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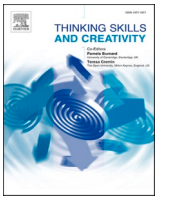

The influence of social capital on primary school teachers' creative teaching behavior: Mediating effects of knowledge sharing and creative teaching self-efficacy

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ABSTRACT

Based on social capital theory, this study attempts to investigate the underlying relationship between social capital and teachers' Creative Teaching Behavior (CTB) in school organizations, and further reveal the mechanism of social capital's effect on teachers' CTB, to provide insight into improving teachers' CTB. Random cluster sampling was used. The research model was developed by reviewing the literature and tested with survey data collected from 415 teachers in 36 primary schools from Jiangsu province, China. Teachers completed the Social Capital Questionnaire, Knowledge Sharing Questionnaire, Creative Teaching Self-efficacy Questionnaire, and Questionnaire on CTB. Demographic variables including gender, teaching experience, educational level, and professional title, were all controlled. Finally, we conducted structural equation modelling to simultaneously estimate direct and indirect effects in the case of clustered data. Results revealed that social capital positively predicted primary school teachers' CTB; and that social capital influenced teachers' CTB through the single mediating effect of knowledge sharing and the chain mediating effect of knowledge sharing and creative teaching self-efficacy. The findings not only indicated that social capital affected CTB directly, but also indirectly through knowledge sharing and creative teaching self-efficacy as mediator roles. This study has both theoretical and empirical implications for teachers' CTB.

1. Introduction

With the rapid development of science and technology and the global economy, training a large number of creative talents has become one of the core objectives of education in many countries around the world. There is a great need for teachers who teach creativity, as teachers play an important role in fostering students' creativity in the school environment (Davies et al., 2014; Mulletet al., 2016). Improving creativity must begin in schools and it is the responsibility of educators to ensure that students are taught and encouraged to be creative. Research has also shown that teachers' creative teaching behavior (CTB) can improve students' ability to come up with innovative ideas and problem solving (Gajda et al., 2017).

Teachers' CTB is the behavior in teaching for creativity, in which the teachers aim to develop the creative thinking or behaviour of the students (Huang et al., 2021; Jeffrey & Craft, 2004). Factors related to teachers' CTB have been analysed from different

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perspectives.It has been found that factors related to teachers themselves include teacher skills (Davies et al., 2014), teachers' beliefs about teaching for creativity (Chan & Yuen, 2014; Mullet et al., 2016), creative personality (Chan & Yuen, 2014), metacognition and enthusiasm (Huang et al., 2021), teachers' job crafting and the satisfaction of their basic psychological needs (Huang et al., 2022). Factors related to the school environment have also been explored, such as principal's transformational leadership and innovative school climate (Chang et al., 2021), school support of teaching for creativity (Huang et al., 2019), and general collaboration in teaching between teachers (Huang et al., 2021).

Despite the attention given by researchers to teaching for creativity, there are many limitations for teachers to implement CTB in reality (Davies et al., 2014; Rubenstein et al., 2018). For example, teachers are required to take on many responsibilities related to academic requirements, which limits them from time and energy to teach for creativity (Mullet et al., 2016); many educational systems also act as barriers for teachers to teach for creativity (Banaji et al., 2013). Therefore, it is necessary to study the factors that promote teaching for creativity and provide an empirical basis for the effective promotion of teaching for creativity. Many studies in the workplace have shown that employees' social capital contributes to individual creative performance or innovative activities (Akhavan & Hosseini, 2016; Bhatti et al., 2020; Wang et al., 2021). Research in the field of education also confirms that social capital has a positive impact on creativity in graduate students (Gu et al., 2014). Although the important role of social capital in creativity and teacher development has been recognized (Ozer and Zhang, 2021), there is very limited literature examining the relationship between social capital and teachers' CTB. This study attempts to explore the relationship between teachers' social capital and their CTB and to further reveal the role of knowledge sharing and creative teaching self-efficacy in the relationship between social capital and CTB in order to promote teachers' CTB.

2. Literature review and research hypotheses

2.1. Social capital and teachers' CTB

Social capital refers to the sum of actual and potential resources acquired and derived through a network of relationships embedded in organization (Nahapiet & Ghoshal, 1998). According to Nahapiet & Ghoshal (1998), social capital consists of three dimensions: structural, cognitive and relational.The structural dimension of social capital refers to the connections between members. The cognitive dimension of social capital is that with whom and with what frequency they share information. The relational dimension of social capital describes the kind of personal relationships with each other through interactions. Similarly, Adler & Kwon (2002) defined social capital as the resource available to actor as a function of their location in the structure of social relations. Social capital theory suggests that social capital includes"the features of social organization, such as trust, norms and networks that can improve the efficiency of society by facilitating coordinated actions". Coleman (1988) also states that the key attributes of social capital are trust, networks and norms among members that can contribute to certain behaviors of actors. In short, social capital is the social network that individuals build in the course of their interactions with others, which enhances trust, support and cooperation between members, and through activating their social network giving them access to various resources, such as information and opportunities.

The relationship between social capital and creativity has been extensively researched in organisation and management studies. Research has shown that social capital is a key factor in creativity (Subramaniam & Youndt, 2005). Social network-related factors, such as social interaction, support and cooperation from others, contribute to individual creativity (Ding et al., 2018; Golden & Raghuram, 2010; Maulana et al., 2011). Interaction with network members provides valuable information which is important for the development of innovative ideas (Yeh et al., 2012). Many studies have confirmed the positive relationship between social capital and creative performance or innovative activity (Akhavan & Hosseini, 2016; Bhatti et al. 2020; Wang et al. 2021).

Social capital, when applied to education, highlights the resources available to teachers through their social interactions with colleagues and access to additional resources to facilitate student learning. It is difficult for teachers to teach for creativity if they 'go it alone' without the support and interaction of a social network (Banaji et al., 2013). There is now a growing interest in developing trust among teachers (Wu et al., 2014), and a trusting and supportive social network is essential for teachers' CTB.

While very few studies have directly explained the relationship between social capital and teachers' CTB, there is some indirect evidence to support this. School support of teaching for creativity is crucial for positive attitudes and good performance of teachers in teaching for creativity (Huang et al., 2019).General collaboration in teaching between teachers helps teachers to teach for creativity, as does the innovation of colleagues and the equipment and resources available to facilitate teaching for creativity (Huang et al., 2021). A school culture that hinders creativity and a lack of peer support can be barriers to teachers implementing teach for creativity(Davies et al., 2014). There is a positive relationship between teaching experience and teaching for creativity, and learning through colleague interactions promotes process-oriented teaching for creativity (Huang, 2021). Research in higher education has also shown that the peer, advisor, and expert social capital of graduate students has a positive impact on graduate students' creativity (Gu et al., 2014). Colleague support, collaboration and interaction are all the features of social capital, which can contribute to teachers' CTB. Accordingly, the following hypothesis was formulated:

Hypothesis 1. (H1): Social capital is positively related to teachers' CTB.

2.2. The mediating role of knowledge sharing between social capital and teachers' CTB

Knowledge sharing is the provision of task knowledge, experiences, skills, teaching practices, coming up with creative ideas, or implementing procedures to help others and to collaborate to solve problems (Talebizadeh et al., 2021). Knowledge sharing is a

fundamental means of promoting knowledge application, innovation, and organizational competitiveness (Ganguly et al., 2019), as well as the process by which employees exchange knowledge and experiences to gain new ideas and create new knowledge (Wang & Noe, 2010). This knowledge sharing creates favourable conditions for employee innovation and is essential for their creativity (Hu & Zhao, 2016).

Knowledge sharing promotes innovation and reuse of knowledge at both individual and school levels, providing teachers with the knowledge base to implement CTB. Teachers' teaching for creativity is not likely to come from a closed-door vision, but from the exchange and learning of creative teaching ideas among teachers and their own effective experiences in teaching practice. Teachers' knowledge of teaching for creativity can be shared among teachers' groups through teachers' meetings, teaching and research activities, and collective lesson planning, thus improving teachers' knowledge and ability to teaching for creativity. Research has shown that there is a positive correlation between teaching experience and teaching for creativity (Huang, 2021), and that knowledge sharing could improve teachers' CTB (Gunawan & Herachwati, 2016).

In reality, however, the problem we encounter is that many members of organizations are reluctant to share their knowledge with colleagues (Casimir et al., 2012), or even to hide or withhold knowledge (Connelly et al., 2012). Knowledge sharing is even less easy when knowledge is associated with individual interests (Davenport & Prusak, 1998). For example, when that knowledge is related to scarce resources such as teachers' job titles, awards, and merits, their willingness to share is significantly reduced.

Social capital is a theoretical framework that explains knowledge sharing mechanisms in organizations (Akhavan & Hosseini, 2016). Coburn & Russell (2008) argue that teachers' social capital includes social networks, trust, accessibility of expertise and interactive content. Specifically, social networks provide teachers with the opportunity to share resources such as guidance, help and information directly related to teaching and learning. Trust between colleagues is fundamental to share expertise. Rather than working, learning or sharing knowledge in isolation, employees are embedded in social networks. Knowledge sharing is often thought of as an interpersonal interaction that requires frequent interaction and a network of trusting relationships (Hsu, & Chang, 2014; Mutahar et al., 2022). Trust and interpersonal relationship between colleagues could significantly increase individuals' willingness to share knowledge (Ding et al., 2018; Golden & Raghuram, 2010; Wang & Noe, 2010).

Teachers' knowledge sharing process is also embedded in a network of social relations and cannot be separated from the social interaction between teachers in educational contexts. The interpersonal relationships between teachers constitute the knowledge sharing network of teachers (Butler et al., 2004). First, frequent social interactions promote the exchange and sharing of knowledge among people (Qureshi et al., 2018). Second, only with mutual trust can teachers develop a sense of belonging and security, which reduces resistance to knowledge sharing (Kessel, 2012). People are more willing to help those with whom they have close personal relationships, and previous research supports the idea that interpersonal trust based on social capital plays an important role in intra-organisational knowledge sharing (Hsu & Chang, 2014). Thus, teachers' social capital can facilitate the sharing of their knowledge. Research has also shown that internal relationships and trust in social capital have a positive effect on knowledge sharing (Ganguly et al., 2019; García-Sánchez et al., 2019), and knowledge sharing mediates between social capital and innovative behaviour (Singh et al., 2021).

In summary, social capital could facilitate the sharing of teachers' knowledge, and knowledge sharing enhances teachers' CTB. Therefore, the following hypothesis is proposed:

Hypothesis 2. **(H2):** Knowledge sharing mediates the relationship between social capital and teachers' CTB.

2.3. The mediating role of creative teaching self-efficacy in social capital and teachers' CTB

Bandura (1997) introduced the concept of self-efficacy in 1977, defining self-efficacy as "the belief in one's capabilities to organize and execute courses of action required to produce given attainments" . Creative self-efficacy is an extension of self-efficacy in the creative domain, and is defined as the belief that one is capable of producing creative outcomes (Tierney & Farmer, 2002). Creative self-efficacy reflects employees' evaluations and beliefs about their ability to produce results in their creative work. Specifically, in relation to teachers' teaching for creativity, researchers have further developed the concept of creative teaching self-efficacy, which refers to teachers' perceptions and judgments of their ability to teach for creativity and achieve the goal of enhancing students' creativity in their teaching activities (Lin & Chiou, 2008). Creative teaching self-efficacy focuses specifically on the teacher's ability to enhance students' creativity, rather than on other teaching outcomes. Creative teaching self-efficacy influences teachers' decisions about what behavior to undertake and their persistence and effort in the face of obstacles, and is shaped by efficacy information obtained through mastery experience, vicarious experience, social persuasion, and affective states (Bandura, 1997).

Teachers' perceptions and beliefs about their ability to teach for creativity are determinants of teachers' implementation of CTB (Bandura, 1997). Innovation is a challenging goal which needs to be built on the confidence of people to solve problems in innovative ways. Teachers are most likely to implement CTB when they have sufficient confidence in their teaching for creativity, that is, when their creative teaching self-efficacy is high (Liu & Wang, 2019). Research has shown that creative self-efficacy is an significant intrinsic motivator influencing an individual's creative performance (Karwowski, 2011), which positively predicts an individual's creative behavior (Beghetto et al., 2011). It has even been suggested that fostering an individual's creative self-efficacy is more effective than direct intervention in creativity (Mathisen & Bronnick, 2009). Meta-analysis also suggests a consistent and moderately strong association between creative self-efficacy and creative outcomes (Farmer & Tierney, 2017). The positive relationship between teachers' creative teaching self-efficacy and CTB has also been confirmed (Gunawan & Herachwati, 2016).

As a network of social relationships, social capital contributes to teachers' creative teaching self-efficacy. Teachers' beliefs about creativity rely heavily on the environment, but few studies have explored the impact of teachers' perceived environment on their

creative teaching self-efficacy (Bereczki & Kárpáti, 2018). The higher teachers' social capital, the more relational resources they have, which they can directly use to solve problems, thus increasing the confidence of teachers to implement teach for creativity. Social capital can also influence teachers' creative teaching self-efficacy through social persuasion. In an atmosphere of understanding and trust, when teachers doubt their own ability to teach for creativity, they support each other through social interaction, thereby strengthening and even reshaping personal beliefs about their ability to teach for creativity. Research has also confirmed the positive role of social capital on self-efficacy (Chen & He, 2011), and the mediating role of self-efficacy between social capital and individual behaviour (Cai et al., 2021).

In conclusion, social capital contributes to teachers' creative teaching self-efficacy, and there is a positive relationship between creative teaching self-efficacy and teachers' CTB. Accordingly, the following hypothesis is proposed:

Hypothesis 3. (H3): Creative teaching self-efficacy mediates between social capital and teachers' CTB.

2.4. The relationship between knowledge sharing and creative teaching self-efficacy

Knowledge sharing enhances people's creative self-efficacy by providing relevant expertise and skills. Knowledge is necessary for success. Because of their extensive knowledge, experts are more efficient problem solvers than novices. Creative self-efficacy is a personal characteristic related to the ability to create, based on one's creative knowledge and skills (Gist & Mitchell, 1992). Research has found that job-related knowledge is an antecedent variable of creative self-efficacy (Tierney & Farmer, 2002). Knowledgeable people had higher self-efficacy when accomplishing challenging goals (Yang & Cheng, 2009). Because knowledge sharing contributed to problem solving, individuals' chance of success as well as self-efficacy were increased. Research has also revealed that knowledge sharing increases employees' creative self-efficacy (Hu & Zhao, 2016). Accordingly, the following hypothesis is proposed:

Hypothesis 4. (H4): Knowledge sharing positively predicts creative teaching self-efficacy. Social capital also acts on teachers' CTB through the knowledge sharing–creative teaching self-efficacy chain mediator.

In summary, although research in fields such as organizational behavior has found positive effects of social capital on creativity, the relationship between social capital and teachers' CTB and its internal mechanisms are still in a "black box". Based on social capital theory, this study derived a theoretical research framework of the influence of social capital on teachers' CTB, with knowledge sharing and creative teaching self-efficacy as mediating variables (Fig. 1), to reveal the mechanism of social capital's effect on teachers' CTB. Since the elementary school period is critical to the development of one's innovation (Claxton & Pannells, 2010), it is significant to focus on the CTB of elementary school teachers to foster students' creativity. Thus, this study was conducted with elementary school teachers.

3. Research method

3.1. Participants

A random integer sample of 415 teachers from 36 elementary schools in Jiangsu Province in China was selected. The basic information of the participants is shown in Table 1.

3.2. Measures

3.2.1. Social capital

The social capital questionnaire was used, which was developed by Wang (2004). The questionnaire consists of 31 items, such as "We often help each other." The questionnaire was divided into seven dimensions: intimate friendship, trust relationship, cognitive identity, network interaction, network centrality, network density, and positive enthusiasm. 4-point Likert-type scale was used to measure each item, ranging from 1 (strongly disagree) to 4 (strongly agree). The higher the score, the higher the social capital. In this

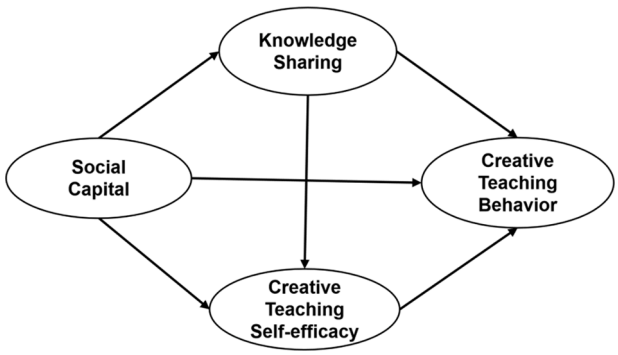

Fig. 1. Theoretical research framework.

Table 1
Demographic information of the participants.

Demographics	Categories	Frequency	Percentage
Gender	Male	131	31.6
	Female	284	68.4
Years of teaching experience	1–5	104	25.1
	6–10	59	14.2
	11–15	69	16.6
	16–20	60	14.5
	21–25	45	10.8
	26–30	30	7.2
	> 30	48	11.6
Educational level	High school	17	4.1
	Junior college	132	31.8
	Bachelor	260	62.7
	Master	6	1.4
Professional title	Junior	135	32.5
	Medium-grade	185	44.6
	Senior	95	22.9

study, regarding internal consistency, the Cronbach's alpha values of each dimensions were 0.87, 0.89, 0.86, 0.86, 0.85, 0.74, 0.81, respectively. The results showed that the model had a good fit (RMSEA = 0.071 (90% CI of 0.067-0.082), CFI = 0.939, TLI = 0.919, χ^2/df = 1951.03/413 = 4.73, SRMR = 0.066).

3.2.2. Knowledge sharing

A knowledge sharing behavior questionnaire developed by Chen & Chen (2013) was used. The questionnaire consisted of 19 items, such as "I often share or acquire knowledge from formal school meetings." Four dimensions were included: formal written sharing, informal written sharing, formal non-written sharing, and informal non-written sharing. Items were also measured on a 4-point Likert-type scale, ranging from 1 (strongly disagree) to 4 (strongly agree). The higher the score, the more knowledge sharing behavior. In this study, regarding internal consistency, the Cronbach's alpha values of each dimensions were 0.80, 0.82, 0.76, and 0.78, respectively. The results showed that the fit of measurement model is well (RMSEA = 0.070 (90% CI of 0.063-0.078), CFI = 0.966, TLI = 0.943, χ^2 /df = 650.82/146 = 4.46, and SRMR = 0.055).

3.2.3. Creative teaching self-efficacy

A self-efficacy questionnaire for teachers' teach for creativity developed by Lin & Chiou (2008) was used. The questionnaire consists of 15 items, such as "I can guide students to use creative thinking strategies to develop their creativity." There are three dimensions: self-affirmation, negative self-awareness, and anti-stress beliefs. Using a 5-point Likert-type scale to measure items, ranging from 1 (strongly disagree) to 5 (strongly agree). The higher the score, the stronger the teachers' creative teaching self-efficacy. In this study, regarding internal consistency, the Cronbach's alpha values of each dimensions were 0.90, 0.76, and 0.86, respectively. The results showed that the fit of model is good (RMSEA = 0.079 (90% CI 0.069-0.088), CFI = 0.916, TLI = 0.899, χ^2/df = 371.31/87 = 4.27, SRMR = 0.051).

3.2.4. Teachers' CTB

A questionnaire on teachers' CTB developed by Cropley (1997) and revised by Zhang et al. (2008) was used. The questionnaire consists of 28 items, such as "Students know that I do not dismiss their suggestions easily." It includes four dimensions: learning style guidance, motivation, perspective evaluation, and encouragement of adaptation. Each item was measured on a 5-point Likert-type scale, ranging from 1 (never do this) to 5 (always do this). The higher the score, the more CTB. In this study, regarding internal consistency, the Cronbach's alpha values of each dimensions were 0.83, 0.79, 0.88, and 0.89, respectively. The results showed that the measurement model had a good fit (RMSEA = 0.071 (90% CI 0.066-0.082), CFI = 0.927, TLI = 0.940, χ^2/df = 1549.25/344 = 4.50, SRMR = 0.057).

3.2.5. Common method bias

The common method bias test using the Harman one-way method yielded a total of 17 factors with eigenvalues greater than 1. The variance explained by the first factor was 27.97%, which was less than the critical criterion of 40%, indicating that there was no serious common method variation of the data.

3.3. Data analysis

The collected data were analyzed using SPSS 25.0 and Mplus 8.3. The statistical test for significance was set as $p < 0.05$. The statistical analyses included descriptive statistics, correlation analysis, structural equation modeling (SEM), and mediating effect estimation. Specifically, the descriptive analyses and correlation analysis were performed to examine the nature of the collected data and correlations among variables and the SEM and mediating effect estimation were used to identify the mediating effect of knowledge

Table 2
Correlation coefficients, means and standard deviations of variables.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1Gender	1																					
2Teaching experience	.22***	1																				
3Educational level	-.14**	-.26***	1																			
4Professional title	-.05	.43***	.05	1																		
5 Intimate friendship	.07	-.11*	-.10*	-.11*	1																	
6 Trust relationship	.01	-.00	-.16**	-.10*	.65***	1																
7Cognitive identity	.02	-.10*	-.06	-.11*	.77***	.66***	1															
8 Network interaction	.11*	-.10*	-.15**	-.10*	.79***	.70***	.72***	1														
9Network centrality	.16**	-.06	-.13**	-.11*	.70***	.64***	.66***	.69***	1													
10Network density	.08	-.14**	-.11*	-.13**	.55***	.46***	.53***	.64***	.43***	1												
11Positive enthusiasm	.06	-.05	-.16**	-.10*	.74***	.78***	.70***	.76***	.74***	.50***	1											
12Formal written	.05	.02	-.10*	-.06	.44***	.46***	.43***	.37***	.47***	.35***	.46***	1										
13 Informal written	-.01	.02	-.12*	-.04	.45***	.49***	.44***	.40***	.45***	.34***	.52***	.77***	1									
14 Formal non-written	.01	-.01	-.05	-.04	.46***	.46***	.48***	.43***	.45***	.31***	.52***	.53***	.66***	1								
15 Informal non-written	.01	.02	-.10*	-.04	.45***	.52***	.48***	.41***	.47***	.29***	.53***	.61***	.74***	.73***	1							
16 Self-affirmation	.01	.13*	-.01	.05	.24***	.32***	.22***	.30***	.23***	.20***	.31***	.32***	.38***	.36***	.39***	1						
17 Negative self-awareness	.03	.15**	-.07	.10*	.27***	.32***	.22**	.29***	.24***	.18***	.31***	.30***	.38***	.40***	.40***	.74***	1					
18Anti-stress beliefs	.05	.11*	.01	.06	.22***	.25***	.21***	.19***	.25***	.15***	.23***	.25***	.28***	.29***	.32***	.56***	.69***	1				
19 Learning style guidance	.01	.14**	.03	.08	.26***	.35***	.30***	.33***	.27***	.17***	.34***	.31***	.39***	.38***	.47***	.64***	.60***	.45***	1			
20 Motivation	-.07	.17***	.05	.10*	.23***	.30***	.22***	.22***	.18***	.16***	.29***	.32***	.38***	.38***	.45***	.62***	.56***	.41***	.75***	1		
21Perspective evaluation	-.01	.15**	-.00	.05	.28***	.36***	.29***	.28***	.28***	.18***	.36***	.37***	.45***	.42***	.51***	.66***	.61***	.48***	.83***	.78***	1	
22 Adaptation encouragement	-.03	.16**	-.00	.05	.24***	.32***	.22***	.22***	.21***	.20***	.32***	.32***	.39***	.37***	.47***	.64***	.62***	.49***	.76***	.81***	.89***	1
Mean					2.71	3.23	2.84	2.99	2.82	2.99	2.99	3.06	3.11	3.16	3.17	4.22	4.10	4.01	4.33	4.27	4.21	4.16
Standard deviation					.68	.56	.59	.60	.72	.62	.66	.56	.58	.57	.52	.53	.57	.68	.52	.56	.56	.60

Note: * $p < 0.05$, ** $p < 0.01$, ***$p < 0.001$

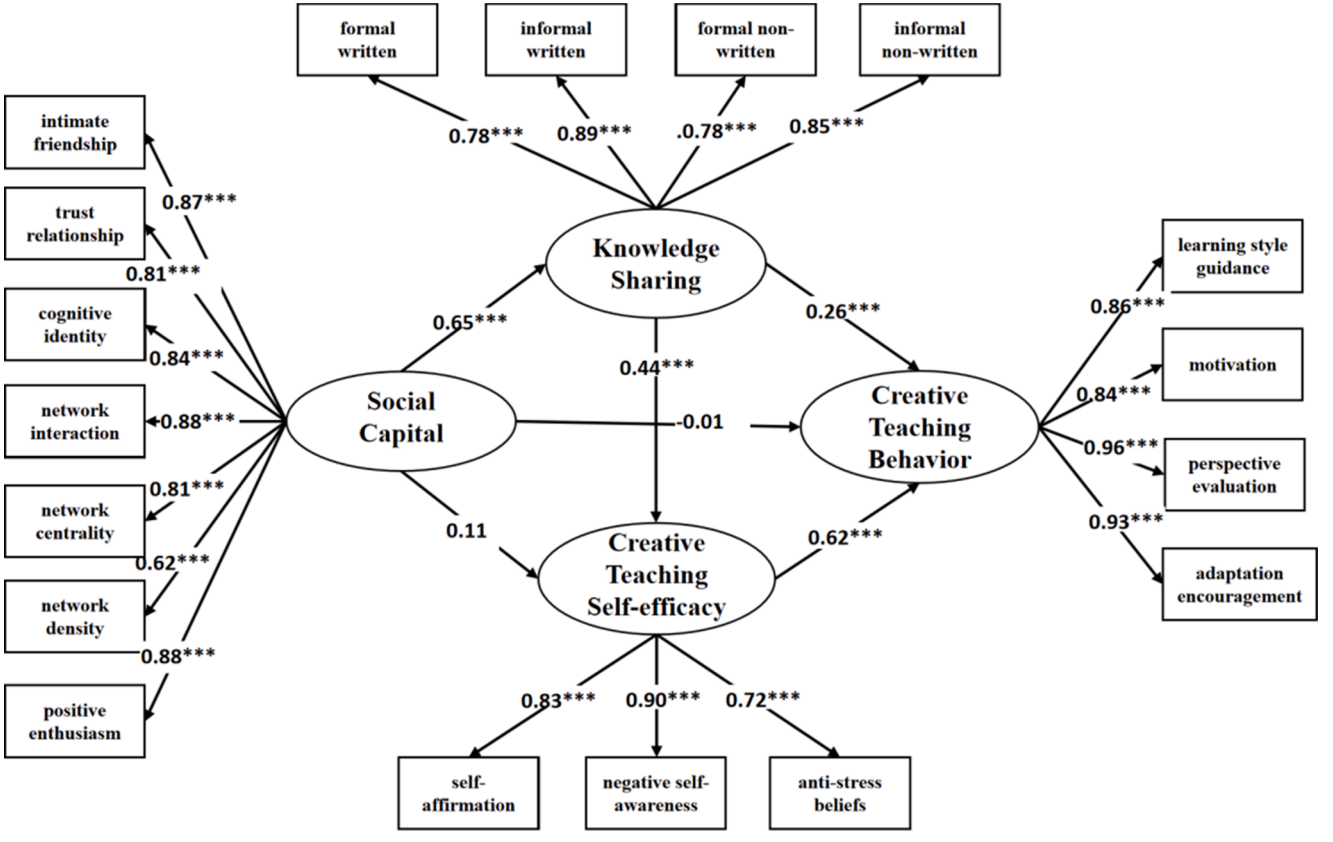

Fig. 2. Results of the mediating effect of social capital on teachers' CTB.

sharing and creative teaching self-efficacy between social capital and CTB. We used several metrics to analyze the degree of model fit, including CFI, TLI, RMSEA and SRMR (Byrne, 2001). The data was considered well-fitted if CFI and TLI were above 0.90 and the RMSEA and SRMR were under 0.08 (Byrne, 2001).

4. Results

4.1. Correlations and descriptive statistics

Descriptive statistics and correlation analysis were conducted on the dimensions of each variable and the results are presented in Table 2. Significant positive correlations were found between the dimensions of social capital, knowledge sharing, creative teaching self-efficacy, and teachers' CTB, with correlation coefficients ranging from 0.15-0.89. Only male teachers had higher network interaction and network centrality in social capital than female teachers. Teaching experience was not related to knowledge sharing, but was negatively related to social capital and positively related to creative teaching self-efficacy and CTB. Education level was not related to creative teaching self-efficacy and CTB, but higher education level was associated with lower social capital and knowledge sharing. Professional title was not related to social capital and knowledge sharing, but only positively related to negative self-efficacy in creative teaching self-efficacy, and motivation in teacher CTB. Therefore, teachers' gender, teaching experience, education level, and professional title were used as control variables.

4.2. Hypothesis testing

4.2.1. Total effect

To examine the effect of social capital on teachers' CTB, a structural equation model was developed with good model fit (χ^2 = 314.24, df = 79, CFI = 0.944, TLI = 0.930, RMSEA = 0.083 (90% CI 0.073-0.093), SRMR = 0.035). After controlling for teachers' gender, teaching experience, education, and title, the results found that social capital was a positive predictor of teachers' CTB (β = 0.425, p<0.001, 95% CI [0.337,0.513]), with 20.8% of the variance in teachers' CTB explained (R^2 = 0.208, p < 0.001).

4.2.2. Mediating effect

The mediating role of knowledge sharing and creative teaching self-efficacy was further tested on the total effects model using a bias-corrected nonparametric percentile Bootstrap method. The model fit indices were χ^2/df = 599.60/185 = 3.24, RMSEA = 0.072 (90% CI 0.065-.078), CFI = 0.936, TLI = 0.922, and SRMR = 0.036. The coefficients of effect for each pathway are shown in Fig. 2.

Social capital was a positive predictor of knowledge sharing (β = 0.65, p<0.001, 95% CI [0.571, 0.734]), but not a significant predictor of creative teaching self-efficacy (β = 0.11, p>0.05, 95% CI [-0.031, 0.254]). Both knowledge sharing and creative teaching self-efficacy positively predicted teachers' CTB (β = 0.26, p<0.001, 95% CI [0.132, 0.381]; β = 0.62, p<0.001, 95% CI [0.515, 0.731]). Knowledge sharing was also a significant predictor of creative teaching self-efficacy (β = 0.44, p<0.001, 95% CI [0.289, 0.587]). The direct effect of social capital on teachers' CTB was no longer significant (β = -0.01, p>0.05, 95% CI [-0.114, 0.102]). In this model, 63.2%, 42.4%, and 29.5% of the variance in teachers' CTB, knowledge sharing, and creative teaching self-efficacy were explained, respectively.

The total effect of social capital on teachers' CTB was 0.408 [95% CI 0.321, 0.495] and the total indirect effect was 0.415 [95% CI 0.320, 0.509]. Of the three mediating paths of social capital on teachers' CTB (Table 3), the M1 and M3 paths were significant and the M2 path was not significant. The mediating effect of M1 was 0.167 [95% CI 0.083, 0.251], the mediating effect of M2 was 0.069 [95% CI -0.022, 0.160], and the mediating effect of M3 was 0.178 [95% CI 0.103, 0.253]. This suggests that knowledge sharing has a single mediating effect between social capital and teachers' CTB, while the single mediating effect of creative teaching self-efficacy is not significant, but the chain mediating effect of knowledge sharing-creative teaching self-efficacy is significant. According to the mentioned information above, H1, H2, and H4 were supported, but H3 was not confirmed.

5. Discussion

The relationship between social capital and teachers' CTB was explored by constructing a chain mediation model based on social capital theory. The results showed that social capital is closely related to elementary school teachers' CTB, and that social capital influences teachers' CTB through the single mediating role of knowledge sharing and the chain mediating role of knowledge sharing-creating teaching self-efficacy. This result not only indicates the influence of social capital on elementary teachers' CTB in educational

Table 3
Mediated pathways and effect of social capital on CTB.

Paths	Estimation	Bootstrapping 95% CI		Mediation effect proportion
		Lower	Upper	
M1: Social Capital → Knowledge Sharing→ CTB	0.167	0.083	0.251	40.93%
M2: Social Capital → Creative Teaching Self-efficacy → CTB	0.069	-0.022	0.160	
M3: Social Capital → Knowledge Sharing→ Creative Teaching Self-efficacy → CTB	0.178	0.103	0.253	43.63%

organizations, but also reveals the internal mechanism, which has theoretical and practical significance.

5.1. The role of social capital in promoting teachers' CTB

Social capital positively predicts teachers' CTB, which is consistent with other research findings in organizational behavior (Akhavan & Hosseini, 2016; Bhatti et al., 2020; Wang et al., 2021). Previous research has focused on social capital to examine innovation in business organizations, while the relationship between social capital and teacher behavior in schooling organizations has been lacking. The findings of the present study show that social capital can explain not only students' schooling experiences but also teachers' teaching behaviors, which to some extent remedies the lack of existing studies that have paid more attention to the conditions of external influences on teachers' CTB.

Social capital consists essentially of social relationships, which are embedded in a network of interpersonal relationships. A teacher with high social capital, on the one hand, shows that school leaders or colleagues can respect and encourage teachers in teaching for creativity from their standpoint, as well as give teachers enough trust and care when facing the complexity of the teaching system, thus promoting teachers' CTB. On the other hand, as participants in the social relationship network, individual teachers and their school colleagues are interdependent in their goals and actions, and they share the same educational values. If the school relationship network identifies with and supports teachers' CTB, social capital not only strengthens teachers' motivation to implement CTB, but also increases their experience of achieving success in teaching for creativity, thus enhancing teachers' CTB.

5.2. The mediating role of and knowledge sharing/creating teaching self-efficacy

Social capital affects teachers' CTB exclusively through the independent mediating role of knowledge sharing and the chain mediating role of knowledge sharing–creative teaching self-efficacy. Previous studies have also identified the mediating role of knowledge sharing between social capital and creative performance and creative activity (Bhatti et al., 2020; Hoang & Truong, 2021), but few studies have further revealed the mediating processes between knowledge sharing and creative behavior (Hu & Zhao, 2016). This study not only explores the process of the role of social capital in teachers' CTB in educational organizations, but further examines how knowledge sharing influences teachers' CTB.

Knowledge sharing is essentially an exchange, involving communication and social exchange (Sks et al., 2021). Social capital is an important factor that influences individuals' accessibility to knowledge sources and information from organizations. The higher the quality of teachers' social capital, the stronger the willingness to share knowledge among teachers. Sharing knowledge does not cause loss, but rather adds value through the sharing. Especially when the knowledge is relevant to teachers' teaching skills and experience reflections, which are difficult to describe in standardized words and cannot be easily circulated, sharing is more likely to foster improvement of teachers' teaching ability. The more frequent the knowledge sharing behavior among teachers, the more social support they may receive in their interactions, and thus the more innovative and effective their teaching. It is evident that knowledge sharing not only stimulates the enhancement of teachers' creative teaching self-efficacy, but also pushes teachers to innovate their educational philosophy and innovative teaching methods, and thus demonstrate more CTB.

However, this study also found that social capital did not directly lead to an increase in teachers' creative teaching self-efficacy. Thus, research hypothesis 3 was not confirmed. Based on social capital and self-efficacy theory, individuals with more social capital can use relational resources to gain direct or alternative experiences regarding success, as well as external understanding and support, and thus social capital can enhance teachers' creative teaching self-efficacy. However, the independent mediating role of creative teaching self-efficacy was found to be insignificant in this study, which may be related to the fact that previous studies have simply explored the mediating role of self-efficacy between social capital and individual behavior (Wu et al., 2020). When knowledge sharing was added to the influence pathway between social capital and self-efficacy, social capital may no longer have a direct effect on self-efficacy; its effect on self-efficacy was completely mediated by knowledge sharing. This suggests that knowledge sharing is an important mediating variable for the influence of social capital on creative teaching self-efficacy that has not been identified in previous studies.

6. Implications, limitations and conclusions

6.1. Practical implications

The development of creative thinking and behavior is an important goal of education and teaching. The micro-level of social capital focuses on the potential of individuals to enhance trust and support through social networks, while the macro-level focuses on the influence of the external environment. Accordingly, to cope with complex educational and teaching problems, it is recommended that teachers focus on increasing their personal social capital by actively participating in teaching and research programs and academic conferences. In addition, strengthening cooperation with other teachers to establish learning communities and be good at obtaining help from the resources of the school's relational network is necessary. Teachers should remain open to peer-to-peer communication rather than sticking to their guns and hiding their knowledge. With respect to organization, schools should give teachers sufficient trust and support to create a harmonious and open atmosphere for individual and collective knowledge innovation and absorption, thus improving teachers' willingness and behavior to share innovative pedagogical knowledge and experiences. Only in a supportive school culture can teachers strengthen their sense of self-efficacy to solve problems creatively and develop CTB. Teaching experience was positively related to creative teaching self-efficacy and CTB, and negatively related to social capital. Education level was negatively

related to social capital and knowledge sharing. This also suggests that emphasis should be placed on improving the creative teaching self-efficacy and CTB of new teachers, while there is a need to improve the social capital or knowledge sharing of teachers with high teaching experience or teachers with high education level.

6.2. Limitations and implications for future research

Although this study confirmed the influence of social capital on teachers' CTB and its pathways of action, it is a correlational study in nature and cannot draw exact causal conclusions. Future research cloud conduct longitudinal or experimental studies to verify the causal relationship between social capital and CTB, and the existence of similar effects between social capital and creative teaching. Second, questionnaire method was mainly used to collect data in this study, which may be influenced by social desirability effects. Future studies should use data measured from multiple sources whenever possible for the measurement of variables in order to ensure that the findings are more convincing.

6.3. Conclusions

This study found that social capital positively predicts elementary teachers' CTB. In addition, social capital influences elementary teachers' CTB through the separate mediating role of knowledge sharing and the chain mediating role of knowledge sharing–creative teaching self-efficacy.

Data availability statement

The data that support the findings of this study are available from the corresponding author, Yanfang Zhou, upon reasonable request.

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Ethical approval

This study was approved by the Research Ethics Committee of Lishui University and the principals of the participating schools.

Declaration of Competing Interest

None.

Data availability

Data will be made available on request.

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