



Research article

Teaching in China's Heartland: A qualitative exploration of rural teacher job satisfaction

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ABSTRACT

Enhancing rural teacher job satisfaction, which is a pivotal aspect in elevating the overall quality of rural education, serves as a crucial means to promote balanced educational development and to foster societal equity and cohesion. The objective of the study was to explore the factors that influence job satisfaction of rural teachers teaching in China's Heartland. 15 rural primary school teachers were meticulously chosen for in-depth interviews, utilizing a qualitative research paradigm and purposive sampling technique, spanning from March 2021 to July 2021. With reference to Hoppock's view of job satisfaction, this study designed an interview outline based on specificities of rural workplaces. Through in-depth interviews, a wealth of first-hand text materials was collected about rural teacher job satisfaction. Then these textual materials were processed with a rigorous tertiary coding based on grounded theory. This study found that rural teacher job satisfaction was influenced by various factors, encompassing both external and internal factors. External factors included national policies, campus culture, and rural environment. Internal factors included growth experience and self-cognition. Further, strong external support was strongly associated with improvement of rural teacher job satisfaction. Intra-individual characteristics of rural teachers were the most implicit influencing factors.

1. Introduction

The countryside is not only an important producer of food, but also an important component of cultural heritage, economic development and social stability. Therefore, the protection and development of rural areas is of great significance in promoting world economic development, fostering the world's cultural heritage, and maintaining the world social stability. In recent years, the way of life in rural areas has experienced a global crisis. Especially in developing countries, the traditional rural character of the countryside has been gradually assimilated by urbanisation and modernization [1]. In China, the population in rural areas is huge and constitutes an important pillar of the country's total population. Despite urbanisation has accelerated in recent years, a large number of people still

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live-in rural areas. Therefore, promoting the development of China's rural areas is a crucial mission. The sustainable development of China's rural areas cannot be achieved without rural education [2]. Although under the leadership of the Communist Party of China (CPC) [3], rural education in China has made unprecedented progress, the shortage and serious wastage of rural teachers has become an important issue affecting the sustainable and healthy development of rural education in China [4]. In fact, the tendency for teacher turnover to grow faster than the supply rate is not only found in countries such as China, the United States and the United Kingdom, but also in many other countries around the world where a similar phenomenon is occurring [5].

In response to the shortage of rural teachers, some studies have pointed out that the root cause of the long-term shortage of teachers lies in the conflict of knowledge, ability and emotion in the transformation of teachers' self-professional roles [6]. Especially for teachers working in remote rural areas, the rural education environment is often more difficult than urban areas, and the shortage of rural teachers is even more serious [7]. Although some urban teachers tend to migrate from central cities to marginal rural areas [8], the number of rural teachers is still insufficient. Most teacher trainees are unwilling to go to the countryside to work in education, and the higher level of teacher trainees, the lower desire to teach in the countryside [9]. There are studies that show that 77 % of urban teachers lack the willingness to exchange to educationally disadvantaged schools, and even if the salary of rural teachers is improved, 52.4 % of urban teachers still have a negative attitude [10]. In only three years from 2019 to 2022, the number of rural teachers in China had dropped from 4,729,500 to 3,304,500 [11]. It is clear that the current situation of the quantity and quality of rural teachers in China is not satisfactory.

Job satisfaction is considered to be the positive or negative evaluative judgement people make about their work, which directly determines people's enthusiasm for work and happiness in life [12]. Teachers' reluctance to stay in rural schools is influenced by a variety of factors, among which job satisfaction plays a crucial role. Teacher job satisfaction refers to their feelings and attitudes towards their jobs, and it is one of the most important components of teachers' successes in their works, as well as one of the key criteria for school achievements [13]. Teacher job satisfaction directly reflects teachers' emotional responses to the educational work they do, and highlights their emotional attitudes toward education, students, and the campus [14]. High teacher job satisfaction is not only closely related to long-term teacher retention, but also contributes to the well-being of students, the overall cohesion of the school and the status of the teaching profession [15].

In terms of the factors affecting teacher job satisfaction, previous studies have been conducted from multiple perspectives. First, at the level of government policy and social support, one study investigated the relationship between social support and teacher job satisfaction among 238 alternatively certified teachers in their first year of teaching, and found that social support was positively related to teacher job satisfaction, with self-efficacy as one of the mediating factors [16]. Given that teachers live and educate in schools, school climate was strongly related to teacher job satisfaction and showed a significant positive relationship [17]. In particular, the distributed leadership style of the school had a significant positive effect on teacher job satisfaction [18]. In addition, a quantitative study of five European countries found that, although the relationship between government or social provision of job resources and teacher job satisfaction varied from country to country, the overall trend was consistent: job resources were positively related to teacher job satisfaction [19]. Secondly, at the level of teachers themselves, some studies found that teachers' personal sense of achievement played a partly mediating role between job stress and job satisfaction, and that the indirect effect was greater than the direct effect, which was the main reason affecting teacher job satisfaction [20]. Especially during the COVID-19 pandemic, teachers' work pressure increased, which reduced teachers' work enthusiasm and job satisfaction [21].

Rural teachers live and work in a specific environment in the countryside, and their job satisfaction not only directly affects their motivation to work in the countryside, but also has a direct bearing on the optimisation and stability of the rural teaching force [22]. Compared with urban teachers, rural teachers work in a more difficult rural environment. The economic level of countryside is often low, and the financial resources for rural education come mostly from agricultural production. The salary or remuneration of rural teachers is often low, which makes the recruitment of rural teachers less attractive and more difficult [23]. Although the Chinese Government has established a sizable teacher salary subsidy policy for poor rural teachers, which has helped to ameliorate the shortage and high turnover of rural teachers [24], there is still a phenomenon that about 21 % of rural teachers are less satisfied with their jobs [25]. As a result, many studies have been devoted to exploring the job satisfaction of teachers working in rural areas. Given the fact that rural teachers work in a difficult environment and expect fair rewards for their labour, some studies have pointed out that a mismatch between rewards and effort could create a sense of unfairness among rural teachers, which in turn led to negative feelings and a decline in job satisfaction [26]. Because rural teachers were facing many challenges such as economic and cultural backwardness in the countryside, the resilience of rural teachers working in poor rural schools had a great impact on their job satisfaction [27]. In order to promote the development of rural education, China had issued a series of programme documents in favour of rural teachers from the point of view of administrative policies, which provided external support measures for rural teacher job satisfaction [28].

Looking at the existing research literature, a wealth of studies have been conducted on teacher job satisfaction and related government policies, even investigating factors related to teacher job satisfaction along multiple dimensions, such as: teacher health, commitment and retention, quality of teaching, student well-being, and overall school effectiveness [29]. However, these studies mainly focused on teacher groups and tended to explore the job satisfaction of teacher groups, ignoring the differences between rural and urban teachers, which made it difficult to accurately answer the unique rural factors that determine the rural teacher job satisfaction. Besides, the existing studies mainly adopted quantitative research method that made theoretical assumptions in advance and regarded these assumptions as the influencing factors for evaluating the rural teacher job satisfaction. Then researchers investigated the current situation of the rural job satisfaction with the help of quantitative research method. The theoretical assumptions acted as the basis of studies mostly took a page from the results of some existing researches, governmental documents, or subjective inferences. Rural teacher job satisfaction reflects rural teachers' feelings and attitudes towards their work and is highly subjective. If only quantitative research methods are used, it is easy to ignore the important feature that rural teacher job satisfaction is the subjective

psychological feeling of individual teachers. Therefore, this study adopted a bottom-up qualitative research method by rooting into the real educational environment in the countryside and conducting follow-up observations and in-depth interviews with rural teachers, in order to comprehensively and meticulously summarize the structure of influencing factors of rural teacher job satisfaction. At present, fewer studies have been conducted to explore teacher job satisfaction using this method, especially for the special group of rural teachers. It has not yet been seen to be applied in the study of factors influencing rural teacher job satisfaction.

2. Methods

The study involving human participants were reviewed and approved by the Ethics Committee of Zhejiang Normal University’s College of Education under the protocol number 2021120039. Prior to the inclusion of any potentially identifiable images or data in this paper, written informed consent has been duly obtained from the participating individuals.

2.1. Study participants

This study was meticulously conducted in a rural primary school situated in the northwestern region of Shandong Province, China. This rural primary school boasted 23 teaching classes and a faculty comprising over 50 members. Notably, more than 60 % of teachers were the new generation of rural teachers born in the after of 1980s and 1990s, and more than 20 % of teachers resided in local city. The selection of this particular school was based on two principal rationales. Firstly, it’s location in a remotely situated rural area, characterized by a comparatively underdeveloped economy and retention of certain traditional local elements, providing an advantageous backdrop for the researchers to delve deeply into the authentic circumstances surrounding rural teachers within this unique rural context. Secondly, the researchers’ preexisting acquaintance with most teachers at this school facilitated the establishment of a trustworthy relationship with rural teachers, thereby establishing a solid foundation for conducting in-depth interviews.

With the aim of encompassing a diverse array of scenarios, participants were chosen from this rural primary school teachers, representing a range of age groups, disciplines, genders, and residences. This approach allowed the researchers to gain a more extensive understanding of rural teacher job satisfaction. Among the participants, the distribution included four Mathematics teachers, four Chinese teachers, three English teachers, two Music teachers, one Art teacher, and one Physical Education teacher. In terms of gender, five were male and ten were female. Regarding residence, eleven resided in the local countryside, while four resided in the local city. For the sake of preserving their privacy, the authors assigned numerical identifiers to each participant. The detailed characteristics of these interviewees are outlined in Table 1.

2.2. Study design

The researchers used qualitative research guidelines [30] to design this study in order to gain insight into the participants’ rural job satisfaction. Based on the analysis of existing literature, the researchers designed a set of interview outline. Before the formal interviews, the researchers entered the field site to familiarize themselves with the culture of this rural school in order to prevent any misinterpretation of the local language between the interviewers and the interviewees during the formal interviews. After being familiar with some of the local languages, the researchers started the formal interviews.

2.3. Instruments

According to Hoppock’s perspective, job satisfaction was influenced by various factors, including personality traits, the management policies of employers, union membership status, age, gender, nationality, reasons for choosing the occupation, and the utilization

Table 1
Basic information of rural teacher interviewees.

Number	Age (year)	Teaching Experience(year)	Gender	Subject	Residence	Interview date
T01	25–30	1	Female	English	local countryside	20210612
T02	25–30	2	Female	Chinese	local countryside	20210528
T03	25–30	4	Female	English	local city	20210603
T04	31–35	5	Female	Art	local countryside	20210628
T05	31–35	6	Female	Music	local countryside	20210702
T06	31–35	7	Male	P.E.	local city	20210702
T07	36–40	14	Female	Chinese	local countryside	20210613
T08	41–45	18	Female	Math	local countryside	20210712
T09	41–45	23	Female	English	local countryside	20210623
T10	46–50	28	Male	Math	local city	20210712
T11	51–55	28	Female	Chinese	local city	20210712
T12	51–55	34	Male	Music	local countryside	20210623
T13	56–60	34	Male	Math	local countryside	20210705
T14	56–60	35	Female	Chinese	local countryside	20210626
T15	56–60	35	Male	Math	local countryside	20210619

of counseling services [31]. Based on Hoppock's job satisfaction interview survey and taking into account the rural nature of the countryside, this study designed a set of interview outlines suitable for rural teachers. The questions of formal interviews were closely related to the job satisfaction of rural teachers, including 1) the career experience of rural teachers (for example, why and how did you come to work in a rural primary school? Please briefly talk about your teaching experience.); 2) the educational views of rural teachers (for example, do you think there is difference between rural education and urban education? If there is, what is the difference? What is the significance and value of your work as a rural educator?); 3) rural teachers' rural feelings (for instance, do you like the job of the rural teacher? If it is possible to leave the countryside, do you want to leave? Why?); 4) the living standards of rural teachers (for instance, are you satisfied with the school's salary, benefits, and allowances? Can your income afford your living needs?); 5) the interpersonal relationships of rural teachers (for example, do you get along well with school leaders and colleagues? How are your relationships with students and parents?).

2.4. Data collection procedure

The ethical considerations that underline the researcher's respect for the participants were duly taken into account. In this context, alongside the interview questions, a signed letter was provided to the participants by researchers, affirming the moral commitment to maintain the confidentiality of the interview contents and informant details, as well as refraining from publishing them. Furthermore, all interviews were conducted with the informed consent of the participants and were subsequently recorded for subsequent review, aiming to extract pertinent information.

The field research of this qualitative study was mainly completed from March 2021 to July 2021. With the help of the headmaster, the researchers were able to gain access to this rural primary school and used purposive sampling to select different categories of rural teachers in terms of age, subject and place of residence. Before conducting formal interviews, the researchers conducted informal interviews with these potential interviewees, mainly in the form of daily chats to seek their consent and willingness to be formally interviewed. As a way of gratitude, each interviewee was given a nice gift after the interview.

In the process of collecting and analyzing data, the researchers approached the study from an outsider's point of view, trying to take a neutral stance towards the attitudes of the rural teachers, not interfering with their thoughts and attitudes, and facilitating the gradual progression of the interviews in a relaxed manner. And the data collection was divided into two stages: the first stage was participatory observation of the daily work of rural teachers. For the convenience of observations and interviews, the researchers constantly changed the observation sites, such as offices, playgrounds, meeting rooms, classrooms, canteens, etc., and conducted several observations, which enabled the researchers to have a deeper understanding of rural teachers' speech acts. The second stage was to conduct formal interviews with rural teachers. The interviewers began formal interviews with each participant for approximately 45 min. The interviews were conducted simultaneously with the coding analysis of the interview data until theoretical saturation is reached and then the interview finished. Theoretical saturation is a concept used to test the saturation of interview texts. When encoding interview texts, researchers need to compare and analyze existing concepts and categories until no new ones are discovered before reaching theoretical saturation [32].

Through in-depth interviews, the researchers obtained a total of 15 interview recordings and field notes, and transcribed each of them, finally collecting textual data of more than 80,000 words. Thus, the data foundation was laid for revealing the factors affecting the rural teacher job satisfaction. The flow of the data collection procedure is shown in Fig. 1.

2.5. Data analysis

In this study, the original data was analyzed by the three-level coding method of the Grounded Theory. In Strauss's view, Grounded Theory is divided into three rounds, including open coding, axial coding and selective coding [33]. The first round used opening coding to label raw data to discover concepts, attributes, and categories. In the second round of axial coding, the relationship between concepts found in the first round was repeatedly deliberated to integrate a more abstract category of the same genus. Selective coding was adopted in the third round to summarize the themes of the second round's genera, ultimately obtaining the dominant core genera.

In order to ensure the reliability of the study, the researchers followed the principle of "Inter-rater reliability" proposed by Miles and Huberman [34], which means that several researchers coded a manuscript at the same time, and then compared the results of the

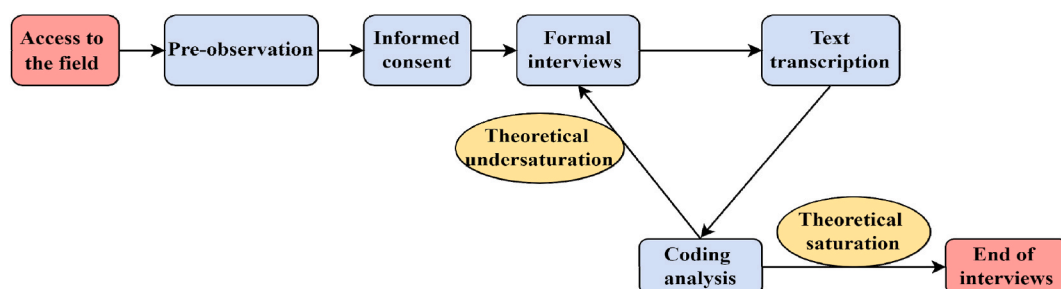


Fig. 1. The data collection procedure.

coding to determine whether they agreed on the same codes and themes. In this study, two researchers independently coded all the texts and the comparison revealed a high degree of initial coding consistency between two researchers. Therefore, the researchers' coding possessed a high level of reliability. Through three levels of coding, the researchers came up with the factors that affected rural teacher job satisfaction. Details of three-level coding results are shown in Table 2.

3. Results

By coding the original data at three levels, this study found that factors influencing rural teacher job satisfaction included 2 first-level categories of internal and external factors that covered 5 secondary and 13 tertiary categories generating a structured theoretical model of influencing factors of rural teacher job satisfaction which was illustrated in Fig. 2. It was worth noting that the 5 secondary categories were the direct influences making up rural teacher job satisfaction. This section provided a detailed explanation of the meaning of each category and its subcategories.

3.1. External factors

3.1.1. National policy

National policies are the action guidelines formulated by the national government for rural teachers to follow in their thoughts and

Table 2
Details of three-level coding results.

Original data	Opening coding	Axial coding	Selective coding
"Rural teachers are more likely to be hired for teaching positions than urban ones." "I took the urban teacher preparation test twice, without success. The third time the country suddenly added a lot of positions for rural teachers, I signed up."	Recruitment quantity	National policy	External factors
"Working in rural primary schools is the last resort. The salary of rural teachers is too low." "Although the country have introduced many favourable policies to support rural teachers in recent years, the salaries of them are still lower than those in cities."	Wage level		
"The main training form for rural teachers is often online. Although it can help rural teachers break through time and space limitations, it is basically a universal curriculum with no regard to regional differences, which can easily lead to homogenization between urban and rural teachers."	Training method		
"Rural teachers usually work nearly 2 h more per day than urban teachers, and they have to strictly clock in according to the time regulations. This is a bit inhumane. Rural teachers work harder than urban teachers and don't receive more wages. I'm very dissatisfied."	Time management system	Campus culture	
"Overall, I'm quite satisfied. It's just that the workload is too heavy. The school didn't arrange courses according to the superior's regulations. I have over 20 classes per week now, and I'm too tired."	School workload		
"In respect of creating the atmosphere of reciting ancient poetry, the school has always done a great job. Ancient poetry belongs to the excellent traditional Chinese culture, which allows us to feel the power of China's excellent traditional culture, thus creating a unique teaching tradition in school."	Teaching practice		
"Although the air in rural areas is good, the public sanitation is not good. The disadvantaged rural economy and the low wages given to sanitation workers have resulted in untimely garbage cleaning."	Rural economy	Rural environment	
"There is basically no connection between rural culture and teaching. In fact, I think we can combine excellent rural culture with teachers' teaching activities to make teaching more funnier."	Rural cultural atmosphere		
"In the past, rural people used to be like a big family, helping each other without considering benefits and rewards. Now, they don't help unless there are wages. Rural people have become materialistic."	Rural people characteristic		
"I grew up in the city with my parents who are both workers. I had very little exposure to rural areas. It's difficult to adapt to the rural lifestyle." "My ancestors have been living in the countryside for generations. I have never left the rural areas from childhood to old age. after retirement, I won't leave the countryside."	Family background	Growing experience	Internal factors
"After graduating from high school, I came to work at this Primary School and have been here for 35 years. Staying at rural areas for so long, I understand the children's psychology well, and my work has been relatively smooth." "I received a city-based normal education in high school and university, which was different from rural education. It's a challenge for me to apply the theoretical knowledge I learned to practice in countryside."	Education experience		
"In rural areas, there are less opportunities than urban education for children. Therefore, I think rural teachers are highly valuable." "To put it nicely, I believe rural teachers should be a lifetime dedication to rural education. But honestly, it is just a job to make a living."	Self-professional cognition	Self-cognition	
"I don't like to sit idle or give up easily. I have always actively learned from experienced teachers and eventually achieved excellent results." "I prefer a relaxed lifestyle, hating competition or rivalry. I just want to enjoy my life. I have been patient with my students, but if they don't want to learn. It doesn't matter to me."	Self-character cognition		

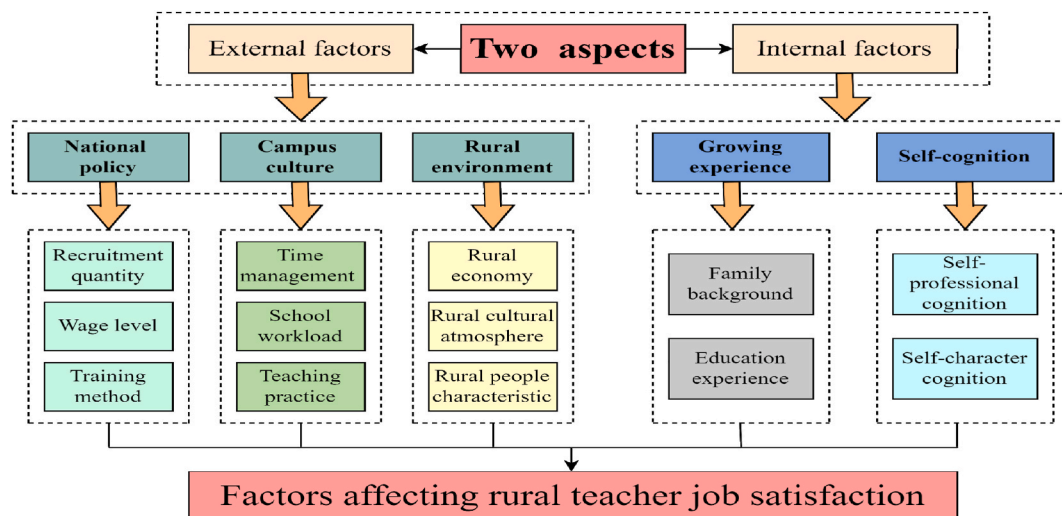


Fig. 2. The theoretical model of factors affecting rural teacher job satisfaction.

behaviors. If national policies meet the needs of rural teachers, they will be satisfied with their jobs. Conversely, they will be dissatisfied with their jobs. The influence of national policies on rural teacher job satisfaction was mainly manifested in the number of rural teachers recruited, their salary levels, and training methods. To support the development of rural education, the Chinese Government is recruiting more rural teachers, providing considerable employment opportunities for more and more normal college students to work in rural areas.

“The number of urban teacher positions is very limited, while the rural areas recruited a large number of teachers, which provided me with a job opportunity. Thus, I chose to work in the countryside. I’m very grateful to the countryside for this preferential policy.” (T03)

In recent years, the Chinese Government continuously has provided more education funds to rural areas aiming to raise rural teachers’ salaries. In this study, the older generation of rural teachers were generally very satisfied with their salary levels, while the newer generation of rural teachers believed that the country’s support for rural education was not enough.

“In the past, rural teachers were paid less, but now the salary is getting more and more. And as a rural teacher, I’m satisfied.” (T12)

“Although the country has introduced many preferential policies to support rural teachers in recent years, their salary is still low.” (T06)

Due to the remote location of the countryside, rural teachers mainly rely on national online training to improve their professional development. Online training courses are generally universal, but rural teachers differ from urban teachers in terms of environment, culture, education objects, interpersonal relationships, and other aspects. In this regard, universal courses are not suitable for rural education.

“The main training form for rural teachers is often online. Although it can help rural teachers break through time and space limitations, it is basically a universal curriculum with no regard to regional differences, which can easily lead to homogenization between urban and rural teachers.” (T06)

3.1.2. Campus culture

Campus culture refers to the specific spiritual environment and cultural atmosphere in schools. It includes the physical content such as architectural style and classroom layout, as well as various rules and regulations such as school ethos and learning style. Campus culture often affects rural teacher job satisfaction powerfully and implicitly, mainly in the form of time management systems, school workload, and school teaching practices.

The fingerprint check-in and check-out time management system in this Primary School is being used to assess teachers’ daily work. Rural teachers are required to strictly adhere to the school’s designated on and off duty, which has had a significant impact on their job satisfaction.

“Rural teachers usually work nearly two hours more per day than urban teachers, and they have to strictly clock in according to the time regulations. This is a bit inhumane. Rural teachers work harder than urban teachers and don’t receive more wages. I’m very dissatisfied.” (T11)

All rural teachers emphasized in their interviews that the workload was too heavy, which made them physically and mentally

exhausted and very dissatisfied. It can be seen that school workload is a very important factor that affects rural teacher job satisfaction.

“Overall, I’m quite satisfied. It’s just that the workload is too heavy. The school didn’t arrange courses according to the superior’s regulations. I have over 20 classes per week now, and I’m too tired.” (T14)

Ancient poetry is part of traditional Chinese culture. This Primary School attaches great importance to teaching ancient poetry. The ancient poems classes are usually arranged in the morning reading time. All students line up and leave school in an orderly manner while reciting ancient poetry on the way, and it gradually forms an atmosphere that is conducive to ancient poetry teaching.

“The school has been doing very well with the ancient poetry recitation activities. The ancient poems, as part of the excellent traditional Chinese culture, make me feel the spiritual power of excellent traditional Chinese culture and be proud of my job as a rural teacher.” (T12)

As a representative of excellent traditional Chinese culture, ancient poetry has its roots in the countryside. The campus atmosphere of teaching ancient poetry is conducive to spreading rural culture and improving the rural teacher job satisfaction.

3.1.3. Rural environment

Rural teacher working in rural areas, their job satisfaction is influenced by various environmental factors such as rural economic level, cultural atmosphere, and characteristics of rural people. In areas where the local economy is depressed, the inability to employ sanitation workers led to dirty and messy physical environments in rural areas, which made rural teachers resent their work.

“It’s true that the air in rural areas is better. But in terms of overall styles and features, the garbage in cities is more effectively cleared away than in rural areas. The economic level in the countryside is low, and the wages given to sanitation workers are too low, resulting in untimely garbage removal.” (T09)

Although the local rural culture is rich, these diverse rural cultures exist independently of rural schools, having almost no impact on rural teachers. But when it came to the relationship between rural culture and schools, most teachers believed that incorporating rural culture into classrooms would bring joy to students in class and could improve the rural teacher job satisfaction.

“Nowadays, rural culture and schools have almost no connection. In fact, I think we can combine excellent rural culture with teaching activities to bring more joy to rural teachers’ work.” (T10)

Chinese society was once rooted in the countryside nourishing most of the Chinese people. However, with the acceleration of modern industrialization and urbanization, rural people are increasingly concerned with short-term benefits. Almost all rural teachers were interviewed unanimously expressed their concerns: rural people are of low quality and careless about their children. They spent most of their time seeking financial gain. This self-interest characteristic of rural people made rural teachers complain about their rural jobs.

“In the past, rural people used to be like a big family, helping each other without considering benefits and rewards. Now, it’s difficult for them to help each other unless there are wages. Rural people have become materialistic.” (T13)

3.2. Internal factors

3.2.1. Growing experience

Each rural teacher has his or her own growing experience. Their family background and educational experience are all factors that affect their rural job satisfaction. Among them, family background is very important. From birth to adulthood, rural teachers developed their own qualities under the influence of their families’ concepts and lifestyles, which in turn affected their rural job satisfaction.

“I grew up in the city with my parents who are both workers. I had very little exposure to rural areas. It’s difficult to adapt to the rural lifestyle.” (T03)

“My ancestors have been living in the countryside for generations. I have never left the rural areas from childhood to old age. after retirement, I won’t leave the countryside.” (T15)

For rural teachers who have lived in the city since childhood, they knew little about rural life, it’s difficult for them to adapt to rural work. So they tended to be dissatisfied with rural jobs. However, for those rural teachers who were born and raised in the countryside, they were very familiar with rural life, having a strong attachment to their hometowns. Therefore, they tended to be more satisfied with their rural jobs.

In addition to family background, educational experience of rural teachers affected their cognitive thinking and mental development, which in turn had an impact on their work attitude.

“After graduating from high school, I came to work at this Primary School and have been here for 35 years. Staying at rural areas for so long, I understand the children’s psychology well, and my work has been relatively smooth.” (T14)

“I received a city-based normal education in high school and university, which was different from rural education. It’s a challenge for me to apply the theoretical knowledge I learned to practice in countryside.” (T04)

Rural teachers who haven't received formal teacher education, have been staying in the villages having a better understanding of rural students. so they tend to carry out their work in rural education more smoothly and have a high level of rural job satisfaction. By contrast, rural teachers with urban education experience often struggle to adapt to rural education environments, because their teaching skills are based on cities. Consequently, they are facing greater challenges in their daily work, resulting in a lower rural job satisfaction.

3.2.2. Self-cognition

Rural teachers' self-cognition is mainly influenced by their self-professional perception and self-character perception. In terms of social structure, rural teaching is indeed a profession, but it is an extraordinary one that embodies rural people's hopes for education. In short, teachers' professional perception directly affects their job satisfaction.

"If I don't work hard, the whole life of rural children may be affected. In rural areas, there are less opportunities than urban education for children. Therefore, I think rural teachers are highly valuable." (T09)

"To put it nicely, I believe rural teachers should be a lifetime dedication to rural education. But honestly, it is just a job to make a living." (T05)

The professional perception of rural teachers varies. Some teachers have a high level of professional perception and are pleased with their jobs as rural teachers, while others have a low level of professional perception and only see a rural teacher as a tool for making a living.

The self-character cognition of rural teachers also affects their job satisfaction. Optimistic rural teachers tend to actively cultivate a series of qualities that are suitable for rural education, while passive and negative rural teachers tend to be content with the status quo.

"I don't like to sit idle or give up easily. I have always actively learned from experienced teachers and eventually achieved excellent results." (T02)

"I prefer a relaxed lifestyle, hating competition or rivalry. I just want to enjoy my life. I have been patient with my students, but if they don't want to learn. It doesn't matter to me." (T01)

It can be found that rural teachers with a high level of self-character cognition are willing to actively change themselves, consciously improve their rural work ability, and have a higher level of rural job satisfaction. By contrast, rural teachers with a low level of self-character cognition tend to be content with the status quo and have a lower level of rural job satisfaction.

4. Discussion

4.1. Strong external support was strongly associated with increased the rural teacher job satisfaction

Rural teacher job satisfaction is the emotional state generated by rural teachers' evaluation of their own work. When rural teacher job satisfaction is high, the chances of rural teachers staying and working in the countryside are relatively high [35]. And a high retention rate of rural teachers contributes to the sustainable development of rural education in China. Therefore, it is necessary to track and investigate the real emotional states of rural teachers. This study found that strong external support was closely related to the improvement of rural teacher job satisfaction. National policy, as a code of conduct that rural teachers must abide by, had a great impact on rural teacher job satisfaction. If the national policy provided more benefits to rural teachers, then the rural teacher job satisfaction was higher. In particular, the salary given by government, which was highly valued by rural teachers, was a key factor affecting their job satisfaction [36]. Based on the findings of a quantitative study of rural teachers in Zhejiang Province, China, the salary level of rural teachers significantly affected their job satisfaction [37]. When the salary level of rural teachers was lower than or equal to the urban level, rural teachers expressed dissatisfaction; when the salary level of rural teachers was higher than the urban level, rural teachers expressed satisfaction. This finding was consistent with the finding of previous study [38]. This also indicated that rural teacher job satisfaction was affected by material conditions. In addition to national policies, school culture affected rural teacher job satisfaction by influencing teachers' spiritual feelings. A safe school climate and a collaborative and participatory school culture were the main job resources, and the satisfaction of teachers at different career stages varied [39]. Nourished by an excellent school culture, rural teachers were happy and spiritually fulfilled, and rural teachers had higher job satisfaction. It had been found that the school cultural atmosphere perceived by rural teachers significantly influenced rural teacher job satisfaction [40]. On the basis of this research, this study had further found that the school system culture had both positive and negative effects on rural teacher job satisfaction. Since rural teachers work in rural areas, the study also found that the quality of rural environment also constituted a factor affecting the rural teacher job satisfaction. Existing studies had neglected the rural environment, making it difficult to identify the unique factors affecting the rural teacher job satisfaction. In other words, the rural environment was a key factor that could not be ignored in influencing the rural teacher job satisfaction.

In terms of external factors, based on the fact that rural teacher job satisfaction was influenced by national policies, campus culture, and rural environment, this study argued that strong external support contributed to the improvement of the rural teacher job satisfaction. Firstly, national policy was related to the basic life security of rural teachers, which was the fundamental strategy to improve the rural teacher job satisfaction. Therefore, the Chinese Government should optimize the recruitment system of rural teachers, raise the salary level of rural teachers, and offer appropriate rural training courses. Secondly, a democratic school cultural atmosphere could bring rural teachers an equal, open and free space, which was conducive to enhancing the rural teacher job

satisfaction. Therefore, in terms of management, school leaders should give enough trust and care to rural teachers and create a harmonious and free working space for them. In addition, in terms of campus culture construction, school leaders should introduce excellent rural culture into the campus, trying to mould a campus cultural atmosphere full of rural atmosphere. Thirdly, high-quality rural people and a beautiful rural environment would be attractive to rural teachers and make them like working in the countryside. Therefore, village councils should curb bad rural customs in time.

4.2. *Intra-individual characteristics of rural teachers were the most implicit influencing factors*

This study found that the rural teacher job satisfaction was not only affected by external factors, but also by internal factors within individual rural teachers. Previous studies have tended to focus on exploring the psychological qualities of rural teachers in order to find the psychological factors influencing the rural teacher job satisfaction [41]. By comparing rural teachers with different growth experiences and different levels of self-knowledge, this study found that although the psychological quality of rural teachers affected the rural teacher job satisfaction, their psychological quality was also affected by their growing experiences and self-cognition levels. In other words, rural teachers' upbringing and self-cognition not only directly affected their job satisfaction, but also indirectly affected their job satisfaction through their psychological quality. The rural teacher job satisfaction with urban upbringing was often different from that of native-born rural teachers [42]. Particularly in terms of educational experience, the educational knowledge and teaching skills acquired by rural teachers with urban upbringing basically came from cities and were not applicable to rural education, making them unable to adapt to rural work and resulting in a low level of job satisfaction. In contrast, the educational knowledge and teaching skills mastered by native-born rural teachers were basically learned through years of teaching experience in countryside, and were very suitable for rural education. Therefore, native-born teachers tended to work more smoothly and had a higher level job satisfaction than teachers from urban areas. In addition, self-cognition was one of the main internal reasons affecting the rural teacher job satisfaction [43], and rural teachers with a high self-cognition level were satisfied with their jobs. This might be due to the fact that rural teachers with a high level of self-cognition were able to clearly orientate themselves professionally and were willing to meet the challenges at work and tried to work hard to overcome the difficulties and increased their job satisfaction. Rural teachers with a low level of self-cognition tended to be satisfied with the status quo and were indifferent to the effectiveness of their work in the countryside.

Such internal personal factors were often ignored, but they were the most implicit key factors affecting rural teacher job satisfaction. For rural teachers themselves, rural teachers, as intellectuals in the countryside, should set up the concept of lifelong learning and keep learning about the countryside. Especially the new generation of rural teachers should be good at learning from the older generation of rural teachers. Because the older generation of rural teachers was basically a native of countryside, their local knowledge was very rich. Rural teachers' mastery of apt rural work skills would help rural teachers to do their rural work well. If rural teachers work well, the rural teacher job satisfaction would also be increased. Therefore, rural teachers should be willing to communicate with rural students and parents in order to develop their interpersonal skills. Rural teachers should consciously integrate vernacular knowledge into classroom teaching. Specifically, rural teachers could lead their students to go out of the campus and participate in authentic vernacular practical activities, so as to enhance their job satisfaction in the interaction with rural culture. Besides, rural teachers should improve their self-cognition. This meant that rural teachers took themselves as the object of reflection with the purpose of seeking a better teaching level. By reflecting on the vernacular knowledge and skills they had acquired, rural teachers could both summarize their experiences and strengthen their beliefs, as well as identify problems and improve themselves.

5. Implications

Drawing on existing research results at home and abroad, this study explored the influencing factors of job satisfaction of rural teachers teaching in China's Heartland through a qualitative research method of the grounded theory. Results of the study might be conducive to improving the structural elements of the influencing factors of rural teacher job satisfaction, enriching the theoretical results of the research on rural teacher job satisfaction, providing theoretical support for the development of empirical research on rural teacher job satisfaction, effectively guiding the reform practice of rural education, and promoting the construction of the rural teaching force. In terms of theoretical significance, this study constructed a theoretical model of the influencing factors of rural teacher job satisfaction, which made up for the neglect of the rural environment where rural teachers work in previous studies and enriched the theoretical research on rural teacher job satisfaction. In terms of practical significance, this study could provide a reference basis for the recruitment, selection, and training of rural teachers by the state and schools. It could also provide relevant experience for rural teachers to enhance their job satisfaction so that they will eventually feel happy and proud to work in countryside and stay in the countryside for a long time to promote the development of rural education.

6. Limitations

Grounded theory requires researchers to have a solid theoretical foundation, as well as keen intuition and excellent logical induction skills, so that data can be elevated to a theoretical level. This study followed the qualitative research paradigm of grounded theory, using researchers as a data analysis tool to conduct observations and in-depth interviews with rural primary school teachers in their natural environment. Faced with a large amount of raw data, the researchers spent a great deal of time analysing, generalizing and summarizing, and the coding process went through numerous iterations. But due to the limitations of the researchers' theoretical foundations and analytical abilities, the generalizations of the categories at all levels may not be optimal, and have a subjective colouring, and will inevitably be affected by personal bias. The category structure summarized in the qualitative study also showed

some shortcomings in analysis of the theoretical model, which led to some adjustments in determining the final category level attribution of the factors influencing the rural teacher job satisfaction. The reliability of qualitative research has always been a problem for researchers. In this study, the reliability of the qualitative study was tested using the “Inter-rater reliability” method, which only verified the reliability of the qualitative study at the coding level, and the overall reliability of the qualitative study could not be verified due to the lack of a fixed model or method. Although the study did identify the external and internal factors affecting rural teacher job satisfaction, the small sample size limited the universality of the findings. In the future, further quantitative researches are needed to identify the impact of these factors on rural teacher job satisfaction and to investigate the correlations between them.

7. Conclusion

Improving rural teacher job satisfaction is both an effective path to ensure the stability and reliability of the rural teaching force and a fundamental way to promote the sustainable and healthy development of rural education. This qualitative study took about five months to examine the factors influencing rural teacher job satisfaction on the basis of learning the real work situations of rural teachers in rural China. Through observations and in-depth interviews with rural teachers, rich first-hand textual data were obtained. The data were then coded at three levels based on grounded theory to generate a structured theoretical model of influencing factors of rural teacher job satisfaction. The theoretical model included 2 aspects (external and internal factors), 5 dimensions (national policy, campus culture, rural environment, growing experience, and self-cognition), and 13 elements (recruitment quantity, wage level, training method, time management system, school workload, teaching practice, rural economy, rural cultural atmosphere, rural people characteristic, family background, educational experience, self-professional cognition, and self-character cognition). Most of these 13 factors had a positive impact on the rural teacher job satisfaction, while a few factors had a negative impact.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding authors.

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CRediT authorship contribution statement

Yangyang Li: Writing – original draft, Supervision, Project administration, Investigation, Funding acquisition, Conceptualization. **Yuan Tian:** Writing – original draft, Visualization, Data curation, Conceptualization. **Wei Zhao:** Writing – review & editing, Validation. **Mohamed Oubibi:** Writing – original draft, Validation, Methodology, Formal analysis, Conceptualization. **Yunnian Ding:** Writing – review & editing, Validation, Data curation.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

1. Age, years of teaching experience, qualifications, subject, place of residence:
2. How did you come to teach in a primary school? Please tell us briefly about your teaching experience.
3. Do you know anything about the local culture? What do you think about it?
4. As a rural primary school teacher, are you satisfied with your present life?
5. As a rural primary school teacher, do you feel you have a voice here?
6. If you have the chance in the future, will you choose to leave the position of a rural teacher? Why?
7. What do you think is the meaning and value of a rural teacher's work?
8. Do you think the rules and regulations of the school are reasonable?
9. Do you think there are differences between rural teachers and urban teachers? What are the main differences? What do you think are the reasons for these differences?
10. What do you think about the salary of working in a rural school?
11. Do you think the school's curriculum, environment and facilities are reasonable?
12. Are you satisfied with the length of time you work at the rural school?

13. Do you think the local people are good to get along with? Especially the parents of the rural students.
14. How is your relationship with your colleagues and leaders?
15. What are your plans for your professional development? Do you think the school will provide support?

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