The Situation and Strategies of Digital Literacy of Rural Music Teachers in China

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Abstract: Rural revitalization is a major development strategy in China, and with the advent of the information era of teacher education 2.0[2], it is imperative to improve the digital literacy of rural music teachers. However, in practice, the cultivation of rural music teachers' digital literacy is not given much attention. Therefore, this paper uses questionnaires and interviews to study the digital literacy of rural music teachers. The study shows that the digital literacy of rural music teachers still has problems such as weak ability to process and use information, weak digital attitude and awareness, and lack of knowledge payment concept. This paper proposes four educational methods and paths using increasing support for school informatization construction, enhancing computer learning self-efficacy and Internet self-efficacy, etc., aiming to strengthen music teachers' digital literacy and comprehensive literacy, effectively improve teaching ability, and promote the development of rural music education.

1. Introduction

Rural revitalization strategy is a strategy proposed in the report of the 19th Party Congress on October 18, 2017. To revitalize the countryside, developing education is the top priority[1]. With the development of Internet technology and economy, modern education has also been profoundly transformed, and for rural music education and culture to be revitalized, it must keep up with the digital competency requirements of the digital age. Today, digital literacy has become the core competitiveness of contemporary educated people, and music teachers, as the transmitters of country music and culture, must have good digital numeracy. However, there are still problems such as weak ability to handle and use information, weak digital attitude and awareness, and lack of knowledge payment concept among rural music teachers' digital literacy enhancement. At present, improving rural music teachers' digital literacy is an important way to enhance teachers' teaching ability, improve teaching quality, and enhance teaching effectiveness, and it is also an important path to help rural music teachers achieve lifelong learning[3].

2. Review of Related Literature

Digital knowledge is the basis for improving digital literacy, and having relevant digital knowledge can help rural music teachers quickly improve their digital-related skills. Rural music teachers generally recognize the impact of digital information and have a certain degree of digital knowledge, and have the ability to acquire and store information, but are weak in their ability to process and use information[4].

Digital attitudes and awareness are important dimensions of teachers' digital literacy, and are prerequisites for teachers to actively understand and creatively use digital technology for pedagogy and to achieve pedagogical growth. With the national emphasis on education, the digital attitudes and awareness of rural music teachers have gradually grown, however, rural music teachers still have problems in terms of digital attitudes and awareness are not strong enough and less reflective behavior of digital activities.

Digital ethics and security is an important part of the national security system, and the use of information on the track of the rule of law is an important way to guarantee information security. At present, although rural music teachers have some awareness of digital ethics and security, the degree of popularization is not enough, especially the ethical awareness of knowledge payment and reproduction, etc. is weak.

Given all of the above literature, the researcher believes that the challenges or issues articulated above can help to understand and enhance the importance of digital literacy levels of rural music teachers.

3. Methodology

This paper adopts a mixed research method, mainly using questionnaires and interviews to conduct a study on the current situation of digital literacy of rural music teachers. The investigators were 200 music teachers in 4 rural villages in the key support areas of Guangzhou, and the main subjects of the interviews were 24 people, one administrator and four music teachers in the four schools respectively. The questionnaire consisted of 2 parts, the first part was the basic information, and the second part was the current digital literacy of rural music teachers. The interviews were mainly conducted with school administrators and rural music teachers, and the content of the interviews included what digital literacy the music teachers currently have, how to improve their digital literacy, and what difficulties exist in improving their digital literacy.

The questionnaires and interviews of this study adopted and incorporated the opinions and endorsements of experts in the field of digital literacy research, and a validation team was established to conduct data statistics, validation and analysis of these questionnaires. A total of 200 questionnaires were distributed and 200 questionnaires were returned, of which 200 were valid, accounting for 100% of the returned questionnaires. The questionnaires were distributed to rural music teachers for completion through the Questionnaire Star software, and the recovered questionnaire data were imported into SPSS software for processing and descriptive and correlation analysis.

4. Results and Discussions

A total of 200 valid samples of rural music teachers were collected in this study, and descriptive statistics were conducted on the basic information of the researched teachers, such as gender, age, teaching experience, highest education, title, and place of affiliation. As shown in table 1, 37% of the rural music teachers were male and 62% were female. This shows that the number of female teachers is more than the number of male teachers, about twice as many. Most of the teachers

studied were 31-40 years old, followed by 41-50 years old, which shows that young and middle-aged teachers are the backbone of rural music teachers. In addition, the teaching experience of such young and middle-aged teachers was more balanced, as shown in Table 1, with 55% of the group of teachers in the 4-10 and 11-20 year categories, accounting for more than half of the total. In addition, teachers under 30 years of age accounted for 42% of the surveyed population, and teachers with 3 years of teaching experience accounted for 30.5%, which is part of the data that can represent the level of mastery of digital literacy of the new generation of rural music teachers. The above shows that the rural music teachers in this study involved different age groups and were relatively balanced. Among them, the strength of young teachers is relatively sufficient and the new generation of young music teachers also occupies a certain proportion. Therefore, the surveyed participants are representative. In addition, Guizhou, Qingyuan, Meizhou, and Shaoguan, the four regions that Guangzhou supported, accounted for 44% of the total number of teachers, Qingyuan accounted for 23%, Meizhou accounted for 15%, and Shaoguan accounted for 18%. The number of people in the four regions surveyed above occupies a certain proportion, which can illustrate the reality of the digital literacy mastery of music teachers in the four poor regions supported by Guangzhou.

Table 1: Demographics of the Participants

Statistical item	Category	Number of people	Percentage
Gender	Man	72	36%
	Female	128	64%
Age	Under 30 years old	84	42%
	Age 31-40 (Including 40)	71	35.5%
	41-50 years (Including 50 years)	37	18.5%
	51-60 years old (Inclusive)	8	4%
Teaching years	Within 3 years	61	30.5%
	4-10 years	64	32%
	11-20 years	46	23%
	21-30 year	19	9.5%
	More than 30 years	10	5%
Highest degree	Higher vocational or secondary vocational	7	3.5%
	Junior college	36	18%
	Undergraduate	143	71.5%
	Master degree or above	14	7%
Professional title	Primary	55	27.5%
	Intermediate	88	44%
	Advanced	23	11.5%
	Ungraded	34	17%
Subordinate region	Guizhou	88	44%
	Qingyuan	46	23%
	Meizhou	30	15%
	Shaoguan	36	18%

5. Discussions

Digital knowledge and theory is the cornerstone of enhancing digital literacy, and having solid digital knowledge and theory plays an active role in the enhancement of digital literacy. As shown in Figure 1. When the research was found about ever learning information or digital-related theoretical knowledge and methods, 38% of the researchers were more or very much in line with such situation, 52.5% of the researchers had a general attitude, and still 9.5% of the researchers had not learned information or digital-related theories or knowledge methods. A higher percentage of teachers between the ages of 51 and 60 chose not to fit this category than teachers under the age of 30. In addition, there is still a percentage of country music teachers who have not ever studied theories and knowledge about information or digital-related knowledge. In the interview, T5 stated, "Our older music teachers have never studied digital-related aspects before. There were no such

courses when we were in school, and we didn't have the opportunity to learn them when we got to the workplace." T8 said, "We younger teachers, when we were in school, took courses in information technology and had computer level exams, and at that time I learned a little bit of theory and knowledge related to digital aspects." From this, we can see that it is not popular enough for rural music teachers to learn digital-related theoretical knowledge and methods, and they are not trained enough and not well enough. In addition, older music teachers had fewer opportunities than younger music teachers to have ever learned about digital knowledge and theory.
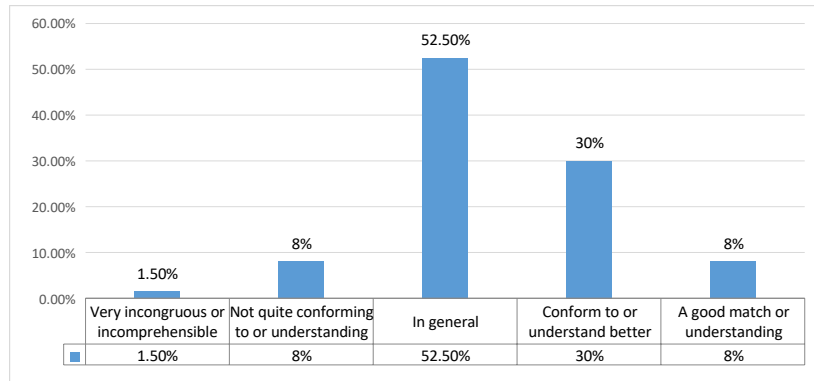
Figure 1: Have studied information or number related theories, knowledge and methods

The use of the Internet and mobile devices is one of the basic competencies of modern digital citizens. Teachers, as the trainers of future digital citizens, need to have competencies related to the Internet and mobile devices. [5]In the study, figure 2 shows that regarding the knowledge of basic knowledge about the use of the Internet, mobile devices, etc., 58% of the respondents were very or fairly in line with such a situation, 37.5% of the teachers were generally in line with such a situation, and 4.5% of the respondents were very or not very in line with such a situation. The group of teachers under the age of 30 had a higher level of basic knowledge of the Internet and mobile devices (87.87%) than the group of teachers aged 51 to 60 (78.99%). Teacher 3 said that we basically had to learn this knowledge when we were in college, especially when we participated in some school skills competitions as graduate students, and if we did not learn this knowledge, we would not be able to study and participate in the competitions. Teacher 6 said that for us middle-aged teachers, with the development of society, we are able to go to use these devices like cell phones, but we don't know much about the Internet and mobile devices, etc., so it would be difficult for us to teach in these ways with the Internet. From the above data and interviews, it can be seen that nearly two-thirds of the teachers are able to know about the Internet and mobile devices, which proves that rural music teachers have certain abilities in using the Internet and mobile devices, but there are still a small percentage of music teachers who do not know this knowledge, which will affect the improvement of rural music teachers' personal learning ability and information-based teaching ability in the digital context. In addition, according to the data, older music teachers are more likely to be able to learn and teach on the Internet. In addition, according to the data, older rural music teachers have more and stronger knowledge in this area than younger rural music teachers.

Option	Subtotal	Proportion	
Very incongruous or incomprehensible	2		1%
Don't quite fit in or understand well	7		3.5%
In general	75		37.5%
Conform to or understand better	87		43.5%
A good match or understanding	29		14.5%

Figure 2: Regarding the knowledge of basic knowledge about the use of the Internet, mobile devices

Digital literacy includes not only the ability to use information tools and resources, but also the ability to access and identify information, process information, transmit, process and use information and the ability to transmit, process, and use information[6]. In the Figure 3 shows that on the option of having the skills to acquire, store, transfer, process and use information, 37.65% of the teachers' group chose very or somewhat qualified, while 24.36% had a fair attitude and 37.99% of the teachers' group were very unqualified or not quite qualified in this way. In addition, teachers in the under-30 group (89.96%) were more competent in this area than teachers in the 51 to 60 year old (78.56%) group. Teacher 9 said, I would go to the Internet and download relevant music and videos for my students to learn, but I would not be able to process the music and videos according to what I was teaching, I would just be able to copy the original music in. Teacher 12 said: I think the process of processing downloaded videos and audios is difficult and time-consuming for us rural music teachers who have to teach several classes, so it is difficult to handle it in such detail. This shows that the percentage of rural music teachers who can use better skills in acquiring, storing, transferring, processing and using information technology is not high, and most of them are weak in processing and using information. Many teachers do not even process information automatically, but simply copy it and use it. In addition, they do not select information before using it, but download and use it at random.
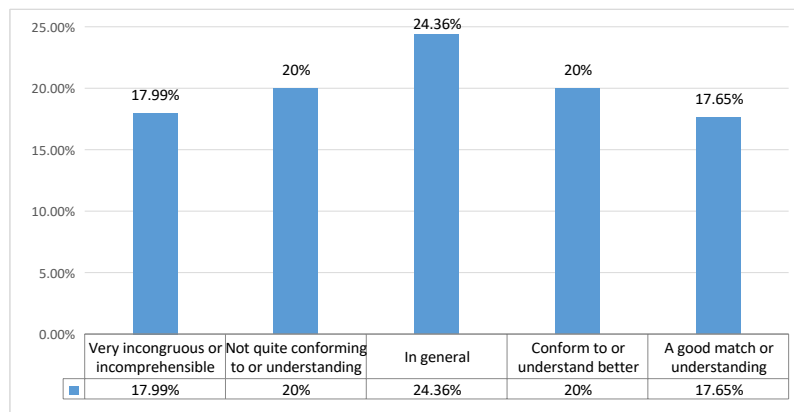

Figure 3: Having the technology to acquire, store, transmit, process and utilize information

Regular participation in learning is one of the important ways to improve teachers' digital literacy[7].Regarding the question of whether rural music teachers have regularly attended Internet or information competencies to improve their quality literacy, as shown in figure 4, 39.5% of rural music teachers are able to regularly attend relevant trainings and proactively improve their digital literacy, while 13% of rural music teachers are less or very unlikely to be able to attend such trainings regularly. This shows that 1/2 of the rural music teachers are able to actively participate in training and consciously improve their digital literacy, but 13% of the rural music teachers are not able to actively learn and are not aware enough to learn. This also shows that as rural music teachers grow older, their initiative and awareness of learning become weaker. Also, during the in-depth interviews, teachers 7 said that older rural music teachers lost their motivation to learn due to family, age, and their own lack of motivation, and even when the school required them to learn, they were only symbolic in completing the task lacking the awareness of self-improvement and the attitude of actively working hard to learn.
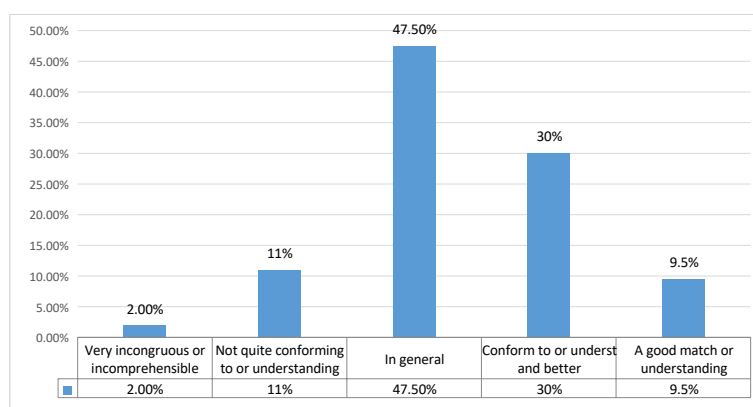
Figure 4: Regularly participate in Internet or information ability training to improve their digital literacy

The integration of digital technology with the subject is a prerequisite for teachers to improve their teaching skills. Having a good sense of integrating the subject with information technology can facilitate teachers' rapid alignment with modern education. In the study as figure 5 shows ,it was found that 51.5% of rural music teachers were able to proactively integrate information technology with music subjects in their teaching, 44% of rural music teachers were generally proactive in this regard, and 4.5% of rural music teachers were very non-compliant or non-compliant in being able to proactively integrate information technology and music The combination of IT and music subjects in their teaching was very poorly or poorly met by 4.5% of rural music teachers. The percentage of teachers under 30 years of age (86.46%) was significantly higher than the group of teachers between 51 and 60 years of age (75.94%). Almost half of the rural music teachers had a proactive attitude, and a very small percentage of rural music teachers would not proactively integrate information technology with the subject of music. Teacher 11 said, although I personally am not particularly good at using the Internet and other methods to teach, I will try to use it in my music lessons once I learn some IT-related methods. Teacher 16 said, "With the development of society, everyone can't live without information technology, and the classroom video allows students to enjoy music, which can directly trigger students' interest in learning, so I usually try to use this information technology as much as possible. This shows that the overall attitude of country music teachers in combining with information technology in teaching is still very positive, and the older they are, the less positive they are as they grow older.
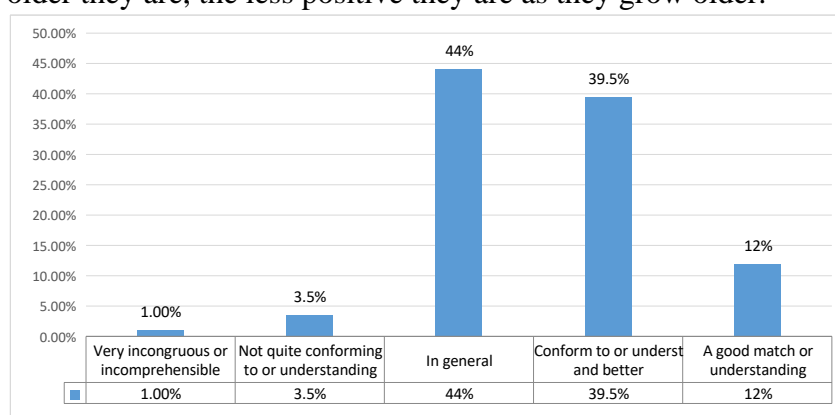

Figure 5: In teaching can actively integrate information technology and music subject

The ability to think through, critically process and use digital information is an important measure of the level of digital literacy[8]. After the study,as shown in figure 6, it was found that

regarding the ability to think through and critically process and use information teaching materials, 31% of the teachers were able or relatively able to think through and actively and critically use information teaching materials for teaching, 21% were average in this area, and 48% did not quite or very much not fit this category. In addition, in the interview teachers5 said, "When using information teaching materials, I usually use them directly as they are presented, and I usually do not change them." The analysis of the above data leads to the conclusion that rural music teachers do not have enough awareness and ability to think, critically process and use instructional materials, and their ability to think and critique information is insufficient. The younger the teachers are, the stronger their ability to think and critique, and the older the teachers are, the more accustomed they are to the traditional teaching model and find it difficult to proactively use new teaching materials for teaching.
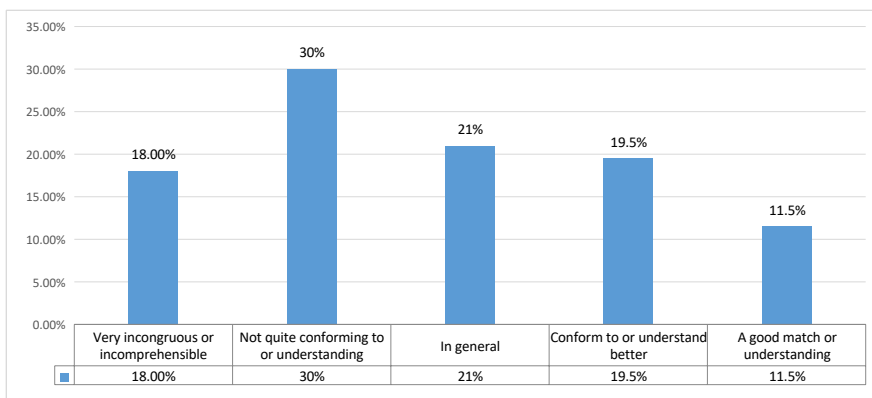

Figure 6: The ability to thoughtfully, critically process and use informative teaching materials

Digital literacy is a collection of digital knowledge, ability, quality, ethics and morals that citizens in digital society should have to learn and work and live, among which digital ethics and security awareness is the top priority of digital literacy. Figure 7 shows that 49% of rural music teachers were very or relatively aware of the content of digital ethics and safety (such as security, cybercrime and privacy, etc.), 43% of rural music teachers were generally aware of the content of digital ethics and safety, and 8% of rural music teachers were very or not aware of the content of digital ethics and safety. Teacher 5 said that our school often gives us training on the topic of cyber security and crime learning as well, so teachers are more cautious about this piece. Teacher 13 said that cybercrime and safety, etc. We often have class sessions to educate students about this from time to time as well. This shows that some rural music teachers have some awareness of digital ethics and safety and actively receive training, but the popularity of training for rural music teacher groups in schools is not comprehensive enough, resulting in a weak awareness of digital ethics and safety among some rural music teacher groups.
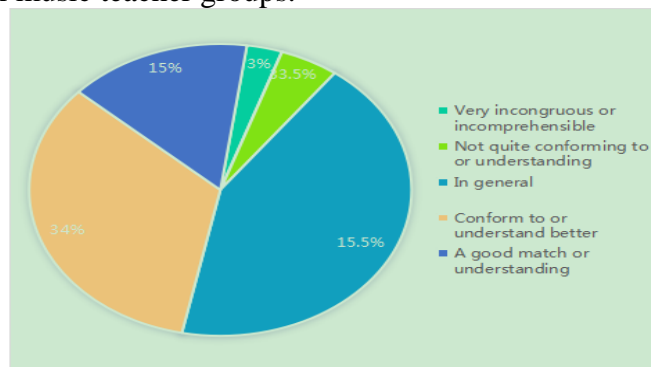

Figure 7: Understand digital ethics and security content (e.g., security, cybercrime, privacy, etc.)

Cultivating digital ethics and safety awareness of digital citizens is a top priority for improving digital literacy, and teachers, as important figures in cultivating digital citizens, have an ethical and safety awareness of knowledge that also affects students' digital literacy improvement[9].The questionnaire found that with regard to being able to accept downloading music, teaching, and other resources with copyright and paying for them, as shown in figure 8,52% of country music teachers strongly agreed or somewhat agreed with this practice, 38% of country music teachers had a fair level of acceptance in this regard, and 10% of country music teachers were very unable or unable to accept this. In addition, in the interview, Teacher 7 said that now that you need to pay to go to the Internet to download music or videos, many songs that you want to listen to cannot be heard, and the thought of paying for them is abandoned. Teacher 18 said that we have to respect the copyright when we perform our works in some choral competitions, and we need to buy the right to use the songs and let the composers license them, which we often find too expensive to accept. Almost half of the music teachers had a general, incomprehensible, or less-than-comprehensible opinion about accepting such a situation. From this, it can be, seen that the awareness of country music teachers in terms of digital ethics is not high enough, especially in terms of paying for knowledge and copyright.
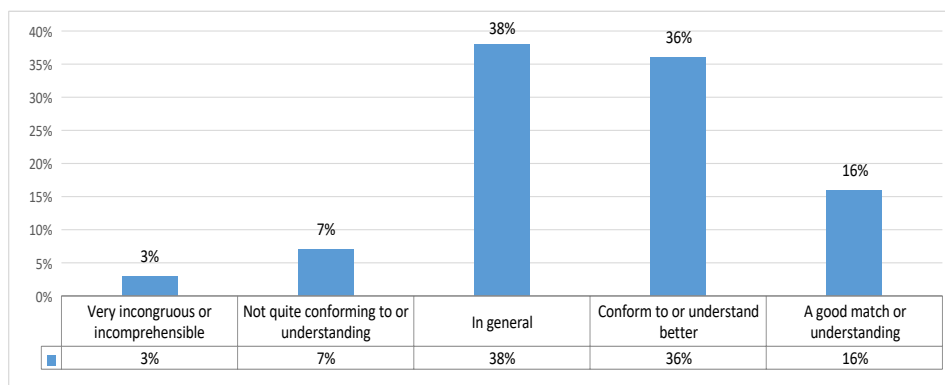

Figure 8: Can accept downloading music, teaching and other resources with copyright and knowledge payment
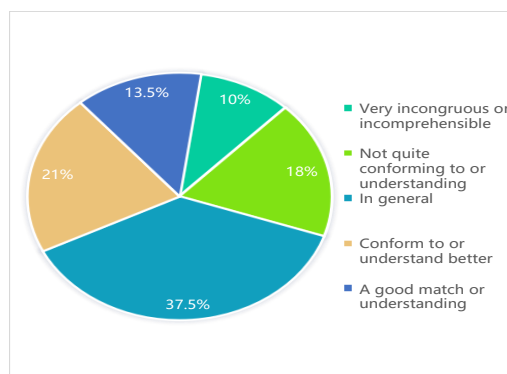

Figure 9: When quoting others' music works, teaching ideas and achievements, be able to mark, quote and indicate sources

Enhancing digital ethics and security awareness is a basic course and a mandatory course for digital literacy of the whole society[10]10.Figure 9 shows that 34.5% of rural music teachers "can cite other people's music works, teaching ideas and achievements with citation and attribution", 37.5% of rural music teachers generally conformed to this category, and 28% of rural music teachers did not conform to this category or did not conform to it at all. 28% of country music teachers either very or somewhat did not meet this category. In the interviews, teachers14 said that

we cite other people's works and ideas mainly in the classroom and when writing essays, and that we do not pay special attention to labeling the original authors. This shows that rural music teachers are still lacking in respecting the fruits of other people's work, their sense of digital ethics is not strong enough, and their awareness of respecting the fruits of other people's work is weak, which also reflects the lack of digital literacy of rural music teachers.

6. Conclusion

With the continuous integration of digital technology into education, learning, work and life, it is urgent to improve the digital literacy of rural music teachers. This study understands the current situation of rural music teachers' digital literacy through empirical research, analyzes the problems of rural music teachers' digital literacy in terms of weak ability to process and use information, insufficient ability to use digital tools, weak digital attitude and awareness, weak retrieval access and proficiency, and lack of knowledge payment concept, and proposes strategies for rural music teachers' digital literacy cultivation and enhancemen[11].

First, we should increase the support for school informatization. The level of information technology construction in schools has a great influence on teachers' digital literacy teaching ability. Only with good informatization construction can teachers have enough space and strength to use their own informatization level, and these are especially important for rural music teachers. In addition, music teachers need to have the ability to have good use of digital resources for music performance, clear visual and auditory sound resources when teaching music courses. Therefore, the strength of the school's information technology level support is beneficial to the improvement of rural music teachers' digital literacy. First, schools should add funds from the hardware side to increase the investment in infrastructure construction.

Second, increase the investment in information technology infrastructure equipment and software. Schools can purchase various teaching computer equipment, music audio and music digital resource library, music education teaching platform and other software. Such as IMSLP, QQ Composer Master, Music Dreamer, UMU software platform, etc. In addition, schools can use the realization of full wireless network coverage to enhance the information technology support for music teachers.

Third, to improve teachers' Internet self-efficacy. Teachers' Internet self-efficacy refers to the degree of teachers' confidence in using Internet technology to accomplish a certain task. Improving rural music teachers' Internet self-efficacy can significantly influence the improvement of their digital literacy level. This can be done in the following ways: First, rural music teachers should be given systematic Internet training. The main reason why rural music teachers lose confidence in using the Internet is that they are not skilled enough in Internet technology, which leads to frustration and waste of time with gas, for example, they cannot accurately grasp music information resources, they cannot skillfully install and uninstall common reading and office software such as PDF, CAJ, etc., and they do not understand or do not know about overture, final, music editing master, Sibelius, online classroom, etc. They do not understand or are not familiar with the common music application software, etc. Second, in the process of music education, only when music teachers perceive the usability and applicability of the Internet and other related technologies to improve teaching, they will actively use Internet technologies in teaching, explore how to integrate with the Internet and deeply dig and record periodical monographs and books with music knowledge information to enhance the learning of music information knowledge. At the same time, the local characteristics of the countryside can be fully mobilized and combined with music digital education in order to enhance the characteristics of the countryside music classroom and improve the teaching effectiveness and teaching ability of the music classroom. The above-mentioned ways

can help rural music teachers use Internet technology to assist the fun of teaching and its personalized and localized music teaching, help teachers improve their self-satisfaction, effectively promote the improvement of teachers' level of using Internet technology in teaching, and then improve their Internet self-efficacy and enhance the level of digital literacy.

This study investigates and analyzes the digital literacy of rural music teachers through three dimensions: digital knowledge, digital attitude and awareness, and digital ethics and safety, and analyzes the problems in digital literacy of rural music teachers and proposes targeted strategies to lay a solid foundation for rural music teachers' digital literacy training. The digital literacy of rural music teachers also needs to be improved from the following aspects: first, the government should increase support and implement relevant national policies, such as the Teacher Informatization 2.0 Project, provincial and municipal continuing education information literacy courses and teacher teaching skills competitions. Second, schools optimize their training mechanisms and pay attention to teacher development. For example, increase teaching competitions in music teaching informatization and other aspects, provide additional training related to music software and music informatization courses, and enhance the concept of audio-visual information integration in music courses. Finally, to improve the digital attitude and moral awareness of rural music teachers. For example, awareness of intellectual property rights, awareness of paying for music and score downloads, awareness of fighting piracy, and awareness of avoiding academic misconduct. The ideas of this study are still inadequate at this stage, and will continue to be improved at a later stage.

Acknowledgement

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