A STUDY ON THE INFLUENCING MECHANISM OF SHARED LEADERSHIP STYLE ON TEAM INNOVATION PERFORMANCE: MEDIATED BY KNOWLEDGE SHARING AND ORGANIZATIONAL INNOVATION CLIMATE

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This study mainly used a combination of qualitative and quantitative mixed method to investigate the mechanism of shared leadership style's influence on team innovation performance. Through the survey, descriptive statistical analysis, CITC test, factor analysis and testing the reliability and validity of the questionnaire were performed for each variable. Correlation analysis and control variables ANOVA were used, and the model was validated. The study found that shared leadership styles positively contribute to (shared transformational leadership, shared transactional leadership, and shared empowerment leadership) team innovation performance, and organizational innovation climate and knowledge sharing have a mediating role in the relationship between shared transformational leadership and shared transactional leadership, i.e., shared transformational leadership and shared transactional leadership styles contribute to team innovation performance through the mediating role of organizational innovation climate and knowledge sharing. Discussion and recommendations around each finding were also provided by the researcher by the end of the study.

Keywords: shared leadership style; shared empowerment leadership; team innovation performance; knowledge sharing; organizational innovation performance

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Introduction

In the knowledge-based economy, markets are changing rapidly and competition is becoming increasingly fierce. With the rapid development of information technology, modern organizations must make fast, flexible, and efficient decisions to maintain the competitive advantage enterprises.

However, the traditional hierarchical organizational structure is no longer suitable for the requirements of enterprise management in the new era, and an organizational structure that reduces organizational hierarchy, compresses functional organizations, and enhances the horizontal connection between internal and external horizontal units - flat organizational structure - has emerged.

The knowledge economy has given rise to a flat organizational structure, and the flat structure has led to an increased span of management, and the interaction between team members is bound to increase, which has led to the emergence of shared leadership theories that emphasize empowerment and the interaction of team members.

According to the previous leadership theories, most of the studies were on formal leadership. However, the flattening of organizations has led to an increase in the span of management and a marked increase in the influence of team members on each other, i.e., the influence of informal leaders who have real influence arising from their specialties.

Therefore, considering only the influence of formal leaders on team members and ignoring the influence of informal leaders has become a limitation of traditional leadership theory in the new era.

Secondly, in the era of the knowledge economy, the accumulation, utilization and development of knowledge is the fundamental way for enterprises to realize value-added. Simple work tasks are gradually being replaced by complex ones in a dynamic, globalized economy. To meet the needs of the modern economy, organizational tasks are often highly innovative and complex in composition, requiring more specialized knowledge and collaboration between team members.

As Cox et al. (2003) states, the more complex the task, the less likely it is that a specific leader will be focused on leading the team to complete the task. It is highly unlikely that a single leader will have all the knowledge and competencies required for all the processes of the job, and it will take a team of people with knowledge, skills and competencies in a variety of areas to work together to complete the task.

A similar conclusion was reached in a study by Sun (2008), who concluded that the higher the correlation of tasks, the higher the team performance tends to be compared to the sum of individual performance.

The reason for this is that leadership style directly influences leadership strategy, with multiple team members performing leadership together and working interdependently, thus taking full advantage of the strengths of individual group members.

Therefore, the more complex the work task and the more interrelated the task is, the more the team members need to cooperate, i.e., the team members influence each other in cooperation, and informal leaders with their strengths and specialties in cooperation are then created.

Based on this, traditional leadership theory only studies the influence of formal leaders on other team members but ignores the leadership of other team members on each other, and
the study is incomplete. The diversification of tasks in the knowledge economy requires organizations to achieve shared leadership.

In addition, how to fully mobilize employees' motivation and initiative through appropriate leadership styles, thus promoting their innovation in the workplace and enhancing the overall innovation performance of the organization is an important topic facing modern management research. Shared leadership style, a process in which team members play shared and dynamic leadership roles and influence each other according to task characteristics and expertise, is designed to better achieve team goals by sharing leadership roles.

Among the three major theoretical doctrines of organizational innovation, the innovation component of the doctrine emphasizes that leadership styles play an important role in the perception of innovative work environments for employees.

Studies have been conducted that leadership styles such as participative leadership, collaborative leadership, problem-solving leadership, transactional leadership, and empowerment leadership can be effective in driving employee innovation within an organization. In specific management practices, more and more companies are implementing shared leadership as an emerging collective leadership style, such as the "collaborative system" of Alibaba Inc., a publicly traded company, and many virtual teams based on Internet collaboration (Alavi & Leidner, 2004).

Although the main research in China currently focuses on vertical leadership and influence relationships between superiors and subordinates, and research on horizontal directional leadership and influence of shared leadership among colleagues at the same level is still in its infancy, it is certainly based on existing research that shared leadership as a dynamic collective leadership style can not only enhance effective team functioning but also effectively promote employee knowledge sharing and team performance (Lu, 2016).

Therefore, at a time when innovation is becoming a key factor in the development of a company or even a country, whether shared leadership, as the frontier of leadership theory in the knowledge economy, can further promote organizational change and innovation and thus be at the forefront of the times is a question that needs to be explored and researched in the current shared leadership theory.

**Research objectives**

The main objective of this study was to investigate the mechanisms of shared transformational leadership, shared transactional leadership and shared empowerment leadership of shared leadership styles on team innovation performance in the context of Chinese state-owned enterprises (SOEs), and to provide a theoretical and empirical basis for the management practice of shared leadership theory in the new economy, with the following specific research objectives:

1. To explore the concept, characteristics and connotations of shared leadership in the Chinese cultural context.

2. To develop scales for shared transactional leadership, shared transformational leadership and shared empowerment leadership styles in the context of Chinese SOEs, based on the measurement of vertical leadership styles, and to validate the reliability and validity of the scales in Chinese organizations.
3. To explore whether shared transformational leadership, shared transactional leadership and shared empowerment leadership styles can promote innovative team performance, drawing on vertical leadership styles.

4. To explore the mediating role of knowledge sharing in shared transformational leadership, shared transactional leadership and shared empowerment leadership styles on team innovation performance, drawing on vertical leadership styles.

5. To explore the role of organizational innovation climate in mediating team innovation performance in shared transformational leadership, shared transactional leadership and shared empowerment leadership styles.

**Literature review**

**Shared leadership and team innovation performance**

Shared leadership, an emerging theory of team leadership, is a dynamic, interactive process of group influence in which team members with appropriate expertise take on leadership functions at different stages of a team task and change leadership roles according to changes in the external context of the team, so that team members can jointly manage the team to better achieve the team's task objectives.

Transactional leadership and transformational leadership have been the focus of leadership theory for the last 20 years. Transactional leadership is based on an exchange relationship between leaders and members, whereby subordinates receive timely rewards from the leader for completing tasks set by the leader, in which subordinates exchange absolute obedience for material rewards from the leader.

Transformational leadership is where leaders change the perceptions of their subordinates and lead them beyond their self-interest to pursue higher goals. However, both transactional and transformational leadership emphasize the leadership role as fixed to a single individual within the organization, highlighting the top-down control process and failing to meet the needs of team management with professional expertise and self-management skills. Hence, it follows that shared leadership has more scope for application at the team level than transactional and transformational leadership, and is important in stimulating the creative potential of employees and improving the innovative performance of teams for the following reasons:

Firstly, Shared Leadership focuses on sharing authority and responsibility, enabling a dynamic transfer of leadership power among team members throughout the entire delegation and encouraging team members to take on leadership responsibilities. Shared leadership gives employees more leadership power and meaning in their work and motivates team members to explore new ideas and engage in creative practices. At this point, employees will maximize their intelligence and show more creative emotions and workforce as an inspiration back to the leader, maximizing the value of the team and thus enhancing the team's innovative performance.

Secondly, shared leadership requires team members to focus on efficiency and quality when completing tasks and to innovate to achieve superlative performance continuously. By managing performance expectations in this way, the relationship between giving and take can be handled more motivating, maximizing team and individual motivation, and thus enhancing team innovation performance.
Finally, shared leadership theory is a fundamental means of emphasizing the renewal of team members' knowledge, the improvement of their skills and the enhancement of their capabilities, which determines the strength of the team's competitiveness and performance. Through teamwork and team learning, team members interact more, build trust and cooperation, learn new knowledge and acquire new skills, and subsequently improve team innovation performance. Therefore, this study concludes that the implementation of shared leadership in teams plays an important role in improving team innovation performance.

The role of knowledge sharing in shared leadership and team innovation performance
1. Shared leadership and knowledge sharing

Knowledge sharing is a process of knowledge transfer and mutual communication based on an excellent organizational structure, knowledge platform and mutual trust and cooperation between employees and may be influenced by leadership behavior. Firstly, the traditional pyramid structure makes most employees follow orders and lack initiative and creativity, which is not conducive to generating new knowledge. The more management levels there are, the more difficult and time-consuming communication is, which can easily lead to distortion of information in the transmission process and is not conducive to knowledge sharing.

Shared leadership can weaken hierarchical relationships, reduce organizational levels and flatten the organizational structure, facilitating the exchange of information among employees, which is conducive to giving full play to their creativity and creating new knowledge while also significantly shortening knowledge transfer time and reducing the rate of information distortion, thus promoting knowledge sharing. Secondly, the knowledge platform is an essential channel for achieving knowledge integration and collision. By creating an atmosphere of team learning and mutual collaboration, shared leadership establishes a platform for knowledge sharing and provides a channel to guarantee the realization of knowledge sharing. Team members speak freely, share their knowledge on the knowledge-sharing platform, and are willing to pass on their professional knowledge, skills and experience to other members. Thirdly, shared leadership makes the leadership role dynamically change in the team according to the type of task and situational factors. They were facilitating knowledge sharing. In summary, shared leadership facilitates knowledge sharing within the team.

2. Knowledge sharing and team innovation performance

Based on a knowledge transformation perspective, knowledge-sharing behavior within teams facilitates the creation of more new knowledge. Knowledge is the basis of innovation, and innovation results from knowledge sharing and application. So, it follows that knowledge sharing is the key to innovation and that the lack of innovation in many teams in management practice is mainly due to a lack of knowledge sharing. It has been pointed out that teams can only maintain a competitive advantage by acquiring the resources they need to innovate quickly and transforming them into innovative behavior.

Team climate, as one of the alternatives or offsetting factors, plays a moderating role in the relationship between shared leadership and team innovation performance, and knowledge sharing is an important way to enhance team innovation performance, i.e., the more efficient
the quality of knowledge sharing within a team, the higher the overall level of innovation performance of the group.

Hansen et al. (2002), through a field survey of 120 new product development project teams in 41 business units of a large electronics company, showed that the higher the level of knowledge sharing between project teams, the shorter the development cycle of new products. In fact, knowledge sharing enriches employees' knowledge, creates new knowledge, and continuously improves innovation capabilities. Based on this, this study concludes that knowledge sharing helps to improve team innovation performance.

3. The mediating role of knowledge sharing

Companies tend to be less innovative and less efficient, in large part because under the traditional leadership model, organizations value hierarchy and leaders have absolute leadership and resource allocation power, which back inhibits employee motivation and is not conducive to the development of employee potential and creativity.

By implementing a shared leadership model, leadership is dynamically transferred within the team according to the task situation to motivate members to work, promote organizational citizenship behavior of team members and organizational citizenship behavior of the team, which in turn promotes team knowledge sharing. Knowledge sharing enables knowledge, information and resources to be effective and timely, promotes mutual trust and cooperation among team members and can integrate imperfect individuals into perfect teams.

Adequate knowledge, resources and information play a decisive role in the creativity of team members, as they lead to greater clarity of purpose and creative motivation. More conscious acquisition and sharing of domain-related skills stimulate team creativity and enhance team innovation performance. In summary, this study concludes that the impact of shared leadership on team innovation performance is mediated by knowledge sharing.

Team innovation climate and team innovation performance

Generally speaking, the factors affecting team innovation performance can be divided into team variables, individual variables and environmental variables, while organizational innovation climate is an important part of the factors influencing the organizational environment. Most studies have shown that innovation climate effectively predicts organizational innovation behavior and innovation performance, and that the strength of organizational innovation climate is closely related to the level of organizational innovation capability.

Li (2001) studied the relationship between supervisory support and the degree of product innovation and found that there was a significant correlation between the degree of supervisory support and team innovation performance, with the higher the degree of supervisory support, the better the team's innovation climate and the higher the team's innovation performance.

Nemanich (1995) research suggests that the "familiarity" of the relationship between the team and the trust of the team members affects the team's innovation performance.

Amabile (1996) explored the relationship between creative work environments and organizational innovation performance and found that the exercise of individual creativity and organizational productivity in organizations was significantly positively correlated with organizational encouragement, supervisory encouragement, work team support, freedom, challenging work, and significantly negatively correlated with organizational barriers, while
not significantly correlated with work stress and adequate resources. Social cognitive theory suggests that work climate influences human behavioral responses. Team members' perceptions of the team's creative climate influence employees' behaviors, and these behaviors, in turn, influence their satisfaction and performance. Similar to individuals, team members show shared attitudes and behavioral responses through work tasks that influence the behavior and performance of the team.

Alavi & Leidner (2001) found that organizations that focus on the improvement of existing products can achieve better product innovation performance even with a low level of innovation. In conclusion, there are different views on the relationship between organizational innovation climate and innovation performance, but most scholars believe there is a close relationship between the two, so this study will delve into the impact of organizational innovation climate on innovation performance.

**Team innovation climate and knowledge sharing**

Knowledge sharing is closely related to innovation, the main form of knowledge creation. Innovation results from the interaction between tacit and explicit knowledge in an organization. Innovation is also considered to be the process by which an organization asks and identifies problems and takes the initiative to develop new knowledge to solve them, with interaction and information feedback from people, events, objects and relevant departments. In this process, it is vital to build an environment where knowledge is effectively created, transformed and used (i.e., an organizational climate for innovation).

Bass & Riggio (2006) research suggests that it is important for organizations to create an environment that effectively promotes idea generation if they want to integrate their employees' professionalism, skills, experience and background knowledge.

Based on this model, we can hypothesize that team innovation climate acts on innovation behavior and performance by influencing employees' organizational commitment, supportive attitudes, vision and knowledge management (knowledge sharing). This hypothesis will be examined and justified in this study.

**The role of organizational innovation climate in the relationship between shared leadership and team innovation performance**

Shared leadership contributes to team innovation performance, but situational factors of the team also influence the effect of leadership behavior on team innovation performance in different contexts.

From a social psychological perspective, situational influences on behavior are mainly achieved by acting on motivational states (Liu, 2001).

Contextual factors include factors that counteract or substitute for leadership behavior. Offsetting factors prevent the leader's behavior from impacting the outcomes of subordinates; it nullifies the leader's influence, whereas substitution factors not only prevent the leader from having an impact but also make it unnecessary; it can replace the leader's influence (Kerr, 1978).

Variables such as employee strengths, indifference to rewards and other variables that have an offsetting effect on leadership behavior can influence the relationship between leadership behavior and innovation performance. In the presence of offsetting factors, employees' dependence on the leader diminishes and offsetting effect factors occur, thereby reducing employees' need for leadership and, in turn, the role of shared leadership in
influencing team innovation performance. The organizational innovation climate is one of the alternative or offsetting factors that moderate the relationship between shared leadership and team innovation performance.

Social cognitive theory suggests that the work climate influences people's behavioral responses. Team members' perceptions of the organization's innovative climate influence employees' behaviors, which, in turn, influence their satisfaction and performance. Like individuals, team members exhibit shared attitudes and behavioral responses through work tasks that influence team behavior and performance (Liu, 2001).

The organizational innovation climate is a shared perception of team members' support for innovation in their team. This shared perception reflects the overall team characteristics to a certain extent and significantly impacts team members and the team (Sun, 2008).

The more positive the organizational innovation climate is, the more employees perceive shared leadership. They will show more cooperation and sharing, which will stimulate creativity and team learning to a greater extent, thus enhancing the positive impact of shared leadership on team innovation performance. On the contrary, the more negative the organizational innovation climate is, the less psychologically secure the team members will feel and the more reluctant they will be to take on leadership responsibilities.

**Conceptual framework model**

Through a literature review of shared leadership, shared leadership styles, knowledge sharing, organizational innovation climate and team innovation performance, this study finds that shared transactional leadership, shared transformational leadership, shared empowerment leadership and the corresponding leadership styles in vertical leadership have both commonalities and differences. The commonality is that both examine the impact of different styles of formal team leadership on team members, while the difference is that the shared leadership style builds on the vertical leadership style and examines the impact of different styles of informal team leadership on team performance.

Based on the literature review, this study draws on the research on the influence of shared leadership style on team innovation performance through knowledge sharing and organizational innovation climate, and follows the logic of "shared leadership style - knowledge sharing - organizational innovation climate - team innovation performance", focusing on the mechanisms of shared transformational leadership, shared transactional leadership and shared empowerment leadership on employees' innovation behavior, and exploring the mediating role of knowledge sharing and organizational innovation climate between shared leadership style and employees' innovation behavior.

The initial theoretical model for this study was proposed by sorting out the logical threads between the core variables, as shown in Figure 1.
Research methodology

The questionnaire design process in this study consisted of five parts: theoretical examination, literature analysis, existing relevant scales finding, setting and modification of question items and dimensions, and generating final measurement variables and measurement terms for each variable. In the theoretical examination section, this study first provides an understanding of the leadership mechanisms and characteristics of the three leadership styles of transformational, transactional, and empowering leadership, the concepts of knowledge sharing, organizational innovation climate, and team innovation performance, and then adds the concept of shared leadership for a combined examination and exploration of the potential interrelationships. After setting up the basic questions and dimensions, this study modifies the content of the questions appropriately to fit the respondents and the survey topic of this study.

The measurement scales on shared leadership style, knowledge sharing, organizational innovation climate, team innovation performance and the division of dimensions used in this study are referenced to validated measurement scales. After modification and adjustment, specific questions were designed to suit the research content of this study. This study uses online questionnaires, distributed and data collected through WeChat Questionnaire Star, emails and distributed through the website.

The survey takes different types of teams in several domestic state-owned enterprises as the main target, and the survey universities are from Yunnan, Sichuan, Shandong and Beijing, including Power China Kunming Engineering Corporation Limited, Power China Chengdu Engineering Corporation Limited, Yunnan Investment Group, Yunnan Construction Machinery and Equipment Co., Ltd, Yunnan Design Institute Group, Power China Resource Limited. The types of teams involved include research teams, technical teams, administrative teams, Party political and party affairs teams, social teams and other teams.

Data were collected from March 1, 2022, to May 1, 2022, with a total of 330 questionnaire points, and finally 302 valid questionnaire points were successfully returned. All independent variables, mediating variables and outcome variables were sampled on a 5-
point Likert scale with option scores ranging from 1 to 5, representing "strongly disagree," 
"disagree," "not sure," "agree," and "strongly agree.

Results

Effect of shared leadership style on knowledge sharing

The construction and validation of the structural model were the same as the construct 
validity test, both of which involved importing the collated questionnaire data into IBM 
SPSS Amos 26 for model drawing, data import, variable naming, adding error terms, data 
running, and model adjustment, and adding mediating variables and their observed variables 
in the mediated model construction.

In this paper, when using IBM SPSS Amos 26 for structural equation modeling to 
validate the theoretical model of shared leadership style on team innovation performance, the 
standardized results were selected for the validation of both direct and mediating effects in 
the model.

Impact of shared transformational leadership on knowledge sharing

From the fitted values of each model of the impact of shared transformational 
leadership on knowledge sharing, it was found that c2/df, RMSEA and CFI, which are 
strictly required to reach the range of suggested values in this paper, are 2.503, 0.071 and 
0.933, respectively, which are within the range of suggested values. The rest of the fitted 
index values are within the suggested values except for NFI and AGFI which are slightly 
smaller than the suggested values, indicating that the model is a good fit.

From the structural equation model of the influence of shared transformational 
leadership on knowledge sharing, it reflected that the factor loading coefficients of all paths 
are above 0.4, which meets the requirements of this paper.

The standardized path coefficient of shared transformational leadership on knowledge 
sharing is 0.74, and the significance of this path coefficient is less than 0.01, which indicates 
that shared transformational leadership has an extremely positive impact on knowledge 
sharing.

Impact of shared transactional leadership on knowledge sharing

From the fitted values of each model of the effect of shared transactional leadership on 
knowledge sharing, it was found that c2/df, RMSEA and CFI, which are strictly required to 
reach the range of suggested values in this paper, are 1.918, 0.055 and 0.972, respectively, 
which are within the range of suggested values. The rest of the fitted indicator values are 
within the range of the suggested values, which indicates that the model fits very well.

From the structural equation model of the influence of shared transactional leadership 
on knowledge sharing, it revealed that the factor loading coefficients of all paths are above 
0.4, which meets the requirements of this paper.

The standardized path coefficient of shared transactional leadership on knowledge 
sharing is 0.74, and the significance of this path coefficient is less than 0.01, indicating that 
shared transactional leadership has a highly significant positive impact on knowledge 
sharing.
Impact of shared empowerment leadership on knowledge sharing

From the fitted values of each model of the impact of shared empowered leadership on knowledge sharing, it was found that c2/df, RMSEA and CFI, which are strictly required to reach the range of suggested values in this paper, are 2.715, 0.075 and 0.93, respectively, which are within the range of suggested values. The rest of the fitted index values are within the suggested values except for NFI and AGFI which are slightly smaller than the suggested values, indicating that the model is a good fit.

From the structural equation model of the influence of shared empowered leadership on knowledge sharing, it reflected that the factor loading coefficients of all paths are above 0.4, which meets the requirements of this study.

The standardized path coefficient of shared empowered leadership on knowledge sharing is 0.86, and the significance of this path coefficient is less than 0.01, which indicates that shared empowered leadership has a highly significant positive impact on knowledge sharing.

Impact of knowledge sharing on team innovation performance

From the fitted values of each model of the effect of knowledge sharing on team innovation performance, it was found that c2/df, RMSEA and CFI, which are strictly required to reach the range of suggested values in this paper, are 2.292, 0.066 and 0.946, respectively, which are within the range of suggested values. The rest of the fit indicators are within the range of the suggested values, indicating that the model fits very well.

From the structural equation model of the effect of knowledge sharing on team innovation performance, it reflected that the factor loading coefficients of all paths are above 0.4, which meets the requirements of this study.

The standardized path coefficient of knowledge sharing on team innovation performance is 0.63, and the significance of this path coefficient is less than 0.01, indicating that knowledge sharing has a highly significant positive impact on team innovation performance.

Influence of organizational innovation climate on team innovation performance

From the fitted values of each model of the effect of organizational innovation climate on team innovation performance, it was found that c2/df, RMSEA and CFI, which are strictly required to reach the range of suggested values in this paper, are 2.924, 0.8 and 0.903, respectively, which are within the range of suggested values.

The rest of the fitted index values are within the range of the suggested values except for NFI and AGFI which are slightly smaller than the suggested values, indicating that the model is a good fit.

From the structural equation model of the influence of organizational innovation climate on team innovation performance, it reflected that the factor loading coefficients of all paths are above 0.4, which meets the requirements of this paper.

The standardized path coefficient of organizational innovation climate on team innovation performance is 0.72, and the significance of this path coefficient is less than 0.01, which indicates that organizational innovation climate has a highly significant positive impact on team innovation performance.
The mediating role of knowledge sharing in shared leadership style and team innovation performance

This study used structural equation modeling to test the mediating role of knowledge sharing and organizational innovation climate in the relationship between shared leadership style on team innovation performance.

Bass & Riggo (2006) argued that two points need to be satisfied to determine whether variables can act as mediating variables.

First, regression analysis of the dependent variable on the mediating variable, the dependent variable on the independent variable, and the mediating variable on the independent variable with the corresponding three regression coefficients meet the significance level requirement.

Second, when the dependent variable is regressed on both the independent variable and the mediating variable, the regression coefficient of the mediating variable reaches the required significance level, while the regression coefficient of the independent variable decreases accordingly. When the regression coefficient of the independent variable decreases to the level of significance, it means that the mediating variable plays a fully mediating role.

If the regression coefficient of the independent variable decreases but meets the significance level requirement, it means that the mediating variable plays only a partial mediating role, i.e., the effect of the independent variable on the dependent variable is not only the mediating result of the mediating variable but also the direct effect of the independent variable.

Summary of model validation and hypothesis testing results

The main purpose of this study was to explore the impact of different shared leadership styles on team innovation performance and their mechanisms of action.

Based on the theoretical analysis, the hypotheses of positive influence of shared transformational leadership, shared transactional leadership, and shared empowerment leadership on team innovation performance; the mediating role of knowledge sharing and organizational innovation climate between shared leadership style and team innovation performance are proposed, and this paper empirically analyzes the survey data through various analysis, and structural equation modeling to the relevant hypotheses proposed in this paper were verified and supplemented, and the final results of each hypothesis test and supplement are summarized in Tab. 1.

Discussion

Although there has been some academic research on the connotations and characteristics of shared leadership (Pearce et al., 2006; Ensley et al., 2006; Li, 2009), it is believed that shared leadership can be agreed upon in the following areas:

1. The purpose of leadership is to effectively achieve the common goals of the team or organization.

2. Leadership functions can be shared by more than two or more team members, and leadership roles are determined by the extent to which team members' knowledge, abilities, skills and other expertise match the task.

3. Leadership roles are dynamic and change according to task and situational changes.
A STUDY ON THE INFLUENCING MECHANISM OF

4. Shared leadership has a multi-directional approach to influence, including horizontal, top-down and bottom-up.

Table 1 - Results of hypothesis testing (results of co-authors survey)

<table>
<thead>
<tr>
<th>Hypothetical Categories</th>
<th>Hypothesis Content</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shared Transformational Leadership</td>
<td>H1: Knowledge sharing is positively related to team innovation performance.</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>H2: Organizational innovation climate is positively related to team innovation performance.</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>H3: Shared transformational leadership is positively associated with team innovation performance.</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>H4: Shared transformational leadership is positively associated with knowledge sharing.</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>H5: Knowledge sharing mediates the relationship between shared transformational leadership and team innovation performance.</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>H12: Shared transformational leadership is positively associated with organizational innovation climate.</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>H13: Organizational innovation climate mediates between shared transformational leadership and team innovation performance.</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>Note: Knowledge sharing and organizational innovation climate play a fully mediating role in shared transformational leadership and team innovation performance.</td>
<td>Supported</td>
</tr>
<tr>
<td>Shared Transactional Leadership</td>
<td>H6: Shared Transactional Leadership is positively associated with team innovation performance.</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>H7: Shared transactional leadership is positively associated with knowledge sharing.</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>H8: Knowledge sharing mediates the relationship between shared transactional leadership and team innovation performance.</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>H14: Shared transactional leadership is positively associated with organizational innovation climate.</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>H15: Organizational innovation climate mediates the relationship between shared transactional leadership and team innovation performance.</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>Note: Knowledge sharing partially mediates between shared transactional leadership and team innovation performance, and organizational innovation climate fully mediates between shared transactional leadership and team innovation performance.</td>
<td>Supported</td>
</tr>
<tr>
<td>Shared Empowerment Leadership</td>
<td>H9: Shared empowerment leadership is positively related to team innovation performance.</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>H10: Shared empowerment leadership is positively associated with knowledge sharing.</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>H11: Knowledge sharing mediates the relationship between shared empowerment leadership and team innovation performance.</td>
<td>Not Supported</td>
</tr>
<tr>
<td></td>
<td>H16: Shared empowerment leadership is positively associated with organizational innovation climate.</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>H17: Organizational innovation climate mediates the relationship between shared empowerment leadership and team innovation performance.</td>
<td>Not Supported</td>
</tr>
<tr>
<td></td>
<td>Note: Knowledge sharing and organizational innovation climate do not mediate between shared transformational leadership and team innovation performance.</td>
<td>Supported</td>
</tr>
</tbody>
</table>

But are Shared Transactional Leadership, Shared Transformational Leadership and Shared Empowerment Leadership in the Shared Leadership style the same as in the Vertical Leadership style in terms of connotation and structural measurement?

Drawing on vertical transactional leadership, transformational leadership and empowerment leadership, this study analyses and explores the characteristics of shared leadership, defines shared transactional leadership, shared transformational leadership and shared empowerment leadership styles, and proposes an initial measurement questionnaire for the three shared leadership styles based on the literature and the suggestions and opinions of experts and respondents.

The dimensions and measurement scales of the three shared leadership styles were then reconstructed through small and large sample reliability and validity analyses and validation factor analyses. The four dimensions of the Shared Transformational Leadership scale are Encouraging Opportunity Thinking, Engaging in Goal Setting, Encouraging Teamwork and Encouraging Self-Directed Behavior, with three questions in the Encouraging Opportunity Thinking dimension, two in the Engaging in Goal Setting dimension, three in the Encouraging Teamwork dimension and two in the Encouraging Self-Directed Behavior dimension.
The Shared Transactional Leadership Scale consists of two dimensions, namely, Spiritual Rewards and Material Rewards. The "Spiritual Rewards" dimension consists of three questions and the "Material Rewards" dimension consists of four questions. The Shared Empowerment Leadership Scale consists of four dimensions: performance expectations, inspirational communication, visionary motivation, and intellectual stimulation.

"The Visionary Motivation dimension consists of 2 questions and the Intellectual Motivation dimension consists of 5 questions. All three scales were validated in practice and the Cronbach's alpha coefficient for each scale was greater than 0.7.

The relationship between transformational leadership and team innovation performance has been validated by academics for nearly two decades (Avolio & Murry, 2003; Walumbwa, 1995; Li, 2001; Nemanich, 1995), and although research on empowered leadership is relatively new, it has also been confirmed that empowered leadership has a positive impact on organizational performance, innovation performance. Transactional leadership has an impact on team innovation in the context of goal recognition (Wang, 2011).

Based on the literature analysis, this paper argues that shared empowerment leadership emphasizes the impact of informal leadership among team members on team performance, in addition to the emphasis on decentralization and dynamic leadership role turnover shifts. This study confirmed shared transformational leadership ($\beta=0.63$, $p>0.01$), shared transactional leadership ($\beta=0.68$, $p>0.01$), and shared empowerment leadership ($\beta=0.94$, $p>0.01$) through 303 questionnaire data. In comparison, the direct effect of shared transactional leadership was the largest, the direct effect of shared transactional leadership was the second largest, and the direct effect of shared transformational leadership was the smallest in terms of the impact on team innovation performance.

The attitudes and behaviors of organizations and teams towards knowledge sharing will directly influence employees' innovative behavior and performance. Knowledge sharing is closely related to innovation, which is the main form of knowledge creation, and the result of the interaction between tacit and explicit knowledge in an organization is innovation.

In summary, based on the literature analysis, this study constructed a model of the influence of shared transactional leadership, shared transformational leadership, and shared empowerment leadership on knowledge sharing, and empirically demonstrated the influence of the three shared leadership styles on knowledge sharing through 303 questionnaire data, structural equation modelling and other analytical methods. Specifically, shared transformational leadership ($\beta=0.74$, $p>0.01$), shared transactional leadership ($\beta=0.74$, $p>0.01$), and shared empowerment leadership ($\beta=0.86$, $p>0.01$) all had significant effects on knowledge sharing, with shared empowerment leadership having the largest direct effect, followed by shared empowerment leadership and shared transactional leadership.

Social cognitive theory suggests that the work climate influences human behavioral responses. Team members' perceptions of the organizational innovation climate influence employees' behaviors, and these behaviors, in turn, influence their satisfaction and performance. Similar to individuals, team members exhibit shared attitudes and behavioral responses through work tasks that influence team behavior and performance (Liu, 2008).

The more positive the organizational innovation climate is, the more employees will perceive shared leadership and will show more cooperation and sharing. Such cooperation and sharing will stimulate employees' creativity and team learning to a greater extent, enhancing the positive impact of shared leadership on team innovation performance.
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Therefore, based on the literature analysis, this study constructs a model of the influence of shared transactional leadership, shared transformational leadership and shared empowerment leadership on organizational innovation climate, and empirically demonstrates the influence of the three shared leadership styles on organizational innovation climate through 303 questionnaire data, structural equation modelling and other analytical methods. Specifically, shared transformational leadership ($\beta=0.95$, $p>0.01$), shared transactional leadership ($\beta=0.90$, $p>0.01$), and shared empowerment leadership ($\beta=0.88$, $p>0.01$) all had a significant effect on knowledge sharing, with shared transformational leadership having the largest direct effect, shared transactional leadership the second largest, and shared empowerment leadership the smallest.

Based on the confirmation of the effects of the three shared leadership styles on team innovation performance, the regression of both mediating and outcome variables was analyzed by determining the four conditions of the mediating role, and the mediating role of knowledge sharing in the three shared leadership styles and team innovation performance was proposed and validated. The results show that shared transformational leaders influence team innovation performance through the fully mediated role of knowledge sharing. Shared transactional leaders influence team innovation performance through the partial mediating role of knowledge sharing. Shared empowerment leaders had no mediating effect on team innovation performance through knowledge sharing. The analysis of the reasons for this revealed that the mechanism of action of shared transformational leaders in the shared leadership style influencing team innovation performance was mainly through the mediating role of knowledge sharing. In Shared Transactional Leadership, employees work hard and innovate to achieve performance goals, which leads to variable material and moral rewards, which in turn stimulates a sense of satisfaction, trust and teamwork at the psychological level, ultimately promoting innovative behavior and improving the innovative performance of the team.

Based on the effects of the three shared leadership styles on team innovation performance and on organizational innovation climate, this study analyses the mediating and outcome variable regressions through the four conditions for determining the mediating role and validates the mediating role of organizational innovation climate in the three shared leadership styles and team innovation performance.

The results show that shared transformational leaders influence team innovation performance through the fully mediated role of organizational innovation climate. Shared transactional leaders influence team innovation performance through the fully mediated role of organizational innovation climate. Shared empowerment leaders have no mediating effect on team innovation performance through organizational innovation climate.

Conclusions

The study revealed that shared leadership styles positively contribute to (shared transformational leadership, shared transactional leadership, and shared empowerment leadership) team innovation performance, and organizational innovation climate and knowledge sharing have a mediating role in the relationship between shared transformational leadership and shared transactional leadership, i.e., shared transformational leadership and shared transactional leadership styles contribute to team innovation performance through the mediating role of organizational innovation climate and knowledge sharing.
In addition, although the traditional research related to vertical leadership theory is more in-depth, the limitation of vertical leadership theory is that only formal leaders influence the relationship between team members, including performance, employee behavior, etc., ignoring that informal leaders in the organization still have an impact on team members' performance and behavior. In the new economy, the high complexity of work tasks determines that more and more employees are required to be creative in completing their work. It is impossible for a formal leader to master all the knowledge and skills needed for the tasks.

This study further explores and confirms that the shared leadership style in a team influences the innovative behavior of other team members through the study of the influence mechanism of shared leadership style on the innovative performance of the team and hopes that in the management practice of enterprises when enterprises specifically consider the promotion plan, training and other human resource management practices in the process of strategy formulation and implementation, they should not only pay attention to the ideas put forward by formal leaders on team building but also seriously consider the opinions and suggestions of informal leaders.

References:


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