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The Impact of Perceived Knowledge-Oriented Leadership on Creative Teaching Behavior among Teachers in Private Universities in Beijing, China: The Roles of Knowledge Management and Teacher Self-Efficacy

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Abstract. The purpose of this research was to explore the influence of perceived knowledge-oriented leadership (PKOL) on innovative teaching behavior, and to explore the mediation effect of knowledge management and teacher self-efficacy. This research was conducted utilizing a questionnaire that was administered via convenient sampling, with a survey conducted among frontline teachers at Peking University. In all, 800 formal questionnaires were distributed, with 716 valid questionnaires collected for data analysis. The data were analyzed using SPSS and AMOS software. The results show that PKOL positively influenced creative teaching and knowledge management. It also enhanced teachers' self-efficacy. Knowledge management positively affects creative teaching behavior. Furthermore, teachers' self-efficacy also boosted creative teaching. Both knowledge management and self-efficacy played significant mediating roles in the relationship between leadership and creative teaching.

Keywords: perceived knowledge-oriented leadership; creative teaching behavior; knowledge management; teacher self-efficacy; private universities

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1. Introduction

It has been widely acknowledged that creativity in teaching activities is essential to students' independent learning (Ataei Aghel et al., 2023; Ismayilova & Bolander Laksov, 2023). Creative teaching behaviour is influenced by the beliefs and perspectives of the teacher, who draws on these beliefs for their teaching activities (Alali, 2020; Holdhus, 2019). The creativity of instruction is realized through the application of modern teaching techniques and tactics to foster the students' creativity. New teaching methods need to be based on improving students' independence (AlAli & Al-Barakat, 2022).

Thus, it is necessary for teachers to develop innovative thinking techniques through the provision of more challenging settings and approaches (Aladrović Slovaček, 2017). A good teacher needs to have pedagogical creativity, as it is important to foster and support creative and innovative learning (Sale, 2015). To build an appealing class atmosphere, courses must be presented in an interesting and creative manner, with the sharing and discussion of creativity and ideas (AlAli & Al-Barakat, 2022).

To educators, teacher leadership behavior involves school operations, teacher teaching, and student learning (DuFour & Mattos, 2013; Fessehatsion, 2017). Positive leadership, as an intrinsic part of the organization, contributes to the development of an individual (Royston & Reiter-Palmon, 2022). Knowledge leadership is defined as an approach or action of direct leadership that is perceived as a means to promote the creation, sharing, and utilization of new information, seemingly resulting in changes in thinking and collective outcomes (Shamim et al., 2019). Knowledge-oriented leadership promotes, encourages, and appreciates new ideas by individuals (Naqshbandi & Jasimuddin, 2018).

According to Liu et al. (2022), knowledge-oriented leaders actively participate in and are dedicated to supporting knowledge and learning activities within the organization. In the university environment, not only do students need to learn but teachers also need to constantly improve themselves. Therefore, knowledge-oriented leadership is particularly important in universities as it can promote teachers' learning (Talebizadeh et al., 2021). Shafait and Huang (2023) found that knowledge-oriented leadership, as a driving factor for creativity in Chinese higher education institutions, has a promoting effect on both individual and organizational growth. Alzghoul et al. (2023) found that in higher education institutions, university employees perceive that knowledge-oriented leadership enhances their creativity in their work.

Donate and de Pablo (2015) found that there is a partial mediating effect of knowledge management between knowledge-oriented leadership and creativity. Knowledge-oriented leadership is an essential tool for building on the basis of transformational and transactional leadership, while incorporating communication and motivational factors (Nawaz et al., 2024). Since organizations do not possess individual knowledge assets and cannot force individuals to practice knowledge management behaviors (Vătămănescu et al., 2023), they need to motivate their employees to practice knowledge management (Donate &

de Pablo, 2015). Knowledge-oriented leadership emphasizes the importance of knowledge and motivates teachers to contribute their knowledge assets, making it crucial for the successful implementation of knowledge management (Rehman & Iqbal, 2020). Knowledge-oriented leadership creates a learning atmosphere and rewards teaching behavior to make teachers' pay more attention to knowledge and innovation and actively adopt knowledge management measures (Naqshbandi & Jasimuddin, 2018). Moreover, knowledge management is one of the key predictors of innovation and creativity (Cui et al., 2018; Kim & Lee, 2013). It can help teachers enhance their creative teaching behavior through learning and sharing knowledge (Manesh et al., 2020).

The kind of leader who focuses on the creation, application, and sharing of knowledge greatly stimulates teachers' intrinsic motivation and willingness to grow professionally by providing them with rich learning resources and development platforms (Mansoor & Hussain, 2024). As a result, teachers' self-efficacy will be significantly improved (Walumbwa & Schaubroeck, 2009). Creative teaching behavior requires teachers to have a spirit of independent thinking and daring to innovate, and self-efficacy is the psychological support for this spirit (Huang, 2022).

Students who have confidence in their own teaching skills will be more willing to experiment with new approaches and tactics, break traditional teaching frameworks, and create more attractive and effective teaching models (Nemeržitski & Heinla, 2020). According to social cognitive theory (Wood & Bandura, 1989), individual behavior is influenced by subjective cognition and attitudes, as well as external factors such as the current environment, culture, atmosphere, and various resources. Waddington (2023) considered self-efficacy as a predictor of personal factors and having a significant impact on individual behavior.

Beijing is the political and cultural center of China, so policy formulation and implementation are more intensive and stricter in Beijing (Li & Fang, 2023). Private universities in Beijing are a model and demonstration for the whole country. As the capital of China and an important center of national education, Beijing's education system has always been at the forefront of reform and innovation. Teachers are encouraged to experiment with new approaches and strategies to satisfy the demands of the community. Li (2024) conducted a survey and analysis on the current situation of teachers' teaching and learning abilities in private undergraduate universities in the era of Educational Informatization 2.0.

It was found that there are problems such as outdated educational concepts, insufficient teaching abilities, and related policy and mechanism constraints. The teaching ability of teachers in private universities is still far from meeting the quality requirements of university teachers, for example, insufficient skills in classroom management and course design, and urgently needs to be improved (Zhan & Cui, 2022). Therefore, this study focused on teachers from private universities in Beijing.

The majority of research endeavors on knowledge management have been conducted in countries such as the United Kingdom and Malaysia, where highly developed educational systems prevail (Al-Sulami et al., 2023). In contrast, such investigations remain rare within the context of higher education in developing countries. Universities in these regions are often characterized by individualistic cultures, rigid organizational structures, limited leadership involvement in knowledge management initiatives, insufficient understanding of the possible advantages of knowledge management, and an absence of standardized motivation schemes.

The importance of involving educators in learning and knowledge management processes is highlighted by the fact that higher education promotes the creation of theory as well as practice by working together (Sahibzada et al., 2023). As Xie et al. (2024) noted, the management of knowledge in Chinese higher education is still in a nascent phase compared to other business sectors. Therefore, the engagement of educators in learning and knowledge management is of critical importance. Furthermore, advancing research on knowledge management within the higher education sector of developing countries carries considerable innovative value for enhancing educational quality and promoting institutional innovation.

Beijing, as the political and cultural center of China, is characterized by more intensive and rigorous policy formulation and implementation. Private universities in Beijing serve as national models and exemplars. As the capital city and a major hub of education in China, Beijing's education system has long been at the forefront of reform and innovation. Both governmental and educational organizations are always eager to identify new ways and tactics to adapt to the changing societal expectations.

This supportive and progressive educational environment is a crucial driving force behind teachers' engagement in creative teaching practices. Studying teachers in Beijing not only helps uncover the intrinsic link between perceived knowledge-oriented leadership (PKOL) and creative teaching behavior but also offers valuable insights into and references for the educational reform of private universities across the country.

The purpose of this research was to explore the influence of PKOL on the innovative teaching behavior of teachers, and to prove that knowledge management and teacher self-efficacy play an important role in the relationship between PKOL and creative teaching behavior. This paper focuses on the following issues:

1. Does the perception of KOL affect the innovative teaching behavior of teachers at privately run colleges in Beijing?
2. Does the perception of KOL influence knowledge management?
3. Will knowledge management affect the creativity of teachers?
4. Does PKOL impact teachers' self-efficacy?
5. Does self-efficacy influence innovative instruction?

6. Is knowledge management an intermediary in the relation of the perception of knowledge-oriented leadership leading to creative instruction?
7. Is it possible that self-efficacy plays an important role in the relation of perceived knowledge leading to creativity?

2. Literature Review

2.1 Organizational Knowledge Management Theory

Anderson (1996) proposed an organizational knowledge management model that provides a useful framework for understanding knowledge management operations. In this model, Anderson conceptualizes knowledge as a complicated system consisting of the combination of knowledge as an entity (static knowledge), as a process (dynamic knowledge), and as an organizational feature (the interaction between knowledge and the environment).

Based on this conceptualization, the model identifies the enablers of organizational knowledge creation through two dynamic trajectories: the external and internal tracks. The external track refers to the essential organizational enablers—cultural, technological, leadership, and evaluative mechanisms—that serve as driving forces for knowledge management. The internal track encompasses the core knowledge management processes, including adaptation, collection, identification, creation, sharing, utilization, and organization.

Building on this model, Raudeliūnienė et al. (2018) emphasized that an organization's core competence lies in its ability to effectively acquire, share, transform, and apply knowledge—capabilities that significantly contribute to enhanced innovation and overall organizational performance. As the principal agents of creating and disseminating knowledge in higher education, teachers have an important effect on raising educational quality by virtue of their ability to innovate in teaching (Huang et al., 2024). However, this capacity is not solely determined by individual professional competence and effort but also profoundly shaped by leadership practices and the organization's approach to knowledge management.

Knowledge-oriented leadership, characterized by a focus on knowledge flow and innovation, aligns closely with the organizational knowledge management model (Sadeghi & Rad, 2018). Such leaders foster knowledge circulation and transformation within the organization through motivation and communication, thereby optimizing the environment for knowledge creation and application. This leadership style provides faculty with both the resources and psychological safety necessary for implementing innovative teaching practices. It enables educators to engage more actively in knowledge management practices, including the acquisition of external knowledge, the sharing of pedagogical experiences, the transformation of instructional methods, and the innovative application of knowledge (Rehman & Iqbal, 2020).

Therefore, when educators leverage knowledge management to manage their own knowledge assets, they are better positioned to grasp the dynamics of

knowledge, inspire intellectual growth in students, achieve personal professional fulfilment, and contribute to the organization's competitiveness. In light of this, the present study adopted the organizational knowledge management model to examine how university educators' perceptions of knowledge-oriented leadership influence their innovative teaching practices, with a focus on the mediating roles of knowledge management and self-efficacy.

2.2 Perceived Knowledge-Oriented Leadership and Creative Teaching Behavior

Knowledge-oriented leadership encourages individuals to acquire new sources of knowledge from their own and other disciplines, while appreciating their own work, successfully enhancing creative work (Liu et al., 2022). Particularly, PKOL has the ability to efficiently guide, generate, engage, and organize knowledge and information transmission between organizations or subjects (Farooq Sahibizada et al., 2021). The behavior of leaders is crucial for individual innovation and creativity, as it is highly effective in motivating individuals.

In the educational context, this enhances teachers' thinking abilities and skills, which improves the minds and skills of the teachers and leads them to innovate and be creative (de Jong & Den Hartog, 2007). Rehman and Iqbal (2020) found a positive correlation between knowledge-oriented leadership and teacher creativity. Teachers can easily and successfully demonstrate innovative teaching behavior if they display a PKOL approach (Alzghoul et al., 2023). Knowledge-oriented leaders have a great effect on higher education and their environment and can stimulate creativity and teaching behavior (Banmairuroy et al., 2022). On the basis of these findings, the present paper puts forward research hypothesis 1.

H1. Perceived knowledge-oriented leadership among teachers in private universities in Beijing has a significant positive impact on creative teaching behavior.

2.3 Perceived Knowledge-Oriented Leadership and Knowledge Management

Knowledge-oriented leaders tend to encourage and reward teachers who are willing to try and share (Ribière & Sitar, 2003). Rehman and Iqbal (2020) found that the management of higher education institutions can efficiently manage knowledge resources, ensure the effective execution of knowledge management processes, and promote process innovation by practicing knowledge-oriented behavior. Shamim et al. (2019) demonstrated that PKOL plays an important role in facilitating the accumulation, sharing, and use of individual knowledge, which further shows that knowledge-oriented leadership has a significantly positive effect on knowledge management.

Donate and de Pablo (2015) found, through empirical research, that PKOL has a significant positive effect on knowledge management. In a Turkish study, Gürlek and Cemerci (2020) investigated knowledge-based theory, contingency theory of leadership, social learning theory, and resource-based perspective and found that under knowledge-based leadership, knowledge management ability, innovation performance, and organizational performance are very high. Shamim et al. (2019) extended the construction of PKOL and studied its role in predicting knowledge management behavior at the individual level. Their results showed that

knowledge-oriented leadership has a positive impact on knowledge management behavior, emotional commitment, creative self-efficacy, and work engagement. On the basis of these findings, the present paper puts forward research hypothesis 2.

H2. Perceived knowledge-oriented leadership among teachers in private universities in Beijing has a significant positive impact on knowledge management.

2.4 Knowledge Management and Creative Teaching Behavior

Fostering the creation of new knowledge and knowledge management techniques is seen as a key building block for the realization of individual creativity (Zack et al., 2009). In the educational domain, knowledge management can offer abundant educational resources to teachers, which is important in encouraging creativity among students (Mazhar & Akhtar, 2018). Through effective knowledge management, teachers can more conveniently access these valuable teaching resources and share their innovative practices and teaching experiences with colleagues, thereby jointly promoting the development of creative teaching behavior (Widodo & Gunawan, 2021).

In addition, teachers with knowledge management skills can understand the latest teaching concepts and methods and flexibly apply them to practical teaching, greatly enriching teaching content and methods and enhancing teaching creativity (Rahimi et al., 2011). Knowledge management can also help teachers solve various problems encountered in the teaching process more quickly and effectively and encourage teachers to continuously engage in innovative practices (Rafiee & Khorasani, 2018). By communicating and sharing experiences with others, teachers can gain new ideas and inspirations, promoting their professional growth (Yeh et al., 2011). Based on these findings, research hypothesis 3 is put forward.

H3. The knowledge management of Peking private college teachers has an obvious positive influence on the creativity of teachers.

2.5 Perceived Knowledge-Oriented Leadership and Teacher Self-Efficacy

Self-efficacy – the individual's confidence in their ability to successfully perform necessary activities to achieve expected goals – is an important concept in psychology (Bandura, 1982). Self-efficacy reflects not only an individual's sense of ability when facing complex tasks but also their psychological preparation to effectively handle complexity and challenges (Klaeijsen et al., 2018). Knowledge leadership is concerned with the benefits of employees through a secure mental and knowledge setting, which will eventually improve personal self-efficacy (Walumbwa & Schaubroeck, 2009).

Shamim et al. (2019) found that knowledge-oriented leaders have a positive impact on creative self-efficacy. Ahmed et al. (2024) found that PKOL has a positive promoting effect on employees' creative self-efficacy. The findings of Shafique et al. (2023) indicate that knowledge-oriented leaders strongly predict employees' self-efficacy. Based on this, this study proposes research hypothesis 4.

H4. Perceived knowledge-oriented leadership among teachers in private universities in Beijing has a significant positive effect on self-efficacy.

2.6 Teacher Self-Efficacy and Creative Teaching Behavior

Creative teaching behavior, as an important direction for teachers' professional development, often requires teachers to have the courage and ability to break through traditional and innovative teaching methods (Zainal & Mohd Matore, 2021). When teachers believe they can cope with various teaching challenges, they are more inclined to try creative teaching behaviors (Peciuliuauskiene & Kaminskiene, 2022).

Individuals with high self-efficacy can activate cognition, motivation, and activity processes to solve difficult and challenging issues (Michael, 2011). Highly self-motivated teachers consider themselves capable of overcoming all kinds of obstacles and challenges to attain their educational objectives and aspirations (Chang et al., 2011). Thus, when confronted with new approaches and tactics, teachers with high self-efficacy are more willing to actively seek out the potential for innovative instruction (Huang, 2022). On the basis of these findings, the paper puts forward research hypothesis 5.

H5. The self-efficacy of teachers in the privately run colleges and universities in Beijing has a significantly positive effect on innovative teaching.

2.7 Mediating Effect of Knowledge Management

Knowledge-oriented leaders have to direct and facilitate the exchange, transfer, and use of knowledge (Naqshbandi & Jasimuddin, 2018). Knowledge-oriented leadership stresses the value and efficient use of knowledge, which is closely related to teachers' creative teaching behavior (Shafait & Huang, 2023). When teachers perceive leaders' emphasis on and support for knowledge management, they may be more likely to participate in knowledge exchange and innovation (Alzghoul et al., 2023). In addition, knowledge management provides the resources and platforms needed to support creative teaching behavior (du Plessis, 2007). Through effective knowledge management practices, teachers can better access and share teaching resources, experiences, and best practices, which helps to enhance their teaching innovation abilities (Zhao, 2010).

The acquisition and sharing of such resources often require guidance and support from leaders, which is why knowledge-oriented leaders play a key role in it (Le & Do, 2024). Through an effective knowledge management system, teachers can quickly acquire the knowledge and information needed to solve problems, thereby improving their ability to cope with teaching challenges (Manesh et al., 2020). Improvement in this ability is closely related to the practical behavior of creative teaching, as creative teaching often requires teachers to have the ability to solve problems and respond to challenges. Based on this, this study proposes research hypothesis 6.

H6. Knowledge management among teachers in private universities in Beijing has a significant mediating effect between PKOL and creative teaching behavior.

2.8 Mediating Effect of Teacher Self-Efficacy

Obeidat et al. (2016) emphasized that in organizational knowledge management models, knowledge includes key processes such as knowledge acquisition, sharing, application, and creation. Among these processes, PKOL encourages teachers to acquire new knowledge and enhances their self-efficacy in applying this knowledge in teaching (Zheng et al., 2019). According to the organizational knowledge management model, PKOL promotes teachers' acquisition and application of knowledge by creating an environment for knowledge sharing and innovation, thereby enhancing their self-efficacy (Jiang et al., 2024).

Self-efficacy enhances teachers' confidence and ability to explore and apply new methods in teaching, further promoting the realization of creative teaching behaviors (Nemeržitski & Heinla, 2020). Leaders provide resources and support to teachers, enabling them to feel a stronger sense of competence in the process of knowledge acquisition, transformation, and creation, thereby promoting creative teaching behavior (Dadashpour et al., 2023).

When teachers perceive that their leaders are knowledge-oriented, they may have more confidence in their teaching abilities and tend to adopt more creative teaching strategies (Shafique et al., 2023). Knowledge-oriented leaders encourage teachers to constantly explore and learn new knowledge, thereby enhancing their self-efficacy (Ahmad & Siddiqi, 2023). Such an increased sense of self-efficacy has also led to greater willingness for experimentation and innovation in instruction and, thus, increased creativity in instructional behavior (Peciuliuskiene & Kaminskiene, 2022). Therefore, as the intermediate variable, the teacher's self-efficacy is the link between the perception of knowledge and the creativity of instruction, which affects the attitude and behavior of the teachers. Based on these findings, research hypothesis 7 was formulated.

H7. Self-efficacy plays an obvious intermediate role in the relation of PKOL to creative teaching behavior in privately run colleges and universities in Beijing.

3. Research Methods

3.1 Research Framework

This study took PKOL as the independent variable and creative teaching behavior as the dependent variable. The aim was to verify whether knowledge management had a mediating effect between PKOL and creative teaching behavior, as well as whether teacher self-efficacy had a mediating effect between PKOL and creative teaching behavior. Figure 1 illustrates this relationship diagrammatically.

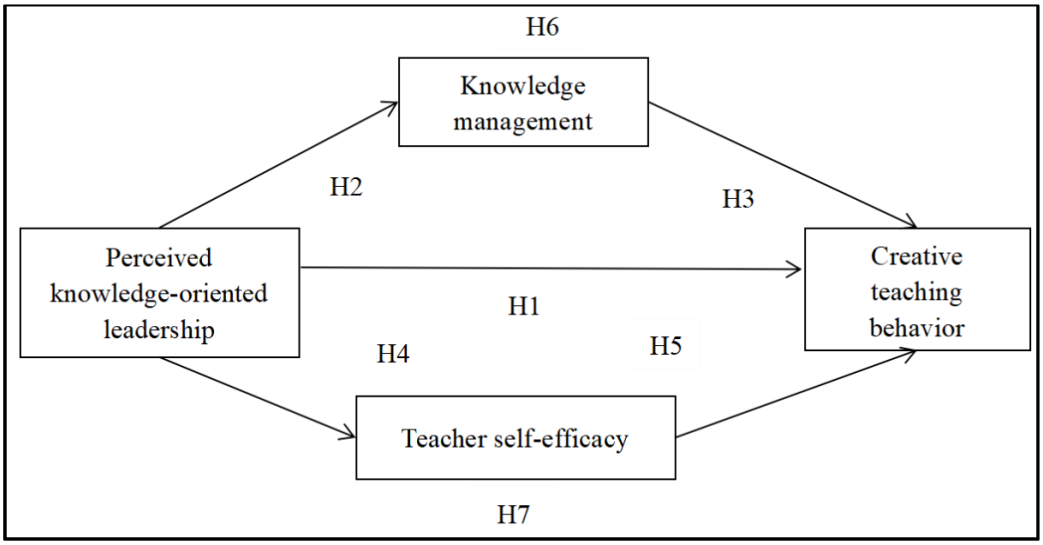

Figure 1: Research framework diagram

3.2 Research Sample

Questionnaires were utilized in this study to investigate the research topic. The research population was the special class of Peking private college teachers. The study surveyed five private universities in Beijing, including two undergraduate schools and three vocational schools. To ensure the diversity and representativeness of the sample, the study included both undergraduate and vocational colleges, reflecting various levels of private higher education institutions. Additionally, the sample covered institutions specializing in finance and economics, comprehensive universities, and engineering-focused colleges, thereby representing private higher education across different disciplinary backgrounds. Data collection involved distributing 800 formal questionnaires, of which 716 were returned and valid. The demographic details of respondents are presented in Table 1. In regard to gender, the sample comprised 336 male and 380 female teachers. Concerning teaching experience, 97 respondents had five years of teaching experience, 210 had 6–10 years, 241 had 11–15 years, 119 had 16−20 years, and 49 had 21 or more years of teaching experience.

Table 1: Sample structure analysis table (N = 716)

Variable	Category	Frequency	Percentage (%)
Gender	Male	336	46.927
	Female	380	53.073
Teaching experience	Within 5 years (including 5 years)	97	13.547
	6–10 years	210	29.330
	11–15 years	241	33.660
	16–20 years	119	16.620
	21 years and above (including 21 years)	49	06.843

3.3 Research Instruments

This study employed four research scales. To ensure measurement consistency and reliability, the original versions of the scales were used without any modifications. The four scales are subsequently discussed, along with their reliability and validity as applied in this study.

The first scale was the Knowledge-Oriented Leadership Scale developed by Yang et al. (2021), which was evaluated using a 5-point Likert scale, with 1–5 corresponding to the options of "*disagree*", "*slightly disagree*", "*moderate*", "*slightly agree*", and "*strongly agree*", respectively. This scale has six questions. A sample item is: "My immediate supervisor encourages learning from experience and tolerates a certain degree of mistakes." This scale was adopted because its development took into account the characteristics of faculty and staff in Chinese universities.

The Cronbach alpha value for PKOL was .876. The χ^2/df was 3.624, which was greater than 3 but less than 5 and within an acceptable range. The Goodness of Fit Index (GFI) was .985 and the Adjusted Goodness of Fit Index (AGFI) was .965, both greater than .900. The Incremental Fit Index (IFI), Comparative Fit Index (CFI), and Tucker-Lewis Index (TLI) values were all greater than .900. The root mean square error of approximation (RMSEA) value was .061, less than .100. The average variance extracted (AVE) value of PKOL was .542, and the composite reliability (CR) value was .877.

Second, this research employed the Creative Teaching Behavior Evaluation Scale, which was designed and modified by Zhang et al. (2008). The questionnaire is composed of 28 items classified into 4 dimensions: instructional approach (Q1–6), motivational stimulation (Q7–12), perspective assessment (Q13– 21), and support for flexibility (Q22–28). A sample item is: "I leave some questions for students to solve on their own." The items were rated on a 5-point Likert scale. This scale was adopted since it has been widely applied and recognized in the field of empirical research in China, making it suitable for the respondents of this study.

The Cronbach alpha value for creative teaching behavior was .933, for learning style guidance it was .885, for motivation stimulation it was .853, for viewpoint evaluation it was .897, and for encouragement of flexibility it was .896. The χ^2/df was 1.786, less than 3. The GFI was .949 and AGFI was .938, both greater than .900. The IFI, CFI, and TLI values were all greater than .900. The RMSEA value was .033, less than .100. The AVE and CR values for the four dimensions were as follows: instructional approach (AVE = .563, CR = .885), motivational stimulation (AVE = .584, CR = .875), perspective assessment (AVE = .555, CR = .897), and support for flexibility (AVE = .553, CR = .896).

The third instrument employed was the Teacher Knowledge Management Questionnaire developed by Fan and Chen (2010). This scale consists of 23 items, including 4 questions in the knowledge acquisition dimension, 6 questions in the technology application dimension, 4 questions in the knowledge sharing dimension, 5 questions in the transformation application dimension, and 4

questions in the knowledge innovation dimension. A sample item is: "I discuss and share teaching insights and experiences with my colleagues." This scale employed a 5-point scoring method. It was specifically designed to measure teachers' knowledge management in the Chinese context and is highly aligned with the objectives of this study. The Cronbach alpha value for knowledge management was .910, for knowledge acquisition it was .862, for technology application it was .862, for knowledge sharing it was .848, for transformation application it was .812, and for knowledge innovation it was .847.

The χ^2/df was 1.620, less than 3. The GFI was .963 and AGFI was .952, both greater than .900. The IFI, CFI, and TLI values were all greater than .900, and the RMSEA value was .029, less than .100. The AVE and CR values for the five dimensions were as follows: knowledge acquisition (AVE = .611, CR = .863), technology application (AVE = .556, CR =.862), knowledge sharing (AVE = .582, CR = .848), transformation application (AVE = .521, CR = .813), and knowledge innovation (AVE = .582, CR = .848).

Lastly, this study used Wu and Zhan's (2017) Teacher Self-Efficacy Scale, which consists of two dimensions. The teacher's perception of effectiveness in study and instruction consists of 8 items, while teacher effectiveness in class administration consists of 4 items. A sample item is: "I am confident that I can encourage students to value learning." Items could be scored on a 5-point scale ranging from "*completely incorrect* (1)" to "*completely correct* (5)". The higher the score, the higher the self-efficacy. This scale was selected because it has been applied by multiple scholars in specific empirical studies and has demonstrated favorable validity and reliability.

The Cronbach alpha value for teacher self-efficacy was .888, for teacher efficacy in learning and teaching it was .902, and for teacher efficacy in classroom management it was .840. The χ^2/df was 2.050, less than 3. The GFI was .978 and AGFI was .967, both greater than. 900. The IFI, CFI, and TLI values were above .900, while the RMSEA value was .038. The AVE value for teachers' perception of effectiveness was .568 and the CR value was .902, whereas the AVE value for teacher effectiveness in class administration was .565 and the CR value was .838.

3.4 Procedures

This study employed a convenient sampling method to survey teachers, who completed the online questionnaire collectively via the WeChat working group. Convenience sampling is advantageous for its operational simplicity, low cost, and rapid data collection, as it involves individuals who are easily accessible to the researcher. Following the requirements of the Ethics Committee at Dhurakij Pundit University, all the subjects examined were subject to a rigorous ethical review, and all related research materials were gathered upon receipt of the Academic Ethics Committee's consent.

3.5 Data Processing Methods

This study employed SPSS and AMOS analysis programs for data processing, encompassing descriptive statistics, correlation analysis, reliability analysis,

validity analysis, structural equation modeling, and bootstrap-based mediation effect testing.

4. Research Results

4.1 Common Method Bias

The explanation deviation of the primary component was 26.005%, which is lower than the threshold of 40%. This indicates that the influence of common method bias in this study was relatively small and that the data have high internal validity.

4.2 Relevant Analysis

Table 2 reports the results of the correlation analysis. The Pearson coefficient between PKOL and creative teaching behavior was .543. The ratio of PKOL to knowledge management was .367, while the coefficient between PKOL and teacher self-efficacy was .384. The correlation between creative teaching behavior and knowledge management was .554, and that between creative teaching behavior and teacher self-efficacy was .474. Finally, the coefficient between knowledge management and teacher self-efficacy was .342.

Table 2: Correlation analysis results

	Perceived knowledge-oriented leadership	**Creative teaching behavior**	**Knowledge management**	**Teacher self-efficacy**
Perceived knowledge-oriented leadership	1			
Creative teaching behavior	.543**	1		
Knowledge management	.367***	.554**	1	
Teacher self-efficacy	.384***	.474***	.342***	1

Note: *** $p < .001$

4.3 Structural Equation Modeling

Based on the structural equation model adaptive test indices, the normed chi-square (NC)—also known as the chi-square divided by degrees of freedom (χ^2/df)—is acceptable when it ranges from 1 to 3, and the RMSEA is considered acceptable when it falls within the .050−.100 range (Fornell & Larcker, 1981). A value below .050 indicates superior adaptability. It is commonly thought that the GFI of the adaptive index is above .900, but if it exceeds .800, then that is acceptable.

The TLI value for non-standard adaptation indicators should be above .900. The χ^2/df was 1.312, which was less than 3. The GFI was .904 and AGFI was .897, both greater than .900. The IFI, CFI, and TLI values were all greater than .900, and the RMSEA value was .021, which was less than .100. According to the standard of model fitting indicators, the fitting indicators of the model meet the requirements.

The results of the structural equation modelling are presented in Table 3.

Table 3: Summary table of structural equation modeling path analysis

			Std. Estimate	Estimate	S.E.	C.R.
Creative teaching behavior	<---	Perceived knowledge-oriented leadership	.266	.204	.042	4.856
Knowledge management	<---	Perceived knowledge-oriented leadership	.460	.385	.044	8.843
Creative teaching behavior	<---	Knowledge management	.461	.422	.050	8.373
Teacher self-efficacy	<---	Perceived knowledge-oriented leadership	.546	.425	.046	9.321
Creative teaching behavior	<---	Teacher self-efficacy	.360	.355	.064	5.517

Based on the hypothesis test, we found that the route factor of PKOL on creative instruction was 0.266, and its significance was $p < .001$. Thus, the perception of knowledge-oriented leadership has an obvious positive effect on innovative instructional behavior, which is confirmed by H1. Furthermore, we found that PKOL has a positive effect on knowledge management (.460), with $p < .001$. Thus, the perception of knowledge-oriented leadership has a significantly positive effect on knowledge management, and H2 is valid. Through the assumption test of knowledge management and innovative instruction, we found that knowledge management has a positive effect on creative teaching behavior (.461), and its relevant significance was $p < .001$.

Thus, knowledge management has an obvious positive effect on innovative instruction, and H3 is valid. In addition, we found that PKOL has a positive correlation with teacher self-efficacy (.546), with a significant p-value < .001. Thus, the perception of knowledge-oriented leadership has a significantly positive effect on the effectiveness of the teacher, and H4 is valid. Lastly, based on the hypothesis test, it was found that the effective path factor of teacher self-efficacy was .360, and the relevant significance was $p < .001$. It is concluded that the effectiveness of the teacher is positively related to innovative instruction, and the assumption of H5 is valid.

Figure 2 is a diagrammatic representation of the structural equation modeling results, showing the estimated path coefficients among the key variables.

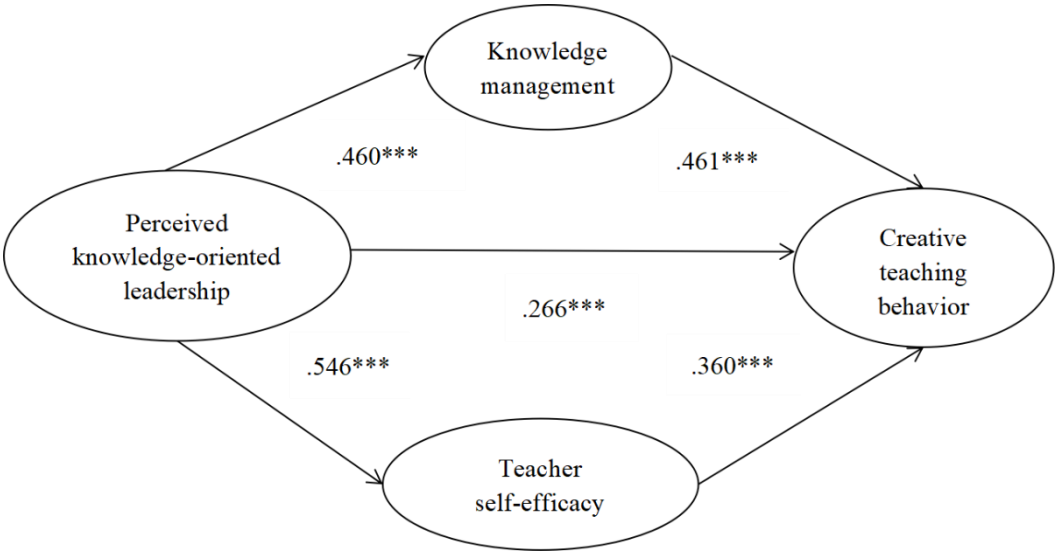

Figure 2: Structural equation modeling path analysis diagram

4.4 Mediating Effect

This study used the bootstrap method to directly test the existence of a mediation effect (Table 4). For straightforward testing, the null assumption is H + 1: ab = 0. The resultant confidence interval includes zero, indicating the absence of a mediation effect. To examine whether significant paths exhibit mediation effects, a bootstrap analysis was conducted using AMOS, with 5,000 resamples and a 95% confidence level, calculating the standardized specific indirect effects. The 95% confidence interval for both the overall efficacy and the indirect effect did not include zero, suggesting a mediating effect, which therefore supports the intermediate hypothesis. If the confidence interval for the direct effect also excludes zero, it indicates partial mediation; if it includes zero, it suggests full mediation.

The analysis showed that PKOL directly affected creative teaching behavior (.266), and the 95% confidence interval did not include zero [.143–.376], suggesting statistical significance. In addition, the indirect effect of knowledge management was. 212 [.154–.279], and the indirect effect was. 196 [.121–.299]. The overall impact of PKOL on creative teaching behavior was .674 [.610–.729], and the 95% confidence interval did not include zero. These results suggest that both knowledge management and teacher self-efficacy serve as partial mediators in the relationship between PKOL and creative teaching behavior.

Table 4: Mediating effect table

	Path	Effect value	Bias-corrected 95%	
			Lower	Upper
Direct effect	Perceived knowledge-oriented leadership→Creative teaching behavior	.266	.143	.376
Indirect effect	Perceived knowledge-oriented leadership→Knowledge management →Creative teaching behavior	.212	.154	.279
Indirect effect	Perceived knowledge-oriented leadership→Teacher self-efficacy→ Creative teaching behavior	.196	.121	.299
Total effect	Perceived knowledge-oriented leadership→Creative teaching behavior	.674	.610	.729

5. Research Discussion

This research shows that the perception of leadership knowledge orientation has a significant positive effect on the creativity of teachers, which is in line with Rehman and Iqbal (2020). Teachers are more prone to display creativity when they sense their leadership's active behavior on the basis of knowledge sharing, innovative motivation, and support.

Based on the findings of this study, PKOL has an obvious positive influence on knowledge management. The results of this study are consistent with Donate and de Pablo (2015). Knowledge-oriented leadership fosters an open and cooperative organizational culture and encourages the exchange of experience and expertise among staff. This cultural atmosphere could break down knowledge silos, promote the transformation and integration of implicit and explicit knowledge, and thus enhance the efficiency and effectiveness of knowledge management (Dongxian & Batool, 2024).

Knowledge management has a significant positive effect on creative teaching behavior, which is consistent with Purwanto (2020). Knowledge management optimizes the process of knowledge integration and systematizes and organizes dispersed teaching experience, scientific research achievements, and student feedback. It helps teachers to acquire and apply relevant knowledge more efficiently and promotes teachers' creative teaching behavior. According to knowledge management theory, through knowledge management, teachers can systematically organize and apply their own teaching knowledge and experiences, enabling them to engage in more targeted and creative teaching practices (Rafiee & Khorasgani, 2018).

Perceived knowledge-oriented leadership has a significant positive effect on the effectiveness of teachers, and this is in line with the research of Ochoa Pacheco et al. (2023). Knowledge-oriented leaders provide systematic knowledge support

and professional knowledge training, share learning resources, and create practical opportunities to help teachers master the skills and knowledge required to complete tasks. This support could enhance teachers' confidence in their own abilities and thus improve their self-efficacy.

In terms of mediating effect, the research results indicate that knowledge management has a significant mediating effect between PKOL and creative teaching behavior, demonstrating that leadership style indirectly affects teaching innovation through knowledge operation mechanisms. Teacher self-efficacy also has a remarkable mediation effect on this path, which highlights the importance of personal mental beliefs as a bridge between organizational impact and behavior performance.

6. Research Conclusion

The purpose of this study was to investigate the effect of PKOL on the creativity of teachers from private universities in Beijing. The main findings are as follows:

1. Teachers at privately run colleges in Beijing considered PKOL to have a significantly positive effect on creative teaching behavior.
2. Knowledge-oriented leadership has a significantly positive effect on knowledge management.
3. The effect of knowledge management on innovative teaching behavior is significantly positive.
4. Knowledge-oriented leadership has a significantly positive effect on the effectiveness of teachers.
5. The self-efficacy of teachers has a significantly positive effect on innovative teaching behavior.
6. Knowledge management plays an obvious intermediate role in the relationship between the perception of knowledge-oriented leadership and the creativity of teachers.
7. There is also an important intermediate role in the relationship between the perception of knowledge-oriented leadership and creative instructional behavior.

7. Research Recommendations

7.1 Strengthening the Cultivation and Promotion of Knowledge-Oriented Leadership

In China, it is necessary to promote the development of knowledge-oriented leaders and to assist them in grasping the key techniques of knowledge-oriented leadership, including knowledge sharing, resource integration, and innovation incentives, through regular leadership training, teaching seminars, and other activities. Second, Chinese universities should optimize their knowledge management systems and establish a comprehensive knowledge base, academic exchange platform, and interdisciplinary cooperation mechanism to provide teachers with abundant teaching resources and innovative inspiration.

For example, a teaching innovation fund can be established to support teachers in carrying out innovative teaching projects. In addition, Chinese universities should create an open and inclusive atmosphere for innovation to enhance teachers'

psychological security and self-efficacy. They can do this by formulating policies that encourage innovation and reducing punitive measures for teaching failures. Finally, Chinese universities can establish a diversified evaluation system that not only focuses on teachers' teaching achievements but also attaches importance to their innovative abilities and practical performance, thereby providing support for the comprehensive development of teachers.

7.2 Actively Participating in Knowledge Management Activities Organized by the University

Teachers who directly implement innovative instruction have a great influence on the efficiency of teaching. Teachers should actively participate in knowledge management activities organized by the university, such as academic exchanges, interdisciplinary cooperation, and sharing of teaching resources, to enhance their ability to acquire and apply knowledge. Second, teachers should focus on cultivating self-efficacy by setting practical and feasible teaching goals, accumulating successful teaching experience, and seeking support from colleagues and leaders to enhance their confidence in their own teaching abilities.

For example, teachers can try to integrate cutting-edge research findings into classroom teaching and validate their effectiveness through practice, thereby enhancing self-efficacy. In addition, teachers should actively explore innovative teaching methods, such as project-based learning, open class, and so forth. These methods can arouse students' interest and creativity. Finally, teachers can continuously enhance their teaching innovation abilities through reflecting on teaching practices, participating in teaching innovation competitions, and other means.

7.3 The Need for Policy Guidance and Resource Allocation in Relevant Sectors

The related departments have an important policy guidance function to enhance the innovative teaching ability of privately run colleges. The policies for the development of knowledge-oriented leadership formulated by these departments directly impact the core variables of this study. By incorporating knowledge management effectiveness into the performance evaluation indicators for university presidents (such as the utilization rate of knowledge-sharing platforms and teachers' participation in innovation projects), these policies can systematically strengthen leaders' knowledge-supporting behaviors, thereby activating teachers' agency in the SECI (socialization, externalization, combination, internalization) knowledge-conversion spiral.

Furthermore, relevant departments should increase investment in knowledge management and teaching innovation within private universities. This can be achieved through the establishment of special funds to support teaching innovation projects, the development of regional teaching resource platforms, and the promotion of deeper school-enterprise cooperation. These actions will improve the ability of teachers to manage their knowledge and give them more opportunities to innovate.

8. Research Limitations and Future Research Directions

In this research, we examined the effect of PKOL on innovative teaching behavior and analyzed the mediation effect between knowledge management and self-efficacy. This study has great theoretical and practical value. However, there were several limitations. First, the sample was concentrated in Beijing, limiting regional representativeness. Private universities in different regions may vary considerably in terms of resources and management styles, potentially affecting the generalizability of the findings.

Second, the use of a survey questionnaire introduced subjectivity and potential bias, while the cross-sectional design could not capture the dynamic relationships among variables. Additionally, although the theoretical framework was grounded in social cognitive theory and knowledge management theory, it did not account for other potential influencing factors, such as professional identity or organizational culture, which limited the explanatory scope.

Future studies may extend the sample scope to more varied areas and teachers. Employing a longitudinal design and qualitative method to complement the questionnaire data would enhance both the depth and breadth of analysis. Theoretically, incorporating self-determination theory and conservation of resources theory may help to further elucidate the underlying mechanisms. Through the enrichment of variables and methods, it is hoped that further studies will give greater insight into the impact of leadership patterns on innovation and thus provide greater support for the development of higher education institutions.

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