. 2 of them were preparing for the civil service examination while another one was planning to return to university for a master degree. They were all reluctant to work in an impoverished area for a long time. Based on the interviews with 10 teachers in the age group from 25 to 34 years old, 8 of them said that they wanted to change jobs, and being a civil servant was their first choice.

In the three groups with the age above 35-year-old, the stability of the group of 45-54 years old was higher than the group of 35-44. The turnover intention of these two groups was lower than that in the group under 34 years old. This is consistent with the results of foreign research studies. Most of the teachers above 35-year-old chose to keep working in this area. This result was related to the age limitation for taking the civil service examination. In Guizhou Province, the age requirement for the enrolment of civil servant is from 18 to 35 year-old. Teachers above 35-year-old would not be allowed to take the exam.

In the group of teachers above 55-year-old, the study results were diametrically opposite to those of foreign researchers. In this group, the turnover intention was very low. All the 3 teachers in this group said that they would not quit teaching. Additionally, in the group of teachers from 45 to 54 years old, the teachers with no plan of turnover were all above 50 years old. They disclosed that the major reason for this was to get a full pension after retirement. Early retirement would bring a huge loss in income. This result is related to current Chinese retirement policy. In China, the legal age of retirement is 55-year-old for women and 60-year-old for men. People can only get a full pension after retiring at the legal retirement age.

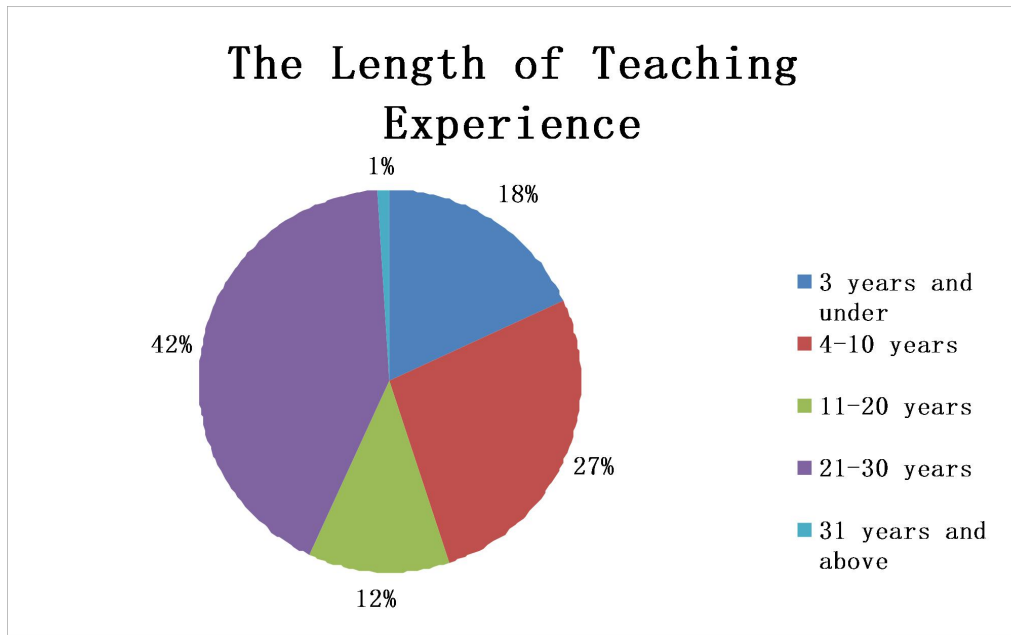
This information also indicates that young teachers from 24 to 44 years old make up the teaching team in rural schools. However, there is a higher level of turnover intention amongst these teachers. Even though the ratio of turnover intention does not seem to be very high, it also has an important influence on the actions taken to retain rural teachers. The findings also indicate that whether the rural teachers decide to turnover or not can be influenced greatly by economic factors, such as salary and pension (Furstenberg, 1998). The retirement age in China is relatively younger than that in other countries, such as America and the UK. Under this policy, these teachers have to retire at a young age while they still have energy and skills to make contributions to rural teaching. If these teachers retired at elder age, the teacher shortage problem would be resolved to some extent because the government would not have to recruit too many young teachers who always have a strong turnover intention. These findings have identified the factors that lead to the problem of teacher shortage.

(3)Seniority

What is the length of your teaching experience?

3 years and under	4-10years	11-20years
21-30years	31years+	

Figure 33: The Length of Teaching Experience



Correlations

	Seniority	Turnover
Seniority Pearson Correlation	1	-.023
Sig. (2-tailed)		.818
Sum of Squares and Cross-products	12012.750	-12.350
Covariance	121.341	-.125
N	100	100
Turnover Pearson Correlation	-.023	1
Sig. (2-tailed)	.818	
Sum of Squares and Cross-products	-12.350	23.310
Covariance	-.125	.235
N	100	100

The analysis of correlations shows that R is 0.023,

$|R| < 0.3$

$P > 0.05$

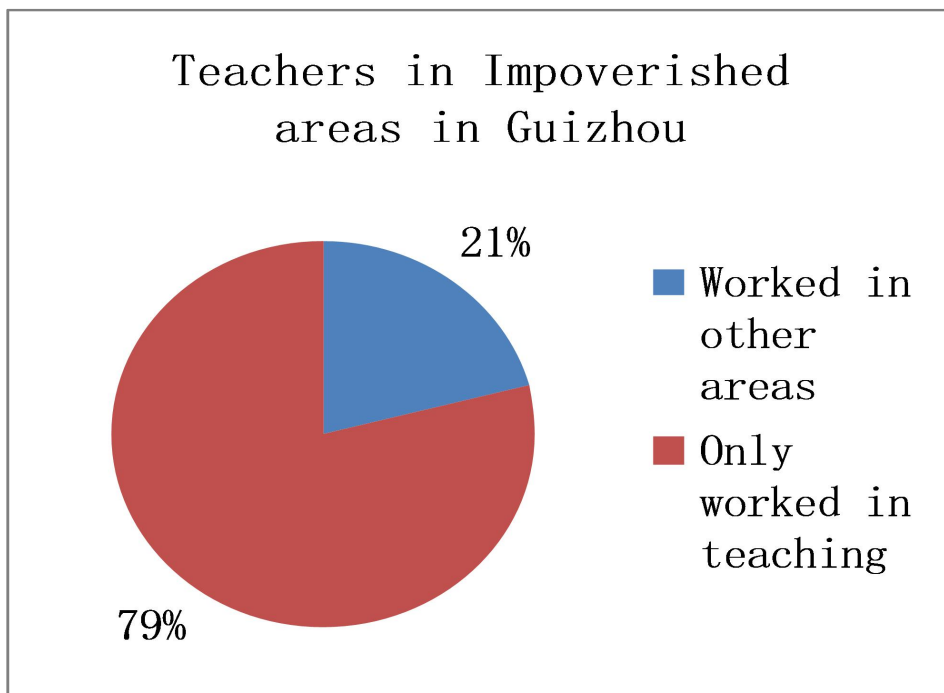
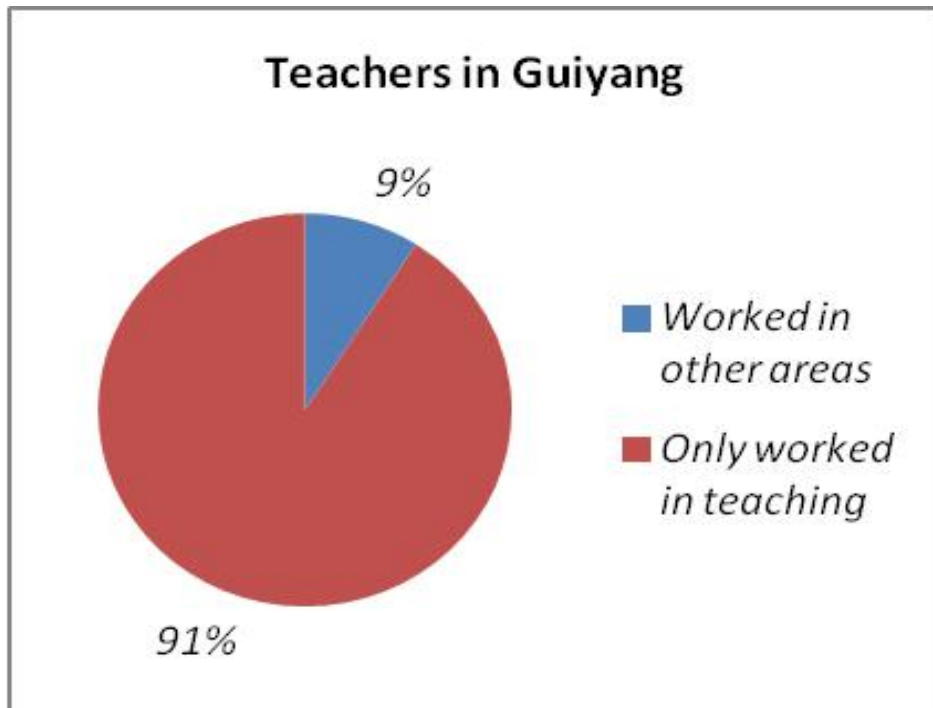
It means that there is no correlation between years of teaching and turnover intention.

The pie chart above is based on the survey on the length of teaching experience in impoverished areas of Guizhou. The chart shows that teachers with teaching experience of fewer than 10 years accounted for 45% of the total; the teachers with at least 20 years of teaching experience only took up 13%. This group of teachers had the highest stability, which means they were less likely to quit teaching. This is also related to the Chinese retirement policy. In China, women with more than 25 years of teaching experience and men with more than 30 years of teaching experience are not affected by the age limitation to get a 100% pension.

Why are the research results from impoverished areas of Guizhou different from the results of foreign researchers? To answer this question, 3 teachers in Guiyang City were interviewed. The results show that Ingersoll and Dworkin's results are proven applicable in Chinese cities as teachers with more teaching experience would be much easier for job-hopping. The aged teachers with richer experience are the prime goals for private schools. Under this situation, the stability of aged teachers would decrease. Meanwhile, why teachers in impoverished areas are more likely to care about pension instead of pursuing a job in city?

For the question "Did you work in other areas?", the results are shown as below:

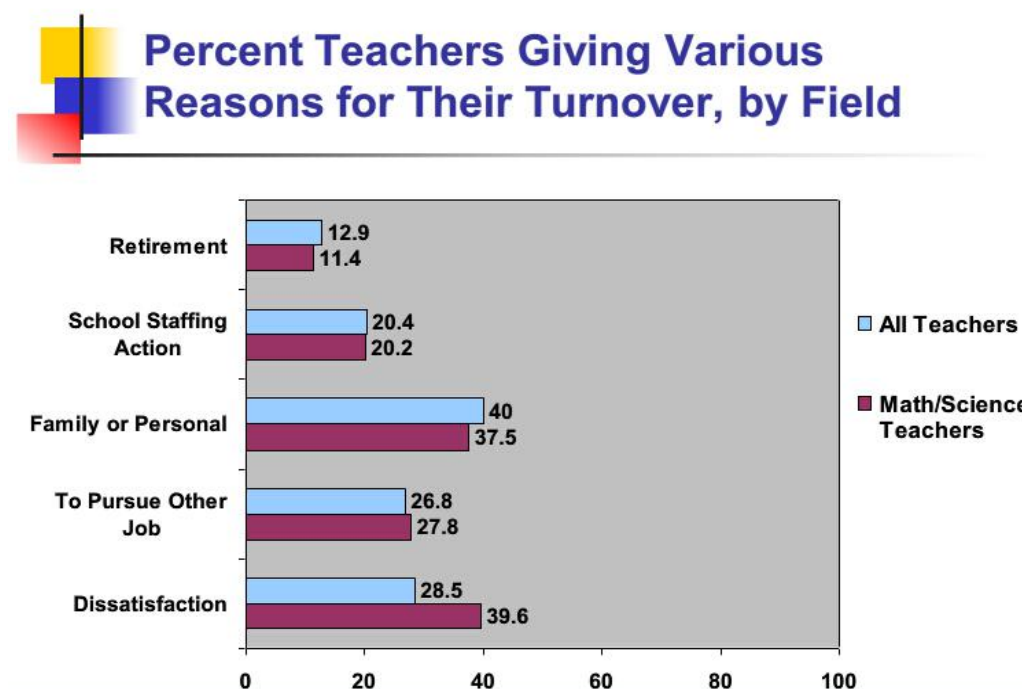
Figure 34: Teachers' Other Working Experience



In the surveys of young teachers in impoverished areas, it was found that most of the young teachers preferred to stay in cities or places with good economic conditions.

Under a normal situation, they would choose to teach in an impoverished area only if they could not find a satisfactory job in city. 12 young teachers under 35 years old in the survey had experience in finding job in city. 5 of them had worked in city for more than 2 years before teaching in an impoverished area. They ridiculed themselves as losers as they lost in the fierce competition in city and had to become rural teachers. Most of them had done other jobs before they taught in rural schools. This is a major reason why, as shown in the data sets above, the proportion of teachers who had worked in other areas was much higher than that of teachers in cities.

Figure 35: Percentage of Teachers' Various Reasons for Their Turnover



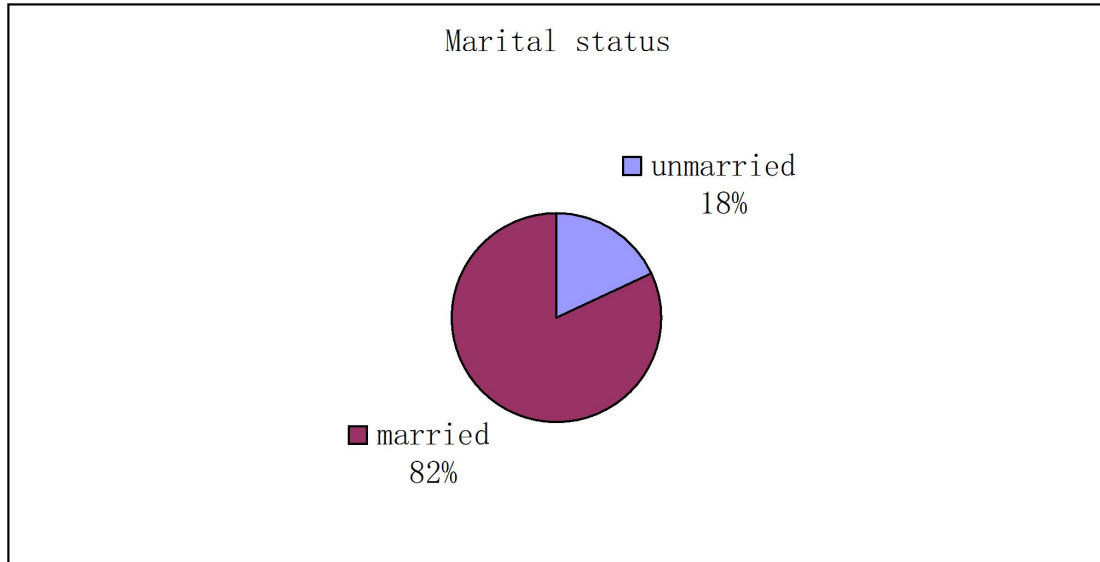
Among the various reasons for teacher's turnover, family or personal reasons accounted for the highest proportion. 40% of rural teachers left for family or personal reasons, and 26.8% left to pursue other careers. 28.5% of teachers quit as a result of dissatisfaction with rural schools. For math and science teachers, they had similar reasons for turnover. About 20% of turnovers were ascribed to dissatisfaction with working conditions.

(4) Marital status

What is your marital status?

Married Unmarried

Figure 36: Teachers' Marital Status



Correlations

		marital	turnover
marital	Pearson Correlation	1	-.288**
	Sig. (2-tailed)		.004
	Sum of Squares and	14.760	-5.340
	Cross-products		
	Covariance	.149	-.054
	N	100	100
turnover	Pearson Correlation	-.288**	1
	Sig. (2-tailed)	.004	
	Sum of Squares and	-5.340	23.310
	Cross-products		
	Covariance	-.054	.235
	N	100	100

** . Correlation is significant at the 0.01 level (2-tailed).

The analysis of correlations shows that R is -0.288

$|R| < 0.3$, but very close 0.3

$P < 0.05$

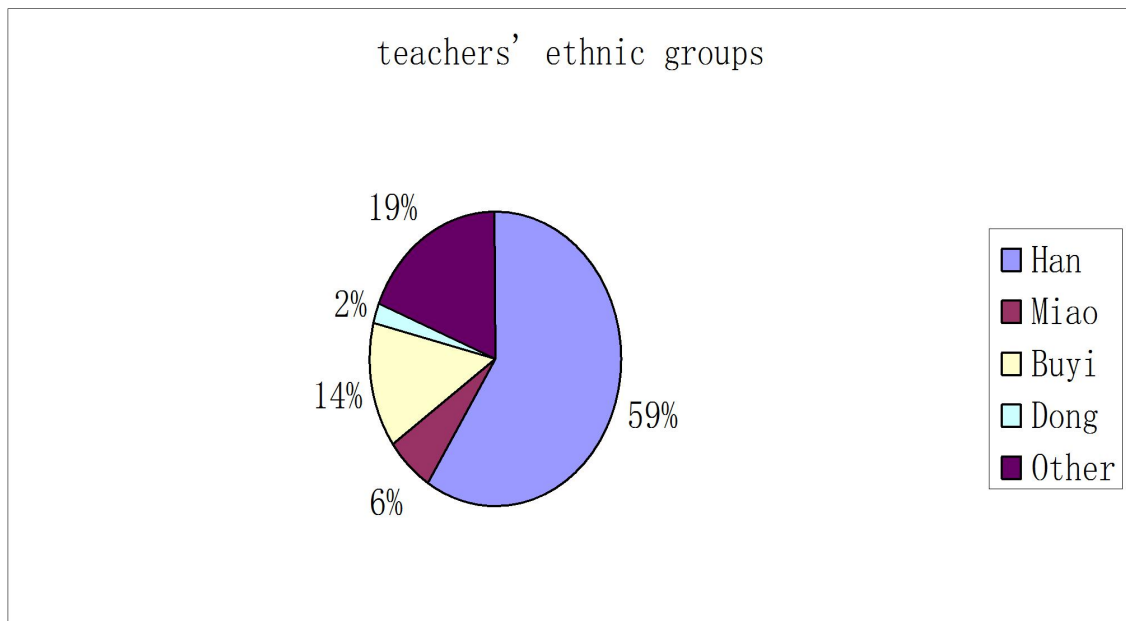
It means that there is a weak correlation between marital status and turnover intention.

(5) Ethnic group

What ethnic group are you in?

Han Miao Buyi Dong other

Figure 37: Teachers' Ethnic Groups



In Guizhou, minority groups account for more than 37% of the population, and each minority group has its culture. In the study, there are a large number of minority teachers among rural teachers. As shown in the above chart, 41% of participants in the survey were considered to be a minority.

Correlations

		Minority	Turnover
Minority	Pearson Correlation	1	.065
	Sig. (2-tailed)		.523
	Sum of Squares and Cross-products	169.790	4.070
	Covariance	1.715	.041
	N	100	100
Turnover	Pearson Correlation	.065	1
	Sig. (2-tailed)	.523	
	Sum of Squares and Cross-products	4.070	23.310
	Covariance	.041	.235
	N	100	100

The analysis of correlations shows that R is 0.065

$|R| < 0.3$,

$P > 0.05$

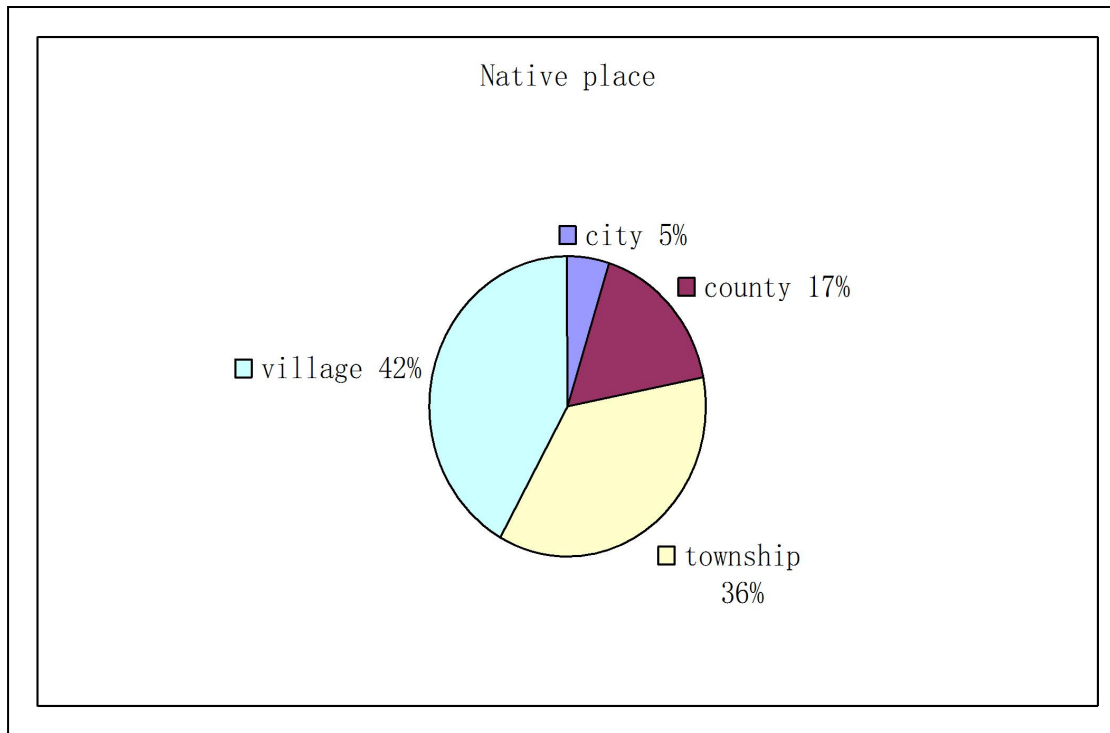
It means that there is a no correlation between ethnic groups and turnover intention.

(6)Native Place

Where were you born? (the place you grew up and lived for a long time.)

City County Town Village

Figure 38: Teachers' Native Place



When teachers and headteachers were asked what types of teachers are difficult to retain in poor regions, a large number of them mentioned teachers from cities. A teacher who grows up in a city may have a hard time getting used to the life in rural areas without internet and mobile signal, not to mention the lack of electricity. 2 female volunteer teachers who had already left rural schools were interviewed. Both of them claimed that they used to take a shower every day in city, while they were not able to do this in the impoverished region. They could only bath in the river, occasionally, which was unbearable to them.

Correlations

		Native	Turnover
Native	Pearson Correlation	1	-.249*
	Sig. (2-tailed)		.012
	Sum of Squares and Cross-products	76.750	-10.550
	Covariance	.775	-.107
	N	100	100
Turnover	Pearson Correlation	-.249*	1
	Sig. (2-tailed)	.012	
	Sum of Squares and Cross-products	-10.550	23.310
	Covariance	-.107	.235
	N	100	100

*. Correlation is significant at the 0.05 level (2-tailed).

The correlations analysis shows that R is 0.249

$|R| < 0.3$, yet very close to 0.3.

$P < 0.05$

This means there is a no correlation between teacher's native place and turnover intention. A teacher's birthplace has little influence on their decision to change their jobs.

However, some teachers told me that if their native places had relatively better

economic conditions, they preferred to go back if they no longer wanted to teach in rural schools (Epstein, 2001). According to the interviews with some newly graduate teachers, the incentives that attracted them to teach in rural schools are mainly the related policies (Schonert-Reichl, 1993). They indicated that the privileges provided by the government enhanced their willingness to work in rural areas. In this way, many graduates would choose to leave their native places to teach in rural schools, expecting to find better and more satisfactory jobs in the future.

(7)Background

In China, 35.7% of teachers have associate degrees (3.63 million), 55.7% have bachelor degrees (5.66 million), and 0.8% have master degrees (83 thousand) (, Xu,2010). The data in America show that 41% of teachers have master degrees (Strizek, et al. 2006). In comparison, Chinese teachers' degree attainment is weak. In this study, it is necessary to reveal the teachers' degree attainment in rural areas of Guizhou.

Which degree group are you in?

Associate degree

Bachelor degree

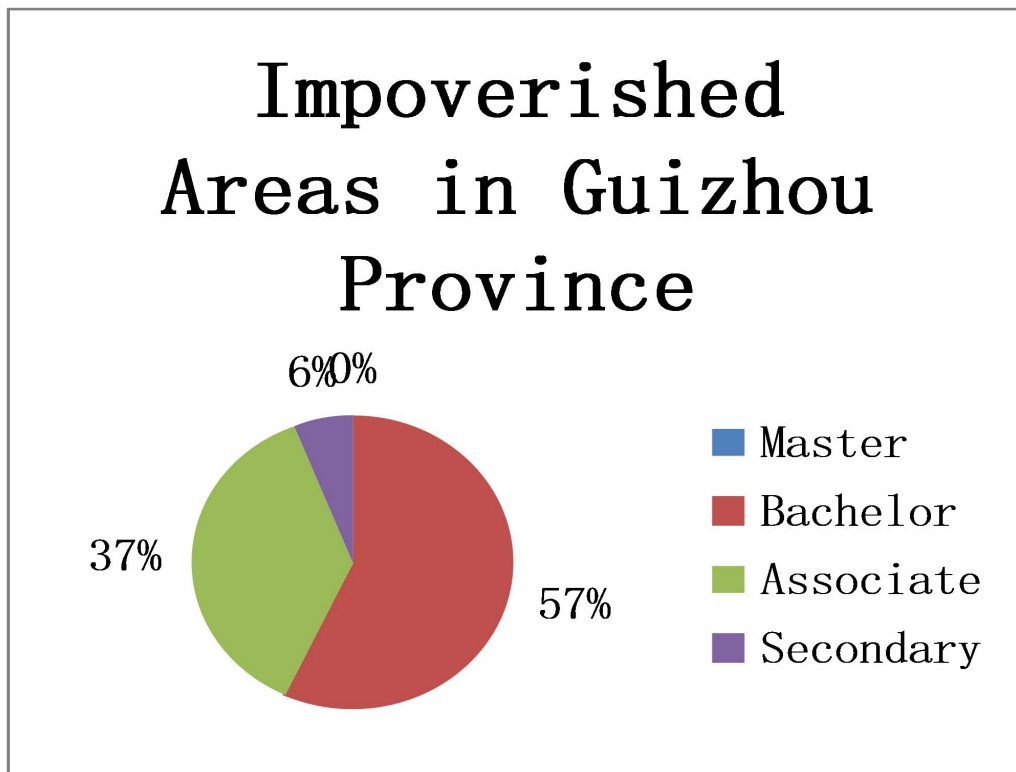
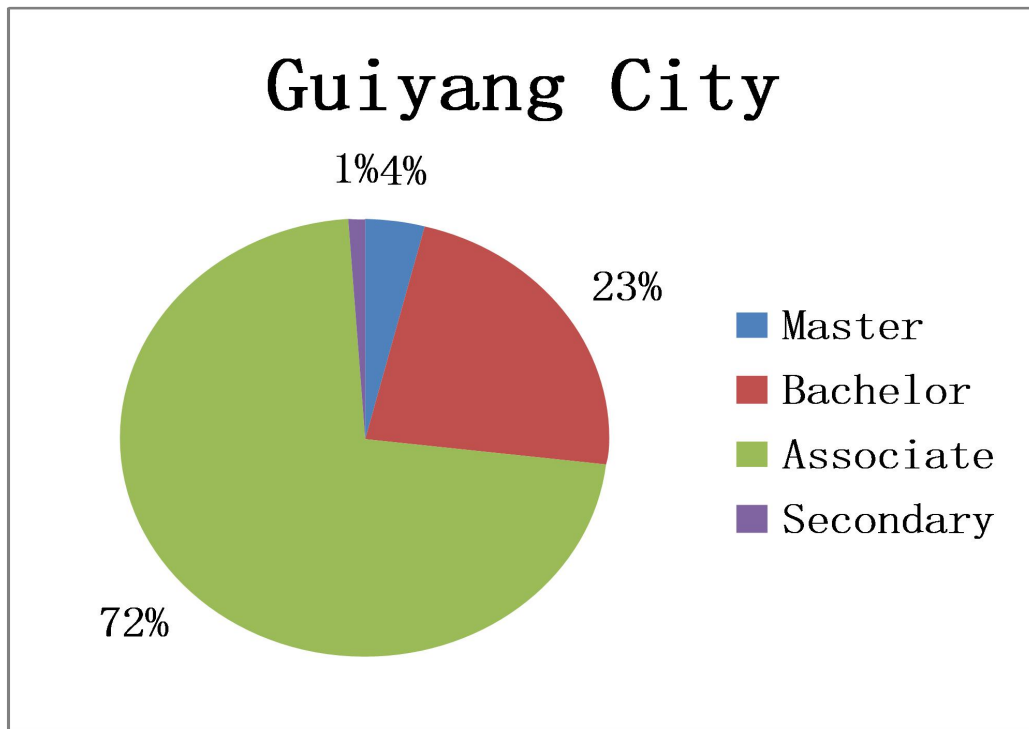
Master degree

Secondary specialized school diploma

In Chinese rural areas, a large proportion of teachers did not receive higher education. They only studied in some normal schools and got secondary specialized school diplomas when graduated. In this study, it is indispensable to know the percentage of such kind of teachers.

There is barely any university and specialized postsecondary college in the UK. However, in China, every province has its own normal university and almost every big city has its specialized postsecondary college. Most Chinese teachers are from these universities and colleges.

Figure 39: Teachers' Degrees in Guiyang and Impoverished Areas of Guizhou



What is your education background?

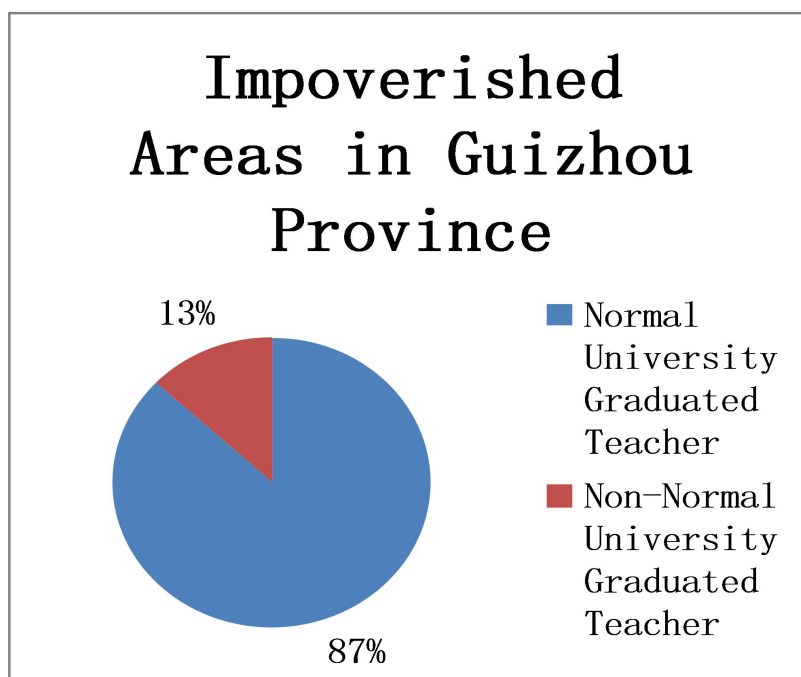
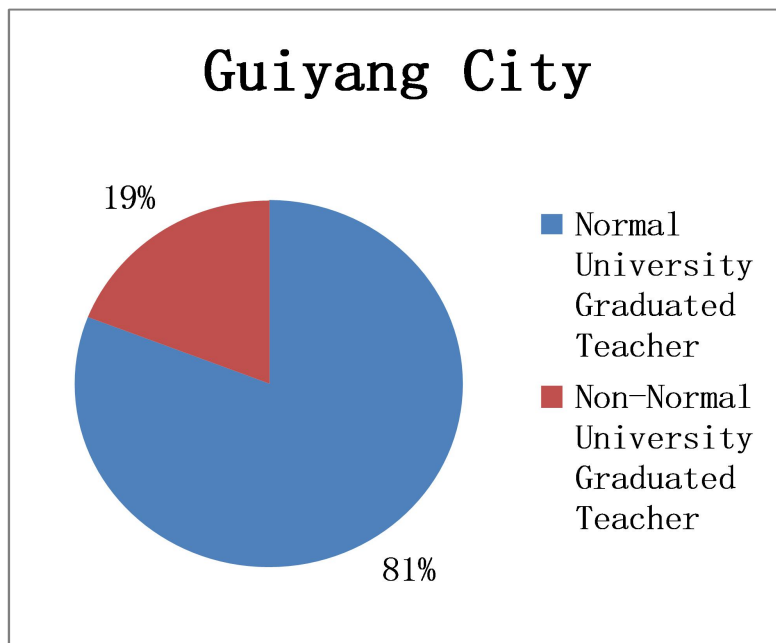
School

Specialized Postsecondary College

University

Other College or University

Figure 40: Teachers' Education Background in Guiyang and Impoverished Areas of Guizhou



According to the statistical comparison, it can be seen that the proportion of teachers who graduated from universities in impoverished areas is higher than the proportion of teachers who graduated from schools in urban areas. For the non-normal university graduated students, they tend to have more options and opportunities after graduation

and tend to choose jobs other than teaching. This result is similar to Ballou's (1995) conclusion. After the interviews with teachers in poor areas, it could be found that many of them were not willing to work in these areas. Due to the limitation of their majors, they found it difficult to find dream jobs in cities. Finally, they had to be a teacher in impoverished areas.

The first data set above show that the education level of teachers in impoverished areas is much lower than that in urban areas. Most of them do not have bachelor degrees. 6% of them even did not go to high school; they just graduated from middle school and then attended secondary school for three years. Under such education background, it was hard for them to find an ideal job in a city, especially as a teacher. Two top primary schools in Guiyang were visited. It was found that in the top schools, such as Shengfulu Primary School, only the key university graduates or students with master degrees or above could get the chance to be hired. The chance for normal graduates to be hired in such schools is very scarce. Three teachers working in Guiyang with associate degrees were visited. According to the finding, all of them were beyond 35 year-old. According to the information from the Guiyang Personnel Market, in the past 10 years, a bachelor degree or above is required for all the job opportunities of primary school teachers in Guiyang. Now, these two teachers with associate degrees are taking undergraduate courses to adapt to the fierce competition. These facts indicate that the quality of teaching staff in rural schools of Guizhou is far from satisfactory. There is a difference in education level among rural school teachers. Most of the teachers in rural areas do not have higher education. Even though the competition for teaching jobs is becoming more and more competitive, this does not have a big influence on the quality of teaching staff in rural schools as most of them are not qualified for the teaching positions in cities. However, as more and more graduates from normal universities are going to teach in rural areas, the quality of teaching staff in rural schools will be gradually improved.

Some graduates choose to teach in rural areas due to their inadequate education

background and personal abilities. Even with 20 years of working experience, they are still not competitive in comparison with those urban teachers with the equivalent experience. This is the reason why Ingersoll and Dworkin's research results are not suitable for them. They are generally satisfied with the current situation and are not willing to quit their jobs, as they want to get full pension.

What is your major?

Chinese	Mathematics	English	Morality
PE	Music Art	Chemistry	Physics
			other

Which subject do you teach now?

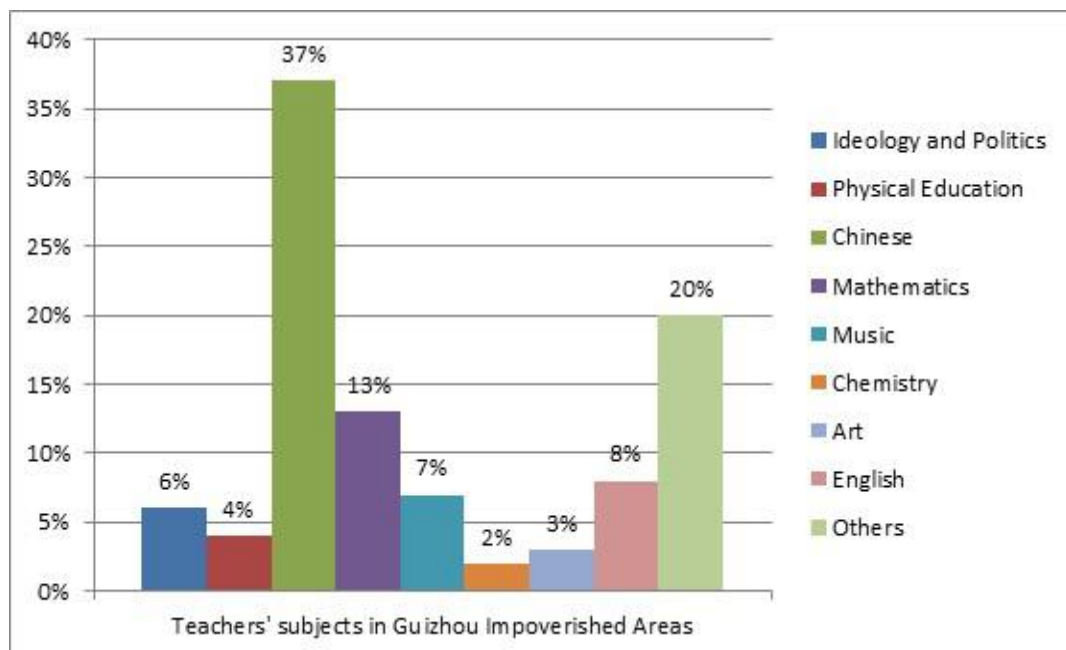
Chinese	Mathematics	English	Morality
PE	Music	Art	Science
			other

Do you think your major match the subjects you are teaching?

Yes	No
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The following bar chart shows the results of my survey on teachers in impoverished areas of Guizhou.

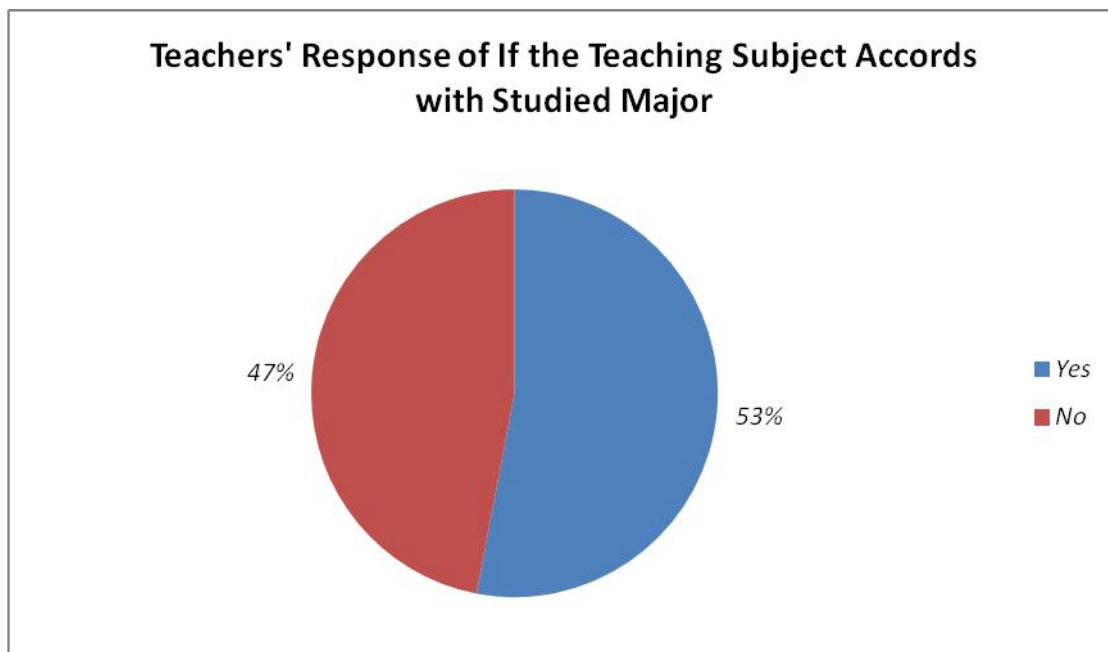
Figure 41: Teachers' Subjects in Impoverished Areas of Guizhou



In the “2013 Chinese University Graduates Employment Report” published by Mycos Co., Ltd. on June 9th, 2013, five majors were given the ‘red card’ for their difficulties in finding a job: Chinese, mathematics, physical education, English, and art. Meanwhile, according to this study, 65% of teachers working in impoverished areas held diploma in these subjects. In early reports from Mycos, among the top 10 low salary majors, 5 were relevant to education, including primary school education, pedagogy, art, physical education and music. This suggests that education related occupations are always the low-paid jobs.

A questionnaire survey was conducted with teachers to reveal whether the subjects they were teaching were consistent with the major they had studied. 47% of teachers chose “no”, and 53% chose “yes”, as shown in the following chart.

Figure 42: Teachers’ Responses If Their Teaching Subjects were Consistent with Their Major



The results suggested that almost half of the teachers in impoverished areas were teaching subjects that were not the major they studied in university. For instance, two teachers who graduated with majors in ideology and policy education were both

teaching Chinese. They indicated that, even though it was not hard for them to teach the contents in the textbook, they could not teach students as effectively as other teachers who graduated with a degree in this area. The two teachers told me that they usually spent more time learning the psychological needs of students, which is a skill that other professional teachers have already acquired in university. They also told me that at least one teacher in each class was teaching subjects different from his or her major at school. They thought that the limitations of the Chinese education system force them to face difficulties in finding a more satisfactory job. This situation is rare in Chinese urban areas. This refers to the professional mismatch in teaching in rural schools. On the one hand, it reflects the limitations of higher education in the job hunting process. On the other hand, it indicates that rural schools have relatively loose requirements on the recruitment of teaching staff due to their natural limitations. Such a mismatch in professions in rural schools can influence the quality of teaching practice and teaching staff as they have no education experience in professional teaching.

In the UK, a primary school teacher teaches many subjects, and the subjects taught by the teacher are not necessarily related to the teacher's major in university (Appleton, Knight, and Song, 2006). In Chinese cities, a teacher only teaches one subject which normally relates to his or her major at school. Chinese rural schools have emphasised on the professionalism of teaching practice. In Chinese education system, a teacher usually teaches the subject he or she is good at only, which is different from the situation in the UK. Chinese teachers have been only trained to teach one subject, such as Chinese or math. The teachers' major in university enables them to teach courses on one subject only. However, in the UK, students have been allowed to learn as many different courses as they wish, and these graduates in the UK can usually do a good job in teaching more than one subject. For example, a teacher teaching math can also be a good teacher in sports or music. It is difficult for Chinese teachers to teach well beyond their subject of expertise.

In a sense, this fact has also worsened the teacher shortage problem in rural Chinese schools as it requires more teachers than schools in the UK. Many graduates whose majors do not match their teaching subjects usually fail in interviews in schools of urban cities. However, they may find jobs in rural areas, which may resolve the teacher shortage problem temporarily. In the long-term, however, this not only does harm to the teaching quality in rural schools but also makes students lose the opportunities to gain more professional practices. This information indicates that the teacher shortage problem in rural schools of Guizhou is closely related to the education system in China.

The studies on the relationship between various factors and teacher shortage in rural schools of Guizhou are important as they can help all the involved people understand what they should emphasise on, what they have exaggerated, what they have missed, and what they have not discovered in the process of understanding and resolving the problem of teacher shortage in rural areas. Even though the findings of these mentioned study show weak or no correlation between these studied factors and turnover intention, they help the researcher to understand which factors he should pay more attention to. It is important to find the most relevant factors that influence the teacher shortage problem in rural schools. Apart from the researcher, policy-makers, headteachers, teachers, and other involved stakeholders can better understand the teacher shortage problem. According to the presented data and findings, policy-makers may realise what they have exaggerated and what they have missed in the policy-making process. For example, they have neglected the influence of gender composition. In addition, policy-makers can understand these recruitment policies in depth to find strengths and weaknesses to make appropriate adjustments. For headteachers, they can better understand what the concrete causes of the teacher shortage problem are. In conclusion, findings of the study as mentioned before are expected to shed more light to address the teacher shortage problem in rural schools of Guizhou.

Chapter Four Discussion and Recommendations

It has been a long-term issue for policy-makers in rural areas of Guizhou to solve the currently severe problem of teacher shortage. According to data about the current situation of teacher shortage in the impoverished areas of Guizhou, most primary schools in these areas are facing the serious problem of teacher shortage. 79% of schools in total are short of more than three teachers, and 23% are extremely short of teachers; in rural areas of Guizhou, teacher shortage is still a serious problem that restricts the development of education in these areas. According to statistics, only 19% of the surveyed schools are not short of teachers, while the other 81% schools still do not have enough teachers. According to previous analyses and discussions, the problem of teacher shortage in rural schools is so complex that decision-makers should take all the issues and factors involved into account and then work out effective strategies to maximise the positive effects and minimise the negative impacts of these influential factors. The previous part has mentioned that it is difficult to recruit teachers in poor areas of Guizhou due to many reasons, including natural conditions, human factors, etc. Students are deprived of opportunities to acquire new knowledge, which gradually results in a developing situation of education. As widely known, knowledge is the foundation for economic development. Thus, it is nearly impossible to change the current developing economic situation without a sound educational system. Regarding how to recruit teachers in these schools, the following suggestions have been put forward based on a lot of theories and data investigations. To solve the teacher shortage problem, policy-makers should make a change from government policies to local school management.

4.1 Suggestions for the Government

4.1.1 Improve Infrastructure

Due to the severe natural environment, underdeveloped economic conditions and insufficient investments, poverty-stricken rural areas in Guizhou are facing severe

problems in education, particularly the teacher shortage problem. Herein, weak infrastructure as one of the major reasons for the teacher shortage problem in rural areas of Guizhou can be shown in several aspects. For instance, in these regions, network construction is relatively under-developed with low network coverage rate and scarce network sites. Another example is due to weak collective economy and difficult implementation of supporting funds, the sites of activities are shabby and small-scale, which makes it difficult to meet daily training demands. Even worse, the chance to improve the infrastructure is slight. As consequences, it is difficult to launch large-scale of training activities. Also, due to weak infrastructure, a great number of teachers are not willing to teach in rural areas in consideration of many aspects, including restricted personal development, unsatisfactory teaching effects, boring life, harsh living environment, etc. Thus, there is an urgent need for the government to take measures to build and improve infrastructure in rural areas of Guizhou. Herein, governmental improvement can be made from three basic aspects, including public, medical and teaching facility in Guizhou. To be more specific, the government can build road, electricity, mobile connections, the internet, etc. to improve public facilities, introduce advanced technologies to improve teaching facilities, such as computers and electronic devices as well as build comprehensive medical system to ensure teachers' well-being.

To create positive conditions for the development of rural areas in Guizhou, the government should conduct fundamental transformation of infrastructure through increasing investment and making detailed plans. As mentioned previously, the transformation of infrastructure work should focus on three main aspects, including public facilities, teaching facilities and medical facilities. Also, clear responsibilities and organisation as well as cooperation between government and school are needed to promote the implementation of policies and planning regarding infrastructure development. The government should enhance its understanding of the severe situation of teacher shortage in rural areas of Guizhou and develop a clear idea of its responsibilities. This can determine whether relative governmental plans and policies

can be implemented successfully or not. In fact, the government can take the lead to enhance the sense of responsibility, mission, and urgency for rural teaching in the society. As the key of governmental work, the task to solve the teacher shortage problem should be evaluated periodically and strictly. Furthermore, the government should consolidate its resources and increase its investments to fully utilise the limited resources and funding and thus to fundamentally solve the weak infrastructure condition of rural areas. Meanwhile, strengthening management and building up a strong team can ensure the sound execution and implementation of governmental policies and plans regarding infrastructure improvement.

(1) Improve Public Facilities

As is known to all, Guizhou is a mountainous area where transportation is underdeveloped, and natural disasters are frequent. As is indicated in the first part of this thesis, the researcher found that many of the schools are not accessible to electricity. Until December 7th, 2005, 3,468 villages still had no access to the outside world and had frequent occurrence of natural disasters. For example, landslides are frequent occurrences. All these bring huge potential security problems for teachers and students. A tragic accident happened in 2010: a young volunteer teacher, named Zhao Xiaoting died on the way to school due to a landslide in Guizhou. This case shows the tough living condition in rural areas of Guizhou. In fact, most of the 47 schools have extremely poor living and working conditions; 3 schools have no road to the external world, 5 schools have no electricity, 11 schools have no running water, and 44 schools lack the Internet or mobile device. There is also no shop, hospital or other infrastructure to fulfil teachers' basic needs for living and work. Such extreme conditions have had great threats to the quality of teachers' life in rural areas of Guizhou.

Most of the interviewed schools and teachers claimed that there were more serious problems in rural areas of Guizhou that made teachers feel unsafe, such as natural disasters, car accidents and incidents of violence. The mountainous geographic

conditions imply a high possibility of landslides and frequent car accidents. Furthermore, poor security is also a complaint among teachers in rural schools as they have been robbed for several times. Even worse, some female teachers are suffering from sexual harassment. According to my survey in Guizhou, many female teachers live in schools alone, and sometimes, knocking on the door from strangers would frighten them and make them feel unsafe. In the interview, a volunteer said that he had been hurt by stones thrown from local villagers. These have threatened the safety of teachers in rural schools of Guizhou. Hence, in the absence of personal life and job security, lots of teachers are not willing to teach in rural schools. Thus, it is necessary for the government to make more efforts to improve social security to protect teachers from both physical and psychological harms. The government should increase investments in the development of public infrastructures to ensure social stability. As for teachers' other needs, the government should take an active role in perfecting the public infrastructure in rural schools. For example, the government can provide funding to build safe dormitories. Improving social stability and reducing social risks can give female teachers a great sense of security. Moreover, schools' ability to handle emergencies, such as natural disasters and contagious diseases should be enhanced and meanwhile the possibility of accidents should be reduced. Financial support that satisfies teachers' higher level of demands, such as entertainment, leisure, and promotion should also be guaranteed so that teachers can possess a higher degree of self-esteem and self-confidence in teaching practices, which is beneficial to students' academic performance and the competitiveness of rural schools.

According to Maslow's Hierarchy of Needs Theory, individuals should give priority to safety needs and care most about whether their physical needs can be relatively satisfied during the decision-making process. When it comes to accidents and illnesses, physical and economic safety, health and wellbeing are the most important elements required to fulfil an individual's safety needs. Gibbs (2000) argued that safety needs play a vital role in helping human beings to make life-changing decisions. According to the hierarchy, when resolving the teacher shortage problem in rural

schools of Guizhou, it is important for school headteachers and governments to ensure that teachers' physical safety are protected properly from infectious diseases, natural disasters, violence, or negative influences of economic changes, such as deprivation of work opportunities. Such a reality requires that the government should invest more in improving public infrastructure, including local traffic, road situations and electricity problems to ensure teachers' safety in rural areas.

(2) Improve Teaching Facilities

Compared with the teaching facilities in urban schools, rural schools have underdeveloped and incomplete education infrastructure. In many areas of Guizhou, there is little electronic equipment and computer for teachers to facilitate their teaching or to get in touch with the external world. This not only imposes a threat to the sustainability of rural education, but also makes teachers feel lonely and isolated. Investment in information technology has become a broad education strategy.

However, it should be noted that, in most rural schools of Guizhou, there is barely any computer or basic technical facility available for teachers. Many studies have shown that, despite the development of information technology, especially digital information technology that has provided strong support for remote education, teaching in rural areas barely benefit from it. Information technology provides teachers with rich teaching resources to improve their professionalism and the quality of teaching. Teachers can also use information technology to surf the Internet during their leisure time, which improves their work efficiency and makes them stay longer in rural schools. Decision makers and headteachers must increase investments in new technologies to enhance the competitiveness of rural schools. Information technology plays a vital role in helping rural schools to provide more teaching resources for teachers to improve their professional performance and students' academic performance. Information technology would also enrich teachers' leisure life. For example, teachers can surf the Internet or do online shopping, which lessens their sense of loneliness and isolation and increases their willingness to keep working in

rural schools. Herein, policy-makers and headteachers must increase investment in new technology. With more electronic resources and advanced teaching methods, rural schools can improve their teaching quality and thus enhance their general capacity and competitiveness. As a result, more teachers and volunteers would be willing to teach in rural areas of Guizhou.

Innovation in both teaching concepts and actual practices should emphasise on improving the quality of education. However, the lack of hardware facilities, including computer devices, projectors, and other multimedia equipment, together with insufficient teaching experience, has made it hard for rural school teachers to employ or create effective teaching tools or theories to improve the efficiency of students' learning. As consequences, teachers' teaching quality would be decreased and cannot be improved. Even worse, teachers' enthusiasm in teaching in rural schools would be greatly discouraged. The relatively poor teaching quality in rural schools of Guizhou has severely affected students' performance. As many talented and excellent teachers are unwilling to work in rural areas, local governments can only recruit teachers graduating from colleges or normal universities, which would further worsen the education situation in rural areas. Another reason for the unsatisfactory teaching outcomes is that little communication with the outside world makes rural schools of Guizhou hard to possess sufficient and effective teaching resources, not to mention the capability of putting forward innovative concepts or methods. Consequently, teachers in rural schools follow the general teaching disciplines to finish courses. Even though some teachers are good at creating effective interactive activities in class to improve interaction with students and enhance students' understanding of professional concepts, they cannot perform as well as those in urban schools. Most teachers refuse to work in rural areas with poor teaching facilities. Also, the difficult living and working conditions lead to occupational tiredness, dissatisfaction among teachers and a low degree of recognition in society. Under this circumstance, it is impossible for teachers to keep a calm mind and continue to work with innovative efforts to improve the quality of education in rural

schools. Students' relatively low yearning for knowledge and crippled teaching facilities in rural areas all predetermine the failure of rural education.

Therefore, it is vital for both policy makers and rural schools to make joint efforts to improve teaching facilities in rural schools, especially new technologies to enhance teachers' teaching quality and motivate their enthusiasm in teaching.

(3) Improve Medical Facilities

The poor medical condition in rural area is another important concern. As most of the rural areas in Guizhou are located in mountainous areas with inconvenient transportation and information, small population density, low purchasing power and low effective demands, resources of medical facilities are difficult to flow into these areas. Many serious problems still exist in the public healthcare system, such as low utilisation rate of healthcare facilities, scarce resource, scarcity of talents and insufficient funding.

According to the data that explain Maslow's hierarchy of needs, the most fundamental need of teachers is physiological needs, including breathing, food, water, sex, sleeping, homeostasis and excretion; The second important need is safety needs, including security of body, employment, resources, morality, family, health and property which are closely related to teaching condition in rural areas.

Illness is one of the biggest fears for teachers when working in rural areas. Many teachers are not provided with adequate medical treatment. The investigation implies that only a few villagers have little knowledge of medical practice and professional doctors and nurses in local clinics are in short supply. Even worse, the entry needle is repeatedly used and such unqualified healthcare facilities make teachers susceptible to infections and illnesses. Since these relatively low hierarchical needs are yet to be satisfied, most teachers are not willing to stay in rural areas. Despite the material rewards offered, such as high salaries, teachers feel reluctant to stay in the schools for

a long period. The government should immediately improve healthcare facilities and set up health security systems in place to make sure that teachers receive qualified healthcare. When teachers get ill, they should be given proper and timely treatment. Only in this way, can teachers in rural schools recover and concentrate on teaching. Improving healthcare securities will be an attractive factor for rural schools to hire high-quality teaching staff. In a word, according to Maslow's hierarchy of needs, lower level of human requirements should be met first before other needs of teachers in rural schools of Guizhou can be satisfied. Thus, the government should increase investment in the construction and improvement of medical infrastructures.

4.1.2 Increase Teachers' Welfare

As a matter of fact, the low welfare of teachers in rural areas is one of the fundamental reasons for the teacher shortage problem. Due to the teacher shortage, many courses, such as English course cannot be launched, let alone music course and art course. Hence, it is an urgent task to improve the welfare of teachers in rural areas to attract talents to teach in rural schools and thus solve the problem fundamentally. The most distinctive feature of low welfare is low salary. In addition, rural teachers enjoy less social facilities compared with urban teachers. There is an insurmountable gap between rural and urban teachers in terms of welfare. For instance, rural teachers in China still earn less compared to civil servants or staff in other units. Even though the government has made policy to stipulate that teachers' salary should not be less than that of civil servants, the policy has not been fully implemented, and many of the interviewed teachers have expressed the intention to attend the civil servant examination due to higher income. This gap, to some extent, dampens the working enthusiasm of teachers in rural primary and secondary schools, resulting in loss of teaching talents.

To be more specific, the unsettled problems, particularly problems in welfare contribute to teachers' loss due to the unbalance between their efforts and rewards. The restricted economic conditions give rural teachers little access to self-enrichment,

let alone improvement of life quality. As a result, rural teachers with ambitions to enhance or enrich themselves tend to choose urban schools or high-quality schools for better personal development and more opportunities.

Undoubtedly, dedication and spiritual belief are important for teachers to teach in rural schools. However, it is far from enough to rely on the two factors alone. Improving the welfare of rural teachers requires long-term efforts and investment from the government to solve the teacher shortage issue from the root. In this thesis, it is advised that the improvement of rural teachers' welfare should focus on four main aspects, including salary, traffic subsidies, housing subsidies and tourism subsidies.

(1). Raise Teachers' Salaries.

Salary as the basic means to ensure people's survival and living is the most fundamental and direct motive of work. Moreover, the amount of payment also indirectly reflects the assessment of individual's performance. When an individual works hard, he or she would expect to gain more rewards. Therefore, the higher the payment is the more satisfied a person feels with their work. Based on the analysis of data and results, it is obvious that most teachers in rural schools of Guizhou are paid unequally compared with urban teachers. The limited revenue limits the financial ability of the government and rural schools to provide teachers with competitive salaries and rewards. For example, in China, primary schools tend to have lower salaries. The survey of the average salary in Guiyang Primary School shows that 67% of primary school teachers' salaries are between 1,000 to 2,000 RMB. According to the data of teachers' salaries in Guizhou impoverished areas and Guiyang city, teachers' salaries in Guiyang City are higher than those in impoverished areas of Guizhou. 63% of teachers' salaries are over 3,000 RMB per month, while the number is only 27% in impoverished areas. 64% of teachers in impoverished areas earn 2,000 RMB to 3,000 RMB for a monthly salary and the number is around 100 RMB or 2000 RMB less than teachers in urban areas earn. A majority of Guiyang rural school teachers are paid at a low or middle level of salary, while urban school teachers are

paid at a high level of salary. Yuan (1995) argued that, although many teachers in rural schools are volunteers with a low level of salary, they can hardly adapt to the relatively tough conditions and low living standard in rural schools. Especially, voluntary teachers who grew up in cities may develop a short-term enthusiasm and determination for teaching in rural schools. However, they will soon feel that the low pay in rural schools cannot cover their basic living needs and will think about giving up. Studies have shown that teachers from cities tend to be unhappy when they receive less pay than their counterparts in urban schools. This explains why many teachers in rural schools leave soon after working for only a few days and also provides important implication for both policy-makers and headteachers regarding the increase of salary. Since most teachers use the perceived inputs and outcomes to evaluate whether they have been paid equally, rural teachers are more likely to develop a hostile attitude toward schools for not providing them with the expected salary.

The equity theory helps to explain the need of raising salary. The equity theory declares that employees seek to maintain a balance between their inputs and outcomes in comparison to the perceived inputs and outcomes of others (Adams, 1965). Teachers want to feel that their work performance and contribution are adequately rewarded through pay. If a teacher feels underpaid, he or she may probably develop hostile feeling towards school, which may lead to underperformance of teaching or even resignation. Hence, the equity theory is useful in predicting teacher's absence and turnover rate.

According to the equity theory, teachers' performance has a close relationship with how they feel when they compare their contributions and work performance with the perceived, expected, or rational inputs and outcomes of their counterparts. This means that teachers want to feel that their performance and contributions are being rewarded fairly through their pay. However, if teachers feel underpaid, they may be angry and develop hostile attitudes toward school. Consequently, teachers will leave if nothing

changes. Many rural teachers in Guizhou have indicated that, no matter how hard they work or what contributions they have made for the rural education of Guizhou, they cannot be paid or rewarded with competitive wages or salaries compared to teachers in urban areas. Teachers may think that, since they are as excellent as other teachers in city schools, they should be paid with the same wages or salaries as city teachers. Herein, some teachers would not take the reality of rural education into consideration. This perspective about equity increases the possibility of teacher's turnover.

Therefore, policy-makers from the government should work out a comprehensive scheme and adopt measures to increase teachers' payment to reduce teacher's turnover rate.

(2).Traffic Subsidies

My former data of the study show that the more remote the school is the more difficult it is to recruit teachers. The positive correlation between shortage and remoteness with regard to the SPSS analysis results presents that even though remoteness is closely related to the teacher shortage problem in rural schools, it cannot be taken as the root cause of teacher shortage. The different hours that teachers have to spend going to school indicate that distance is an important factor that influences teachers' willingness and decision to teach in rural schools. The relatively disadvantaged natural conditions, especially geographic limitations have become a major consideration for teachers to make the final decision. It shows that most of the rural schools are much more distant. Specifically, it takes at least 1 hour for teachers to travel to schools; it takes 3 to 5 hours for teachers to travel to most schools from the nearest cities; and in some cases, it even takes 9 hours. This would not be happening in city schools. The positive correlation between teacher shortage and remoteness indicates that there is a close relationship between the two (Robinson, 2008). In addition, it indicates that the long driving hours to rural schools have had an important influence on teachers' willingness to teach at rural schools. I have interviewed some teachers working in rural areas and they said that they spent lots of money on

transportation from home to work. The transportation cost is about one-tenth of their salary, which is another burden for them. Thus, it is very difficult for rural teachers to have high-quality performance. To some degree, this has made the teacher shortage problem even worse. This finding is believed to be an important information source for policy-makers to guide new directions in the resolution of teacher shortage problem.

Thus, policy-makers can take traffic subsidies into consideration. In this thesis, it is suggested that traffic subsidies should be offered to rural teachers as part of allowance on a monthly, quarterly or yearly basis.

(3). Housing Subsidies

A special finding was made in the research on the recruitment and retention practices in rural schools of Guizhou. Through examining various recruitment strategies of rural schools in many nations, such as Senegal and Sierra Leone, it can be found that housing-related policies are what teachers care most about and such policies have frequently been used to attract teachers. Based on the findings, it is recommended that policy-makers should give priority to housing policies to reduce the turnover rate among rural teachers.

House, as the shelter for people's daily life, is one of the most significant components in people's life. Due to the high housing price in China, teachers with middle or low income can barely afford to purchase a house. In the past, teaching was regarded as a lofty career, and many teachers, especially teachers in universities and colleges were allocated an apartment after they get married. However, nowadays, this housing policy has been eliminated. Under this situation, with a low payment, rural teachers can barely afford to purchase a house. As the housing needs of teachers cannot be satisfied in rural areas of Guizhou, teachers are not willing to stay in these areas for long.

The theory of compensating differentials can to some extent explain the effectiveness of housing subsidies. This theory is used to analyse the relation between the wage rate and unpleasantness, risks, or other undesirable attributes of a particular job. Based on different dimensions, jobs are different. Some jobs offer health insurance benefits, while others have long working hours or even expose workers to physical risks. The theory of compensating differentials is based on the simple premise that there is no 'free lunch.'

Rosen (1986) and Chambers (1981) introduced compensating differentials in the specific context of rural teacher recruitment, concentrating on supply and demand. Assume a teacher is facing a choice between two jobs: one is working in a rural area with harsh condition while another is working in an urban area with the relatively comfortable condition. Then the house subsidies offered by the job in rural area may compensate its remoteness and difficult conditions compared with the urban job which does not offer housing subsidies. Thus, under the special national condition, house subsidies are key points in teachers' recruitment that need to be considered by policy-makers.

(4).Tourism Subsidies

Tourism subsidies as a type of welfare should be integrated into the recruitment strategies and retention policies of teachers in rural schools. In fact, many of the interviewed teachers show interest in travelling expense for teachers which has been widely implemented in international schools. Many of the interviewed local teachers in rural schools of Guizhou indicated that they would appreciate the policy to provide financial aid for traveling very much. In fact, some teachers have never gone to any place outside Guizhou, let alone foreign nations. Many teachers who have never travelled by a plane want to see the outside world (Robinson, 2008). Therefore, the government can increase the travelling fund for rural school teachers to widen their horizon.

In addition to fulfilling the basic needs, local governments and schools should provide more privileges to teachers in rural schools. To attract and retain teachers, we should emphasise on the effective measures in promoting teaching efficiency and recruitment of teachers in rural schools. The programme and decision should diminish and even eliminate the barriers in the recruitment and retention process, creating more attractive factors to make teachers stay longer.

Some investigations have been conducted on various strategies of teacher recruitment in poverty-stricken countries all over the world. It shows that foreign nations have adopted a vast array of recruitment strategies, including wages and bonuses, holidays, subsidised rural housing funds, in-service training and some traveling and moving expenses, while China has none of them. According to the questionnaire and interview in this thesis, teachers in rural area hope that they can get tourism subsidies. Most of them have never gone out of Guizhou province, let alone taking a flight. They have taught in rural areas for several decades with a closed and underdeveloped condition in terms of economy and information. Thus, annual tourism subsidies can provide them with a chance to broaden their outlook. On the other hand, tourism is also related to stress relief. As mentioned in the first chapter, the stress of work also plays an important role in influencing teachers' decisions. Changbaoning (2007) analysed the data of 2,672 teachers who participated in his survey in Ganshu Province. He found that the high level of stress is an important factor in teacher's turnover in rural areas. Teachers feel overwhelmed by paperwork and the limited time to prepare and plan teaching contents. Thus, if teachers can get a chance to go out for travelling, their stress may be relieved to some extent, which will encourage them to contribute more when they are back to their teaching position. Additionally, tourism subsidies have become a common type of welfare to teachers in developed areas. Thus, rural teachers should be offered equal treatment to boost their enthusiasm at work; thus, teacher's satisfaction with their work will be enhanced, and they will be more willing to stay in rural schools for teaching.

4.1.3 Establish A Job Rotation System

An effective job rotation system can help rural schools to maintain a high teaching quality and reduce the relatively high rate of absence and turnover. There is a low possibility that teachers are willing to devote their life to teaching in rural schools due to the undeniable poor living and working environments in these areas. One of the most effective strategies that some Chinese rural schools have implemented is job promotion for teachers who have worked in rural areas for over two or three years. For example, teachers who have worked in rural schools for a certain period can have the chance to teach in the county or urban schools after a set of assessment procedures conducted on teachers' performance over the past two or three years. This promotion system also creates opportunities for single teachers to find lifelong partners and build their families.

Rehrauer, Jasper, and Kampfe (2004) argued that one of the concerns for teachers' unwillingness to work in rural schools is the difficulty of finding a companion in life. Lin (2010) found out that a great number of female teachers did not get married until 35 years old. For married couples, they had to live in separate places, which is disadvantageous to their marriage. When it comes to Children's education, living in cities will provide their children with more opportunities to receive a better education. If one of the couple chooses to live in villages, it means that the other one might have to make compromises to move and the family will have less financial support. Rural schools and governments should take these problems seriously, as they can directly affect teachers' willingness to work in rural areas and stay permanently. If there is no effective measure to solve these problems, teachers will not be given a sense of belonging and acceptance. Carruthers (1968) argued that love and belongingness are essential to people's staying in a place for a long time. Based on Maslow's (1943) theory, it can be concluded that, without love or a sense of belonging, teachers in rural schools are inclined to suffer from social anxiety, loneliness, and clinical depression. Thus, it is necessary to organize more community activities to encourage teachers to participate and know each other. Regular community activities not only help rural

teachers make friends with each other and find friends who share similar interests with them but also give them chances to identify lifelong partners and acquire a sense of belonging. Local people in rural schools might also invite teachers for dinner or family parties in order to reduce their loneliness. Fraternity held for male and female teachers and young people with other occupations is of importance for single teachers. Love and a sense of belonging refer to the interpersonal needs for humans to feel that they are valuable to others. How people in a community treat each other have great impacts on their interpersonal relationship. The feeling of belongingness plays an important role in encouraging community members to have a high sense of responsibility and to work collectively for the wellbeing of the community. When human beings' physiological and safety needs are fulfilled, friendship, intimacy, and family become their desires when they are teaching in rural schools of Guizhou. Thus, collaborative efforts made among governments, rural schools, local communities and families should be highlighted to resolve the problem of teacher shortage and make current teachers stay in rural schools of Guizhou.

The data collected in Chapter Three indicate that there is a strong negative correlation between remoteness and the ratio of female teachers. This shows that a majority of female teachers are not willing to teach in remote rural schools. In rural schools with extremely long driving hours from cities, most of the teachers are males. This shows the influence of distance and gender on rural schools of Guizhou in teacher shortage problem. The negative correlation between remoteness and female ratio indicates that, even though female teachers occupy greater percentage of teachers in rural schools, most of them are not willing to drive long hours to teach in remote rural schools due to the long distance (Rivkin, 2005). The influence of distance on teachers' decision about where they will teach is evident in regard to the relatively high gender ratio. As previously mentioned, a majority of rural teachers are females, which to some degree has intensified the teacher shortage problem in these remote areas. Hence, it is necessary to change the imbalanced gender distributions of rural teachers. Policy-makers should also increase the number of male teachers to resolve the severe

problem of teacher shortage effectively (Willis, 1979). Why are women not willing to work in rural areas? For outside female teachers, due to security and other concerns, very few female teachers would like to teach in rural areas (Jiang and Fen, 2002). Besides, due to expectation from the society, women are supposed to shoulder major responsibility for housework and childbearing. It is inconvenient for a woman who works in a remote and poor region to look after her family, especially to take care of her child. Females' unwillingness to work in rural schools is closely related to the long distance and remoteness.

Alderfer (1972)'s ERG theory also helps explain this proposal. There are three types of needs, including the existence, relatedness and growth. The first type of need is similar to Maslow's physiological needs and safety needs. The second type of need is concerned with an individual's desire to maintain an important interpersonal relationship. The third type of need satisfies an individual's desire for personal development. It is also very useful to explain the turnover rate of the teacher. It is important for teachers to have connections with the society; nonetheless, the remoteness of their work prevents them from communicating with the outside world. That is to say, they have little time for their family and friends and their whole life has been contributed to the teaching career in rural areas. With the passage of time, they would feel loneliness, isolation and worthless. Thus, if the government can build a rotation system, several teachers should shoulder the teaching responsibility in turn so that each of them can have a chance to spend some quality time with their families and friends.

As a matter of fact, social mobility of rural teachers is the inevitable outcome of social development in China. Sorokin (1927), founder of the theory of social mobility, held the opinion that there is a positive correlation between social mobility and social development; also, people tend to change from one social status to another under the influence of individual values, social issues, and social values. Maslow (1943) believed that individuals have demands for development from a low level to a higher

one, which is the driving force to promote social mobility. Blau and Duncan (1967) stated that the descriptive factors that are related to the family backgrounds of different people, the efforts they have exerted, and their individual achievements influence their social mobility; furthermore, amongst all the factors, the achievement factors have the strongest effect on social mobility. Ravenstein (1885) pointed out in the Push and Pull Theory that people choose to migrate because they desire to improve their living conditions, and social mobility is the combined result of all the pushing and pulling factors. With the rapid development of social mobility theory, empirical researches on social mobility of teachers in China have become increasingly comprehensive and in-depth.

4.1.4 Provide More Training Opportunities for Teachers

To attract more talented teachers and retain the current teaching staff in rural schools, rural schools might consider improving the incentive system based on teachers' annual performance, and providing promotion or other opportunities for teachers to acquire further development. This system can help fulfil the higher needs for teachers' self-actualisation and self-enhancement.

Teachers are required to have expertise skills and a strong sense of responsibility. As the quality of teaching staff can directly influence the quality of rural education in Guizhou, so as to be competitive and professional at work, teachers should receive strict and continuous learning to acquire professional knowledge and skills. The most vital influential factor to student's educational achievement is teacher's capability to encourage students to learn. As widely known, teachers' quality is the most important determinant in education. According to statistics, students with competent teachers for 3 consecutive years achieved 54% more improvement in reading than those with weak teachers. (Sanders and Rivers, 1996) In developing countries, teachers' knowledge of the subject matter, verbal proficiency, mathematical ability and other qualifications are likely to be related to higher student achievement. Teachers play a very important role in student's education.

Furthermore, according to the interview in this thesis, most teachers show a strong desire for training opportunities. However, in fact, teachers in rural areas hardly have any chance for training; even if there are few seats for training, people who are selected to the training are headteachers while ordinary teachers barely have the chance. On the other hand, pre-employment training is significant for new teachers who are going to work in rural areas. Many new teachers do not have sufficient preparation for the harsh living and working conditions in rural areas, which results in their frequent resignation. Hence, the government should pay more attention to the pre-employment training. Despite the unsatisfactory training practices for teachers in rural areas, it is still necessary for rural schools to provide as many development opportunities as possible. Although the hard living and working environments increase the difficulties for teachers to keep a high level of professionalism in teaching practices, they will give excellent performance of education in rural schools of Guizhou as long as they have a high sense of responsibility and have more opportunities to develop and improve their teaching qualities and skills. Thus, training programmes must be given priority in order to help rural schools maintain a high quality of education. This ensures that no matter how many teachers that rural schools need, the current performance of rural education will not be affected. Experts in charge of training for rural teachers should also be encouraged to impart more information about the significance of education to the prosperity of rural areas.

Programmes should also deliver teaching ethics, values and actual experience, including success and failure, challenge and opportunity, and even social experience (Danziger, Rachman-Moore, and Valency, 2008). Cavanagh (2007) argued that young graduates with great enthusiasm and ambitions would not stay in rural areas for a long time, as they commonly consider that working in rural areas would not be beneficial to their career development. Even worse, in China, it is well acknowledged that many talented teachers working as volunteers are appointed by the government, not on their will. These teachers admit that working in rural schools for a few years would deprive

their opportunities for self-enhancement due to the constrained governmental policies and lack of valuable training programmes. Training opportunities that connect rural teachers with the outside world might provide them with valuable experiences and practices which can give them a clearer understanding of their needs, future directions and the requirements for their career success. Providing opportunities for training can also help build a competitive working environment. A competitive working environment where individuals can fully realise and reach their potentials can help them make better decisions on whether they should stay longer in a workplace or not. If rural schools can create a competitive working environment where teachers feel motivated to work harder, produce values, and meet various needs through their excellent performance, they tend to rely on their jobs and make more efforts to achieve better outcomes in teaching. The two-factor theory also provides support for a competitive working environment. According to Herzberg et al. (1959), motivation factors and hygiene factors are essential to work satisfaction. In a competitive working environment, rural school leaders are required to lead their followers to work hard. Additionally, if rural schools can establish a humane working environment where teachers feel comfortable and safe, the turnover rate will be reduced.

As mentioned above, teachers in a competitive working environment can fully develop their potential and realise their values. In a competitive environment, excellent teachers will be promoted and rewarded while teachers with poor performance will be encouraged to work harder. Hence, effective training and development programmes should be launched to help teachers adapt to the complicated working environment. Moreover, teamwork should be highlighted so that teachers can learn how to deal with the conflicts between self-value and group value (Kreis and Brockoff, 1986). Therefore, rural schools in Guizhou should provide competitive working environments and various development programmes to teachers in the form of training to improve their qualities and contribute to the sustainable development of rural education.

Self-actualisation as a level of need means an individual's self-development and success in career. The realisation of a person's full potential is the key to self-actualisation. Carless and Wintle (2007) described that self-actualisation is an important objective for individuals to hard work in any situation. People may have strong desires for personal development and realising these desires represents the gaining of self-actualisation. This is the same with teachers who have a strong desire to improve student's performance in rural areas and to realise their values in the education field. Self-development and self-actualisation are the highest level of needs for humans. Teachers encounter difficulties and challenges in fulfilling these needs since they have limited opportunities to gain further education in less developed areas. Such opportunities are also one of the most attractive strategies for schools to attract talented teachers. Herein, training is an effective way for teachers to realise self-actualisation. Thus, this can prove the importance of training offered to teachers in rural areas.

To attract more talented teachers and retain the current teaching staff in rural schools, it is better for rural schools to provide teachers with more opportunities to acquire further training or education according to their annual performance. This method can help fulfil the need for self-actualisation. It can also help realise the full potential of teachers to improve the teaching quality in rural schools.

4.1.5 The Mark Adding Policy of College Entrance Exam

According to Article 46 of "Provisions of the National College Entrance" issued by The Chinese Ministry of Education in 2010, the admission scores for minority candidates in border areas, mountainous areas, pastoral areas and ethnic minority areas can be reduced. As for minority candidates in Guizhou, their marks 10 to 20 grades can be added in Chinese College Entrance Exam. Under such background, teachers who have been teaching in rural schools of Guizhou for a long time have made great contribution to the minority education of Guizhou. These teachers abandon the opportunities to work in city to teach in rural areas and meanwhile their

family members, especially children have to make sacrifice too. For example, the children of some rural school teachers have to study in rural areas and cannot enjoy the good education resources of cities. However, these children cannot enjoy the welfare of mark-adding policy since they are not the minority.

Herein, it is important to consider whether the mark adding policy of college entrance exam should be implemented based on the Principle of Compensation for Justice from the Theory of Moral and Justice and Maximum Utility Principle from Utilitarianism. According to the Principle of Compensation for Justice, children of rural school teachers should be able to enjoy the mark adding policy of college entrance exam in consideration of the contribution made by their parents. In addition, during interviews, many rural teachers of Guizhou who have children had expressed their hope for the mark adding policy of college entrance exam for their children. Judging from the Maximum Utility Principle, this policy should be implemented to attract more teachers to teach in rural schools.

The mark adding policy of college entrance exam can be a reward for teachers who have children. Since Chinese parents pay great attention to their children's future development, providing benefits for their children should be considered as an influencing and appealing factor during the process of making effective recruitment and retention policies. It would be quite attractive for rural teachers if such a policy was implemented. If rural teachers no longer have to worry about the future of their children, they will not consider leaving to provide their children with more opportunities and will spend more time in teaching practices. Consequently, teachers with children living in rural areas will become more loyal to their career.

Chen (2003) found out that teachers would decide to settle in rural areas if the government proposes attractive educational policies for their children. For example, the children whose parents work as teachers in rural schools should get an additional 10 or 20 marks in university entrance exam in return for their parents' devotion to

rural education. Deeply influenced by Chinese traditional culture, parents are generally willing to make sacrifice for their children's wellbeing, education and future life. Thus, it would be useful for the government to provide more privileges for teachers who have children. In a word, every level of needs should be given attention to and fulfilled so as to help rural schools in Guizhou resolve the urgent problem of teacher shortage.

According to my questionnaire and interview given to teachers in rural areas, teachers who have children tend to think that the mark adding policy is very helpful for them. The theory of compensating differentials can help explain such advice. The theory indicates that the government can utilise some other aspects that they can afford to compensate the weakness and prevent teachers from leaving. Thus, the mark adding policy can compensate the remoteness or other aspects of rural schools.

Due to the long-standing unbalanced development between urban and rural areas, urban schools or quality schools have rich educational resources, while rural schools have scarce educational resources. According to ecology, the ecotopes in higher ecological chains are established on the ones in lower chains to absorb survival elements. Therefore, urban schools or high-quality schools with rich educational resources and higher position in ecological chains naturally possess a higher quality of educational resources than rural schools, widening the gap of educational resources between the two. In this way, due to the disadvantages, rural schools will never catch up with urban schools. Also, rural school teachers would fall into the marginalised niche, which will further aggregate the severe situation of both rural school and rural teachers. To start with, due to low social status, seldom support from family and society and low public reputation, rural teachers hope to work in urban schools or high-quality schools. Secondly, suffering from the scarce material, financial and intelligent resources, security problems, insufficient rights and interests and dissatisfaction of professional value, rural teachers would be actively mobilised to work in urban schools or high-quality schools. For instance, their unsettled problems

in terms of housing and medical treatment, children's school entrance and employment shall contribute to their loss due to the unbalance between their efforts and rewards. Finally, due to the restrictions of geographical, cultural, economic and other conditions, rural teachers seldom have the chance to gain access to rich information or receive training, let alone sufficient developmental space. As a consequence, rural teachers with professional ambitions tend to choose urban schools or high-quality schools for better developmental opportunities, which finally leads to the problem of rural teacher shortage.

The mark adding policy of college entrance exam is essentially a type of social preferential policy to provide high education resource to students who meet certain requirements so as to encourage the development of rural teachers, compensate for the contribution of rural area teachers and encourage more teachers to devote themselves to the education career of poverty-stricken areas. According to teachers' needs regarding their children's education and some prior experience, such policy is of great efficiency and practicality in real practices. Based on the particular national condition, the mark adding policy of college entrance exam can motivate current teachers' enthusiasm in teaching and attract more talented teachers with children to teach in rural areas. Based on all the theories and facts as mentioned above, the policy-makers should implement such policy based on the principle of equality and rationality in terms of education right and access to education to help solve the teacher shortage problem in rural areas of Guizhou.

4.2 Suggestions for Rural Schools and Community

4.2.1 Improve Working and Living Conditions

The difficult living and working condition of rural schools in Guizhou is another direct cause of the teacher shortage problem. Accurate researches and detailed analyses will help policy-makers, supervisors, teachers, and other stakeholders to understand the status quo of the rural working and living conditions in Guizhou.

According to the research results, decision makers can draw on successful experience of schools in foreign countries for valuable suggestions (Schultz, 2000).

At the same time, teachers have difficulty in exploring their full potentials due to the constraints of working and living conditions in rural areas of Guizhou. It means that teachers in rural schools cannot make most of their creativity to achieve development in teaching or feel any sense of fulfilment through their job. Moreover, when it comes to the compensation that teachers receive from working in rural schools, they only get low or even no compensation if any accident incurs (Song, 2005). The social security system in rural schools of Guizhou can only provide compensation at the lowest standards due to related government policies. Also, for many schools in Guizhou, there is no security provided for teachers. As a result, teachers tend to feel unsatisfied and unsafe when working in rural schools. The lack of safety which is the basic need for all human beings has greatly discouraged many teachers' willingness to work in rural schools. Even for those who have worked there for a long time, they still find it hard to get accustomed to the tough living and working conditions. The data of investigation show that most of the 47 studied schools had extremely harsh living and working conditions: 3 schools had no road accessing to the outside world, 5 schools had no electricity, 11 schools were out of the water, and 44 schools did not have the internet or mobile data access. Also, there was no shop, hospital, or other infrastructure to support teachers' daily lives. Such extreme conditions have had great threats to the quality of teachers' life in rural schools of Guizhou. Most of the interviewed teachers cannot bear the fact that they cannot even take a bath in rural areas. Thus, local schools need to focus on the basic working and living requirements of teachers.

Physiological needs, as the first level in Maslow's hierarchy of needs theory, refer to the physical requirements for human beings to survive in the society, such as air, water, and food. Apart from the metabolic requirements, clothing and shelter are also crucial for the human body to function properly (Tay and Diener, 2011). These

requirements are the basis for health conditions. This indicates that physiological needs are the foundation for teachers in rural schools to work effectively and efficiently since these needs are required for teachers to have healthy conditions. According to an interviewee from Guangxi Province, a teacher once ate glutinous oil rice without any meat or vegetable for one and a half months. For teachers from cities, the most unacceptable condition in rural areas is the lack of bathroom, and they tend to feel uneasy of bathing in rivers. These facts indicate that a majority of rural schools in Guizhou cannot meet teachers' basic physical requirements, such as the supply of water, food, and shelter. Ingersoll (2001) argues that physiological needs play an essential role in empowering people in other activities. Providing satisfactory working environment where employees can enjoy a happy life plays an important role in attracting talented teaching staff. Many studies have found that schools are increasing investments in infrastructure construction to provide satisfactory working environments. However, rural schools in Guizhou cannot satisfy teachers' basic physical needs, which will greatly reduce teachers' enthusiasm and effectiveness. While teachers cannot eat healthily or nutritiously, they lack the physical fitness and energy to support their daily work. According to the collected data, even though rural schools and local governments have implemented several strategies to improve the teaching and living infrastructures in these areas, most of the rural schools in Guizhou still fail to meet teachers' basic needs. As a result, teachers are not willing to stay longer, which leads to talent loss and teacher shortage. From the interview with teachers from urban areas, most of them claimed that their physiological needs can barely be met. If their needs cannot be physiologically met, teachers cannot function well. In other words, human life will be threatened. In this sense, physiological needs are driving force for action. Maslow believes that only when the most basic needs is met, can other needs become new incentive factors.

Obviously, the current situation is rural schools in Guizhou cannot meet teachers' basic physical needs, which not only affects teachers' enthusiasm but also reduces teachers' effectiveness. As teachers cannot eat healthily and nutritiously, they will

have unhealthy bodies and will be unable to teach with quality. In addition, they will not work effectively as they cannot have good rest after a hard working day. Especially for teachers from cities, it is usually difficult for them to get accustomed to the terrible working and living environments of rural schools. According to the collected data, even though rural schools and local governments have implemented strategies to improve the teaching and living infrastructures, most of the schools in rural areas of Guizhou still cannot meet teachers' needs. As a result, teachers in rural schools are not willing to stay longer and the harsh condition makes it difficult for schools to recruit teachers, let alone the talented ones. Finally, this vicious circle leads to the problem of teacher shortage in rural schools of Guizhou. Thus, it is important to improve the working and living conditions to meet teachers' basic needs.

4.2.2 Help Teachers Integrate into Local Life

In addition to considering various influential elements during the decision-making process, policy-makers should increase and create more opportunities to enhance the interaction between teachers, policy-makers, and headteachers. Headteachers in particular should maintain good relationship with teachers in order to help them understand the tough working and living conditions in rural areas. Headteachers also need to take action to arrange some interaction activities with teachers to enhance their sense of belongings and reduce teacher's turnover rate in rural schools. Additionally, it is better for rural schools to design more community activities to help teachers develop a sense of belonging. This can have a direct influence on teachers' confidence and their decision-making process. The complex conditions that rural schools in Guizhou are facing indicate that it is impossible for policy-makers and headteachers to resolve the problem of teacher shortage through setting up policies simply. The effective implementation of plans for these policies is the key to the resolution of teacher shortage in rural schools. It is also of great importance to ensure that all the policies made to resolve the problem of teacher shortage can be implemented with great effectiveness.

Job satisfaction plays a critical role in making teachers stay longer or even settle down in rural areas of Guizhou. According to the analysis on various influencing factors to job satisfaction, teachers have various needs that must be met to make a decision to work in rural schools and stay longer. However, it is still hard for rural schools to meet teachers' basic needs to allow them to feel satisfied and safe. This has increased the possibility of teacher turnover. As teachers cannot integrate into local life, teacher productivity will be affected (Towse and Kirua, 2004). In addition to some commonly accepted variables that affect job satisfaction, Chinese culture, traditions, teachers' virtues, moral values, and interpersonal relationships have special effects on job satisfaction in rural schools of Guizhou. This indicates that the problem of teacher shortage is more complicated than expected before. Teachers can also be motivated by various factors, such as the kindness of local communities, high recognition by students and parents and urban life. If policy-makers can take advantage of these factors, more teachers are willing to stay and settle down in rural areas. Meanwhile, the complexity in understanding teacher's turnover rate should be highlighted for headteachers of rural schools. They should understand rural education in depth. To improve the overall quality of education, policy-makers should be more effective in developing recruitment and retention strategies to help rural schools in Guizhou resolve the problem of teacher shortage and attract more talented teachers. To make rural teachers become more integrated into local life, several measures can be adopted.

For instance, schools can invite teachers to participate in family gatherings to help them develop a sense of belonging. These strategies have positive influences on teachers' psychology, motivating them to stay longer. In addition to the development and training opportunities, it is necessary to spend more time with teachers for communication and interaction to better understand their needs.

In fact, headteachers are responsible for providing more opportunities to increase the interaction between teachers and local communities. This will promote the

development of good relations, which can not only reduce teachers' feeling of loneliness but also encourage teachers to stay longer. There are two main types of influencing factors, including work-related situational variables and demographic variables. Specifically, work-related situational variables are varied based on the studies of different scholars and include work itself, room for development, benefits, leadership, co-workers, work stress and psychological factors. On the other hand, demographic variables mainly include gender, age, educational background, income and occupation.

Holdway (1978) analysed the factors that affect the perceptions of teachers towards their job and the correlation between the factors and teacher's job satisfaction. Furthermore, factors that lead to teachers' job satisfaction are mainly intrinsic factors, such as perceptions towards a job, a sense of achievement, level of excitement at work and occupational development. They also found that factors leading to teachers' job dissatisfaction are mainly extrinsic factors, such as interpersonal relationship, administrative management, relevant policies and social attitudes. As is indicated, the favourable interpersonal relationship is beneficial to the promotion of teacher's job satisfaction. Additionally, providing teachers with more opportunities, such as holidays to visit families, make friends and relax can make them stay longer in their job. Despite different factors that influence teachers' decisions to stay, a bond with the local community will make teachers stay longer. Local communities should also show more care, respect, and other caring emotions to teachers. Rural schools can create more opportunities for communication and interaction with teachers to understand their needs and opinions. In this way, local communities can make more effective recruitment and retention plans to attract both local and outside teachers.

Environmental factors, recognition factors, and self-actualisation factors can all affect teachers' job satisfaction. Recognition from leaders, co-workers, parents, and community or society is of great importance for teachers to get involved in rural teaching and feel happy with their jobs. On the one hand, teachers working in rural

schools desire high appreciation from people they work and live with (Hammer et al., 2005). This means that if co-workers, students, headteachers and members of local community can show more appreciation for teachers in rural schools, teachers' feeling of dissatisfaction incurred by some disadvantageous external factors would be reduced or controlled. On the other hand, recognition from the community helps teachers to achieve self-actualisation to promote job satisfaction. Specifically, the present research has found that recognition of teachers in rural schools of Guizhou plays a vital role in enhancing teachers' intention to stay longer. Through the interviews with rural teachers, students in rural schools are more active in showing respect, trust, and desire for teachers through various activities (Van, 2006). These students tend to be emotional in developing relationship with teachers. In a way, students, politeness, and friendliness have become essential factors that enable teachers to feel satisfied with their jobs and thus have more willingness to stay.

The theory of job embeddedness can explain this proposal. Its emphasis is on the factors that make an individual remain at the same job. Job embeddedness consists of three key components, including links, fit, and sacrifice. This means that the better fit a teacher has with his or her school and community the more embedded he or she is in his or her job. In terms of this theory, policy-makers should try to help teachers fit into their new environment through different policies. Links as the second component of job embeddedness refer to the connections between individuals and other people, an organisation and community. The more links a teacher has with his or her school or surrounding community the more embedded he or she is in his or her job. Sacrifice as the third aspect of job embeddedness seizes the cost of mental or material advantages incurred by resignation. (Mtitchel, 2001, p. 10) This means that the more a teacher gives up when leaving a job the more difficult it is to sever employment with the school.

4.2.3 Teachers and School Principals Should Help Teachers in Rural Schools

In China, factors such as interpersonal relationship, promotion, and gender have

impacts on teachers' job satisfaction and turnover in rural areas. A good interpersonal relationship can have significant influence on people's career success in China. It is usually believed that people with friends and relatives who work at a higher position are more likely to have more chances for promotion and rewards. This does great harm to fairness. Nonetheless, both city schools and rural schools cannot avoid the influence of interpersonal relationship. Many of the interviewed teachers have admitted that they had real experiences of interpersonal relationship. In fact, sometimes, teachers with excellent performances may be replaced by those with inferior performances yet strong interpersonal relationship. Such phenomenon makes many teachers feel depressed, which reduces their job satisfaction. Gender is also a variable that influences the quality of rural education. Even though female teachers are more willing to stay longer in rural schools, they can only provide limited assistance to rural education. Male teachers sometimes can make more contributions to education. Moreover, imbalanced gender distribution among teachers can prevent teachers from finding lovers. When teachers reach 27 to 35 years old, marriage would generally become their priority in life. In this way, teachers may show depression at work, which results in low level of job satisfaction. Schaffer (1953) suggests that if teachers working in rural schools could spend more time understanding the real purposes of their work, they probably would stay in rural schools longer. Additionally, the rate of absence can be reduced when teachers begin to understand the importance of their contributions to rural education. Therefore, it is significant for decision-makers to make more efforts to shed some light on the great social meaning and the value of teaching in rural areas.

In schools' education ecosystem, teachers, as ecological individuals, have a limit regarding their work endurance and tolerance. If this threshold has been exceeded, the survival state of teachers will be threatened, as humans tend to pursue happiness and avoid suffering. Due to a shortage of teachers in rural primary and secondary schools, some teachers even need to take on cross-grade or cross-curricular teaching tasks with a heavy workload and long work times. There are even class contract systems in some

rural primary and secondary schools where one or two teachers are responsible for a whole class. That is to say, contractors are taking all the courses and tasks. The heavy workload would overwhelm teachers in terms of work capacity, endurance, and tolerance. If these teachers are also required to undertake teaching, research and administrative tasks, they will suffer from a greater pressure that they cannot bear.

The former analysis in Chapter One indicates that job satisfactory is one of the key points that will affect teachers' decision making. Job satisfactory is influenced by several elements. The first element is relationships, including co-worker relationship and the teacher-student relationship. In the workplace, cooperation is inevitable and necessary. To be more specific, a favourable relationship with co-workers will not only be beneficial to teachers' completion of work with high quality and efficiency but also decrease their anxiety and stress at work. Besides, the intensive relationship between co-workers will cause conflicts at work and high turnover rate which would decrease work quality and efficiency. Co-worker relationship, the teacher-student relationship and workload can also influence teachers' job satisfaction. It should be noted that good co-worker relationship and teacher-student relationship are important characteristics in rural education. Actually, many teachers have said that co-workers in rural schools are much more trustworthy and honest. An interviewed teacher who used to work in city schools mentioned that the working environment in rural schools was not as comprehensive as in city schools, and his colleagues showed more kindnesses instead of hostile attitudes. In this way, teachers in rural schools can feel more comfortable and relaxed when working in rural schools. In some sense, teachers' job satisfaction in rural areas of Guizhou can be increased.

The leader behaviour is another element that affects teachers' job satisfaction. The behaviours of leaders are likely to have a great impact on both of subordinates and employees. To be more specific, praise and care from leaders will promote the enthusiasm of employees at work, which will further improve their work efficiency and quality. Oppositely, staff's enthusiasm and motivation are likely to be discouraged,

and their job satisfaction will be decreased if they cannot gain approvals from their superiors. Skinner (1938) developed the theory of operant conditioning, indicating that an individual's behaviour can be operated; therefore, it is considered as a type of conditioned reflex. An individual will generate some action due to some need, and such kind of reflex will only form under the reinforced conditions. Under the impact of reinforcement, reflex will increase as reinforcement increases, and will decrease as reinforcement decreases. When a leader gives praise to a teacher for a specific behaviour, this can maintain and strengthen the behaviour, which indicates positive reinforcement. When a leader punishes a teacher for a specific behaviour, this can weaken and eliminate the behaviour, which indicates negative reinforcement. Decision-makers should take immediate action to establish a sound relationship with teachers. In particular, class teacher should maintain good relations with other teachers to help them understand the challenging conditions in rural areas. The class teacher also needs to take action to increase the interaction with other teachers, to culture teachers' sense of responsibility and to reduce the teacher's turnover rate in rural schools. In addition, more community activities should be built for rural schools to help teachers develop a sense of belonging. This may have a direct impact on the teacher's confidence and decision-making process.

The second key point of this proposal is the word "esteem". Self-esteem and self-respect are the typical human needs. Engaging in a profession is a commonly used method for people to gain recognition. By making contributions to their professions, people can gain a sense of value that encourages and motivates them to work harder and contribute more (Wahba and Bridwell, 1976). However, low self-esteem can significantly affect people's enthusiasm at work. When people feel they play an important role in the survival or development of certain groups, they tend to work harder. Status, fame, prestige, recognition and attention are what people need to acquire self-esteem. These needs are also vital for people to gain competence, strength, self-confidence, and independence in group work.

Most of the interviewed teachers from rural schools in Guizhou indicated that they only feel that they are respected in a class by students. When teachers involve themselves in social activities outside of school, they usually find that they are seldom valued by others. In fact, many teachers in rural schools have low self-esteem and low self-confidence when engaged in social activities. Guo (2005) argued that in many rural schools of China, even though teachers enjoy a relatively higher level of respect from the society and schools, many of them still do not have a strong sense of self-esteem due to limited resources for them to gain fame, social status and recognition. Even if these needs are fulfilled, teachers do not think these gains are as valuable as those in cities. Some interviewed teachers indicated that remoteness, in some sense, caused them to lose the opportunities to gain higher social status.

These facts indicate that teachers in rural schools of Guizhou actually enjoy self-esteem as they are more valuable for rural schools, society and government than they are in cities. It is better for rural schools and government to hold some competitions or competitive activities to provide opportunities for teachers to show their values to people (Xinhua News Agency, 2002). They will be widely accepted by the society as a result of the rewards they achieve in these competitions. Teachers who have helped their students to improve their performance should also be rewarded by schools. This means that competitive activities enable teachers to become more valuable and important to rural schools.

Thus, teachers in rural schools should focus more on new teachers' needs, making them feel welcomed and warm in a new environment, and motivating their passion and enthusiasm to teach there. It is important for new teachers to know that they are valued and respected by all the people there, so that they will feel a sense of belongings and work more efficiently.

4.3 Specific Recommendations for Recruitment of Teachers

According to the teacher recruitment policies and survey, only 8% out of the 100

teachers were recruited through government recruitment and retention policies. This result implies that the government policies and programmes are not as effective as expected in resolving the teacher shortage problem. According to the satisfaction survey on recruitment and retention policies, only 6% of participants were satisfied with the current recruitment and retention policies, 59% of them were not satisfied with the policies, and 12% were very unsatisfied with them. Even though the policy officials have confirmed that many effective policies have been implemented, most of the policies have not satisfied teachers in rural areas. Although there have been a set of governmental policies and programmes for the development of teacher recruitment and retention in rural schools, these policies and programmes have not been implemented with effectiveness and efficiency as they have not helped rural schools recruit the expected amount of talented teachers. Hence, efforts should be made in this part.

Strategic practices in teacher recruitment and retention require an integral process of planning, decision-making, and implementation. From a strategic perspective, policy-makers and headteachers of rural schools should first analyse the needs of teachers based on accessible data and then decide which strategic plans should be applied (Murphy and DeArmond, 2003). Based on the analysis and chosen plan, they can make further decisions about how to recruit and retain teachers. It is necessary for policy-makers to effectively allocate and utilise resources to maximise the results and resolve the teacher shortage problem for good.

A profound understanding of the detailed conditions of rural education as well as specific recommendations for teacher recruitment and retention play an important role in helping policy-makers to develop concrete solutions to the teacher shortage problem in rural areas. To deliver effective results for the recruitment and retention of teachers in different areas, this process should consider the unique and particular characteristics of specific schools or areas (Murnane, et al. 1991). Therefore, both of policy-makers and headteachers can come up with the most effective strategies to

attract teaching staff. For instance, if schools are facing a gender imbalance situation, policy-makers should focus on attracting more female or male teachers to overcome the imbalance. It not only reduces the negative influences of gender imbalance on teaching practices but also gives teachers more opportunities to find life partners and establish their own families. Last but not least, this increases job satisfaction and makes teachers more willing to stay and settle down in rural areas. Considering the poor social security conditions in some rural schools which pose great threats to teachers' safety, the authorities should pay special attention to the policies that reduce violent attacks and enhance social stability to create a safe working and living environment for teachers. As is mentioned earlier, Chinese culture plays an important role in the decision making of graduates who are about to teach or continue to teach at rural schools. In college education, it is necessary to increase courses that link traditional virtues to rural education to reduce the discrimination against education majors and the difficulties of teaching in rural schools of Guizhou. These suggestions share a common characteristic, that is, recruitment and retention efforts should be specifically tailored to solve different challenges that Guizhou rural schools are confronting with.

When it comes to the sustainable development of recruitment and retention of teachers in rural schools of Guizhou, continuous practices should be taken after teachers are recruited. Sustainability in recruitment and retention practices implies that the related efforts should create long-term benefits for the greatest amount of people. It means that all the stakeholders involved should benefit from the recruitment and retention policies (Minerik, Thornton, and Perreault, 2003). In fact, many teachers decide to leave after working in rural schools for only a few days or months. It shows that they have experienced hardships worse than they expected. Thus, a psychological gap exists, which is more likely to result in higher teacher's turnover rate (Ryan and Deci, 2000). Both individual factors and environmental factors contribute to this result. Hence, policy-makers should help teachers make corresponding adjustments to fit in rural schools.

According to the previous discussion of this thesis, it is unavoidable that some working environments may not be ideal for most graduates so that it is necessary for teachers to hold fair attitudes and a clear understanding of the difficult conditions in rural schools beforehand. Public education has been a sustainable approach to resolving various social, economic and environmental issues. On the one hand, policy-makers should organize and set up education programmes to make teaching staff aware of the differences between working in cities and working in rural areas. This would help change teachers' perceptions and attitudes toward their work and promote the retention of high-quality teachers. On the other hand, considering the complex external environment, varieties of stakeholders, such as school administrators and teachers should shoulder the responsibility through collaboration. School culture can also be integrated into recruitment and retention practices to attract high-quality teachers with noble virtues and sound teaching capabilities.

Based on the research results, schools should recruit the "stable" and "independent" type of teachers and avoid the "management" type as the latter one tends to pursue and focus on the work of the whole management. Specific technical / functional work is merely viewed as a path to higher management. Thus, they are not stable and cannot stay long at one place. Since most schools in remote areas are small, and there are only a few number of teachers there, the management type of teachers is reluctant to work in these schools, which leads to high turnover rate. On the contrary, the stable type tends to pursue work with a high sense of security and stability. They can predict and rely on the prospect of future success and thus feel relaxed. They also care about financial security, such as retirement schemes. A sense of stability includes honesty, loyalty and the completion of work. Even though they reach a high position, they do not care about the specific position or job content. Similarly, the independent type wants to take charge of his/her work, including working patterns and style. They pursue the kind of working environment that can display individual ability without too many limitations and restrictions from the organisation. Furthermore, they prefer to

enjoy freedom and independence instead of grasping every opportunity to get promotion.

According to the community-rooted practices, to resolve the problem of teacher shortage, more local human resources should be employed. The development plan of local staff has been proposed and used as a major recruitment strategy to help rural schools of Guizhou to solve the serious problem of teacher shortage. The local communities around rural schools can make teachers more loyal to their schools (Wu and Donald, 2007). On the other hand, the relatively large population in rural areas can provide some qualified teaching staff for rural schools. To be more specific, as it is hard for teachers from other areas or cities to stay longer in rural schools, hiring local teaching staff who is more familiar with local living and working environment is a practical and effective strategy (Hammer, et al., 2005). These locally recruited teachers who grew up in such hardship tend to adapt to the school culture and local environment more easily. Many studies have shown that local teachers might contribute more to rural education compared to teachers from other areas. If local rural schools or governments of Guizhou can provide more assistance, such as schooling funds and better infrastructures for local universities, more qualified local teachers will be attracted to the programme (Levin, 2001). In this way, rural schools in Guizhou will also have more accesses to human resources.

According to Edgar Schein's "career anchors", greatly influenced by the experiences of successive trials and challenges, young adults, especially graduates, will gain a more accurate and stable satisfaction on career in their first few years out of school (Schein, 1990). The three components of Schein's "career anchors" indicate that the perceived talents and abilities, perceived motives and needs as well as perceived attitudes and values can contribute to these young adults' career self-concept (Danziger and Valency, 2006). Through a series of achievements in the education field, teachers can gain a better understanding of their abilities and talents. If teachers find that their talents and abilities have not been fully realised in rural schools, they may

quit their job very soon to find other jobs which can help them realise their goals. Thus, to hire and retain teachers in rural schools for long term, it is important to include teachers' perceived abilities, motives, values and attitudes into the recruitment process.

This chapter has proposed valuable suggestions for policy-makers and local communities to resolve the teacher shortage problem based on the previous theories and statistical investigation. Five policies are proposed for policy-makers, including improving infrastructure, increasing teachers' welfare, establishing a job rotation system, providing more training opportunities for teachers and implementing the mark adding policy of college entrance exam; three policies are suggested for local schools and communities, including improving the living conditions, helping teachers integrate into local life and helping new teachers. However, the government needs to know that solving teacher shortage problem is a complicated and long-term journey, and several policies are far from enough. Thus, the government should apply these advices to their local conditions and refer to effective policies from other countries.

Chapter Five Conclusion

5.1 Research Contents and Findings

5.1.1 Research Contents

This research uses both quantitative and qualitative researching approaches to study the teacher shortage problem in rural areas of Guizhou. The researcher has spent a total of 17 months conducting an in-depth field study in 47 primary schools and interviewing 41 teachers, 9 headteachers and 4 government officials. In addition, a total of 200 primary school teachers including 100 urban teachers and 100 rural teachers have participated in the questionnaire survey. This research aims to find answers to the three main questions: 1) Are there shortages of teachers in rural schools in Guizhou? 2) What are the factors that influence teachers' decision-making concerning whether or not to enter and remain in the teaching profession? 3) What strategies have been developed to recruit and retain rural teachers? To answer these questions, findings are provided as below:

5.1.2 Findings

According to analyses, the teacher shortage problem in rural areas of Guizhou has been long-standing and complicated. In fact, most rural schools have been short of teachers, and there are many factors that lead to this severe situation. To start with, fundamentally, the current recruitment and retention policies for rural teachers have not been effectively implemented. Furthermore, some key factors, like low salary, poor living and working conditions, inferior geographic location, etc. along with some individual factors would affect teachers' decision-making about whether or not to teach in rural areas of Guizhou. Thus, it is important for both government and schools to adopt effective measures, develop shared visions, and make full use of current resources to address this urgent issue. Besides, both comprehensive scheme and

long-term objectivities are needed to ensure that the education quality of rural schools can be fundamentally improved.

(1). Rural schools of Guizhou is currently facing severe teacher shortage problem

To study the teacher shortage problem in rural schools of Guizhou, this research has collected both descriptive and numerical data and used quantitative and qualitative researching approaches. This is generally a long-standing and very complex issue. In fact, most primary schools in poor areas of Guizhou are currently facing severe teacher shortage problem. According to statistics, 79% of schools are short of more than three teachers, and 23% of schools are short of over 11 teachers. The data shockingly uncover the situation of teacher shortage in rural areas of Guizhou, showing that teacher shortage as a common and severe phenomenon is even more severe than it seems to be.

Herein, the teacher shortage problem can be measured by two indexes. The first index is the number of Daike teachers and the second one is the student-teacher ratio. First of all, in China, the existence of Daike teachers is ascribed to the shortage of certificated teachers and thus, the number of Daike teachers is a vital index to evaluate the teacher shortage problem. According to the research, 46% of primary schools had Daike teachers. The figure shows that nearly half of schools have been illegally recruiting Daike teachers since 2006. It can be seen that the problem of teacher shortage has not been fundamentally resolved in over half of the surveyed rural schools. Even worse, the student-teacher ratio is imbalanced in rural areas of Guizhou that one teacher is responsible for too many students or subjects. The common existence of Daike teachers and imbalanced student-teacher ratio indicate that the related policies of rural teacher recruitment and retention have not been implemented effectively, and it is still a long-term challenge to attract more qualified and certificated teachers to rural schools of Guizhou.

Actually, to resolve the teacher shortage problem effectively, one of the most significant preconditions is to develop a correct understanding of the actual situation of teacher shortage in rural schools of Guizhou through data collection and accurate analyses. Hence, it requires all the involved stakeholders, particularly policy-makers and headteachers to gain an in-depth and accurate understanding of the severe conditions of teacher shortage in rural schools before any measure or action is taken.

(2). Varieties of factors may influence teachers' decision-making concerning whether or not to enter and remain in the teaching profession.

Nowadays, a considerable number of graduates are competing for limited teaching vacancies in top schools of cities or counties. Such imbalanced distribution of teaching resources directly causes the teacher shortage problem in rural areas of Guizhou. In fact, many factors, including government policies, safety, geographic location, salary, working and living condition, etc. may affect teachers' willingness to teach in rural schools.

The safety issue is an important concern for teachers when they decide whether to teach or continue to teach in rural schools. Specifically, the villages of rural areas have no access to the outside world and have high possibilities of natural disasters and social attacks. The research finds that most teachers prefer to teach in cities or counties for safety and convenience in life. That is to say, although many teachers are willing to teach in rural areas, they would choose to teach in schools with a safe environment and convenient conditions as safety is one of the basic needs for rural school teachers.

Although the government officials have confirmed that many effective policies have been stipulated and gradually implemented, a majority of them have not shown its effects in rural areas. Hence, the needs of rural teachers should be studied and taken into consideration for policy-makers and schools. Over half of the teachers are not satisfied with the present policies of recruitment and retention in rural schools of

Guizhou. It also shows that these policies have not been implemented effectively yet, which to some extent causes teacher's unwillingness to work in rural areas for long-term and eventually poses a threat to the sustainable development of education in rural areas. Thus, a re-evaluation on the current recruitment and retention policies in rural schools is needed, and the efficacy of its implementation should be improved.

Among various influential factors, geographic location, salary and working and living conditions are key factors that affect teacher's unwillingness to work in rural areas. Firstly, according to the survey, when asked why it is difficult to recruit and retain teachers, the interviewees commonly considered that remoteness is a major reason. In fact, most interviewees regarded remoteness as the prime factor that influences teacher recruitment and retention in poor regions of Guizhou. In this research, SPSS is adopted to analyse the correlation between remoteness and teacher shortage. It indicates that among many rural schools, long traveling time is the main factor that increases the difficulties in addressing the teacher shortage problem. To be more specific, the long distance reduces the amount of time teachers spend on teaching, which further affects their teaching quality. Also, the remoteness of rural schools has to some extent cut teachers' connection with the external world, which makes them unable to exchange teaching experience and feel lonely. In terms of salary, the research figures show that teachers in rural schools receive much lower salary than those working in cities or counties. As salary is one of the basic factors for survival and a reflection of personal value, teachers tend to feel imbalanced and their willingness to work in rural areas tends to be discouraged. Furthermore, as the poor working and living conditions would greatly lower teachers' living and teaching quality, this is another major cause for teacher shortage in rural areas.

Last but not least, some individual factors, including gender, nationalities, marriage status, etc. also affect teachers' decision to teach in rural schools. However, the influences of these factors are relatively small.

Thus, the teacher shortage problem is so complex that stakeholders need to take all the influential factors into account to stipulate and implement strategies to address this issue.

(3).The recruitment and retention strategies of rural teachers

All the stakeholders, especially policy-makers, and headteachers need to make strategic decisions and implement practical and effective plans to address the teacher shortage problem. However, solving the problem and prospering rural education are a long-range task for all the parties. Internal and external factors, physiological and mental factors and other elements should be all taken into consideration in the resolution of the teacher shortage problem. In addition, information technologies and education programmes should be used as long-term tools for policy-makers to attract more teachers to teach and develop high-quality teaching crew in rural areas. Based on the complicated factors to the problem, it is important for policy-makers and headteachers to develop systematic and comprehensive strategies to solve the teacher shortage problem.

To start with, to create a positive condition for the development of rural areas in Guizhou, the government should undertake the responsibility of fundamental transformation. First of all, by increasing investment and making detailed plans, they can conduct transformation work of infrastructure which focuses on three main aspects, including public facilities, teaching facilities and medical facilities. Also, clear responsibilities and organisation as well as close cooperation between government and schools are needed to promote the implementation of policies and planning regarding infrastructure development. Secondly, as the low welfare in rural areas is one of the fundamental reasons for the teacher shortage problem, the improvement of rural teachers' welfare should focus on four main aspects, including salary, traffic subsidies, housing subsidies and tourism subsidies to meet teachers' needs and enhance their satisfaction degree towards work. In addition, an effective job

rotation system can help rural schools to maintain a high teaching quality and decrease the high rate of teachers' absence and turnover. One of the most effective strategies that some rural schools in China have implemented is job promotion for teachers who have worked in rural areas for a certain period. For instance, teachers who have worked for over two or three years can have the opportunity to teach in cities or counties after they passed the evaluation of teaching performance. Moreover, so as to retain the present teaching staff in rural schools and attract more talented teachers, to fulfil their higher needs for self-actualisation and self-enhancement and meanwhile to improve their teaching quality, development and training rewards should be integrated into teacher recruitment and retention policies as well. Nonetheless, as a matter of fact, rural school teachers hardly have any chance for training; even if there are some opportunities for training, people who are selected are mainly headteachers or principals. On the other side, pre-employment training is important for new teachers who will be working in rural schools. A great number of new teachers do not have any idea or make sufficient preparation for the harsh living and working condition in rural areas, which is another reason for their frequent resignation. Last but not least, it is worth mentioning that the mark adding policy of college entrance exam can be a reward for rural school teachers who have children. As widely known, Chinese parents tend to pay great attention to their children's future development. Thus, providing benefits for the children of rural school teachers should be considered as an influencing and appealing factor when stipulating recruitment and retention policies. It would be attractive for rural teachers if such a policy can be implemented. If rural teachers do not have to worry about the future of their children, they will not consider leaving to find better education opportunities for their children and will spend more time in teaching practices and improvement of rural education. Consequently, not only current teachers with children will become more loyal to their career but also other talented teachers will be attracted to the teaching post in rural schools.

In addition to decision makers of the government party, rural schools and

communities should shoulder the responsibilities and cooperate with the government. Firstly, since the difficult living and working conditions of rural schools in Guizhou directly cause the teacher shortage problem, schools should focus on improving their conditions to satisfy teachers' basic needs of survival. Also, more opportunities or activities should be created to help local teachers quickly adjust to and better integrate into local life. Herein, it is necessary to enhance the interaction between teachers and policy-makers as well as headteachers.

As mentioned previously, due to the serious natural environment and underdeveloped working and living conditions, poverty-stricken rural areas of Guizhou are confronting with serious educational problems, especially the problem of teacher shortage. In order to create a positive condition for the development of rural areas in Guizhou, both of the government and school should conduct fundamental transformation through increasing investment and making detailed plans. Both parties should enhance its understanding on the serious situation of teacher shortage in rural areas of Guizhou and develop a clear idea of their responsibilities. This can determine whether relative plans and policies can be implemented successfully or not. In this thesis, suggestions have been made according to the two aspects. On the one hand, transformation work of the government should focus on improving the infrastructure of public facilities, teaching facilities and medical facilities; increasing teachers' welfare, including salary, traffic subsidies, housing subsidies and tourism subsidies; adopting the job rotation system to encourage the healthy circulation of teaching resources; providing more training opportunities to teachers' personal development and teaching quality development; as well as implementing the mark adding policy of college entrance exam. As for governmental work, clear responsibilities and organisation as well as the sound cooperation between government and school are needed to promote the implementation of governmental policies and planning. Meanwhile, the government should enhance its comprehension on the serious circumstance of teacher shortage in rural areas of Guizhou and form a clear idea of its responsibilities. This can help successfully implement the governmental plans and

policies. As a matter of fact, the government can take lead to increase the sense of mission, responsibility and urgency for rural teaching in the society. The task to solve the teacher shortage problem as the key to governmental work should be evaluated strictly on a regular basis. Furthermore, the government should increase its investments and consolidate its resources to fully use the limited existing resources and funding to address the problem of rural areas fundamentally. Meanwhile, building up a strong team at government and school levels and strengthening management is of great importance to ensure the sound implementation and execution of governmental plans and policies. Besides, the transformation of education in rural areas cannot be completed without the joint efforts of schools and community. With cooperation with governmental offices, both of school and community should exert great efforts in increasing the living condition of teachers; creating more activities and enhancing the communication and interaction with rural teachers to help them integrate into local life better; as well as providing special assistance to rural school teachers in terms of work and personal life. In addition, specific recommendations should be set up for the recruitment of teachers in rural areas. In fact, strategic practices in teacher recruitment and retention require an integral process of planning, decision-making, and implementation. Hence, policy-makers and headteachers of rural schools should first analyse the needs of teachers based on the accessible data and then decide which strategic plans are suitable. According to the analysis and chosen plan, they can make further decisions about how to recruit and retain teachers.

In addition to respective efforts from government and schools, sound cooperation between different parties is also very crucial. The government can take the lead to enhance the sense of responsibility, mission and urgency for rural teaching in the society. As the key of governmental work, the task to solve the teacher shortage problem should be evaluated periodically and strictly. Furthermore, the government should consolidate its resources and increase its investments to fully utilise the limited resources and funding to improve the underdeveloped infrastructure conditions of rural areas. Meanwhile, strengthening management, building up a strong team and

strengthening the cooperation between different stakeholders are significant to ensure the sound implementation of policies and plans to effectively solve the teacher shortage problem.

5.2 The Significance and Value of The Thesis

5.2.1 To Fill the Gap of Research on Teacher Recruitment in Rural Areas of Guizhou

To fill the gap of research on teacher recruitment, this research studies the teacher shortage problem in rural areas of Guizhou. Therefore, this thesis is of great significance to the education development in rural areas of Guizhou.

In fact, very few scholars have carried out studies on rural school teachers of Guizhou. Even though there are some present researches on this topic, they are not comprehensive enough in terms of methodologies, data collection, analyses, solution, etc. There are many deep-rooted reasons for the scarcity of research on this important issue. Firstly, Guizhou as a south-western province of China consists of more than 90% of the mountainous land, covering an area of 1,100 meters above the sea level. Lots of rural regions of Guizhou have no road connected to the outside world and the transportation facilities are still underdeveloped. According to the statistics, in 2012, Guizhou as a poverty-stricken province had 680.22 billion Yuan (107.758 billion USD) of nominal GDP, and the per capita GDP of 19,566 RMB (3,100 USD) ranked last in China (Wikipedia). Also, Guizhou is one of the most demographically diverse provinces in China. To be more specific, 48 minority groups take up more than 37.9% of the population, and a majority of the minority groups have their own language. 55.5% of the provincial area in total is designated as autonomous regions for ethnic minorities, and all the autonomous regions have their own policies and regulations. All in all, some factors, including remoteness, poverty, language barriers, diverse cultures, etc. have impeded the study on the education of rural areas in Guizhou, particularly the research topic of rural school teacher recruitment.

To conquer the challenges and barriers as mentioned above, between 2005 and 2011, I as the researcher of this study became a voluntary teacher in a remote area of Guizhou. During the process, I was able to obtain a great amount of first-hand valuable information and record useful data. Using scientific methodologies and analytical methods, this research comprehensively studies the topic of rural school teachers' recruitment and analyses the problem of teacher shortage in Guizhou.

To explore the challenges that rural schools of Guizhou are currently facing and offer suggestions to recruit and retain teachers, this research provides an objective evaluation of the recruitment and retention policies of rural school teachers in Guizhou and offers research-based information that enhances our understanding of the factors related to the teacher shortage problem. This study also attempts to offer a reference for decision-making related to policies and measures in Chinese poor regions.

Through the research on the difficulties and challenges that rural schools of Guizhou are facing in the recruitment and retention of rural teachers, this study also attempts to explain why it is so difficult for rural schools in China to improve teachers' teaching quality. Herein, the relationship between teacher recruitment and retention in terms of teaching quality is studied in great depth. The present recruitment and retention policies of rural teachers in Guizhou offer evidence about the limitations and weaknesses of relative education policies. Furthermore, the collected information can provide more insights for rural school headteachers and the local government to improve their previous education policies and take immediate actions to make fundamental transformation with the purpose of retaining current teachers and attracting more talented teachers with proper qualification in rural schools of Guizhou.

As mentioned previously, this research is mainly emphasizing on three issues: 1) Is

there a shortage of teachers in rural schools in Guizhou? 2) What are the factors that influence teachers' decision-making concerning whether or not to enter or remain in the teaching profession? 3) What strategies have been developed to recruit and retain rural teachers? Based on the three main issues, many questions have been designed in the research, including interviews and questionnaire survey. All these questions are designed to make the research meaningful and comprehensive. These well-designed questions offer research-based information to enhance our understanding of the elements about the severe teacher shortage problem in rural areas of Guizhou. To be more specific, almost all the possible influential factors that affect teachers' decisions and willingness about whether to teach or continue to teach in rural schools can be obtained from the answers and analyses of these questions. Interviews in this research were held with policy-makers, headteachers and teachers so as to collect more information via face to face communication. The questions asked were about the supply and demand situation of rural school teachers in Guizhou after some specific policies had been stipulated and carried out in local. By interviewing which strategies were the most effective, the researcher was able to grasp the key influential factors to the problem under discussion. In addition, these questions also provide details about the subject of the qualitative research. Based on naturalistic observation, these questions can open a discussion for the interviewees to offer more valuable information. Although these interviews have been considered as one of the most extensively used and effective approaches in information collection, they still have some limitations. In spite of this, however, according to the results, this research compares different perspectives and ideas about the recruitment and retention policies applied to rural schools of Guizhou and provide valuable suggestions to stakeholders, especially policy-makers and schools to address the issue of teacher shortage.

In general, with well-designed questions about the issue of rural school teacher shortage, scientific methodologies and analytical methods, this thesis successfully fills the blank of the research on the teacher recruitment problem in rural areas of Guizhou, which distinguishes itself from the past researches and has far-reaching importance.

5.2.2 To Provide More Impartial and Objective Evaluation on the Current Situation of Teacher Recruitment in Rural Areas

Different from some researches with the use of current data and official published data, this research offers more neutral and objective evaluation on the current situation of teacher recruitment in rural areas. The objectivity and usability of this research is closely related to the stringency of its data collection, research process, and research design.

Firstly, in terms of data collection, the approaches are rigid. For instance, ethnographic data of this research were gathered as an important part of a field study on the working and living conditions of rural teachers in Guizhou Province from 2013 to 2014. This research included field study on 47 primary schools and in-depth interviews with 4 government officials, 9 headteachers and 41 teachers. Besides, 200 questionnaires were gathered from teachers in rural areas of Guizhou. Furthermore, it is worth mentioning that an agreement has been made as a guarantee to handle the confidential issues for the interviewees and the respondents of questionnaire surveys and to protect their privacy. Secondly, the procedures and processes of interviews and questionnaire surveys, including selection and formulating of research questions and literature study are logical and reasonable to ensure the effectiveness of information and data that have been gathered. To be more specific, so as to choose and formulate appropriate and valuable research questions, the research aims and purpose should be clarified first. Based on the results of the proposed research, some questions were designed based on the related studies and professional advice was obtained to ensure its effectiveness. In addition, this study began with a literature review on the topic of teacher recruitment and retention in rural areas of Guizhou. In this part, the researcher spent a month reading related journals and books to select the most valuable information to enrich the research findings and offer support for analysis and discussion about the research questions. Furthermore, the research design is detailed and rigorous, including method selection, sampling design, data collection plan,

processing and analysis, instrument description and development, exploring answers and discussion, interpretation and generation as well as evaluation.

With neutral assessment, this thesis can objectively analyse the teacher shortage problem and put forward insightful views. For example, this thesis introduces the concept of “remoteness” and distinctly analyses how this factor affects the recruitment and retention of teachers in rural areas of Guizhou and the gender of rural school teachers.

Specifically, when being asked about the reason for the difficulty to recruit and retain teachers, many interviewees mentioned “remoteness” in rural areas of Guizhou. In fact, a majority of respondents considered remoteness as the major factor to affect teacher recruitment and retention in poor regions of Guizhou. It is worth mentioning that at this point, SPSS is used to study the correlation between teacher shortage and remoteness. Due to long transportation hour and disconnection to the outside world incurred by remoteness, many teachers are not willing to teach or continue to teach in rural schools of Guizhou. In addition to this, a strong negative correlation between female teacher ratio and remoteness is found in the research. This indicates that a majority of female teachers would not choose to teach in rural schools due to remoteness. As a matter of fact, in rural schools with long driving hours from cities, a majority of teachers are males. This indicates the influence of distance on the gender of rural school teachers. The negative correlation between remoteness and female teacher ratio also shows that although female teachers account for the greater percentage of the amount of teachers in rural schools, a majority of them are still not willing to drive long hours to teach and there is a tendency that female teachers will not stay in rural areas for long-term. As consequences, this has intensified the teacher shortage problem in these remote areas of Guizhou.

With impartial and objective assessment of the current situation of teacher recruitment in rural areas, this research enables stakeholders, especially policy makers, schools

and experts to view the problem objectively, laying a foundation for policy-making and further researches in this area.

5.2.3 To Provide Different Conclusions of Research Result Compared with the Research Findings of Western Scholars

When compared with the study of some Western scholars, this research can provide different findings to help develop a new understanding of the teacher shortage problem in rural areas.

For example, about the AGE research, through an in-depth research on the five groups of teachers at different ages, similar results as the research from Ingersoll and Dworkin could be found: younger teachers had higher tendency to quit than those in other age groups. It shows that policy-makers should offer more convenience to attract more young teachers as this can be expected to enhance teacher retention rate. It is important for policy-makers to offer more satisfactory working conditions for young teachers in rural areas to make them work in rural schools for longer period of time. However, different from the findings of previous studies, this research found that in the group of teachers over 55 years old, the study results were opposite to findings of foreign researchers. The turnover intention of this group was low. Besides, in the group of teachers from 45 to 54 years old, the teachers with no turnover plan were all above 50 years old. The main reason for this is that older teachers want to get a full pension after retirement.

In general, this research thesis is of great significance and value. It conducts an in-depth study on the teacher shortage problem in rural areas of Guizhou to fill the blank of research on teacher recruitment, to provide more neutral and objective assessment on the current situation of teacher recruitment in rural areas and to provide some different findings compared with those of foreign scholars. Hence, it can shed some lights on the issues of teacher shortage in rural areas of Guizhou and provide a valuable reference for further research.

5.3 Limitations of This Research and Outlook for Future Research

5.3.1 Limitations

It should be noted that in spite of its great importance and value, this thesis still has some limitations.

First of all, although the interview has been regarded as one of the most widely-used and effective methods in information and data collection, it still has some restrictions. For example, emotional changes of the interviewees may have negative influences on the authenticity of interview results. Thus, the interviewer should take this factor into account when assessing the value of the research. Also, due to special reasons, there may be some important things that these interviewees have not mentioned or studied. Therefore, the collected information and data may not be as reliable and comprehensive as expected. It is also worth mentioning that when conducting research on teacher turnover problem in rural areas of Guizhou, I had always been hoping to conduct interviews and questionnaire survey on teachers who have already resigned. However, the resigned teachers have almost left the rural areas of Guizhou and worked in more economically developed regions; hence, it was very difficult for me to get in touch with them. In order not to delay my progress of research, I had to give up my original plan. The lack of interview or survey on resigned teachers in rural areas of Guizhou is a deficiency of this thesis.

Secondly, although this thesis has put forward a lot of helpful suggestions for the recruitment and retention policies of rural school teachers, it is still difficult to implement these policies in real practices.

In spite of the limitations of this research, it is important to see the values and potentials in it to guide our future study in the area.

5.3.2 Outlook for Future Research

As mentioned previously, based on the limitations of this research, more improvement should be made in further research on the topic of teacher recruitment in rural areas of Guizhou in order to solve the teacher shortage problem effectively.

First of all, the research subjects should be more comprehensive in terms of ages, geographic positions, employment statuses, etc. to gain more comprehensive data and information as well as provide a broader view for analysis. Secondly, more advanced methodologies and analytical methods should be employed to analyse the issue more comprehensively and to come up more practical and effective suggestions for resolutions. Thirdly, combined with local conditions and features, future researches should refer to more effective policies or measures which have been proved successful in other rural areas to make the research more applicable.

As a matter of fact, education problem has been a key issue to affect the social and economic development of rural areas. The problem of teacher shortage has been one of the most serious issues. A majority of rural schools have been short of teachers. Hence, the author hopes that this research thesis with significance and value will provide a reference for further studies about rural school teachers' recruitment in Guizhou and other researches in the area of rural school teachers' recruitment. In the future, more in-depth and more comprehensive researches are needed to offer suggestions to stakeholders, particularly governmental policy-makers and rural school headteachers to stipulate measures or policies and take immediate actions. In this way, the long-standing and complex problem of teacher shortage in rural areas can be solved.

Appendix

Questionnaires to Teachers (English Version)

1. Gender:

Male Female

2. Which age group are you in?

24 and under 25-34 35-44 45-54 55+

3 What is the length of your teaching experience?

3years or under 4-10years 11-20years
21-30years 31years+

4. What is your marital status?

Married Unmarrie

5. Which ethnic group are you in?

Han Miao Buyi Dong other

6. Have you been employed in other jobs before being a teacher?

Yes No

7. Which degree group are you in?

Associate degree Bachelor degree
Master degree Secondary specialized school diploma

8 .What is your education background?

Normal school Normal Specialized Postsecondary College

Normal university

Other college or university

9. What is your major?

Chinese	Mathematics	English	Morality	PE
Music	Art	Chemistry	Physics	other

10. Which subject are you teaching now?

Chinese	Mathematics	English	Morality	
PE	Music	Art	Science	other

11. Do you think your major match the subjects you are teaching?

Yes No

12. Which subjects are short of teachers in your school?

Chinese	Mathematics	English	Morality	
PE	Music	Art	Science	other

13. Do you have any teaching certificate?

Yes No

14. Are you attracted to teaching in rural area due to its humanitarian qualities?

Yes No

15. What factors will influence your decision to work in rural area of Guizhou?

Salary

Attributes of students

Class size

School culture

- Facilities
- Teaching assignments
- Leadership
- Safety
- Teacher peers
- Family reason
- Entrance requirements

16. Please rate the following areas by the level of importance with 1 being most important and 5 being least important.

	1	2	3	4	5
Salary					
Attributes of students					
School culture					
Class size					
Facilities					
Teaching assignments					
Teacher peers					
Leadership					
Safety					
Family reason					
Entrance requirements					

17. What is your current salary?

- Less than 1000
- 1000-2000
- 2000-3000
- More than 3000

18. What is your expected salary?

1000-2000

2000-3000

3000-4000

More than 4000

19. Are you satisfied with your current salary?

Yes

No

20. Will you change your current job if other position offers you your expected salary?

Yes

No

21. What is your class size now?

Under 30

31-40

41-50

51-60

60+

22. What is your ideal class size?

Under 30

31-40

41-50

51-60

60+

23. Where were you born?

City

County

Town

Village

24. Where do you prefer to teach?

City

County

Town

Village

25. Are there shortages of teachers in your school now?

Yes

No

26. Is there Daike teacher in your school?

Yes

No

(Daike teachers are teachers who are not on the government payroll, yet are locally appointed and funded)

27. How many teachers are in lack of in your school?

1-2 3-5 6-8 9-10 11+

28. Were you recruited through policies or programmes?

Yes No.

29. If you were recruited through policies or programmes, how long will you plan to remain teaching in rural area?

Under 3 years 3-5 years 6-10 years 10 years +

30. Are you satisfied with the current policies or programmes?

Very not satisfied Not satisfied Neither
Satisfied Very satisfied

31. Do you have any turnover intention?

Yes No

32. The following policies are all from other countries. Which policies are attractive to you?

Travel allowance for teachers and their family

Accelerated promotion opportunities

Three years of rural service counted as five years in calculation of seniority.

Housing allowances

Free housing in rural area.

Extra time toward retirement

40 days' unpaid holidays in 200 school days a year

Special training for rural service

贵州一线老师问卷调查 (Chinese version)

1. 性别

男 女

2. 年龄组

24 岁以下 25-34 35-44 45-54 55 岁以上

3. 教龄

3 年及以下 4-10 年 11-20 年 21-30 年 31 年以上

4. 民族

汉族 苗族 布依族 侗族 其他

5. 婚姻状况

已婚 未婚

6. 是否从事过教师以外的工作?

有 没有

7. 教育背景

师范类院校毕业 非师范类毕业

8. 教育程度

大专 本科 硕士 中专

9. 专业

中文 数学 英语 思想政治教育
体育 音乐 美术 化学 物理 其他

10. 现在所教学科? (可多选)

语文 数学 英语 思想品德
体育 音乐 美术 科学 其他

11. 您认为您的专业所学在工作中是否得以施展?

有 没有

12. 您所在的学校缺老师吗? (老师学生比高于 1:22 为缺老师, 教工教辅不算)

缺 不缺

13. 所缺老师数目?

1 人 2-3 人 3-5 人
5-8 人 8 人以上

14. 以下哪门学科急缺老师? (可多选)

语文 数学 英语 思想品德
体育 音乐 美术 科学 其他

15. 您有教师资格证吗?

有 没有

16. 您是否有宗教信仰?

有 没有

17. 吸引您在一线教书的原因中有人道主义原因吗? (志愿者、同情乡下教育状况)

有 没有

18. 您当前的薪水?

低于 1000 1000-2000 2000-3000 3000 以上

19. 您期望的薪水?

1000-2000 2000-3000 3000-4000 4000 以上

20. 您对当前的薪水满意吗?

很满意 基本满意 有些不满意 非常不满意

21. 如果其他工作给予您期待的薪水，您会跳槽吗?

会 不会

22. 您当前的班级规模? (一个班有多少学生?)

30 人以下 31-40 41-50 51-60 60 人以下

23. 您理想的班级规模?

30 人以下 31-40 41-50 51-60 60 人以下

24. 您所就职的地区现在还有代课老师存在吗?

有 没有

25. 以下哪些因素会影响您决定在贵州一线教书? (可多选)

薪水

学生成绩

班级规模 (班级里学生人数)

学校文化

学校硬件设施

生活便利程度

教学量 (课时数)

教学以外工作量（稿材料、接待）

学校领导

安全

同事

家庭原因

入职要求（教师职格证、教师考试）

26.请选出以下因素在作出职业选择时对您的重要程度：

	非常重要	重要	一般	不重要	非常不重要
薪水					
学生成绩					
学校文化					
班级规模					
学校硬件设施					
教学量					
生活便利程度					
教学以外工作量					
同事					
领导					
安全					
家庭原因					
入职要求					

27. 您的出生地？

城市

县城

乡镇

村

28. 您期望的工作地点?

城市 县城 乡镇 村

29. 您是否因为国家的相关政策和项目而成为老师? (西部计划志愿者、特岗教师等等)

是 不是

30. 如果是被这些政策和项目吸引而成为老师, 您计划在贵州一线工作多长时间?

3 年以下 3-5 年 6-10 年 10 年以上

31. 您对中国目前针对一线老师的教育政策满意吗?

非常不满意 不满意 不知道
基本满意 非常满意

32. 请问你有离职意向吗?

是的 没有

33. 如果有以下针对贫困地区一线老师的政策, 哪些政策对于您有吸引力? (可多选)

每年给予老师和家人旅游津贴

加速提拔机会

增加教龄政策 (例如一线工作 3 年当 5 年教龄)

房屋津贴

在县城或城市提供免费教师公寓 (工作一定年限有所有权)

购房时无息贷款

享受提前退休

子女中考、高考优惠政

专业培训 (在城市、1 个月以上的长期培训)

Before I interviewed rural teachers, I asked them fill out the following form to get information about the school in which they were working:

Name of school: _____

Location of school: _____

Distance from school to City: _____ (how long the drive time?)

Number of current students: _____

Number of current teachers: _____

Number of male teachers: _____ Number of female teachers: _____

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