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Research on the influence of teachers' perceived transformational leadership on knowledge sharing behavior in colleges and universities in Anhui, China

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This study aims to explore the impact of perceived transformational leadership on knowledge sharing behavior among university teachers in Anhui Province, China. Using a questionnaire survey method, convenient sampling was conducted among college teachers in Anhui Province. With 326 teachers as the research subjects, SPSS software was used to analyze the relationship between teachers' perception of transformational leadership and knowledge sharing behavior in the context of colleges and universities. Additionally, this study compared the impact of demographic variables such as age, teaching experience, and professional title on teachers' knowledge sharing behavior. The research results indicate that Anhui university teachers' perception of transformational leadership has a significant positive impact on knowledge sharing behavior. Moreover, there are significant differences in teachers' knowledge sharing behavior based on their age, teaching experience, and professional titles.

Key words: Teachers' knowledge sharing behavior, transformational leadership in colleges and universities, Anhui university teachers.

INTRODUCTION

The 21st century is an era dominated by the knowledge economy, and knowledge has become the driving force of social development (Lin et al., 2018). The development of a knowledge-based economy society has created an urgent demand for knowledgeable talent and high-quality higher education. As the cradle of knowledge output, colleges and universities serve as bases for knowledge innovation, knowledge dissemination, and personnel training (Margerum-Leys and Marx, 2004). Teachers' knowledge level significantly determines the quality of running colleges and universities and their ability to train talents (Xu and Li, 2022).

As the core of knowledge management in colleges and universities, knowledge sharing is a crucial way to

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promote teachers' development (Xu and Li, 2022). The reason college teachers share knowledge is that knowledge is the most critical resource for colleges and universities, fundamental to maintaining advantages in a competitive environment. Similarly, teachers' knowledge-sharing ability determines the innovation capacity of colleges and universities, affecting their long-term development and core competitiveness (Song, 2014). As knowledge workers, knowledge sharing among teachers is vital for higher education, contributing to professional development and the growth of higher education institutions and the academic community as a whole (Pratama et al., 2021). The quality of higher education primarily depends on the competence and capabilities of faculty members within this domain (Areekkuzhiyil, 2014). Knowledge sharing holds significant importance in enhancing the professional skills and capabilities of university faculty in the knowledge era (Huo, 2013; Semradova and Hubackova, 2014).

When it comes to teaching and research, university faculty often exhibit a limited propensity for knowledge sharing, hindering the effective exchange and utilization of knowledge among peers (Bao, 2017). Universities generally acknowledge the importance of knowledge sharing in educational practice (Bibi and Ali, 2017). However, teachers are constrained by egoism, a sense of self-worth regarding their knowledge, a lack of resource convenience, competition, and evaluation systems, as well as collaborative culture and team atmosphere. These factors create numerous obstacles to teachers' knowledge sharing. Therefore, revealing the main driving forces and influencing factors behind teachers' knowledge sharing is a prerequisite for strengthening teachers' knowledge-sharing practices. To effectively address this need, it is critical to consider establishing and maintaining a proficient knowledge management framework within colleges and universities. Unique leadership styles are very important in knowledge-sharing activities (Archanjo de Souza et al., 2020). There are many ways to lead, and transformational leaders are role models for followers and team members who share knowledge and creativity, so that teams can cooperate efficiently (Choi et al., 2016; Dappa et al., 2019). Transformational leadership can stimulate internal motivation for knowledge sharing (Li et al., 2015), and higher internal motivation is crucial for organizational knowledge sharing. Phung et al. (2019) found that transformational leadership is regarded as a key factor in knowledge sharing behavior, and it is more needed in higher education systems (Tahernejad and Aminian, 2012). Although transformational leadership is a relevant leadership style for effective management of knowledge sharing (Birasnav et al., 2011), there are few studies on the relationship between transformational leadership and knowledge sharing in universities compared with enterprises (Han et al., 2016; Wang and Noe, 2010). Therefore, this study uses background variables such as teachers' age, teaching experience, and professional titles as control variables to explore the impact of transformational leadership in colleges and universities on teachers' knowledge sharing behavior.

Many factors may influence knowledge sharing behavior (Sukumar and Ferrell, 2013), including individual and organizational factors. Individual behavioral factors of knowledge sharing include demographic variables (Ipe, 2003). Among these, teaching age is a significant factor affecting knowledge sharing behavior. Despite the numerous influencing factors on knowledge sharing, there has been relatively little research on personal characteristics. In fact, personal characteristics should be the focal point of research, and demographic characteristics represent a crucial research direction (Zheng, 2017). Therefore, population characteristics are a worthy research focus. To study demographic characteristics, relevant demographic indicators such as age, organizational tenure, professional background, educational attainment, gender, and socioeconomic background can be employed (Zheng, 2017).

While researchers like Howell and Annansingh (2013), Al-Kurdi et al. (2018), and Fullwood and Rowley (2017) have identified barriers to knowledge sharing in higher education, there remains a lack of empirical research on knowledge sharing behavior in higher education as a whole. Given that transformational leadership may be a significant driver of knowledge sharing, it is essential to study the correlation between transformational leadership and knowledge sharing behavior in universities, particularly in the context of China.

As specialization and field refinement progress, the comprehensive knowledge and skills of college teachers need continuous updates. To overcome the bottleneck in professional quality development, it is necessary to keep pace with the professional field to achieve a continuous improvement in professional quality and the knowledge system (Yu and Zhou, 2015). Effective knowledge sharing plays a crucial role in knowledge-intensive organizations such as higher education (Al-Kurdi et al., 2018). Therefore, this study focuses on undergraduate university teachers in Anhui Province, China, and explores the influence of university transformational leadership on knowledge sharing behavior. This research aims to provide reference and practical applications for promoting knowledge sharing behavior among Chinese university leaders and teachers in educational practice.

LITERATURE REVIEW

Teachers' knowledge sharing behavior

Lin (2007) considers knowledge sharing to be a socially interactive culture through which knowledge, skills, and experiences are exchanged among individuals throughout a department or organization. Knowledge-

sharing behavior is seen as an interaction that involves knowledge exchange among scholars, measured by the frequency of faculty participation in knowledge-sharing activities at the university. Moreover, knowledge sharing in a university setting is not only about spreading knowledge, but also about creating it (Van den Hooff and Huysman, 2009). Zou (2011) believes that knowledge sharing by college teachers is a process in which college teachers exchange and discuss personal knowledge resources within the school organization through various channels and share them with other teachers in the organization, thus transforming them into knowledge wealth of the school organization.

Ramayah et al. (2014) believes that knowledge-sharing behavior is the sharing of job-related knowledge and expertise between scholars and other faculty and staff in a university, which helps to improve the level of a university. Knowledge sharing is described as a separate activity that involves providing or receiving knowledge to a person and creating new knowledge with each other (Abukhait et al., 2019). According to the research of Al-Husseini and Elbeltagi (2018), this study defines teachers' knowledge sharing behavior as the process in which teachers realize professional knowledge and work experience in various forms, learn new knowledge and stimulate new thinking, and realize knowledge accumulation.

Transformational leadership

Bass (1985) believed that transformational leadership is to make employees realize the importance of tasks and obligations, leaders stimulating high-level needs of employees or expanding multi-faceted needs of employees, creating an atmosphere of mutual trust, and enabling employees to strive for greater interests of the organization. Transformational leadership theory has attracted wide attention and become the mainstream of leadership theory (Mhatre and Riggio, 2014). Leithwood (1994) believes that transformational leadership is the leadership behavior that improves the ability of individual and collective problem-solving in the process of school change, In the field of education, the establishment of organizational and member capabilities is an important part of the research on transformational leadership. Therefore, transformational leadership cannot be ignored in school change. The emergence of transformational leadership in schools coincides with the requirements of the second round of education reform in the world, with educational research focusing on organizational learning, co-leadership, and problem-solving (Silins and Mulford, 2002). At the same time, the research on transformational leadership in the field of education has also attracted the attention of scholars. Leithwood and Jantzi (2005) developed a model of transformational leadership in education that includes four categories. In this study, transformational leadership in universities is defined as an innovative process of change in which individuals integrate and connect to enhance the enthusiasm and ethical awareness of leaders and faculty.

Relationship between demographic variables and teachers' knowledge sharing behavior

College teachers with different education level, gender, professional title and teaching age have different knowledge sharing behaviors in demographic variables, and individuals with more experience are more willing to share knowledge (Phong et al., 2018). Bao (2017) found that there are significant differences in knowledge sharing among university teachers due to their work experience and professional titles. Al-Husseini and Elbeltagi (2018) took age, gender, marital status, teaching experience, educational background and professional title as control variables. In terms of age, teaching experience and job title, the respondents were divided into different categories. In terms of education, the majority of respondents have a master's or doctoral degree, accounting for 95.2%. In their study, Cui and Wang (2020) pointed out that teachers' knowledge sharing behaviors differ in demographic variables, and teachers' knowledge sharing behaviors are significantly different in gender, and the degree of female teachers is higher than that of male teachers. There is a significant difference in teaching age. Further multiple comparisons show that there is a significant difference between the group of teachers with teaching age of less than 5 years and the group of teachers with teaching age of 5-10 years, and the knowledge sharing degree of teachers with 5-10 years is higher; There are differences in positions, teachers and administrative teachers are higher than full-time teachers; Finally, there is no significant difference in teachers' knowledge sharing behavior in terms of age, educational background and professional title.
Based on the above analysis, this research hypothesis is proposed:

H1a: There are significant differences in teachers' knowledge sharing behaviors among different ages.
H1b: There are significant differences in knowledge sharing behaviors of teachers with different teaching ages.
H1c: Different professional titles have significant differences in teachers' knowledge sharing behavior.

Relationship between demographic variables and transformational leadership

Demographic theory (Korac-Kakabadse et al., 1998) argues that attributes such as age, tenure, occupation, gender, and experience level are constitutive characteristics that influence interpersonal and group dynamics. Although a large number of studies have

involved the relationship between leadership, gender and age, only a few researchers have discussed the relationship between leadership and teaching age, and even fewer researchers have discussed the relationship between leadership style and position (Baba, 2022). The demographic variables in Baba (2022) study include gender, age, professional title and teaching age, and the results show that there are significant differences in the overall perception of transformational leadership among staff with different professional titles and teaching age. Allameh et al. (2012) mentioned that the dimensions of transformational leadership differ in demographic characteristics such as gender, age, work experience, educational background and education level. The results of multivariate analysis of variance show that transformational leadership has no significant difference in demography. Valentine and Prater (2011) found through the correlation matrix that gender, working years and work experience were not significantly correlated with transformational leadership, while education level was significantly correlated with transformational leadership. Baba et al. (2021) took age and gender as control variables. In almost all dimensions of transformational leadership except idealized behavior, the average score of male respondents was higher than that of female respondents, and there were significant differences in the cognition of faculty members of different ages on each dimension of transformational leadership. Based on the above analysis, hypothesis is proposed:

H2a: There are significant differences in perception of transformational leadership among different ages.
H2b: There are significant differences in the perception of transformational leadership among different teaching ages.
H2c: Different job titles have significant differences in the perception of transformational leadership.

Transformational leadership and teachers' knowledge sharing behavior in universities

Transformational leadership promotes and fosters norms and values that encourage knowledge sharing. Transformational leaders with idealized influences instil admiration, respect, and belief, emphasizing the importance of having a collective sense of the organization's mission (Bass and Riggio, 2006). When members feel that leaders have confidence in them, trust them, care about their work, and appreciate their efforts to create knowledge, they are more willing to speak up and share knowledge (Lee et al., 2010). Leaders who are inspired by inspiration realize the organizational vision for their members and inspire leaders' mission-oriented commitment by sharing the vision (Yukl and Mahsud, 2010). When shown to be intellectually stimulating, transformational leaders generate different ways of thinking and seek new ways to solve problems from multiple perspectives. Leaders who comment and openly share ideas are more likely to encourage knowledge-sharing activities (Von Krogh et al., 2012). Leaders who use personalized considerations are aware of the needs and concerns of their followers as individuals and develop their strengths through coaching and counseling (Bass and Riggio, 2006).

Transformational leadership can promote learning a01ctivities and create an environment that supports knowledge (Gunter, 2001), is a major related factor to increase knowledge sharing (Li et al., 2014), and has a positive impact on the communication between leaders and members. This leads to increased knowledge sharing behavior and follower trust in leaders (Lee et al., 2010; Li et al., 2014). In the context of higher education, transformational leadership is crucial for the development of education (Green, 2013), the establishment and strengthening of teachers' knowledge sharing mechanism (Chen and Hu, 2010), regular learning to exchange views, experiences and methods (Ma and Li, 2015), and the promotion of teachers' knowledge sharing (Li and Tang, 2009). Therefore, hypothesis H3 is proposed: Transformational leadership in universities has a significant positive impact on teachers' knowledge sharing behavior.

METHODOLOGY

Research framework

The purpose of this study is to explore the relationship between transformational leadership and teachers' knowledge sharing behavior, as well as the influence of demographic variables on transformational leadership and teachers' knowledge sharing behavior. The research framework is shown in Figure 1.

Subjects

For teachers in colleges and universities in Anhui Province, China, 180 pre-examination questionnaires were distributed, and 161 valid samples were recovered, with an effective rate of 90%. This study used questionnaire survey method to collect relevant data. Questionnaire survey is a research method often used in empirical research in social sciences, and it is also the most commonly used method of collecting data in educational research. It has good anonymity and can complete the questionnaire without interference from others, which can be better to express one's opinion (Zheng, 2014). The sample size and item ratio of the questionnaire are roughly 1:5, which is more appropriate (Tinsley and Tinsley,1987). Considering that some invalid questionnaires may appear, therefore , Formal questionnaires were distributed to 350 teachers, and 326 valid samples were recovered, with an effective rate of 93%. Statistical analysis was performed on the collected data.

Research tools

Teacher knowledge sharing behavior scale

Using the Teacher Knowledge Sharing Behavior Scale developed

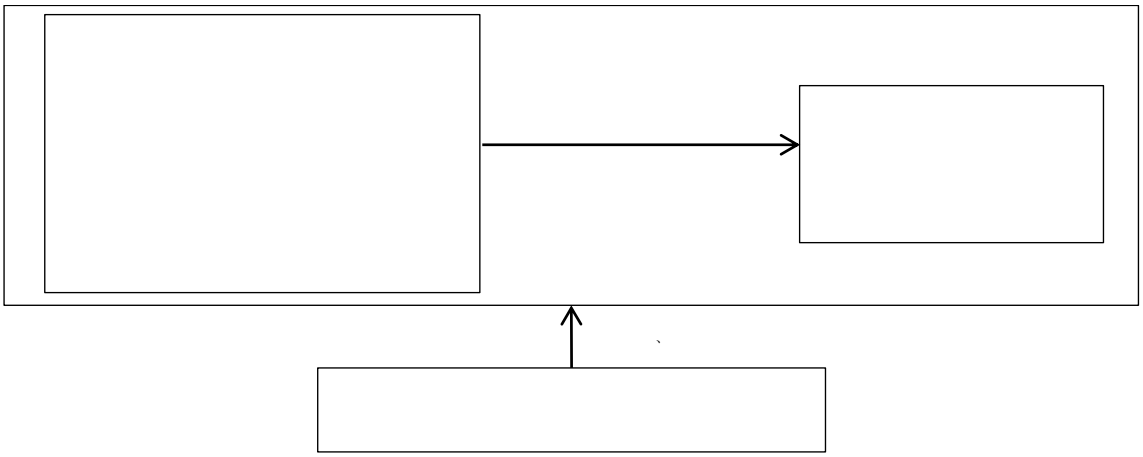

Figure 1. Research framework.
Source: Authors.

by Al-Husseini and Elbeltagi (2018). There are 8 items, which are scored on a 5-point Likert scale, with 1-5 representing "totally disagree" to "totally agree". The internal consistency was 0.830 and 0.900, respectively. In this study, the Chinese version of the Teachers' Knowledge Sharing Behavior Scale was developed using the back-translation method (Brislin, 1980), and the Cronbach's Alpha coefficient was 0.858.

Confirmatory factor analysis was used on formal scales to test reliability, validity, and goodness-of-fit. Factor loadings ranged from 0.717-0.850, and combined reliability (CR) values ranged from 0.851-0.875, which exceeded the evaluation criterion of 0.60. The average variance extracted (AVE) value was between 0.589-0.638, exceeding the evaluation standard of 0.50, indicating good reliability and validity (Bagozzi and Yi, 1988). In terms of goodness of fit, CMIN/DF=1.942, GFI=0.973, AGFI=0.949, RMR=0.024, SRMR=0.027, RMSEA=0.054, NFI=0.973, NNFI=0.980, CFI=0.987, RFI=0.961, IFI =0.987, PNFI=0.660, PGFI=0.514 All indicators meet the data requirements, indicating that the model fits well with the scale (Schumacker and Lomax, 2004).

Transformational leadership scale for colleges and universities

The transformational leadership scale developed by Zainal and Mohd Matore (2021) was used. There are 20 items, using a 5-point Likert scale for measurement, 1 means completely disagree and 5 means completely agree. The internal consistency is between 0.802-0.839 respectively. The Chinese version of the Transformational Leadership Scale in Colleges and Universities was compiled using the reverse translation method of Brislin (1980), and the Cronbach's Alpha coefficient was 0.924.

Confirmatory factor analysis was used to test the reliability, validity and fit of the formal scale. Factor loadings ranged from 0.694-0.816, and combined reliability (CR) values ranged from 0.862-0.877, exceeding the evaluation criterion of 0.60. The average variance extraction (AVE) value is between 0.566-0.610, which exceeds the evaluation standard of 0.50, and has good reliability and validity (Bagozzi and Yi, 1988). In terms of goodness of fit, CMIN/DF=2.070, GFI=0.916, AGFI=0.891, RMR=0.035, SRMR=0.043, RMSEA=0.057, NFI=0.910, NNFI=0.942, CFI=0.951, RFI=0.894, IFI =0.951, PNFI=0.777, and PGFI=0.704 are all higher than the minimum recommended by scholars, indicating that the fitting degree of the theoretical model is good (Schumacker and Lomax, 2004).

RESULTS

Descriptive statistics

A total of 350 questionnaires were distributed and 326 valid questionnaires were obtained. Among them, 62 people were under 30 years old, accounting for 19.018%, and 148 people were between 31 and 40 years old, accounting for 45.399%. 94 people were between 41 and 50 years old, accounting for 28.834%, and 22 people were over 50 years old. Accounting for 6.748%; 75 people with less than 5 years of teaching experience, accounting for 23.006%, 76 people with 6-10 years of teaching experience, accounting for 23.313%. 68 people from 11-15 years, accounting for 20.859%, 49 people from 16-20 years, accounting for 15.031%. 26 people in 21-25 years, accounting for 7.975%, 32 people in 26 years and above, accounting for 9.816%; in terms of professional titles, 48 teaching assistants, accounting for 14.724%, 136 lecturers, accounting for 41.718%, 125 associate professors, accounting for The ratio is 38.344%, and there are 17 professors, accounting for 5.215%.

Difference analysis

Difference analysis of different background variables in teachers' knowledge sharing behavior and transformational leadership in colleges and universities

A single factor analysis of variance (ANOVA) was used to investigate the differences between different background variables and teachers' knowledge sharing behavior and transformational leadership. From the analysis results in Table 1, it can be seen that there are significant differences among different ages in teachers' knowledge

Table 1. ANOVA table of different ages in teachers' knowledge sharing behavior and transformational leadership in colleges and universities.

Variable	Levene test	Age (years)	Average	Standard deviation	*F*	Hindsight comparison
Transformational leadership	2.364	<30	3.033	0.455	11.373***	1< 2, 1< 3, 1< 4, 2< 4, 3< 4
		31-40	3.282	0.555		
		41-50	3.432	0.565		
		>50	3.712	0.499		
Teacher knowledge sharing behavior	0.076	<30	2.998	0.704	15.146**	1< 2, 1< 3, 1< 4, 2< 4
		31-40	3.251	0.702		
		41-50	3.430	0.692		
		>50	3.431	0.756		

The Scheffe method was used for post-hoc comparison: **p<0.01 ***p<0.001. Age classification: 1=below 30 years old; 2=31-40 years old; 3=41-50 years old; 4=over 50 years old.
Source: Authors.

Table 2. ANOVA table of teachers' knowledge sharing behavior and transformational leadership in colleges and universities with different teaching ages.

Variable	Levene test	Teaching age (years)	Average	Standard deviation	*F*	Hindsight comparison
Transformational leadership	1.520	<5	3.100	0.535	4.485***	1< 2, 1< 3, 1< 4, 1< 5, 1< 6
		6-10	3.337	0.505		
		11-15	3.320	0.555		
		16-20	3.290	0.604		
		21-25	3.445	0.596		
		>26	3.610	0.531		
Teacher knowledge sharing behavior	0.152	<5	3.023	0.697	5.180***	1< 2, 1< 3, 1< 4, 1< 5, 1< 6, 2< 5, 2< 6
		6-10	3.180	0.687		
		11-15	3.343	0.717		
		16-20	3.336	0.685		
		21-25	3.326	0.666		
		>26	3.726	0.695		

The Scheffe method was used for post-hoc comparison. ***p<0.001. Note 3: Classification of teaching age: 1:less than 5 years; 2:6-10 years; 3:11-15 years; 4:16-20 years; 5:21-25 years; 6:26 years and above.
Source: Authors.

sharing behavior (F=15.146, p < 0.01) and transformational leadership in colleges and universities (F=11.373, p < 0.001). Scheffe method post-hoc comparative analysis showed that teachers in the age group over 50 had significantly higher scores than teachers in other age groups, and older leaders were rated more highly. Therefore, H1a and H2a are valid.

From the analysis results in Table 2, it can be seen that different teaching ages have significant differences in teachers' knowledge sharing behavior (F=5.180, p < 0.001) and transformational leadership in colleges and universities (F=4.485, p < 0.001). The post-hoc Scheffe method showed that teachers with 21-25 years of teaching experience and 26 years and above showed higher teacher knowledge sharing behavior. Teachers with longer teaching experience tend to demonstrate better transformational leadership skills. Therefore, H1b and H2b hold.

The analysis results in Table 3 show that, in terms of different professional titles, there are significant differences in teachers' knowledge sharing behavior (F=3.201, p < 0.05), but there is no significant difference in university transformational leaders (F=1.491). Post hoc Scheffe's method showed that lecturers, associate professors, and professors scored higher on teachers' knowledge sharing behavior than teaching assistants.

Table 3. ANOVA table of different professional titles in teachers' knowledge sharing behavior and transformational leadership in colleges and universities as a whole.

Variable	Levene test	Job title	Average	Standard deviation	*F*	Hindsight comparison
Transformational leadership	1.256	teaching assistant	3.186	0.647	1.491	-
		lecturer	3.282	0.535		
		Associate Professor	3.368	0.556		
		professor	3.402	0.549		
Teacher Knowledge Sharing Behavior	1.573	teaching assistant	3.010	0.757	3.201*	4>1
		lecturer	3.288	0.709		
		Associate Professor	3.304	0.712		
		professor	3.559	0.536		

The Scheffe method was used for post-hoc comparison. *p<0.05. Title classification: 1: teaching assistant, 2: lecturer, 3: associate professor 4: professor.
Source: Authors.

Table 4. Correlation analysis (N=326).

Variable	M	SD	Transformational leadership	Teacher knowledge sharing behavior
Transformational leadership	3.307	0.562	1	
Teacher knowledge sharing behavior	3.267	0.716	0.386***	1

***$p<0.001$.
Source: Authors.

Therefore, H1c is established, and H2c is not established.

Correlation analysis

The Pearson correlation coefficient analysis in Table 4 shows that the knowledge sharing behavior of teachers in Anhui universities is positively correlated with transformational leadership (r=0.386, p<0.001); and the correlation between all variables is significant (p<0.001). Without high correlation, there is no collinearity problem (Maruyama, 1998). The mean values for teachers' knowledge sharing behavior and transformational leadership were (M=3.307, SD =0.562), (M=3.267, SD =0.716), respectively. The overall situation of teachers' knowledge sharing behavior and transformational leadership is above the median of 3 on the 5-point scale, indicating that the knowledge sharing behavior and transformational leadership of teachers in Anhui colleges and universities are at the upper-middle level.

The AVE square root of each facet is greater than the number of correlation coefficients of each facet, accounting for more than 75%, which meets the criteria for evaluating the differential validity (Hair et al., 1998). According to the result data in Table 5, both of the two dimensions have good discriminative validity. The square root of AVE of all dimensions can meet the judgment criteria, indicating that the scale has good discriminative validity (Capron, 1999).

Regression analysis

In this study, the demographic variables of age, teaching experience and professional title are included in the first layer; idealized influence is in the second layer; inspirational motivation is in the third layer; intellectual stimulation is in the fourth layer; Enter the model as Enter at each step. It can be seen from Table 6 that the adjusted R2 of model 1 is 0.066, and the overall explanation rate is 6.6%. Model 2 controls background variables (β = 0.288, t = 5.395, p<0.001), and the adjusted R2 is 0.143, and the overall explanation rate was 14.3%. Model 3 controls background variables (β = 0.251, t = 4.525, p<0.001), the adjusted R2 is 0.120, and the overall explanation rate is 12.0%. Model 4 controls background variables (β = 0.342, t = 6.405, p<0.001), the adjusted R2 is 0.172, and the overall explanation rate is 17.2%. Model 5 controls background variables (β = 0.127, t = 2.310, p<0.05), the adjusted R2 is 0.079, and the overall explanation rate is 7.9%. The five dimensions of transformational leadership in colleges and universities

Table 5. Discriminant validity test table.

Dimension	1	2	3	4	5	6
Idealized influence	0.781[a]					
Inspirational motivation	0.446	0.752[a]				
Intellectual stimulation	0.381	0.375	0.753[a]			
Individualised consideration	0.453	0.483	0.455	0.766[a]		
Knowledge donation	0.302	0.244	0.317	0.138	0.767[a]	
Knowledge collection	0.287	0.305	0.356	0.166	0.609	0.798[a]

The value of the diagonal line a, is the square root of the average variation extraction (AVE) of each facet, which should be greater than the value of the off-diagonal line. The correlation coefficients between each facet are significant three stars.
Source: Authors.

are all significant positive predictors of teachers' knowledge sharing behavior.

DISCUSSION

The results of the study show that different ages have significant differences in transformational leadership and teachers' knowledge sharing behavior in colleges and universities. The score of the group over 50 years old is significantly higher than that of the 31-40 and 41-50 age group, which is consistent with the research results of Baba et al. (2021). The possible reason is that as people grow older, their experience and knowledge reserves also increase, they will appreciate and pay more attention to the necessity of transformational leadership, and the need for and recognition of transformational leadership will also increase. Teachers aged 31-40, 41-50 and over 50 have higher knowledge sharing behavior scores than teachers under 30. As you grow older, your experience and knowledge in teaching will increase, and you will be more inclined to share and communicate. In addition, there is increased professional stability, which may make them more motivated to share knowledge and experience.

Different teaching ages have significant differences in transformational leadership and teachers' knowledge sharing behavior in colleges and universities. Teachers with 21-25 years of teaching experience and 26 years and above have significantly higher perception scores for transformational leadership than those with 6-10 years of teaching experience. This result is consistent with that of Baba (2022). With the increase of teaching years, the understanding and understanding of teaching and academics will become deeper, and the recognition and support for transformational leadership will become more obvious. In terms of knowledge sharing, the average score of teaching age of 21-25 years and 26 years and above is higher than that of teaching age of 6-10 years, which is consistent with the research results of Cui and Wang (2020). Teachers with longer teaching experience are likely to participate in knowledge sharing behaviors, have accumulated more experience and knowledge in their work, and are more likely to serve as subject leaders or other leadership roles, thus having more opportunities to share their knowledge and experience.

Different titles have significant differences in teachers' knowledge sharing behavior, and the average scores of associate professors and professors are significantly higher than those of teaching assistants and lecturers. This result is consistent with Baba's (2022) research results. In terms of knowledge sharing, professors and associate professors scored the highest, followed by lecturers and teaching assistants. Professors are better at knowledge sharing, while teaching assistants are relatively poor. Professors pay more attention to academic exchanges and cooperation, and are more willing to share knowledge and resources, while teaching assistants may pay more attention to their own career development and interests. There is no significant difference in transformational leadership, which may vary due to factors such as the specific conditions of Anhui universities, professional title evaluation standards, and personal abilities. Different professional titles may have differences in leadership ability and quality, and will receive different resources and support. Universities regulations and power structures may also have an impact. Therefore, the differences caused by control variables can be considered in the development of university teachers' knowledge sharing behavior, which is more conducive to the development and improvement of university teachers' knowledge sharing behavior.

The study also found that teachers' perceptions of transformational leadership in colleges and universities had a statistically significant effect on teachers' knowledge sharing behavior, indicating that teachers' perceptions of transformational leadership had a positive impact on knowledge sharing behavior, which meant that teachers with higher perceptions of transformational leadership Teachers will have higher knowledge sharing behavior performance. This result is consistent with the findings of Al-Husseini and Elbeltagi (2018).

Table 6. Regression analysis of background variables and various dimensions of transformational leadership in colleges and universities on teachers' knowledge sharing behavior (N=326).

Parameter	Teacher knowledge sharing behavior									
	Model 1		Model 2		Model 3		Model 4		Model 5	
	β	*t*	β	*t*	β	*t*	β	*t*	β	*t*
Under 30 years old	-0.129	-1.287	-0.043	-0.442	-0.057	-0.575	0.009	0.091	-0.095	-0.938
31-40 years old	-0.059	-0.524	-0.003	-0.023	-0.028	-0.253	0.076	0.701	-0.024	-0.207
41-50 years old	0.000	0.004	0.034	0.3410	0.001	0.009	0.106	1.066	0.022	0.215
Under 5 years	-0.345	-3.649***	-0.318	-3.504***	-0.272	-2.921**	-0.257	-2.855**	-0.324	-3.43***
6-10 years	-0.277	-2.936**	-0.268	-2.964**	-0.246	-2.689**	-0.239	-2.683**	-0.263	-2.808**
11-15 years	-0.198	-2.249*	-0.190	-2.252*	-0.146	-1.695	-0.152	-1.824	-0.176	-1.997*
16-20 years	-0.174	-2.137*	-0.156	-2.003*	-0.120	-1.501	-0.145	-1.887	-0.155	-1.904
21-25 years	-0.142	-2.014*	-0.149	-2.204*	-0.099	-1.436	-0.143	-2.144*	-0.136	-1.942
Teaching assistant	-0.086	-0.819	-0.075	-0.748	-0.107	-1.052	-0.123	-1.248	-0.090	-0.862
Lecturer	0.009	0.071	0.032	0.252	-0.025	-0.198	-0.030	-0.244	0.002	0.018
Associate professor	-0.036	-0.287	-0.033	-0.273	-0.063	-0.512	-0.069	-0.574	-0.044	-0.348
Idealized influence			0.288	5.395***						
Inspirational motivation					0.251	4.525***				
Intellectual stimulation							0.342	6.405***		
Individualised consideration									0.127	2.310*
F	3.086***		5.507***		4.710***		6.608***		3.312**	
$\triangle R^2$	0.066		0.143		0.120		0.172		0.079	
R^2	0.098		0.174		0.153		0.202		0.113	

p<0.05, p<0.01, p<0.001. Age reference group (over 50 years old), teaching age reference group (26 years and above), professional title reference group (professor).
Source: Authors.

Transformational leaders in colleges and universities can motivate and encourage teachers to share knowledge, strengthen cooperation and communication among teachers, and improve organizational innovation and learning capabilities through their personal behavior and speech (Zuraik and Kelly, 2018). Therefore, hypothesis H3 holds.

Conclusion

The empirical study found that different background variables of university teachers exhibit significant differences in teachers' knowledge sharing behavior and university transformational leadership. As individuals' age and teaching experience increase, their recognition and support for transformational leadership become more pronounced. Furthermore, those with more experience and knowledge at work tend to have greater opportunities for knowledge and experience sharing. They also possess a higher degree of freedom and a sense of responsibility in teaching, research, and management, making them more likely to engage in knowledge-sharing behaviors. Analyzing the differences brought about by the control variables will aid in formulating strategies for cultivating and developing knowledge sharing behaviors among college teachers.

In colleges and universities in Anhui, China, teachers' perception of transformational leadership has a significant positive impact on knowledge sharing behavior. In practice, transformational leadership in colleges and universities embodies attitudes and behaviors that support, motivate, and encourage teachers' knowledge sharing

behaviors, thus fostering the occurrence of such behaviors (Fullwood et al., 2013). Therefore, it is essential to consider the influence of transformational leadership on university faculty's knowledge sharing behavior. Transformational leaders in colleges and universities can provide teachers with support and resources to help them excel in their tasks (Yukl, 2010), further facilitating knowledge sharing among teachers. This conclusion offers a crucial reference point for university administrators and contributes to the promotion of teachers' knowledge sharing behavior.

Recommendations

This research is conducted within the context of colleges and universities in Anhui Province, utilizing a questionnaire survey as the research method. Due to time and budget constraints, the selected samples predominantly consist of individuals from various colleges and universities within Anhui Province, resulting in potentially limited sample data comprehensiveness. Future research could expand its scope to include empirical studies across different regions and among diverse types of college teachers. Additionally, considering the development of a subsequent scale for assessing individual university faculty's knowledge-sharing behavior within the Chinese context may also be worth exploring.

In the era of the knowledge economy, colleges and universities bear the crucial responsibility of imparting knowledge and nurturing new talents. Knowledge sharing among teachers has emerged as an effective approach for enhancing teaching quality and core competitiveness. In future research, it would be valuable to investigate other background variables, influencing factors, and mechanisms of action to enrich knowledge management theories in universities, thus enhancing teachers' teaching and research capabilities, as well as knowledge innovation capabilities. This endeavor will contribute to elevating the overall innovation and competitiveness levels of colleges and universities, carrying significant positive implications.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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