How does Temporal Leadership Work?
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Abstract. Temporal leadership is a new concept created by combining time activities with team leadership. Through the study of temporal leadership, we can more clearly understand some of the phenomena that leadership affects individuals, teams and even organizations. Based on this, the article sorts out the principles of temporal leadership. The study of concept definition and measurement summarizes the antecedent variables, outcome variables and their regulatory effects of temporal leadership, and points out future research directions on this basis.

1 Introduction
With the development of society and technological innovation, in an environment of increasingly fierce corporate competition, companies wanting to maintain their competitive advantages need to give full play to internal flexibility and face time such as adjusting task goals, coordinating members’ task time, and allocating time resources. In terms of challenges, the management of time becomes particularly important. At present, more and more scholars use the perspective of time as a starting point to explore temporal leadership. As a new concept of temporal leadership, different scholars have different research tendencies. At present, scholars tend to focus on investigating leaders’ time-related traits or behaviors and their relationship with hypothetical results. Although temporal leadership has attracted more and more scholars’ attention, related research is still limited. Based on this, this article sorts out the existing literature and hopes to provide some references for related research on temporal leadership.

2 Definition of Concept
Temporal leadership is a new concept created by combining time activities with team leadership. The definition of temporal leadership currently exists at the organizational, team, and individual levels.

Ancona and Tushman [1] first proposed the concept of temporal leadership at the organizational level: Temporal leadership is an organizational mechanism that helps to alleviate time differences and enhance the interests related to time diversity.

At the team level, Mohammed and Nadkarni [2] believe that team temporal leadership is a structured, coordinated, and managed leadership behavior that team leaders can use to help team members complete their tasks; including leaders’ effective scheduling (such as reminding teams member deadlines), synchronization (such as coordinating teams to get work done on time), and allocating time resources (such as responding to emergencies and issues in a timely manner). Mohammed and Alipour [3] further stated in their research that temporal leadership is the leader In order to ensure that the task is completed on schedule, Lu Congchao [4] defines temporal leadership as a leader in a limited way by managing multiple time intervals, adjusting member activities to promote unified work rhythms among members, and coordinating members’ work progress. A comprehensive ability to complete team scheduling and coordination within the duration of the mission to maximize time effectiveness and ultimately achieve the goal on schedule.

On an individual level, Op’t Hoog [5] defines temporal leadership as leader behavior that helps leaders and their followers to cope with time-complex environments from the perspective of leader behavior. This definition includes both self-referenced temporal leadership, that is, the personal
time characteristics of the leader, also includes changing time-referenced leadership, that is, the leader's awareness of time complexity and the behavior of promoting follower work in the process of interacting with followers.

Domestic scholars Zhang Juncheng and Ling Wenxuan [6] refer to the definition of temporal leadership at the individual level, and cut into the definition of temporal leadership from the perspective of behavior. Temporal leadership is a measure taken by leaders based on their individual time characteristics and job task characteristics. The completion of various tasks on schedule can also improve the time management behavior of subordinates' time-related happiness.

From the above discussion, we can see that scholars have different perspectives on the definition of temporal leadership. However, from the organizational level, the team level, and the individual level, the definition of temporal leadership involves the management of time resources by leaders. I believe that temporal leadership is actually leading individual behaviors. Therefore, Zhang Juncheng and Ling Wenxuan start from the individual level and emphasize the way of defining behaviors is more in line with this article's point of view.

3 Dimensions and Measurements of Temporal leadership

Regarding the dimensional division of temporal leadership, it is currently mainly divided into single, double and multi-dimensional.

Mohammed and Nadkarni [2] compiled a one-dimensional scale consisting of 7 measurement items, which include deadline reminders, time allocation, time coordination, and other content.

Myer and Mohammed [7] adopted the task-oriented concept of Mohammed and Nadkarni [2], and expanded the second dimension of relationship-oriented, dividing temporal leadership into two dimensions of task-oriented and relationship-oriented. Temporal leadership refers to the behavior of the leader who pays attention to the task completion of employees and has obvious guiding behaviors, including planning, time synchronization and time resource allocation; relationship-oriented temporal leadership refers to the leader's support and encouragement of team members' time issues Listening to members' opinions on how to allocate time resources, including dealing with time conflicts among members, praise members for reaching time-related goals, and listening to members' suggestions on time decisions for tasks. Adopted in Chen Zi's [9] research the questionnaire was reduced, and the items were reduced to 10 questions, of which task-oriented and relationship-oriented dimensions each occupied 5 questions.

Based on the research by McGrath [8] and Ancona [1], Op't Hoog [5] divides temporal leadership into five dimensions: autonomy, time planning, time reminder, time pressure, and time complexity awareness.

At present, the measurement table items prepared by Mohammed and Nadkarni [2] are relatively few and easy to operate. They are adopted by most scholars and have good reliability.

4 Antecedent variables of temporal leadership

At present, there are few studies on the dependent variables of temporal leadership, which mainly focus on the shallow characteristics and deep characteristics of individuals.

In terms of shallow characteristics, time-related factors such as the age and seniority of leaders may affect their temporal leadership behaviors. The development of leaders' expertise and skills may require long-term accumulation of experience [16]. Understanding the complexity of time is a critical competency that evolves over time [15], so the time factor is also important for its temporal leadership.

In terms of deep traits, the individual differences between leaders and time traits can cause differences in the performance of their temporal leadership behavior [3]. For example, time personality involves the punctuality of leaders and the degree to which they can tolerate others' punctuality. In terms of the ability to complete in order [17], temporal intelligence can explain individual differences in leaders' thoughts, attitudes, and behaviors about time.
5 Outcome variables for temporal leadership

The study of the outcome variables of temporal leadership is mainly divided into three levels: employee, team, and organization.

(1) Impact on employees

Research has shown that employees' perceptions of temporal leadership can affect employees' psychological emotions, cognitive attitudes, and behaviors.

From the perspective of individual psychological and emotional aspects, time leaders can increase employees' time effectiveness by reminding their subordinates of deadlines, time coordination, and other behaviors [18], and the stronger the employees' perceived temporal leadership, the more time-related the higher the happiness [5][6].

From the perspective of individual cognitive attitudes, temporal leadership can rationally allocate employees' time resources, stimulate employees' work passion [11], and positively affect employee engagement [19]. In addition, relationship-oriented temporal leadership behavior can also indirectly stimulate the willingness of employees to informally guide others by affecting the quality of leadership members' exchange relationships [9].

From the perspective of individual behavior, temporal leadership is positively related to employee help behaviors, organizational citizenship behaviors, and employee creativity. For example, effective temporal leadership can improve employees' time efficiency and even free up more time for work other things to promote employee help behavior [11]; the stronger the employee feels that temporal leadership from the leader, the stronger the employee's willingness to organize citizenship behavior [20].

(2) Impact on the team

The temporal leadership behavior of team leaders can positively affect the team's learning behavior, enhance time consensus, improve team performance, and promote team innovation. Team temporal leadership can play a role model in the management of the time frame and deepen team learning behavior [12], and have a direct effect on team performance. Only effective temporal leadership can improve team performance, and conversely, team performance is at a low level [2]. At the same time, and team temporal leadership can also indirectly affect team performance and improve team effectiveness [10] by promoting team formation of time consensus. In addition, team temporal leadership behavior has an impact on team innovation behavior. It also has an impact. On the one hand, leaders can promote the team's innovative behavior through the leadership behavior of team temporal leadership. On the other hand, they can balance the working hours of team members with non-working hours to enable members to realize their mentality during work. Freedom, thereby improving team innovation [14].

(3) Impact on the organization

The theoretical framework of Mohammed and Alipour [3] shows that temporal leadership has a direct and indirect impact on organizational performance. Effective temporal leadership can improve organizational performance by affecting the organization's time culture and atmosphere and sharing time cognition.

6 The regulatory effect of temporal leadership

Scholars have also explored the situation of temporal leadership as a moderator. For example, effective temporal leadership can promote a "front loosening and tight back" time style to have a more positive impact on employee happiness [5]; time urgency and time diversity the impact of sexuality on team performance is more positive when team temporal leadership is strong than when team temporal leadership is weak [2]; in an obstructive time stress scenario, team temporal leadership can on the basis of the individual creative relationship of team members, it plays a role of cross-layer regulation, which effectively reduces members' resistance to emotions and improves creativity [13].
7 Conclusion

Based on the above analysis, it can be found that the research on temporal leadership is mainly concentrated at the individual and team levels. In the future, several aspects can be focused on. First, the temporal leadership measurement scale needs to be developed. For the measurement of temporal leadership, it is still based on single-dimension measurement. Although some scholars have expanded the research of previous scholars and compiled two-dimensional and multi-dimensional metric tables, they have not yet been widely adopted and lack sufficient tests. Second, the role of temporal leadership needs to be further explored. Through a review of the previous literature, we can find that scholars have conducted research on the antecedent variables, outcome variables, and their regulating effects of temporal leadership. However, the existing research on the influence factors of temporal leadership is still limited, and it is necessary to expand in the future. Finally, temporal leadership needs to pay attention to the differences in the cross-cultural environment. The concept of temporal leadership is proposed in the cultural context of western countries, and cultural differences between China and the West may cause differences in the impact of temporal leadership, so it is necessary to pay attention to the role of different cultures in temporal leadership.

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