The Interactive Study of Teachers Mental Health and Digital Literacy in the Field of International Chinese Language Education

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Abstract

With the advent of the digital era, International Chinese Language teachers are also faced with diversified, multi-level, and diverse teaching objects and environments, and thus need to possess strong digital literacy and psychological resilience to adapt to Chinese language teaching and learning in the digital environment. The purposes of this paper are to explore the relationship between digital literacy and mental health of International Chinese Language Teachers, and to give suggestions related to the improvement of digital literacy of international Chinese language teachers based on the findings of the study. Many studies found that teachers' mental health was linked to individual teachers' professional development and teacher behavior.

This paper uses a combination of qualitative and quantitative research methods. The Digital Literacy Questionnaire mainly based on DigCompEdu by EU and the SCL-90 Mental Health Questionnaire are adopted and forwarded to 580 International Chinese Language teachers to complete through the SoJump platform. Next, descriptive statistics, correlation analysis and regression analysis are performed on the collected data through SPSS26.

The results of the study find that there is a significant positive correlation between International Chinese Language teachers' digital literacy and mental health, and teachers' mental health has a positive predictive effect on digital literacy, suggesting that the emphasis on mental health should be strengthened when developing teachers' digital literacy.

In summary, teachers with good mental health are able to face the challenges of new technologies more positively, take the initiative to learn digital skills and improve their digital literacy. It’s better to take mental health more into account when improving the digital literacy of international Chinese language teachers

Keywords: The Interactive Study; Teachers Mental Health; Digital Literacy; International Chinese Language Education

Introduction

The mental health of the teaching force in International Chinese Language Education, a rapidly growing field, has a significant impact on the quality of teaching and learning. With the continuous advancement of digital technology, digital literacy has become an essential skill in modern society, and for International Chinese Language Teachers, it is not only related to their personal career development, but also affects the teaching methods and effectiveness (Xu Chenyang,2024). The mental health of international Chinese language teachers is crucial to their personal as well as their teaching work.

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And the main problems in the mental health of international Chinese teachers at present are as follows: 1. Cultural adaptation problems. Working in different cultural environments, international Chinese language teachers may face cultural conflicts and adaptation difficulties, leading to increased psychological pressure. 2. Increased burnout and loneliness. Long-term, high-intensity teaching work may lead to burnout, which manifests itself in low mood, low energy and reduced interest in work. Coupled with being in a foreign country, far from familiar environments, and lacking a social support system, it is easy to develop a sense of loneliness and alienation. (Bauer, J. et al., 2007) (Özer, N., and Beycioglu, K., 2010) 3. Insufficient mental health support. In many countries and regions, the mental health of international Chinese language teachers has not been emphasized, resulting in a lack of corresponding psychological guidance and difficulties in solving psychological problems in time. All these problems will become obstacles to the professional development of international Chinese language teachers.

Teachers with higher levels of mental health have stronger pro-social behaviors and are able to create a positive teaching atmosphere that improves students' critical thinking skills and the quality of teaching, which has a significant impact on students' language acquisition and intercultural communication skills (Scheuch K et al., 2015). And digital literacy enhancement is an inevitable requirement for teachers' professional development in modern society, which is not only related to whether teachers can effectively utilize digital technology for teaching, but also to teachers' personal professional development and competitiveness (Li Shuling and Wu Xiaomeng, 2020). Therefore, studying the impact of international Chinese language teachers' mental health on digital literacy is vital to deepen our understanding of psychological and social factors in the process of teachers' professional growth, as well as develop strategies to promote the overall development of International Chinese Language teachers. Through such a study, we can provide International Chinese Language teachers with a more comprehensive and humanized career development path to help them better adapt to the educational needs of the digital era, enhance their teaching effectiveness, thus contributing to the spread of the Chinese language.

Research Objectives

This study aims to explore the impact of international Chinese language teachers' mental health on their digital literacy enhancement. In order to achieve this goal, we will deeply analyze the relationship between teachers' mental health and digital literacy enhancement, and try to propose corresponding enhancement strategies. Specifically, this paper will answer the following questions:

1.Does the mental health of International Chinese Language teachers influence their digital literacy?

2.How does the mental health of International Chinese Language teachers affect their digital literacy enhancement?

3.How to promote digital literacy among International Chinese Language teachers by enhancing their mental health?

By exploring these issues, we expect to provide some new theoretical basis and practical references for the research on the mental health and digital literacy enhancement of International Chinese Language teachers.

Research Methodology

Literature Review

Current status of research on teachers' mental health

Since the 1990s, mental health has been the focus of major organizations and scholars from all over the world. In 1990, WHO clearly stated that changes in an individual's mental health may have consequences for the individual's physical condition, interpersonal relationships, work performance, and the development of the family system, society, and even the nation. With the development of positive psychology, the definition of mental health has slowly shifted from the "absence of symptoms" of "negative psychology" to a broader positive definition that goes beyond the absence of mental disorders or problems to a sense of well-being and positive human qualities (Park N et al., 2016). Teachers' mental health is a study specific to the field of education that combines mental health and the profession. It is through contact with teachers that students experience their educational sentiments and gradually establish values. Teachers' mental health is the foundation of students' mental health. Therefore, studying the mental health of teachers and improving their mental health is not only a requirement of the characteristics of the teaching profession and the times, but also a need for teachers' own development. Over the past few decades, scholars' researches on teachers' mental health have mainly consisted of the following two aspects: first, the analysis of the current situation of teachers' mental health and the assessment of the level (Ozamiz-Etxebarria et al., 2021) (Özü, Ö et al., 2017) (Liao Yanjia and Zhang Jianwei，2023) (Lin Xiaoqun et al.，2005); Second, an empirical investigation was used to explore the relationship between teachers' mental health and related variables, such as occupational stress, burnout, anxiety, emotional labor, and job satisfaction (MacIntyre, Peter D. et al., 2020) (Li, M., 2022) (Uzman, E., 2014) (Flook, L. et al., 2013). Numerous studies have shown that these influences are closely related to teachers' mental health (Zeng Lianping et al.，2019) (Zhang Ran and Ye Chao，2018).

The above research results not only show that in the past decade or so, the research on teachers' psychology and behavior has been multi-directional and fruitful, but also finds that there is a close relationship between teachers' mental health and their professional growth and comprehensive personal qualities.

Current status of researches on teachers' digital literacy

So far, there has been a certain amount of research on digital literacy by various organizations and scholars, and with the progress of information technology, the direction and focus of research have varied at different times. By combing the relevant literature, this paper can be roughly categorized into the following categories according to the topics of research:

First, research on the concept of digital literacy. Digital literacy is a dynamic concept in an interdisciplinary field, about which research has been still in the process of updating and optimizing, and has not yet been defined in a uniform way. The concept was first proposed by an Israeli scholar called Yoram Eshet Alkalai (1994). Subsequent scholars have continued to add to and update the concept, and it is generally agreed that digital literacy has long since ceased to refer to mere technological competence, but is a broader concept that has evolved with digital technology, and is a synthesis of a wide range of personal literacies (Martin，2006) (Xiao Junhong，2006) (Bawden，2008). The study found that the evolution of the Internet to social networking or web 2.0 was the main change that led to the reconceptualization of digital literacy. The American Library Association (ALA,2022) defines

digital literacy as "the ability to find, evaluate, create, and communicate information using information and communication technologies (ICT), which requires both cognitive and technical skills." Literacy in the face of digital technologies is a more complex process than just training on how to use hardware and software, with more complex goals such as fostering new digital cultural codes and forms of communication. Among these goals, it is important to highlight those related to educational work, which are increasingly necessary in the concept of virtual learning environments.

Second, the research on the construction of digital literacy frameworks or models. There is a long history of framework or model-type studies on digital literacy, mostly based on the development of the conceptual connotations of digital literacy that have been gradually refined and are numerous. After first conceptualizing digital literacy, Yoram Eshet Alkalai (1994) constructed a framework in 2004 with five dimensions including picture-image literacy, recreation literacy, branching literacy, information literacy, and socio-emotional literacy (Aviram A and Eshet-Alkalai Y, 2006). The TPACK framework proposed by Mishra and Köhler (2006) and the SAMR model proposed by Puentedura (2006) are frequently used in teacher education programs and are strongly supported by empirical research[19]. In 2018, the United Nations Educational, Scientific and Cultural Organization (UNESCO) updated and supplemented the ICT Competency Framework for Teachers (ICT-CFT-3 framework) to further strengthen the requirements for digital competencies for teachers. The EU, as a major contributor and facilitator in this field, first published a framework dedicated to exploring a capacity to enhance digital literacy for all in 2013 (DigComp), along with a number of programs in education and training designed with a view to improving the digital literacy capacity of specific groups, and based on this, in 2017, it published the European Framework for the Digital Competence of Educators (DigCompEdu). These two frameworks are by far the most widely recognized and applied standards with far-reaching implications. Falloon, G. (2020) presents a conceptual framework that introduces an expanded view of teacher digital competence (TDC). It goes beyond the currently prevalent notions of technology and literacy to argue for a more holistic and broader interdisciplinary understanding that recognizes that young people need increasingly sophisticated knowledge and skills in order to function ethically, safely, and productively in digitally mediated and diverse environments.

In addition to the research on frameworks and concepts, a number of scholars have explored the factors influencing digital literacy such as family background, gender, and motivation to master information technology (IT)（Gui, 2011) (Ertl, 2011) (Hatlevik，2015) There are also those that focus their research on specific populations. Sánchez-Cruzado et al. (2021) did a quantitative study of Spanish teachers at all educational levels to measure their digital skills over the last few school years (Sánchez-Cruzado C et al.，2021). Zhao, P. et al. (2018) investigated eight Chinese art teachers' digital concepts and use in teaching and learning (Zhao P et al.，2018). Anisimova, E. (2020) examined how to improve the digital literacy of preschool teachers in relation to increasing their willingness to use information technology in educational activities (Anisimova E，2020). Li et al. (2022) and Fang, Zifan, and Xu, Juan (2023) constructed a set of teachers' digital literacy indicator system and the model for International Chinese Language teachers based on the existing frameworks at home and abroad in response to the current demand (Li Xiaodong et al.，2022) (Fang Zifan and Xu Juan, 2023).

Overall, there is a sufficient amount of research on digital literacy, with some studies focusing on empirical quantitative research and some on descriptive qualitative research. Although the results of the studies are not consistent, and the studies in the field of education, especially the development of teachers' digital literacy skills, are not comprehensive, they are sufficient to reflect the importance that society attaches to digital literacy skills, and can serve as a reference for subsequent researchers.

Research the relationship between mental health and digital literacy among international Chinese language teachers

In the context of digital education, the business of International Chinese Language Education is developing rapidly, and the teaching task of Chinese language teachers is becoming more and more burdensome. At the same time, the differences in language, culture, and customs make the teachers bear great pressure in the teaching process. In addition, teachers face certain psychological pressure when they are faced with the challenges of professional development. Under prolonged pressure, some Chinese language teachers develop mental health problems, such as anxiety, depression, and strained interpersonal relationships. These problems not only affect the physical and mental health of individual teachers, but may also have a negative impact on their teaching and personal professional development (Yang Ruijuan，2013). From the above studies, it can be found that teachers' mental health has a significant impact on individual teachers' professional development and teacher behavior. The latest *International Chinese Language Teachers' Professional Competency Standards*（T/ISCLT 001-2022）released by International Society for Chinese Language Teaching (ISCLT) emphasizes the lifelong development of teachers and highlights teachers' cross-cultural communicative competence and digital technology application competence (Ye Jun，2023). Among them, the lifelong development of teachers and the ability to use digital technology are both reflections of the current demand for the construction of "digital literacy" competencies. The integration of this concept with International Chinese Language Education has become a new trend. Under the new situation, enhancing the digital literacy of international Chinese language teachers and exploring the relationship between the mental health of international Chinese language teachers and their digital literacy are both a requirement to promote the cross-fertilization of disciplines and an inevitable choice to actively promote the professional development of international Chinese language education and the healthy growth of international Chinese language teachers. To date, although there has not been much research on the role of mental health in the field of language education, especially for International Chinese Language teachers, the exploration of the relationship between the two is important for the development of the field.

Research tools

Mental Health Questionnaire. International Chinese language teachers were surveyed using the SCL-90, a symptom self-assessment scale developed by Derogatis in 1975, which has 90 items, each of which is set on a five-point Likert scale, ranging from "none", "very mild", "moderate", '"heavy", and "severe" with scores of 1, 2, 3, 4, and 5, respectively, and the lower the score, the higher the level of mental health. The questionnaire includes 10 factors such as somatization, obsessive-compulsive symptoms, interpersonal sensitivity, depression, anxiety, hostility, photic anxiety, paranoid ideation, psychoticism, and other. Many studies have demonstrated that the questionnaire has good reliability and validity.

Digital Literacy Questionnaire for International Chinese Language Teachers. By sorting out the relevant research results on digital literacy of teachers and international Chinese language teachers at home and abroad, this study decided to adopt the European Framework for the Digital Competence of Educators(DigCompEdu) released by the European Union in 2017 as the main basis, and then combined with the International Chinese Language Teachers' Professional Competency Standards （T/ISCLT 001-2022）released by ISCLT, as well as the characteristics of the discipline of International Chinese Language Education (ICLE). Besides, some concepts have been contextualized and the variable of digital environment has been added, and a digital literacy scale has been finally constructed for International Chinese Language Teachers , which consists of 6 latent variables and 30 items. The scale was tested using the Cronbach's alpha reliability coefficients for each of the six dimensions and for the scale as a whole, and the results showed that the reliability coefficients for all the dimensions were above 0.9, which indicates that the scale has good reliability and the quality of the dimensions is reliable. The validity test was conducted using KMO sampling suitability measure and Bartlett's sphericity. From the results, the KMO coefficient was 0.982 and Bartlett's sphericity test significance level P=0.00, the validity of the scale part of the questionnaire was good, and can be followed up with downscaling and other downscaling based data analysis.

Data Collecting

The survey was conducted with international Chinese language teachers as the subjects, and the final questionnaires were mainly forwarded to the teachers concerned through the Sojump platform. In the preliminary test, 180 questionnaires were distributed and 160 questionnaires were valid. In the formal test, 596 questionnaires were distributed, and 580 valid questionnaires were collected. The sample validity rate of the collected questionnaires was 97.3%, among which 76 were male teachers and 504 were female teachers.

Research Scope

This paper mainly contains the following aspects: Firstly, it focuses on the current status and literature sorting of studies related to teachers' mental health and international Chinese Language Teachers' digital literacy In order to comprehensively understand and assess the current state of teachers' mental health and digital literacy, this paper uses a combination of qualitative and quantitative research methods. Secondly, this paper uses a questionnaire to collect data related to the mental health and digital literacy enhancement of a certain range of International Chinese Language teachers. In the designing process of questionnaire scale, this paper is based on the widely used and recognized Mental Health Questionnaire(SCL-90) and European Framework for the Digital Competence of Educators (DigCompEdu), and then adjusted with the disciplinary characteristics of International Chinese Language. In the end, the final questionnaire can be determined through the reliability and validity test. By statistically analyzing the questionnaire data, this paper aims to reveal the intrinsic connection between the mental health of International Chinese Language teachers and the enhancement of digital literacy. In regard to the data analysis, this paper presents descriptive, correlation and regression analyses of the collected data through SPSS26. Finally, in the conclusion section, this paper summarizes the findings of the study and makes targeted recommendations. Through this study, it is expected to provide useful references for the formulation and implementation of policies related to the mental health and digital literacy

enhancement of International Chinese Language teachers, and to promote the development of the International Chinese Language Education.

Research Results

Mental health of International Chinese Language Teachers

The results of the means and standard deviations of the different age groups of International Chinese Language Teachers in relation to the SCL-90 factors and total scores are shown in Figure 1.

Figure 1 SCL-90 factors and total score

	29 and under		30-39 years		40-49 years		50 and over	
	M	SD	M	SD	M	SD	M	SD
F1Somatization	1.66	.69	1.86	.87	1.83	.75	1.83	.54
F2 Obsessive-compulsive	1.64	.65	1.82	.85	1.64	.69	1.47	.54
F3 Interpersonal sensitivity	1.63	.63	1.81	.81	1.63	.65	1.50	.64
F4 Depression	1.64	.65	1.85	.85	1.71	.68	1.58	.63
F5 Anxiety	1.62	.65	1.79	.86	1.60	.66	1.43	.51
F6 Hostility	1.83	.73	1.99	.81	1.78	.67	1.76	.58
F7 Photic anxiety	1.47	.60	1.63	.79	1.51	.70	1.45	.61
F8 Paranoid ideation	1.57	.59	1.78	.79	1.63	.63	1.42	.59
F9 Psychoticism	1.48	.56	1.68	.79	1.57	.62	1.44	.59

As can be seen from Figure 1, although the psychological health of International Chinese Language Teachers is generally positive and healthy, the SCL-90 factors of teachers of different ages are higher than the reference norm published by Jinhua and Wu (1986), indicating that the psychological health status of international Chinese language teachers should be given sufficient attention, which has a non-negligible impact on the professional development of individual teachers.

Next, a multivariate analysis of variance (ANOVA) was conducted with age and gender as independent variables and each of the SCL-90 factors as dependent variables. The results showed significant differences between teachers of different ages on the somatization, depression, and psychoticism factors($F1(4，506) =3.929，p<0.05$;$F4(4，506) =3187，p<0.05$;$F9 (3，506) =3.211，p<0.05$). The comparison revealed that teachers under 29 years of age were significantly healthier on somatization, depression, and psychotic factors than teachers between 30-39 years of age. From the results, the mental health status of International

Chinese Language Teachers also reached the level of significance on three influential factors: obsessive-compulsive disorder, interpersonal sensitivity, and anxiety($F2(4,506)=3.345, p<0.05$; $F3(4,506)=3.060, p<0.05$; $F5(4,506)=3.364, p<0.05$). The comparison revealed that teachers under 29 and over 40 years of age were significantly healthier on the obsessive-compulsive, interpersonal sensitivity, and anxiety factors than teachers between 30-39 years of age. On the paranoia factor, the mental health status of teachers aged 29 and below and 50 and above also reached a level of significance($F8(4，506) =4.167，p<0.05$). A comparison of teachers aged 29 and under and 50 and over was found to be significantly healthier on the paranoia factor than teachers aged 30-39. There was no significant difference in the gender effect on the teachers' SCL 90 factors.

Digital Literacy Status of International Chinese Language Teachers

The overall descriptive statistical analysis of the basic information of the respondents of the sample data of 580 respondents showed the results as shown in Figure 2.

Figure 2 Descriptive statistics of digital literacy

	N statistics	Minimum value statistics	Maximum value statistics	Mean statistics	Standard Deviation statistics	Skewness statistics	Standard Errors	Kurtosis statistics	Standard Errors
Total-professional development competence	580	4.00	24.00	14.8879	2.89891	-0.114	0.101	-0.012	0.203
Total-the awareness and application of digital resources	580	8.00	48.00	29.0190	5.76883	-0.049	0.101	0.281	0.203
Total-the management and assessment of digital teaching and learning	580	5.00	30.00	18.4103	3.93214	-0.107	0.101	-0.105	0.203
Total-facilitating learners' digital competence	580	5.00	32.00	18.0397	3.84368	-0.105	0.101	0.170	0.203
Total-digital environment	580	5.00	30.00	17.3483	3.85883	-0.052	0.101	-0.024	0.203
Total-digital will	580	3.00	18.00	11.2862	2.32152	-0.181	0.101	0.031	0.203

From the mean value, digital resource awareness and application is much higher than the other five dimensions, indicating that the respondents' digital resource awareness ability is outstanding, but since the standard deviation of this item is also the largest, the degree of dispersion is relatively large, reflecting the unevenness of this ability among the respondents, and the instability of digital resource mastery ability between different individuals. In addition, the kurtosis coefficient is used to illustrate the degree of spikiness and flattening of the distribution by comparing it to the kurtosis coefficient of the standard normal distribution. The kurtosis value for the digital resource awareness and application dimension is positive 0.281, with a spike distribution of data and a more concentrated distribution of data due to less than 0.5, specifically a low degree of spike distribution. The skewness coefficient for this dimension is -0.049, indicating that the data distribution of digital resource awareness and

application is somewhat skewed and left-skewed, but the degree of skewness is small.

The three dimensions of the management and assessment of digital teaching and learning, facilitating learners' digital competence, and digital environments have similar means of 18.4103, 18.0397, and 17.3483, respectively, and almost the same standard deviation, and the distribution of the data is slightly skewed to the left, but the only difference is that only the dimension of facilitating learners' digital competence is a low spiked distribution, with a positive kurtosis of 0.170, and therefore the data is more concentrated. This result suggests that the respondents were similarly competent in all three dimensions, except that the high scores of the empowered learners had slightly more scores and a slightly larger number of recipients.

The dimensions of professional development competence and digital will are at the lower end of respondents' mastery compared to the remaining four dimensions, with mean values of 14.8879 and 11.282, respectively. Among them, digital will mastery was the weakest and had a skewness value of -0.181, the most skewed left bias of the six dimensions, but on the other hand the kurtosis value was positive, with a low spiking distribution.

On the whole, the 580 interviewees showed the characteristics of being young and highly educated, with undergraduate and postgraduate students being the majority of the young teacher group, their professional backgrounds being hierarchical, and their teaching objects being involved in a more comprehensive manner, thus indicating that the sample data of this research has a good representativeness.

The relationship between mental health and digital literacy among International Chinese Language Teachers

A correlation analysis of mental health and digital literacy among International Chinese Language Teachers

Correlation analysis was conducted through SPSS26 and the results are shown in Figure 3. As shown in Figure 3, there is a significant positive correlation between the factors of digital literacy and the factors of mental health.

Figure 3 Correlations between factors of digital literacy and mental health

	professional development competence	the awareness and application of digital resources	the management and assessment of digital teaching and learning	facilitating learners' digital competence	digital environment	digital will	Total-Digital literacy
Somatization	.234**	.621**	.204**	.660**	.886**	.145**	.468**
Obsessive-compulsive	.234**	.326**	.239*	.241**	.306**	.312**	.286**
Interpersonal sensitivity	.621**	.326**	.117*	.544**	.195**	.295**	.350**
Depression	.204**	.124*	.117*	.193**	.293**	.195**	.197**

Anxiety	.660**	.241**	.544**	.193**	.668**	.868**	.529**
Hostility	.207**	.198**	.236**	.231**	.223**	.213**	.228**
Photic anxiety	.222**	.204**	.220**	.235**	.212**	.233**	.221**
Paranoid ideation	.230**	.204**	.195**	.231**	.243**	.233**	.232**
Psychoticism	.234**	.234**	.127**	.210**	.156**	.230**	.199**
Others	.173**	.187**	.185**	.175**	.201**	.210**	.190**
Total-SCL-90	.586**	.406**	.315**	.495**	.668**	.568**	.596**

An analysis of mental health as a predictor of digital literacy

A stepwise multiple regression analysis was conducted with total digital literacy and each factor as the dependent variable and total SCL 90 and each factor as the independent variable, and the results are shown in Figure 4. It was found that when total digital literacy was used as the dependent variable, obsessive-compulsive symptoms, interpersonal sensitivity, and depression entered the regression equation in that order, with an overall explanatory rate of 55.8%, and the three variables had explanatory rates of 19.1%, 23.0%, and 13.7%, respectively. When professional development competences were used as the dependent variable, it was obsessive-compulsive symptoms and interpersonal sensitivity that entered the regression equation in that order, with an overall rate of explanation of 22.8%, and two variables with rates of explanation of 8.9% and 13.9%, respectively. When the awareness and application of digital resources was used as the dependent variable, obsessive-compulsive symptoms and interpersonal sensitivity entered the regression equation in order, with an overall explanatory rate of 15.9%, and the explanatory rates of the two variables were 8.1% and 7.8%, respectively. When the management and assessment of digital teaching and learning was used as the dependent variable, obsessive-compulsive symptoms and interpersonal sensitivity entered the regression equation in order, with an overall explanatory rate of 16.2%, and the explanatory rates of the two variables were 6.7% and 9.5%, respectively. When facilitating learners' digital competence was used as the dependent variable, it was interpersonal sensitivity and depression that entered the regression equation in order, with an overall rate of explanation of 15.7%, and two variables with rates of explanation of 6.9% and 8.8% respectively. When digital environment was used as the dependent variable, obsessive-compulsive symptoms and interpersonal sensitivity entered the regression equation in order, with an overall rate of explanation of 11.3%, and the rates of explanation for the two variables were 5.2% and 6.1%, in that order. When digital will be used as the dependent variable, obsessive-compulsive symptoms and depression entered the regression equation in order, with an overall explanation rate of 14.4%, and the explanation rates for the two variables were 6.7% and 7.7% respectively.

Table 4 Multiple regression analysis of digital literacy and mental health

dependent variable	independent variable	R Square	Adjusted R Square	B	Beta	t	p
Total-Digital literacy	obsessive-compulsive	.191	.189	.102	.104	2.690	.008
	interpersonal sensitivity	.230	.226	.277	.283	6.346	.000
	depression	.137	.132	.089	.091	2.289	.012
professional development competence	obsessive-compulsive	.089	.083	.091	.088	2.119	.022
	interpersonal sensitivity	.139	.135	.018	.011	3.250	.000
the awareness and application of digital resources	obsessive-compulsive	.081	.080	.020	.021	2.150	.023
	interpersonal sensitivity	.078	.076	.088	.087	3.019	.002
the management and assessment of digital teaching and learning	obsessive-compulsive	.067	.065	.226	.217	2.367	.016
	interpersonal sensitivity	.095	.90	.197	.194	6.090	.003
facilitating learners' digital competence	interpersonal sensitivity	.069	.066	.233	.226	5.397	.000
	depression	.088	.086	.098	.108	2.689	.042
digital environment	obsessive-compulsive	.052	.050	.165	.156	2.073	.021
	interpersonal sensitivity	.061	.059	.226	.221	2.542	.020
digital will	obsessive-compulsive	.067	.066	.092	.089	2.134	.026
	depression	.077	.073	.062	.056	2.763	.039

Discussion

The study on the relationship between digital literacy and mental health of International Chinese Language Teachers finds that there is a significant positive correlation between the factors of digital literacy and the factors of mental health. This suggests that there is a link between digital literacy and mental health, while the multiple regression analysis also reveals that teachers' mental health has a certain positive predictive effect on digital literacy, which agree with previous work(Bauer, J. et al., 2007) (Özer, N., and Beycioglu, K., 2010)(Yu Guoliang & Zhang Zhe,2023)(Li Haiyan,2020). In other words, teachers with good mental health are able to face the challenges of new technologies more positively and take the initiative to learn digital skills and improve their digital literacy.

The nature of the work of a teacher is highly stressful, and the professional characteristics of International Chinese Language Teachers are even more unique because they teach students whose mother tongue is not Chinese. They need to adapt to the cultures, social habits and educational systems of different countries and regions. Particularly in the

context of rapidly evolving digital teaching and learning, the process of cultural adaptation inevitably requires teachers to be more emotionally engaged and to face various psychological adaptation challenges, which may lead to psychological fatigue and anxiety. This cross-cultural working environment can increase psychological stress and have an impact on their physical and mental health. It is also important to note that some International Chinese Language teachers may be temporary or contractual, especially the group of young Chinese language volunteers, and lack long-term stable job security. In addition, most of the expatriate Chinese volunteer teachers have difficulties in sharing resources and teaching cooperation with their foreign colleagues due to their lack of knowledge of the local language, and sometimes receive inappropriate teaching evaluations. This instability and unease may have a negative impact on mental health, which in turn hinders the development of teachers' digital literacy.

Recommendations

Currently, there is a relative lack of resources and support for International Chinese Language Teachers in terms of psychological training, which limits their professional development to a certain extent. Therefore, from the perspective of mental health, in order to promote the digital transformation of International Chinese Language Education and improve teachers' digital literacy, measures can be taken in the following areas:

First, practice-oriented vocational integrated training is strengthened. This type of training provides targeted digital literacy training for real teaching scenarios and applies the training content to actual teaching with greater operability and practicality. The training should not only cover basic professional knowledge, digital teaching techniques and digital management techniques, but also provide lectures on mental health for international Chinese language teachers to improve their psychological resilience. Through regular psychological lectures and seminars, teachers will be able to understand and face up to their own psychological conditions and learn to adjust their emotions, thereby alleviating the pressure and anxiety of the digital teaching process and enhancing their self-confidence.

Secondly, perfect the technical equipment and incentive mechanism to improve the working environment of teachers. Give teachers more care and support in terms of teaching tasks, title evaluation, etc., stimulate their internal drive, create a relaxed and harmonious working environment for international Chinese teachers, and reduce their psychological pressure. Working in a positive environment promotes teachers' professional development and dedication to teaching and learning.

Third, establish a platform for International Chinese Language Teachers to support each other and exchange ideas. Emotional support and empathy among peers can help reduce psychological burdens, so it is vital to provide a platform for International Chinese Language teachers to talk about difficulties in the digital teaching process and life pressures, and encourage the sharing of digital teaching experiences and mental health knowledge.

Finally, interactive salon activities should be organized to facilitate good interpersonal relationships. Regression analyses of digital literacy and mental health showed that obsessive-compulsive symptoms, interpersonal sensitivity, and depression factors in mental health were positive predictors of digital literacy. This means that teachers must develop good interpersonal relationships with their colleagues and students, and increase their understanding and affection for each other through face-to-face activities in order to communicate

effectively, receive support and encouragement, and enrich their teaching experience. Positive relationships also help to increase student enthusiasm and engagement in the classroom, which leads to more effective teaching and learning.

In summary, the results of this study show that International Chinese Language teachers' mental health has a significant impact on digital literacy improvement. By focusing on and improving teachers' mental health, their digital literacy can be effectively improved, thus contributing more to the development of International Chinese Language Education.

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