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Study On the Status and Difference of Teachers' Information Literacy in Tibetan and Qiang Areas of Sichuan, China

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Abstract

In this study, 257 teachers in Tibetan and Qiang region of Sichuan, China, from three dimensions of basic information literacy, information integration literacy and scientific research information literacy, to understand the information literacy and basic information. Through description statistics and difference analysis, the results show that there is no significant difference in information literacy among teachers with different genders and education background. There are significant differences in teachers' information literacy in ethnic minority areas of different ages and teaching age. Based on the empirical analysis, the improvement suggestions are put forward in order to provide reference for the improvement of teachers' information literacy in ethnic minority areas.

Keywords: *Tibetan and Qiang areas; teacher information literacy; difference*

Introduction

Information literacy is an important part of the 21st century skill, which is of great significance to student success in today's society (Wu et al.,2022). Since the concept of information literacy was put forward in the early 1970s (Bruce, 20 03), various countries have recognized that teachers, as direct contacts of educational informatization, whose information literacy will have a positive impact on students' performance or learning (Hammons, 2020). For example, in the results of Kaplan et al (2023) research, teachers believe that AI can promote their career development and become a valuable tool for students. With the integration of artificial intelligence (AI) in learning, the requirements for teachers 'information literacy in future education are also increasing, and teachers' information literacy is facing new opportunities and challenges.

Information literacy has become a key issue in the professional development of teachers (Meekaew, 2022), and countries are also paying more and more attention to the cultivation of teachers' information literacy (Baysen et al.2017). For multi-ethnic and multi-cultural China, minority education is an important part of Chinese education, especially in the education informatization is relatively weak ethnic areas, diversified education situation, personalized education needs and multi-channel success path become the reality of artificial intelligence students growth, with good information literacy teachers to respond to the era, improve regional information literacy between teachers and students, promote from technology application to ability quality, make it have good information thinking, to adapt to the requirements of the development of the information society is very important.

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Objective of The Study and Research Questions

The Tibetan and Qiang region of Sichuan is the Ganzi Tibetan Autonomous Prefecture and Aba Tibetan and Qiang Autonomous Prefecture under the jurisdiction of Sichuan Province of China. It is the second largest Tibetan area and the only Qiang community in China. Sichuan Tibetan qiang area sparsely populated, remote location, promote the education informatization construction and development of far-reaching significance, the Ministry of Education of China in 20182.0 education informatization plan of action put forward through the network FuZhi engineering "culture home" and other activities, strengthen the national region education informatization leadership training and teachers informatization teaching ability training, vigorously support the development of minority education informatization, it for China Sichuan Tibetan qiang region, to promote education fair and balanced development, improve the quality of education goal .

So, Sichuan Tibetan qiang teachers, whether have information literacy, education information skills, is the focus of the teachers' professional development close attention, it is a key factor restricting the entire national region school information technology process, therefore, this study with the following research problems guided, discusses the Sichuan Tibetan qiang teachers on the basic situation of information literacy and differences:

How about the mastery and application of basic information literacy, curriculum integration ability and scientific research information literacy of teachers' information literacy in Tibetan and Qiang areas of Sichuan province?
What are the differences in the information literacy of the teachers in the Tibetan and Qiang areas of Sichuan province?
What factors affect the level of teachers' information literacy?
How to promote the improvement of teachers' information literacy in the Tibetan and Qiang areas of Sichuan province?

Literature Review

In 1974, Paul Zurkowskiis, president of the American Information Industry Association, first proposed the concept of "information literacy" and strategies to promote information literacy (Behrens, 1994). The American Library Association (ALA) said in its report that people with information literacy are those who have learned how to learn, are able to identify when information is needed, and have the ability to effectively find, evaluate, and use the information needed to solve practical problems (ALA, 1989). Doyle (1992) believes that information literacy is the ability to obtain, evaluate and use information from various sources. With the continuous development of information technology, information literacy has become a necessary skill for teachers (Sezer, 2020). American Association of School Librarians It points out that information literacy is achieved when one has the knowledge and skills needed to process and utilize the required information (Pedrosa, Magalhães, & Peres, 2019).

(Wen, 2008). McClure (1994) believed that information literacy includes four dimensions: traditional literacy, computer literacy, media literacy and network literacy, and he defined information literacy as the ability to solve information problems. It can be concluded from the above definition that information literacy includes: knowledge of information system; skills to acquire, analyze, organize and evaluate information; understanding the value, function and function of information; and using information to solve problems. Chinese scholars Zhu (2002) according to the function of teachers' information literacy is divided into basic information literacy, subject information literacy, special information literacy, scientific information literacy four types, respectively corresponding to society, teaching, computer application, scientific research activities need to have information system knowledge and ability to obtain, evaluate and use information. Although the important value of information literacy is recognized and

the preparation of information literacy teaching in preschool teacher education has improved over time, teachers still have little real ability to successfully impart information literacy upon graduation (Duke & Ward, 2009). Jorden (2013) learned from the study that teachers take the range of skills needed by students as the most important factor affecting their adoption of teaching information technology, and are willing to participate in teacher training programs to improve the corresponding information technology. Zhang (2020) put forward a strategy to improve the information literacy of physical education teachers according to the defects and misunderstandings of physical education teachers, which mainly includes teachers' personal information awareness, training mechanism and information environment construction. (McCullough, et al. 2022).

Tou et al. (2020) investigated the attitude of physical education teachers towards information literacy in Singapore, and found significant differences in gender, age, and teaching experience among physical education teachers in the region. Wanquan, G.& Tsytsiura (2021) proposed that information literacy is an important factor in the development of English teachers 'ability, and analyzed the methods of improving English teachers' information literacy with English teachers from four universities in Zhejiang province. Garcia (2022) Taking the teachers of public high schools in the Philippines as the survey object, he discussed the media and information literacy of teachers, and proposed the professional development of teachers based on multimedia information. Shonfeld et al. (2022) pointed to the correlation between personal traits and information literacy and search skills according to the factors that affect the information literacy of Israeli teachers. Grigas et al. (2018) investigated the information literacy of secondary school teachers in Hungary, Poland, and Lithuania using the new questionnaire developed. Meekaew (2022) investigated the information literacy of pre-service teachers, and pointed out that curiosity is a key starting point for the development of pre-service teachers. Nieto-Isidro et al.(2021) investigated the overall information literacy level of primary and secondary school teachers in Spain, found that the information literacy level of middle school teachers and primary school teachers was low, and put forward more training activities. Hammons (2020) Research pointed out that many teachers are not willing to integrate information literacy into the curriculum teaching, and teachers should be encouraged to integrate information literacy into the courses they teach (Precup et al., 2020).

Chinese scholars found in the study, restricted by the geographical environment, capital and resources, the regional education informatization slow (Yang, 2014), ethnic minority areas teachers information literacy information consciousness, lack of information knowledge, information ability is limited, lack of information ethics (Dai, 2018), Tang (2014) in Sichuan Ganzi, Aba and Liangshan three ethnic areas of teachers, found that teachers in professional development more passively accept information technology training, applied to teaching information skills is not high. Existing studies have revealed the characteristics of late start of information literacy of teachers in minority areas, poor foundation and slow speed. In order to cultivate information talents, it is necessary to improve the information literacy level of teachers in minority areas.

Research Methodology

A total of 257 middle school teachers from Sichuan Tibetan qiang area to fill out the online questionnaire, participants from Sichuan Tibetan qiang region different counties, different schools, the bilingual teachers, female participants is larger (63.8%), the distribution of education level for (college specialized subject and below 19.5%, university undergraduate 60.3%, master and above 20.2). The age distribution was (21.4% under 30 years old, 57.2% from 30 to 45 years old, 21.4% aged 45 years and above), and the distribution of teaching age was (19.1% within 5 years, 28% from 6 to 15 years, 38.1% from 16 to 25 years, 14.8% over 25 years). The questionnaire of this study refers to the teacher information literacy questionnaire compiled by Li (2013). The questionnaire includes three dimensions: basic information literacy, curriculum integration ability, and teachers' scientific research information literacy.

The scale was scored by the Likert 5 scale, from complete inconsistent to full compliance, with 1 to 5 points respectively. The higher the total score, the higher the teachers' information literacy. Data analysis and processing were mainly performed by SPSS26.0, and the results were analyzed by independent sample t-test and one-way variance. All the above scales have demonstrated good reliability during use (cronbach's α is 0.952 and 0.937 for KMO).

Empirical Results and Analysis

The overall level of each dimension of information literacy in ethnic areas

Table 1: Statistical analysis of the teacher's basic information literacy description

	least value	crest value	average value	variance	median	mode	skewness	kurtosis
Basic information literacy	1.25	5	3.4971	0.6113	3.4375	3.31	-0.134	0.582
Information integration literacy	1	5	3.1950	0.7735			0.046	-0.127
Scientific research information literacy	1	5	3.4066	0.7477			0.022	0.125
Overall information literacy	1.08	5	3.3662	0.6545			0.009	0.358

The results presented in Table 1 show that, The mean value of the three dimensions of teacher information literacy in ethnic minority areas is greater than 3, The "basic information literacy" has the highest average score, It shows that the basic information literacy level of teachers in ethnic minority areas is the best, And with the minimum variance, It indicates that the score is closer to the mean, The average score of "scientific research information literacy" is relatively high, It shows that teachers in ethnic minority areas attach more importance to the training of scientific research information literacy. (Rychtář et al., 2014). The skewness of the "basic information literacy" dimension is negative, suggesting that the dimension score presents a negative bias distribution, that is, most teachers score closer to the high score, it shows that teachers in ethnic minority areas account for more high scores in the dimension of basic information literacy, While the deviation degree of course integration ability and scientific research information literacy is greater than zero, it shows that the low scores account for more. The kurtosis in the course integration ability is less than zero, which also indicates that the course integration ability score is low.

Gender differences in teacher information literacy in ethnic minority areas:

In order to study the differences in the gender of teachers in ethnic minority areas in various dimensions of information literacy, an independent sample t-test was conducted. The details are shown in Table 2. It can be concluded from Table 2 that among the teachers in the ethnic areas surveyed, the mean value of male and female teachers is comparable. The results of t-test of independent samples showed that the P values of each dimension were 0,0 and 0 respectively, all of which were greater than 0.05, that is, there was no significant difference in teachers' information literacy in ethnic minority areas. 656.989.942

Table 2: Gender differences in teachers' information literacy

dimension	sex	N	mean	standard deviation	T	P
Basic information literacy of teachers	man	93	3.475	0.690	-0.446	0.656
	woman	164	3.510	0.564		
Teachers' information integration literacy	man	93	3.200	0.829	0.014	0.989
	woman	164	3.194	0.743		
Teachers' scientific research and information literacy	man	93	3.411	0.800	0.073	0.942
	woman	164	3.404	0.719		
Teachers' overall information literacy	man	93	3.3606	.73183	-.099	0.921
	woman	164	3.3694	.60862		

Analysis of the age differences of teachers in ethnic minority areas:

The data were analyzed by one-way analysis of variance by homogeneity of variance (sig> 0.05), shown in Table 3. LSD test, teachers' basic information literacy under 30 significantly higher than 45 and above teachers, ethnic areas teacher's information integration literacy 30~45 significantly higher than 45 and above teachers, teachers in ethnic areas on the overall information literacy, more than 45 teacher's information integration literacy slightly worse, the rest of the dimension P value is 0 and 0 respectively, are greater than 0.05, so there is no significant difference.571.150

Table 3: Age differences in teachers' information literacy

dimension	age	N	mean	standard deviation	F	P
Basic information literacy of teachers	30 The following	15	3.610	0.601	2.653	0.024*
	30～45	147	3.511	0.627		
	45 And above	55	3.348	0.558		
Teachers' information integration literacy	30 The following	15	3.275	0.814	2.383	0.046*
	30～45	147	3.239	0.746		
	45 And above	55	2.996	0.786		
Teachers' scientific research and information literacy	30 The following	15	3.275	0.775	0.561	0.571
	30～45	147	3.425	0.740		
	45 And above	55	3.314	0.746		
Teachers' overall information literacy	30 The following	15	3.4450	0.679	1.914	0.150
	30～45	147	3.3918	0.649		
	45 And above	55	3.2191	0.631		

Analysis of the differences in academic qualifications of teachers in ethnic minority areas:

In order to study the differences in information literacy dimensions of teachers' education in ethnic minority areas, one-way variance analysis was conducted, as shown in Table 4. It can be concluded from Table 4 that among the surveyed teachers in ethnic minority areas, the mean value of teachers with different degrees is close. The results of one-way ANOVA show that the P values of each dimension are 0,0,0,0.642 are greater than 0.05, that is, there is no significant difference in the information literacy of teachers in ethnic minority areas.859.833.248

Table 4: The educational background difference of teachers' information literacy

dimension	record of formal schooling	N	mean	standard deviation	F	P
Basic information literacy of teachers	Junior college and below	50	3.503	0.624	0.152	0.859
	undergraduate course	155	3.509	0.620		
	Master's degree or above	52	3.456	0.584		
Teachers' information integration literacy	Junior college and below	50	3.144	0.860	0.183	0.833
	undergraduate course	155	3.217	0.788		
	Master's degree or above	52	3.177	0.644		
Teachers' scientific research and information literacy	Junior college and below	50	3.415	0.812	1.402	0.248
	undergraduate course	155	3.455	0.749		
	Master's degree or above	52	3.255	0.669		
Teachers' overall information literacy	Junior college and below	50	3.354	0.712	0.444	0.642
	undergraduate course	155	3.394	0.660		
	Master's degree or above	52	3.295	0.585		

Analysis of the difference of teachers in teaching age among teachers in ethnic areas:

In order to study the differences in the teaching age of teachers in ethnic areas in each dimensions of information literacy, one-way ANOVA was conducted, shown in Table 5. Among the teachers in ethnic minority areas surveyed, the overall information literacy of teachers and their dimensions are significantly different due to different teaching age, and the information literacy of teachers with 6 to 15 years of teaching age is the highest, and the information literacy level of teachers over 25 years is the lowest.

Table 5: The teaching age difference of teachers' information literacy

dimension	of school age	N	mean	standard deviation	F	P
Basic information literacy of teachers	Within 5 years	49	3.577	0.623	2.543	0.044*
	6~15 Years	72	3.610	0.578		
	16~25 Years	98	3.446	0.641		
	More than 25 years	38	3.311	0.540		
Teachers' information integration literacy	Within 5 years	49	3.254	0.808	2.983	0.032*
	6~15 Years	72	3.372	0.766		
	16~25 Years	98	3.134	0.787		
	More than 25 years	38	2.942	0.634		
Teachers' scientific research and information literacy	Within 5 years	49	3.434	0.741	1.597	0.046*
	6~15 Years	72	3.500	0.803		
	16~25 Years	98	3.413	0.730		
	More than 25 years	38	3.178	0.673		
Teachers' overall information literacy	Within 5 years	49	3.421	0.678	2.644	0.049*
	6~15 Years	72	3.494	0.666		
	16~25 Years	98	3.331	0.659		
	More than 25 years	38	3.143	0.533		

Conclusion and Recommendations

The results of this study show that the overall information literacy of teachers in Tibetan and Qiang areas of Sichuan is good, and their awareness of applying information technology in teaching is becoming more and more strong. It is increasingly common to use the Internet to find teaching materials to prepare lessons and carry out online teaching. According to the investigation, the Tibetan and Qiang region in Sichuan, as the model area, took the lead in the 2.0 project, in which 1454 teachers participated in the training. Through participating in the training, the information literacy of teachers in the Tibetan and Qiang areas of Sichuan province is generally positive, which has a good demonstration and radiation effect on other ethnic minority areas. The study shows that there is no significant difference in information literacy between gender and educational background between Tibetan and Qiang teachers in Sichuan. In terms of basic information literacy and teacher information integration literacy, there are significant differences between teachers of different ages, and the ability of teachers under 30 is significantly higher than that of teachers aged 45 and above.

In terms of overall information literacy, teachers over 45 years old have a slightly poorer information integration literacy. In addition, the information literacy of teachers in Tibet and Qiang areas in Sichuan is significantly different in teaching age, with the information literacy of 6 to 15 years being the highest. At this stage, teachers have teaching experience and have the strongest energy to improve the information literacy ability. The new teachers have just started to work, and the information literacy ability is still in the stage of learning and improvement. Teachers over 25 years have the lowest level of information literacy, they are facing retirement and have low motivation to learn information technology teaching.

With the advent of the era of big data, information technology is being widely used by human beings. In the field of education, the traditional school teaching environment to the direction of informatization, intelligent, information technology and subject teaching and education management close integration is the trend of the future, Sichuan Tibetan qiang area teachers must keep lifelong learning, especially young and middle-aged teachers to keep up with the forefront of education concept and information technology knowledge, follow the pace of "Internet + education", adapt to the education development of the information age.

Wisdom teaching is the basic form of the future classroom, Tibetan qiang areas in Sichuan teachers should improve their information literacy in practice, have strong the ability of information teaching, promote the information technology and the depth of classroom teaching, actively teaching classroom innovation, information technology and knowledge, change the traditional classroom teaching, focusing on the wisdom of classroom teaching.

In the process of practicing intelligent teaching, we skillfully use information-based teaching tools to cultivate students 'ability to study independently by information means, stimulate students' enthusiasm, and meet the needs of The Times of train students to become information-based citizens.

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