Guidelines for Digital Leadership Development of Primary School Chinese Language Teachers in Shuangliu District, Chengdu City

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Abstract: The objectives of this study are to 1) study the digital leadership level of primary school Chinese language teachers in Shuangliu District, Chengdu City.2)study the guidelines for digital leadership development of primary school Chinese language teachers in Shuangliu District, Chengdu City. This study selected a sample of 235 primary school Chinese language teachers in Shuangliu District, Chengdu City, through random sampling. And 9 education administrators from primary schools in Shuangliu District, Chengdu City. The main research instruments were questionnaires and structured interviews. Data statistics covers various statistical measures such as percentages, means, and standard deviations. The research results found that: 1. The state of the digital leadership level of primary school Chinese language teachers in Shuangliu District, Chengdu was at a high level.2. Analyze the current status of the digital leadership based on the following five dimensions: 1) digital analysis capability 2) digital design capability 3) digital implementation capability 4) digital evaluation capability 5) digital innovation capability. This study proposes a guideline for improving the digital leadership of primary school Chinese language teachers.

Keywords: Digital leadership, Primary school, Chinese language teachers

1. Introduction

Digital leadership is an important concept that has gradually emerged in recent years. Digital technology and digital innovation have become significant driving forces for education reform in China (Wang Mujie, 2018). Enhancing teachers' professional abilities, especially digital leadership, is at the core of educational reform (Li Beibei, 2021). Teachers' digital leadership is an important component of their professional abilities. The emphasis of teachers' digital leadership lies not in the digital technology itself but in the ability to flexibly select and use information technology based on the characteristics of the subject, thereby effectively improving teaching effectiveness and achieving teaching objectives (Wang Ju.2018; Li Huifang & Yang Xian.2018).

The extensive application of information technology is an important approach to innovative development in education (Liu Yi, 2020). Information technologies, represented by the new generation of internet technologies, significantly reduce the cost of information dissemination, allowing students to access diverse sources of information. Students can easily access a vast amount of high-quality teaching resources instantly through the internet. The focus of teaching can gradually shift from teachers imparting relatively determined declarative and procedural knowledge to helping students explore and discover more new knowledge (Wu Xujian, 2020). In this context, the classroom teaching behaviors of teachers and students will acquire new meanings, and teachers' digital leadership plays an important role in this process. In the new era and context of educational informatization, teachers must keep pace with the times and continuously improve their professional qualities to meet the new requirements of the era. Therefore, digital leadership is a key capability that teachers must possess in the context of educational informatization. More and more technologies are being applied in teaching. Teachers are the actual users of educational technology, the leaders of teaching, and the helpers of students' learning. The key to whether educational informatization can be fully implemented, and whether it can achieve maximum efficiency, lies with the teachers (Cheng Xunyong, 2018). Due to the uniqueness and characteristics of primary school students and the Chinese language subject, it is imperative to enhance the digital leadership of primary school Chinese language teachers.

Primary school Chinese language teaching aims to enable primary school students to accumulate a certain foundation of language and literacy and develop preliminary reading comprehension abilities, aesthetic abilities, and core language literacy (Dang Yanxia, 2013). However, in current primary school Chinese language teaching, due to the young age and limited life experiences of primary school students, they are unable to concentrate for long periods and cannot deeply understand the teaching content delivered by teachers. By using information technology, primary school Chinese language teachers can utilize innovative teaching methods to make the teaching content interesting and vivid, fully stimulating students' interest in learning, enabling them to

maintain attention for a long time in classroom teaching, thereby enhancing students' learning abilities and continuously improving the efficiency of classroom teaching. The Chinese language curriculum has characteristics such as timeliness, ideological content, humanistic content, and comprehensiveness, which are fundamental tools for students to learn all subjects (Li Wei, 2016). By effectively integrating information technology with Chinese language teaching, educational technology, and Chinese language curriculum structure, teaching content, resource development, and teaching implementation are integrated, expanding the space for Chinese language learning and usage, making the Chinese language curriculum timelier and more dynamic. Therefore, if we want to further integrate educational technology with the Chinese language subject and enhance teachers' digital leadership, it is imperative. Wang Ju (2018) proposed that digital leadership, represented using information technology, can effectively diversify teaching methods for primary school teachers, improve teaching standards, and meet students personalized and diversified development needs. Therefore, the exploration of the professional abilities of primary school Chinese language teachers, especially digital leadership, has dual theoretical and practical significance.

This study analyzes the current situation, existing problems, and reasons for digital leadership among primary school Chinese language teachers in Shuangliu District, Chengdu, and proposes a guideline for improving digital leadership among primary school Chinese language teachers.

2. Literature Review

2.1 Teacher Digital Leadership

With the continuous advancement of digitalization, the connotation of the new generation of information technology has greatly expanded. New technologies such as cloud computing, big data, the Internet of Things, quantum computing, and brain-computer interfaces have emerged one after another, breaking through the scope of traditional information technology. Digital technology and the resulting digital innovation are becoming important driving forces for today's socio-economic and cultural development.

Li Min and Wang Shuang (2017) believed that teacher digital leadership can be broadly and narrowly defined. Broadly speaking, it refers to the ability of teachers to apply information technology to influence those around them in the information society; Narrowly defined, it refers to the use of information technology by teachers in the context of teaching. The impact of information technology on education reform, curriculum reform, and the ability of surrounding personnel includes collaborative development supported by information technology teaching, curriculum reform, and online learning space. Shen Bing (2017) believes that teacher information leadership is an extension of the concept of teacher leadership, including information technology teaching, information technology professional development, and information technology schools. Cultural leadership and personal information technology skills of teachers.

Based on the above research, researchers believe that teacher digital leadership refers to teachers having sufficient digital awareness, good digital technology skills, and excellent professional practice abilities, and interacting with the leadership context of the digital era in a certain group through their abilities, forming the comprehensive influence of digital era leaders.

2.2 Research on Factors Influencing Teacher Digital Leadership

Many scholars have put forward their views on the influencing factors of teacher leadership, mostly from the dimensions of school culture, school group structure, and school role relationships (Wang Shitian, 2018). Many studies have found that the hierarchical structure of schools is an important factor hindering teachers from playing a leadership role (Li Wei, 2016; Jin Xin. & Shu Guo,2018). Compared with the school organizational structure characterized by decentralization, school-based management, decentralization, and teacher empowerment in Europe and the United States, the degree of decentralization in the Chinese Mainland is far less than that in Europe and the United States, and school power is still concentrated at the district and city levels. In the hands of the administrative department and the principal. In addition, the relationship between teachers, school principals, and colleagues is also a frequently discussed element of teacher leadership.

Guo Xu (2017) believed that teachers with high self-efficacy are often more capable of shaping school structures and leadership roles in other formal positions than those with low self-efficacy when analyzing their factors. The teacher's abilities, such as understanding of rights, knowledge, and environment, interpersonal communication skills, core values and beliefs, work enthusiasm, courage, and the ability to actively construct knowledge through reflection, are all factors that affect their ability to play a leadership role. Liu Hui (2018) conducted an empirical study on the improvement of teacher leadership. They found that resistance to teacher leadership mainly comes from external factors in schools, misunderstandings of teacher leadership under accountability systems, and a lack of confidence among teachers themselves. They believe that the improvement of teacher leadership is highly related to institutional issues. Under the accountability system, teachers dare not

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make senior leaders unwilling to take risks. Accountability only concerns teaching performance and cannot improve teacher motivation.

2.3 Research on Strategies for Improving Digital Abilities of Primary School Chinese Language Teachers

In the education environment of the 21st century, the popularization of digital technology has become an important trend in education reform and teaching development. As educators, primary school Chinese language teachers need to possess digital abilities to better understand digital technology and apply it to Chinese language teaching.

Wang Dejun and Wang Geqi (2019) analyzed the teaching objectives, strategies, and methods of primary school Chinese language subjects. A series of close and linear analyses have been conducted on reading and composition teaching, pointing out that Chinese language teaching must comply with the laws of Chinese language teaching, pay attention to the development of Chinese language education theory, and update educational and teaching concepts.

Liu Yi (2020) found that Chinese language teachers with higher numerical analysis abilities can more accurately identify students' learning difficulties and adjust teaching strategies in a targeted manner to improve their academic performance and language literacy. Wu Xujian (2020) investigated the challenges and opportunities in cultivating digital design skills for primary school Chinese language teachers. They identified factors such as limitations in technology acquisition, insufficient training opportunities, and resistance to change as obstacles to the effective integration of digital design in Chinese language teaching.

Liu Hui (2018) conducted a study on the impact of digital evaluation ability on teaching effectiveness. Their research findings indicate that teachers who use digital evaluation tools and methods observe higher levels of student engagement, motivation, and academic performance.

Lu Min et al. (2023) conducted a study on the 21st-century teacher skills of 217 primary school teachers in Guilin, China, and proposed a competency enhancement framework that includes six dimensions, including communication skills and innovation ability.

Song Yujun et al. (2023) proposed that teachers should consider the needs of primary school students when designing courses, taking into account their age and psychological characteristics, and designing courses that meet their learning needs or bring practical value to them.

Gu Jingsi et al. (2023) Research found that schools must pay attention to the development of students' self-management, adaptability, communication ability, information processing ability, and innovation ability, especially the development of innovation ability, and believe that schools should improve the construction of innovative teaching environment and open innovation ability training courses to promote the diversification of classroom education. Mobilize students 'desire to explore to cultivate students' ability of innovation.

Wu Xujuan (2020) emphasized the importance of digital innovation ability in primary school Chinese language teaching and pointed out that teachers need to adopt proactive and innovative methods to effectively utilize digital technology, and cultivate students' creativity, critical thinking, and problem-solving abilities.

The research findings of Liu Yi (2020) indicate that teachers who demonstrate a higher level of digital innovation ability are better at designing engaging and interactive learning experiences, thereby improving student motivation and academic performance. With the rapid development of technology, teachers are increasingly expected to integrate digital tools and innovative teaching methods into classroom practice to enhance student participation and learning effectiveness.

3. Methodology

3.1 The Population and the Sample Group
The Population

The population includes 576 Chinese language teachers from 23 primary schools in Shuangliu District, Chengdu.

The Sample Group

The sample group includes 235 primary school Chinese language teachers and 9 education administrators from 23 primary schools in Shuangliu District, Chengdu.

3.2 Research Instruments

The tools used in this study are a questionnaire and an interview.

Questionnaire

As a tool to collect data on the level of digital leadership of primary school Chinese language teachers in Shuangliu District, Chengdu City, and based on the requirements for primary school Chinese teachers in the

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policies like "Compulsory Education Curriculum Plan", "Compulsory Education Chinese Curriculum Standards (2022)", "Professional Standards for Primary School Teachers (Trial)" and related studies, the researcher identified five dimensions of the questionnaire: digital analysis capability, digital design capability, digital implementation capability, digital evaluation capability, and digital innovation capability.

The questionnaire is divided into two parts: Part One, Personal Information. Including gender, educational background, and years of teaching. Part two is the current situation investigation. The questionnaire is divided into five dimensions, with a total of 50 questions. Questionnaire options are based on a Likert scale, and answers are divided into five types: strongly agree, agree, don't know, disagree, and strongly disagree, with scores of 5, 4, 3, 2, and 1 respectively.

Interview
The interview consists of two parts:
Part A, introduction to background information. Part B consists of a series of open-ended interview questions. A total of 8 questions are included, aiming to collect participants' opinions on the guidelines to improve the digital leadership of primary school Chinese teachers in Shuangliu District, Chengdu City.

3.3 Data Collection
The researcher conducted data collection based on the following process:
(1) Questionnaire
1) Distribute questionnaires to 235 Chinese language teachers in Shuangliu District, Chengdu City.
2) Collect questionnaires from respondents.
3) Screen the collected questionnaires and eliminate invalid questionnaires.
4) Statistics of questionnaire data and input data into the software to start data analysis.

(2) Semi-structured interview
The interviewees were 9 educational administrators. The researcher conducted one-on-one interviews by online interview and the process of the interview was recorded with video and audio.

3.4 Data Analysis
For data analysis in this study, the researcher analyzed the data through a package software, as follows:
Step 1: Conduct frequency and percentage analysis on the personal information of the respondents, investigate the personal information of the respondents, and classify them according to gender, years of teaching, and educational background.
Step 2: Each variable was analyzed by average value and standard deviation.
Step 3: Conduct a content analysis of the interview results.

4. Results of Analysis
The researcher distributed a total of 235 questionnaires and collected 235 valid questionnaires, with a 100% effective rate.

4.1 Analysis of general information of respondents
The general data analysis results of the interviewed teachers include gender, age, working hours, and education. In this study, researchers utilized frequency distribution and percentages, as shown in Table 4.1.

Table 4.1 General information of the response

(n=235)

Items	Category	Frequency	Percentage (%)
Gender	Male	44	18.72
	Female	191	81.28
	Total	**235**	**100.00**
Years of Working	Less than 5 years	93	39.37
	6-10 years	76	32.38
	11-20 years	56	24.20
	Over 21 years	10	4.05
	Total	**235**	**100.00**
Education	College Degree	28	11.71
	Bachelor's Degree	99	42.24

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Master's Degree	**95**	**40.52**	
Dr's Degree	**13**	**5.53**	
Total	**235**	**100.00**	

According to Table 4.1, the researcher analyzed the data collected in the first part: general information on the response. From the perspective of gender distribution, there were 191 females, accounting for 81.28%, and 44 were males, accounting for 18.72%. The proportion of males and females is seriously out of balance. From the perspective of years of working, over 50% were less than 10 years. 93 teachers have worked for 1-5 years, accounting for 39.37%, 76 teachers have worked for 6-10 years, accounting for 32.38%, 56 teachers have worked for 11-20 years, accounting for 24.20%, and 10 teachers have worked for more than 20 years, accounting for 4.05%. From the perspective of education, the proportion of Dr's degree was very small and most were at the level of bachelor's degree or master's degree. 28 teachers had a college degree, accounting for 11.71%, 99 teachers had a bachelor's degree, accounting for 42.24%, 95 teachers had a master's degree, accounting for 40.52%, and 13 teachers had a doctoral degree, accounting for 5.53%.

Table 4.2 Statistical table for each variable

(n=235)

No.	Dimension	M	S.D.	Level	Rank
1	Digital analysis capability	3.90	0.82	high	1
2	Digital design capability	3.72	0.83	high	4
3	Digital Innovation capability	3.67	0.84	high	5
4	Digital implementation capability	3.76	0.82	high	3
5	Digital evaluation capability	3.81	0.76	high	2
	Total	**3.77**	**0.81**	**high**	

According to Table 4.2, the research results found that the average value of the digital leadership level of primary school Chinese language teachers in Shuangliu District, Chengdu City was at a high level in five aspects (M=3.77, S.D.=0.81). Considering the results of this results of the research aspects ranged from the highest to the lowest level were as follows: the highest level was digital analysis capability (M=3.90, S.D.=0.82), followed by digital evaluation capability (M=3.81, S.D.=0.76), and digital implementation capability (M=3.76, S.D.=0.82) and digital design capability (M=3.72, S.D.=0.83), respectively. And the lowest level was digital Innovation capability (M=3.67, S.D.=0.84).

4.2 Analysis of Questionnaire Results
The researcher conducted an analysis from five aspects: digital analysis capability, digital design capability, Digital implementation capability, Digital evaluation capability, and digital innovation capability The researchers analyzed using mean and standard deviation, and the specific analysis results are shown in Tables 4.2-4.7.

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Table 4.3 Questions classified by variables: Digital analysis capability

(n=235)

No.	Items	M	S.D.	Level	Rank
1.1	I can effectively collect and organize students' learning data.	3.96	0.80	high	2
1.2	I can use software to analyze students' learning data.	3.98	0.71	high	1
1.3	I am capable of identifying learning difficulties and issues among students in the subject of the Chinese language.	3.95	0.86	high	3
1.4	I can adjust teaching content and methods based on students' learning data.	3.92	0.88	high	4
1.5	I can analyze students' learning trends and patterns to provide support for personalized teaching.	3.82	0.81	high	10
1.6	I can analyze students' assignments and exam scores using digital tools.	3.91	0.85	high	5
1.7	I can assess students' learning performance using digital teaching resources.	3.86	0.80	high	8
1.8	I can identify potential problems and challenges in students' learning through digital data analysis.	3.90	0.88	high	6
1.9	I can track students' learning progress using digital teaching platforms.	3.84	0.85	high	9
1.10	I can make corresponding adjustments to teaching strategies based on students' learning data.	3.88	0.72	high	7
	Total	**3.90**	**0.82**	**high**	

According to Table 4.3, the study found that digital analysis capability was at a high level (M=3.90, S.D.=0.82). Among them, teachers can use software to analyze students' learning data had the highest level (M=3.98, S.D.=0.71), followed by teachers can effectively collect and organize students' learning data (M=3.96, S.D.=0.80) and teachers were capable of identifying learning difficulties and issues among students in the subject of Chinese language (M=3.95, S.D.=0.86), respectively. The side with the lowest level mean value was teachers can analyze students' learning trends and patterns to provide support for personalized teaching (M=3.82, S.D.=0.81).

Table 4.4 Questions classified by variables: Digital Design Capability

(n=235)

No.	Items	M	S.D.	Level	Rank
2.1	I can design digital teaching content that meets students' learning needs.	3.86	0.75	high	1
2.2	I can design engaging and appealing digital learning activities.	3.80	0.79	high	3
2.3	I am capable of designing digital teaching resources to promote student engagement.	3.82	0.86	high	2
2.4	I can design digital assignments and assessment methods to enhance student learning outcomes.	3.70	0.86	high	7
2.5	I can design digital teaching courses according to subject teaching requirements.	3.68	0.82	high	8
2.6	I can design digital teaching plans to meet the diverse learning needs of students.	3.55	0.78	high	9
2.7	I can use digital tools to design personalized learning paths and goals.	3.54	0.86	high	10
2.8	I am capable of designing digital teaching plans to enhance student interest and participation.	3.75	0.86	high	5
2.9	I can design digital teaching resources to help students improve their language proficiency and skills.	3.76	0.88	high	4
2.10	I can design digital assessment tools to evaluate students' language learning outcomes.	3.72	0.85	high	6
	Total	**3.72**	**0.83**	**high**	

According to Table 4.4, the study found that digital design capability was at a high level (M=3.72, S.D.=0.83). Among them, according to the research results, the highest level was teachers can design digital

teaching content that meets students' learning needs (M=3.86, S.D.=0.75), followed by teachers were capable of designing digital teaching resources to promote student engagement (M=3.82, S.D.=0.86) and teachers can design engaging and appealing digital learning activities (M=3.80, S.D.=0.79), respectively. The side with the lowest level mean value was teachers can use digital tools to design personalized learning paths and goals (M=3.54, S.D.=0.86).

Table 4.5 Questions classified by variables: Digital Implementation Capability

(n=235)

No.	Items	M	S.D.	Level	Rank
3.1	I can effectively utilize digital teaching platforms for instructional delivery.	3.84	0.75	high	1
3.2	I can use multimedia technology to assist in teaching and enhance teaching effectiveness.	3.82	0.73	high	2
3.3	I am capable of flexibly using digital teaching tools to solve teaching challenges.	3.65	0.82	high	10
3.4	I can enrich teaching content and resources using online resources.	3.72	0.85	high	9
3.5	I can organize classroom teaching activities using digital teaching methods.	3.80	0.80	high	4
3.6	I can engage students in classroom interaction and discussions using digital tools.	3.81	0.80	high	3
3.7	I can use digital teaching resources to guide student learning in classroom teaching.	3.78	0.80	high	5
3.8	I can timely showcase students' excellent works and examples using digital teaching tools.	3.75	0.86	high	6
3.9	I can publish teaching tasks and resources on digital teaching platforms.	3.74	0.90	high	7
3.10	I can facilitate collaboration and communication among students using digital means.	3.73	0.90	high	8
	Total	**3.76**	**0.82**	**high**	

According to Table 4.5, the study found that digital Implementation capability was at a high level (M=3.76, S.D.=0.82). Among them, according to the research results, the highest level was teachers can effectively utilize digital teaching platforms for instructional delivery (M=3.84, S.D.=0.75), followed by teachers can use multimedia technology to assist in teaching and enhance teaching effectiveness (M=3.82, S.D.=0.73) and teachers can engage students in classroom interaction and discussions using digital tools (M=3.81, S.D.=0.80), respectively. The side with the lowest level mean value was teachers were capable of flexibly using digital teaching tools to solve teaching challenges (M=3.65, S.D.=0.82).

Table 4.6 Questions classified by variables: Digital Evaluation Capability

(n=235)

No.	Items	M	S.D.	Level	Rank
4.1	I can timely assess students' learning performance using digital tools.	3.88	0.62	high	1
4.2	I can evaluate students' Chinese language learning outcomes through digital teaching resources.	3.86	0.71	high	2
4.3	I am capable of monitoring students' learning process in real-time using digital teaching platforms.	3.82	0.85	high	5
4.4	I can assess students' classroom participation and performance using digital tools.	3.83	0.84	high	4
4.5	I can quantitatively evaluate students' learning situations based on digital data.	3.84	0.85	high	3
4.6	I can analyze and evaluate students' assignments and exam scores using digital teaching tools.	3.81	0.75	high	6
4.7	I can provide personalized learning recommendations to students using digital assessment tools.	3.74	0.80	high	10
4.8	I am capable of assessing the effectiveness of teaching plans and strategies using digital data.	3.77	0.80	high	9

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4.9	I can collect feedback from students and parents through digital teaching platforms.	3.79	0.82	high	8
4.10	I can adjust teaching methods based on digital evaluation results.	3.80	0.85	high	7
	Total	**3.81**	**0.76**	**high**	

According to Table 4.6, the study found that digital evaluation capability was at a high level (M=3.81, S.D.=0.76). Among them, according to the research results, the highest level was teachers can timely assess students' learning performance using digital tools (M=3.88, S.D.=0.62), followed by teachers can evaluate students' Chinese language learning outcomes through digital teaching resources (M=3.86, S.D.=0.71) and teachers can quantitatively evaluate students' learning situations based on digital data (M=3.84, S.D.=0.85), respectively. The side with the lowest level mean value was teachers can provide personalized learning recommendations to students using digital assessment tools (M=3.74, S.D.=0.80).

Table 4.7 Questions classified by variables: Digital Innovation Capability

(n=235)

No.	Items	M	S.D.	Level	Rank
5.1	I can integrate digital technology to innovate teaching modes and methods.	3.76	0.90	high	1
5.2	I can utilize new digital teaching tools to conduct innovative teaching activities.	3.79	0.96	high	2
5.3	I am capable of exploring various digital technologies for Chinese language teaching.	3.72	0.80	high	5
5.4	I can use digital teaching resources to design innovative course content and learning tasks	3.70	0.85	high	4
5.5	I can enhance students' innovative thinking and problem-solving abilities through digital means.	3.68	0.86	high	3
5.6	I can stimulate students' interest and creativity using digital tools.	3.70	0.75	high	6
5.7	I am capable of driving innovation and reform in teaching methods through digital teaching platforms.	3.55	0.80	high	10
5.8	I can design interdisciplinary innovative teaching projects using digital teaching resources.	3.53	0.80	high	9
5.9	I can introduce digital innovative teaching cases and practical activities in classroom teaching.	3.69	0.82	high	8
5.10	I am committed to actively participating in digital education research and practice to promote innovative development in education.	3.57	0.85	high	7
	Total	**3.67**	**0.76**	**high**	

According to Table 4.7, the study found that digital innovation capability was at a high level (M=3.67, S.D.=0.84). Among them, according to the research results, the highest level was teachers can utilize new digital teaching tools to conduct innovative teaching activities (M=3.79, S.D.=0.96), followed by teachers can integrate digital technology to innovate teaching modes and methods (M=3.76, S.D.=0.90) and teachers were capable of exploring various digital technologies for Chinese language teaching (M=3.72, S.D.=0.80), respectively. And the side with the lowest level mean value was teachers can design interdisciplinary innovative teaching projects using digital teaching resources (M=3.53, S.D.=0.88).

This study conducted interviews with 9 education administrators. There were 8 interview questions in total. The analysis of the interview results is as follows:

Table 4.8 Summary of the Interview

Issues of Consideration	Opinions of the Interviewee
1. What is your opinion and attitude towards the development of the digital leadership of primary school Chinese language teachers in Shuangliu District, Chengdu City?	All 9 interviewees strongly support the improvement of the digital leadership of primary school Chinese teachers in Shuangliu District, Chengdu City. Meet the needs of digital transformation. Digital technology meets the curriculum characteristics of primary school Chinese and can make teaching more interesting and efficient.
2. What do you think of the level of	1) The overall situation is developing, but there are deficiencies.

digital leadership of primary school Chinese language teachers in Shuangliu District, Chengdu City?	2) The digital leadership of some primary school Chinese language teachers is at a low level. Especially teachers elderly ages used traditional teaching methods for a long time and have less integration of digital technology. 3) Digital leadership of Chinese language teachers with younger ages is relatively high. 4) Chinese language teachers' application and development of digital technology are at a low level. In particular, the ability to innovate based on the characteristics of Chinese courses is low. 5) Chinese language teachers' digital resource needs are inconsistent with the provision of resources. 6) The school's relevant support needs to be improved.
3. Do you have any suggestions or support measures to improve the digital analysis capabilities of primary school Chinese language teachers in Shuangliu District, Chengdu City?	1) Many older teachers have difficulty accepting new things. First of all, it is necessary to strengthen the training for these teachers to agree with the concept. 2) Teachers first need to establish their awareness of improving digital analysis capabilities. Develop the internal drive for self-improvement. 3) Analyze and select teaching content based on the characteristics of primary school Chinese subjects. Teachers need to strengthen the effective integration of Chinese teaching and digital technology based on the characteristics of the Chinese language. 4) Strengthen the analysis of the characteristics of primary school students. Many teachers are accustomed to using traditional methods to analyze students' learning situations, and the accuracy and fairness need to be improved. 5) Schools need to improve the digital technology literacy of Chinese teachers and regularly train Chinese teachers in the use of digital analysis technology. 6) Strengthen teachers' ability to analyze students' learning situations fairly and impartially. 7) Improve the ability of Chinese teachers to provide personalized support to students based on digital analysis.
4. Do you have any suggestions or support measures to improve the digital design capabilities of primary school Chinese language teachers in Shuangliu District, Chengdu City?	1) Teachers need to have digital design awareness and active learning capabilities. 2) Teachers need to closely integrate digital design with Chinese language courses and constantly experiment with form (listening, speaking, reading, and writing) and content. 3) Teachers need to integrate digital innovation into the presentation and training of listening, speaking, reading, and writing based on the characteristics of primary school students. Start by improving students' interest in learning. 4) Schools need to increase training on Chinese teachers' digital design capabilities and ensure teachers have opportunities to participate in training. 5) Schools should increase the practice of digital design among Chinese teachers during training. Especially for some older teachers, their acceptance of new technologies requires more time and training. 6) Invite experts or outstanding teachers to give demonstrations to diversify learning channels and learning methods. Encourage teachers to use fragmented time for flexible learning and improvement. 7) Encourage Chinese teachers to participate in various digital design seminars and competitions. 8) Provide continuous digital design resource support to facilitate Chinese language teachers to choose different technologies or resources according to their needs.

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5. Do you have any suggestions or support measures to improve the digital implementation capabilities of primary school Chinese language teachers in Shuangliu District, Chengdu City?	1) Schools should strengthen supervision and assessment of Chinese language teachers' use of digital technologies or resources. 2) Based on the results of the assessment, schools need to provide targeted training and support for teachers. 3) Schools need to increase investment in digital resource software and hardware to ensure that Chinese language teachers can use relevant digital resources normally in training and teaching. 4) Teachers need to proactively combine the characteristics of the Chinese language ((Listening, speaking, reading, and writing)) and increase the integration of digital technology into Chinese teaching to improve teaching effectiveness. 5) Teachers need to increase the use of digital technology in classroom interaction, homework, and examinations to improve work efficiency. 6) Strengthen digital cooperation and sharing between teachers, as well as sharing and communication between teachers and students, and between students. 7) Use digital technology to increase communication between teachers and students' parents.
6. Do you have any suggestions or support measures to improve the digital evaluation capabilities of primary school Chinese language teachers in Shuangliu District, Chengdu City?	1) Schools need to regularly train teachers on evaluation skills. 2) Encourage teachers to participate in workshops and practices related to digital assessment capabilities. 3) Encourage teachers to use digital technology to conduct fair, impartial, and comprehensive assessments of students. 4) Teachers need to provide personalized learning support to students based on the results of digital assessments. 5) Teachers need to improve their ability to adjust teaching methods promptly based on digital assessment results. 6) Encourage teachers to share and communicate about assessment methods and effects. Invite outstanding teachers or experts to exchange experiences.
7. Do you have any suggestions or support measures to improve the digital innovation capabilities of primary school Chinese language teachers in Shuangliu District, Chengdu City?	1) Schools should implement innovative support and reward mechanisms to further encourage Chinese language teachers to deeply integrate digital technology into Chinese language courses. 2) The school needs to further improve the content and methods of relevant innovative training to ensure the effectiveness of the training. 3) Schools need to combine the efforts of education authorities and society to create a good atmosphere that encourages and actively innovates for the improvement of digital leadership among Chinese language teachers. 4) Teachers should actively combine digital technology to innovate Chinese language teaching in their thinking. 5) The Chinese language has distinctive characteristics. Teachers should deeply combine the characteristics of traditional Chinese language teaching and explore the innovative integration of digital technology into Chinese teaching. For example, creating situations that can stimulate learners' emotions. Many text contents in Chinese textbooks can create situations in the classroom. 6) Teachers can increase their analysis of the characteristics of primary school students and start from aspects such as improving learning interest. If the situation is created, it should be related to the student's actual situation. Primary school students' abstract logical thinking is developing day by day, but in more cases, they still need to rely on the assistance of intuitive perceptual experience to arouse their emotional resonance. 7) Teachers can use digital technology to increase support for personalized learning for students in three stages: pre-class, in-class,

	and post-class. 8) Teachers should actively participate in training, seminars, or related competitions on digital innovative design.
8. Do you have any other suggestions?	1) Teachers need to actively strengthen their awareness of digital leadership and proactively improve it. 2) Teachers need to establish the concept of continuous learning and take the initiative to strengthen learning. 3) The school needs to further increase support, services, and guarantees in terms of systems, equipment, supervision, assessment rewards, etc. 4) Schools need to be teacher-centered and unite the government and society to jointly create a good atmosphere to enhance the digital leadership of Chinese teachers.

Through interviews, research has found that all 9 interviewees strongly support the improvement of the digital leadership of primary school Chinese teachers in Shuangliu District, Chengdu City. They believed it meets the needs of digital transformation meets the curriculum characteristics of primary school Chinese and can make teaching more interesting and efficient. They also believe this aligns with the requirements of the educational administration of Chengdu for the improvement of the personal and professional development of teachers.

Through interviews, the study found that there are still the following issues with digital leadership among primary school Chinese language teachers in Shuangliu District, Chengdu:

1) The overall development trend is good, but there are shortcomings.
2) Some primary school Chinese language teachers have a low level of digital leadership, especially older teachers who have long used traditional teaching methods and less integrated digital technology.
3) Younger Chinese language teachers have relatively higher levels of digital leadership.
4) Chinese language teachers have a relatively low level of application and development of digital technology, especially their ability to innovate based on the characteristics of Chinese language courses.
5) The demand and supply of digital resources for Chinese language teachers are inconsistent.
6) School-related support needs to be strengthened.

The respondents proposed the following suggestions for improving the digital leadership of primary school Chinese language teachers in Shuangliu District, Chengdu:

In terms of digital analysis capability, primary school Chinese language teachers need to first establish their awareness of improving digital analysis ability. Develop an internal drive for self-improvement.

In terms of digital design capability, primary school Chinese language teachers need to have an awareness of digital design and the ability to actively learn, and closely integrate digital design with the Chinese language curriculum.

In terms of digital implementation capability, teachers need to choose practical teaching media, software, and hardware equipment based on a full understanding of the characteristics and teaching content of Chinese language courses. At the same time, they need to actively combine the characteristics of the Chinese language, increase the integration of digital technology and Chinese language teaching (especially listening, speaking, reading, and writing), and improve teaching effectiveness.

In terms of digital evaluation capability, teachers need to actively participate in relevant training, seminars, and practices related to evaluation ability.

In terms of digital innovation capability, teachers should actively combine digital technology to innovate Chinese language teaching in their thinking and explore the innovative integration of digital technology into Chinese language teaching.

2. Schools should provide further support in terms of policies, environment, equipment, etc. Schools should formulate relevant support and guarantee policies based on the relevant policy documents of the Chinese Ministry of Education, increase investment in manpower, material resources, and funds, and promote the comprehensive improvement of digital leadership of primary school Chinese language teachers.

5. Conclusion

The results found that the digital leadership of primary school Chinese language teachers in Shuangliu District, Chengdu City in 5 aspects was at a high level. Considering the results of this research aspects ranged from the highest to lowest level were as follows: digital analysis capability, digital evaluation capability, digital implementation capability, digital design capability, and digital Innovation capability.

Based on the existing problems, this study proposes a guideline for improving the digital leadership of primary school Chinese language teachers in Shuangliu District, Chengdu:

1. At the teacher level
The digital analysis capabilities:
1) Teachers first need to establish their awareness of improving digital analysis capabilities. Develop the internal drive for self-improvement.
2) Teachers need to strengthen the analysis of Chinese teaching and digital technology based on the characteristics of Chinese.
3) Strengthen the analysis of the characteristics of primary school students. Many teachers are accustomed to using traditional methods to analyze students' learning situations, and the accuracy and fairness need to be improved.
4) Schools need to improve the digital technology literacy of Chinese teachers and regularly train Chinese teachers in the use of digital analysis technology.
5) Strengthen teachers' ability to analyze students' learning situations fairly and impartially.
6) Improve the ability of Chinese language teachers to provide personalized support to students based on digital analysis.

The digital design capabilities:
1) Teachers need to have digital design awareness and active learning capabilities.
2) Teachers need to closely integrate digital design with Chinese language courses and constantly experiment with form (listening, speaking, reading, and writing) and content.
3) Teachers need to integrate digital innovation into the presentation and training of listening, speaking, reading, and writing based on the characteristics of primary school students. Start by improving students' interest in learning.
4) Schools need to increase training on Chinese teachers' digital design capabilities and ensure teachers have opportunities to participate in training.
5) Schools should increase the practice of digital design among Chinese teachers during training. Especially for some older teachers, their acceptance of new technologies requires more time and training.
6) Invite experts or outstanding teachers to give demonstrations to diversify learning channels and learning methods. Encourage teachers to use fragmented time for flexible learning and improvement.
7) Encourage Chinese teachers to participate in various digital design seminars and competitions.
8) Provide continuous digital design resource support to facilitate Chinese language teachers to choose different technologies or resources according to their needs.

The digital implementation capabilities:
1) Schools should strengthen supervision and assessment of Chinese language teachers' use of digital technologies or resources.
2) Based on the results of the assessment, schools need to provide targeted training and support for teachers.
3) Schools need to increase investment in digital resource software and hardware to ensure that Chinese language teachers can use relevant digital resources normally in training and teaching.
4) Teachers need to proactively combine the characteristics of the Chinese language ((Listening, speaking, reading, and writing)) and increase the integration of digital technology into Chinese teaching to improve teaching effectiveness.
5) Teachers need to increase the use of digital technology in classroom interaction, homework, and examinations to improve work efficiency.
6) Strengthen digital cooperation and sharing between teachers, as well as sharing and communication between teachers and students, and between students.
7) Use digital technology to increase communication between teachers and students' parents.

The interviewees put forward the following suggestions for improving the digital evaluation capabilities of primary school Chinese language teachers in Shuangliu District, Chengdu City:
1) Schools need to regularly train teachers on evaluation skills.
2) Encourage teachers to participate in workshops and practices related to digital assessment capabilities.
3) Encourage teachers to use digital technology to conduct fair, impartial, and comprehensive assessments of students.
4) Teachers need to provide personalized learning support to students based on the results of digital assessments.

5) Teachers need to improve their ability to adjust teaching methods promptly based on digital assessment results.
6) Encourage teachers to share and communicate about assessment methods and effects. Invite outstanding teachers or experts to exchange experiences.

The digital innovation capabilities:
1) Schools should implement innovative support and reward mechanisms to further encourage Chinese language teachers to deeply integrate digital technology into Chinese language courses.
2) The school needs to further improve the content and methods of relevant innovative training to ensure the effectiveness of the training.
3) Schools need to combine the efforts of education authorities and society to create a good atmosphere that encourages and actively innovates for the improvement of digital leadership among Chinese language teachers.
4) Teachers should actively combine digital technology to innovate Chinese language teaching in their thinking.
5) The characteristics of the Chinese language are distinct, and teachers should deeply combine the characteristics of traditional Chinese language teaching and explore the innovative integration of digital technology into Chinese language teaching.
6) Teachers can increase their analysis of the characteristics of primary school students and start by enhancing their interest in learning.
7) Teachers can use digital technology to increase support for personalized learning for students in three stages: pre-class, in-class, and post-class.
8) Teachers should actively participate in training, seminars, or related competitions on digital innovative design.

2. At the school level
The enhancement of digital leadership among primary school Chinese language teachers requires their professional development awareness, as well as collaborative efforts from various stakeholders to improve relevant development and incentive mechanisms. Schools should formulate relevant support and guarantee policies based on the relevant policy documents of the Chinese Ministry of Education, increase investment in manpower, material resources, and funds, and promote the comprehensive improvement of digital leadership of primary school Chinese language teachers.

Recommendations
Based on the research results on digital leadership of primary school Chinese language teachers in Shuangliu District, Chengdu, suggestions are proposed from the perspectives of teachers and schools. Specifically, as follows:
Primary school Chinese language teachers should comprehensively improve in five aspects to achieve the comprehensive development of digital leadership.
The impact of rapidly developing information technology on education is constantly deepening. Primary school Chinese language teachers should seize the opportunity, comprehensively enhance digital leadership, and effectively enhance their professional abilities.
2. Schools should provide further support in terms of policies, environment, equipment, etc. Schools should further improve relevant systems and provide support and guarantees in terms of policies, funds, equipment, supervision, assessment, and rewards. Further, strengthen the relevant training for enhancing digital leadership of Chinese language teachers, establish online and offline learning platforms, and achieve diversification of learning channels and methods. Collaborate with the government and all sectors of society to create a favorable environment for enhancing digital leadership among Chinese language teachers.

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