

Team Performance: Multi-dimensional Analysis and Future Outlook

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Abstract: This study aims to explore team performance, including its constituent factors, influencing factors, and improvement strategies. Regarding the definition of team performance, scholars generally agree that it is the collective outcome achieved by team members through collaborative work, information sharing, and efficient resource utilization. In terms of the dimensions of team performance, this study holds that team performance should encompass four dimensions: task completion, team innovation, member growth and satisfaction, and team growth. As for the influencing factors of team performance, existing research mainly focuses on three levels: individual, team, and organizational. These factors have all been proven to have significant impacts on team performance. Meanwhile, this study will also explore the future directions and trends of team performance research, providing new ideas and perspectives for related fields, in order to reveal the current status, main theoretical frameworks, and future development trends of team performance research.

Keywords: Team performance; Shared information; Influencing factors.

1. Introduction

In today's complex and dynamically changing business landscape, teams have become the core force for organizations to achieve strategic goals and promote sustainable development. Team performance, as a key indicator for evaluating the overall work effectiveness of a team, is closely linked to an organization's competitive strength and market position. Given this, a thorough analysis of the constituent elements, influencing factors, and improvement methods of team performance is of undeniable significance for standardizing team operation processes, optimizing organizational resource allocation, and assisting organizations in achieving their goals.

Team performance research not only focuses on the individual capabilities and contributions of team members, but also emphasizes the collaborative cooperation ability, innovation and creativity ability, and adaptability to changes presented by the team as an organic whole. A highly efficient team can quickly perceive market dynamics and respond, efficiently complete various tasks, and continuously inject impetus into the organization's innovation and development. However, achieving such team performance is not an easy task, as it is influenced by a variety of factors, such as the professional capabilities, work motivation, communication and collaboration levels of team members, as well as the leadership model and cultural environment of the team. In the context of globalization and intensifying market competition, organizations are facing unprecedented challenges and opportunities. Against this backdrop, the importance and urgency of team performance research are becoming increasingly prominent. By delving into the various aspects of team performance, we can gain a deeper understanding of the internal logic of team operation, explore effective strategies to enhance team performance, and help organizations stand out in the fierce market competition.

This article focuses on research related to team performance, covering elements of team performance, influencing factors, and improvement strategies. By

systematically reviewing and analyzing existing literature and applying empirical research methods, this article will reveal the inherent laws and influencing factors of team performance, and then put forward targeted management suggestions and practical guidance. At the same time, this article will also explore the future development directions and trends of team performance research, providing new ideas and perspectives for research in this field. As an important manifestation of organizational competitiveness, the study of team performance has both significant theoretical significance and practical value. Through comprehensive and in-depth research on all aspects of team performance, we can gain a deeper understanding of the internal mechanisms of team operation, find feasible ways to improve team performance, and provide solid support for the sustainable development and innovation of organizations.

2. Team Characteristics and Types

(1) Team characteristics

Teams are a widely used working form in modern organizations. There are still some differences in the academic definitions of teams. Hackman (1987) defined a team as follows: a group consisting of individuals who are interdependent in their tasks, where individual members regard all team members as a whole and influence each other during the completion of tasks, and external parties also consider these individuals as a whole. This concept emphasizes the interdependent relationship among team members, specifically manifested in three aspects: roles, goals, and outcomes. Based on Hackman's (1987) research, Salas et al. (1992) defined a team as: a work unit with the same goal, mutual interdependence in tasks, and at least two members. Both of these definitions of the team concept reflect the interdependence and goal consistency among team members.

Trent & Monczka (1994) defined a team as "a group of people with the same goal, mutual acceptance, identification, appreciation, and working together to achieve high

performance." Robbins (1997) pointed out that the most crucial characteristics of a team are collaboration and goal consistency, which ensure the efficiency of the team working form. Both of these definitions of the team concept reflect the key characteristics of goal consistency and team collaboration.

(2) Type of team

According to Hackman (1987), since teams have different forms and interaction patterns in different team tasks, there are many criteria for classifying team types. Among them, the most representative ones are the four classification forms proposed by Cohen & Bailey (1997). Work teams are usually composed of employees with stable employment relationships, and the team members and structure are not easily changed. They are working units that continuously provide products or services to customers over a long period. Parallel teams are parallel to the organization's daily working units. They are temporarily formed working units that are separated from their original positions due to sudden or urgent tasks and reorganized. Their main tasks are to fulfill responsibilities beyond daily work. Project teams are generally established temporarily and have a time limit based on specific project cycles. Due to the one-time and non-repetitive nature of project team tasks, they are usually formed by selecting team members with professional skills from different departments of the organization according to the needs of the tasks. Management teams mainly plan, organize, lead, control, and coordinate various departments within the organization based on corresponding authorities.

3. Team Performance Definition

Hackman's definition of team performance is the most representative. He believes that team effectiveness refers to the actual results achieved by the team in achieving the predetermined goals, and it is evaluated from three aspects: (1) whether the products jointly produced by the team meet the standards (individual performance and team performance); (2) whether the common working ability of team members has been improved during the team development process, such as whether the members' work commitment has strengthened and the cohesion has improved; (3) member satisfaction. The model proposed by Guzzo and Shea is

"input-process-output", where input includes the knowledge and abilities of team members and the composition of the team; process includes the interaction among members or social support; output includes team products, member satisfaction, and team development ability, etc. Gledstein (1984) believes that team performance should be divided into satisfaction and task performance.

Domestic scholars Li Xiaoxuan, Wang Hui, etc. used confirmatory factor analysis to verify the structural differences of task performance and contextual performance in the Chinese cultural context. The results showed that the two can be distinguished in structure.

Overall, McGrath (1964) adopted the system theoretical framework of "input-process-output" to explore the definition of team performance, becoming the basis of most team performance models. Its main contribution lies in proposing the antecedent variables that affect team performance, such as individual factors of members (such as attitude, skills, personality traits, etc.), team factors (such as cohesion and the number of team members), and environmental factors (such as salary system, nature of team tasks, environmental pressure, etc.), and exploring the influence of these input variables through the team interaction process on the performance results of team performance (such as solving problems quickly, quality improvement, reduction of errors), attitude results (such as attitude change, improvement of job satisfaction, strengthening of cohesion). Different factors of input variables directly affect the team interaction process, and then through the team interaction process affect team performance, that is, the team interaction process has a mediating effect on team input-output.

From this, it can be seen that the narrow definition of team performance merely refers to whether the team's work can meet the team's needs, and the expression dimension is relatively simple; while the broad definition of team performance also includes more derivative aspects such as team development and the development of team members.

4. Team Performance Dimensions and Measurement

Table 1. Division of Team Performance Dimensions

Author	Year	Team Performance Dimension
MaGrath	1964	Performance results, other results
JeWel、Reitz	1981	External performance,internal performance
Gladstin	1987	Work output, job satisfaction, team vitality
Hackman	1987	Team production volume, team members' working ability
Nader	1990	Team goals, job satisfaction, writing ability
Sundstrom	1994	Production results, job satisfaction, team acquisition, external satisfaction
Guzzo	1996	Work achievements, team development capabilities, job satisfaction
Levi	1995	Organizational effectiveness, team relationships, personal interests
Cohen	1997	Team tasks, team members' attitudes, team members' behaviors
Fang	2002	Team work achievements, individual work achievements, team development capabilities
Minggen	2013	Task performance, team member satisfaction, team development capability
Macbryde、Mendibil	2003	Effectiveness,efficiency,team member satisfaction, learning and growth

(1) Team performance dimension classification

Team performance can be broadly classified into broad and

narrow definitions. Domestic scholars have proposed different definitions and evaluation dimensions based on different research purposes. The narrow definition of team performance only includes task performance, which refers to whether the team's completion of tasks meets the requirements. With the development of team research, many scholars have proposed the broad definition of team performance, and different evaluation dimensions are shown in Table 1.

Taking all factors into consideration, based on the three dimensions of team performance measurement proposed by Gladstein (1987) and Hackman (1990), this study believes that the team performance should include four dimensions: task completion, team innovation, member growth and satisfaction, and team growth.

(2) Team performance measurement

Overall, the commonly used team performance scales at home and abroad can be classified into the following types: There are more scales abroad, and domestic experts have also translated and applied them. Chen Guoquan (2007) localized the team performance scale compiled by Barker, Tjosvold, and Andrew (1988), obtaining 6 items of the team performance scale, and based on verification, this scale has good reliability and has been widely used by subsequent researchers. Barrick (1988) compiled a team performance scale with 10 items. Aalders & Hackman (1990) divided team performance into emotional performance and task performance, with a total of 10 items, using Likert 5-point scoring. Task performance is the actual result of each member in the team achieving goals and completing tasks, with two requirements in terms of time and quality, totaling 5 items; Emotional performance is the communication, collaboration, and satisfaction among individuals, with a total of 5 items.

There are fewer scales in China. Wang Haixia (2008) translated the team performance scale compiled by Barrick (1998), with a total of 8 items. The Cronbach's α coefficient of this scale is 0.96, and its reliability and validity are good. Zhou Zhicheng (2005) re-divided the dimensions, dividing them into peripheral performance and task performance, with a total of 11 items. Peripheral performance mainly measures the satisfaction, interpersonal situation, etc. of individual members; Task performance mainly measures the actual performance in completing tasks at work. Zhu Dongmei (2007) divided team performance into two aspects: task performance and construction. Task performance includes completion degree, decision-making, problem-solving, success or failure, planning and achievement; Construction performance includes atmosphere definition and interpersonal definition. This scale has good reliability in both the total scale and the sub-scale.

5. Factors Affecting Team Performance

(1) Research on the Antecedent Variables of Team Performance

The research on the antecedent variables of team performance falls under the category of input factors. Input factors consist of three levels: individual level, team level, and organizational level.

Individual factors refer to the individual traits of team members, including their personality, ability, behavior, etc. Neuman and Wright (1999) studied that personality (whether they are easy-going or have a sense of responsibility), work-

related skills, and cognitive abilities all affect team performance; Barrick and Stewart (1998) also pointed out that the personality and ability of members would have an impact on team effectiveness, with members having stronger sense of responsibility, cognitive abilities, being more easy-going, having more stable emotions, and higher team performance levels; studies on the heterogeneity of team members also focused on the individual-level differences of team members and pointed out that their team performance was significantly influenced (Jackson & Joshi, 2004).

Team leadership, Chen et al. (2007) pointed out that the requirements for team leaders in organizations are not only to lead and motivate individuals, but also to have an inspiring effect on the entire team. Therefore, team leadership style is very important for the development of the team. Many scholars have found that team leadership style has a certain influence on the variables of the team. In addition, Atwater and Bass (1994) proposed that transformational leadership interacts with team factors (such as cohesion and conflict management) and has an impact. Further, regarding the research on the impact of team leadership style on team performance, Li et al. (2018) argued that there is an inverted U-shaped relationship between benevolent leadership and team performance. Moreover, domestic scholar Tian Xiaoping (2020) proposed that shared leadership is conducive to improving team coordination, thereby promoting the improvement of team performance.

Regarding organizational environmental factors, Guzzo (1996) once pointed out that most studies on teams and organizational performance often ignore the reasons of the team and organization in the system, especially the impact of organizational environmental factors on team performance and organizational performance and other group performance. Subsequently, some scholars in the academic community began to study the influence of organizational environmental factors and team environmental factors on team performance. For example, in terms of team atmosphere. Anderson and West (1999) proposed that shared perception and organizational atmosphere should be included in the concept of team atmosphere, and they believed that to have a shared perception and atmosphere at the team level, the following three elements must be met: common goals, mutual influence, and enhanced cooperation, so that individuals can develop shared understanding. They also proposed the definition of team atmosphere, that is, team atmosphere is the shared perception of the team working environment by team members. Chinese scholar Zhang Zheng and Yan Chun (2020) conducted a paired questionnaire survey of 68 teams to study the relationship between team learning atmosphere and innovation performance. The research showed that a high-level team learning atmosphere is conducive to improving team innovation performance [66]. A high-level team learning atmosphere is conducive to increasing work challenges, and thereby has a positive impact on innovation performance by stimulating intrinsic motivation. Moreover, some scholars (Hobfoll, & Stevan, 1989) proposed that a team learning atmosphere is conducive to keeping team members in a good mood, reducing work stress, and alleviating negative emotions such as anxiety among team members, thereby promoting the improvement of team performance.

In conclusion, the antecedent variables that affect team performance are quite extensive, mainly including team leadership characteristics, individual traits, team atmosphere, etc. Currently, teams play a crucial role in the organization.

Studying the antecedent variables that affect team performance plays a very important role in the development of teams.

(2) Team performance measurement Research on the Boundary Conditions Variables of Team Performance

The team process mainly refers to the interaction process among team members and between team members and the environment, such as team communication, team coordination, team conflicts, supportive behaviors, and team cohesion, etc. These team process variables can serve as both antecedent variables for team performance and mediating variables influencing team performance.

Team communication is the process of information exchange among team members (Xiuli, 2008). Many researchers have found that the quality of team communication has a positive impact on team performance (Curtis & Kransner, 1988).

Team coordination is the process of allocating and integrating resources among team members. Gardner et al. (2017) conducted a field study on the surgical team and found that team coordination can have a mediating effect on the relationship between team shared cognition and team performance. Jiawen (2018) took consulting projects as the research object and found that team coordination has a positive impact on project performance.

Team conflict refers to the different opinions among team members regarding matters related to the task or the interpersonal disharmony caused by differences in personality and other factors, resulting in arguments. Among them, conflicts related to the task are called task conflicts, and conflicts related to interpersonal relationships are called relationship conflicts. Research has found that task conflicts have a positive impact on team performance, while relationship conflicts have a negative impact on team performance (Cohen & Bailey, 199).

Supportive behavior refers to the effective mutual assistance of team members to complete team tasks. Sakas et al. (2000) believe that through mutual assistance among team members, resources can be fully utilized, so supportive behavior can positively predict team performance.

6. Research Conclusions and Prospects

At present, the research on team performance is relatively well-developed. From the perspective of the antecedent variables of team performance, the research has focused on the individual level, the team level, and the organizational level. From the perspective of mediating variables and moderating variables, the existing research has focused on the process of internal interaction within the team, such as communication, collaboration, and conflict management, and how these processes affect team performance.

(1) The existing research has explored the impact of various leadership styles on team performance, such as the impact of transformational leadership on team performance. This is in line with the foreign transformational leadership theory, which emphasizes the motivation of leaders towards subordinates; it also emphasizes improving employees' problem-solving abilities and strengthening organizational culture and organizational emotions. However, whether these theories have universality requires specific analysis based on specific circumstances. Future research could be based on different value contexts in China or explore the impact of leadership styles on team performance from a psychological

perspective, such as the impact of the leader's influence on external resources and the process and mechanism of this influence.

(2) In the future, the research on team performance will be expanded to different industries and fields, revealing the commonalities and differences of team performance in different situations. With the transformation of information technology, enterprises are no longer isolated entities but need to integrate with the world. Therefore, future research should focus on the impact of external environmental changes such as globalization and digital transformation on team performance.

(3) Future research needs to adopt more advanced and diverse research methods, such as mixed methods (combining qualitative and quantitative approaches), meta-analysis, multilevel analysis, etc., to reveal the complex mechanisms of team performance.

(4) Most previous scholars have measured team performance by changing foreign team performance scales. On the one hand, foreign scales are mostly generated based on Western cultural backgrounds, which may have certain impacts on research variables. Foreign measurement tools are not applicable to the characteristics of Chinese society and culture. On the other hand, China's social economy is constantly developing, and the development and management of enterprises have entered a new stage. The development of information technology has forced enterprises to innovate continuously. Different types of enterprises or teams are creating models suitable for their own development, such as Haier's star service model and Huawei's store integrated supply chain ISG system. Enterprises and teams are presenting new and diverse characteristics. Therefore, developing a Chinese-characteristic scale with high reliability and validity based on the characteristics of different types of enterprise teams is one of the important contents of future team performance development (Youfan et al., 2020).

In conclusion, the importance and value of future team performance research lie in helping us to deeply understand the internal mechanism of team operation, improving organizational efficiency and competitiveness, responding to environmental changes and challenges, promoting the shaping of organizational culture, and facilitating interdisciplinary cooperation and knowledge innovation. These research results will provide more precise and effective management strategies for organizations and promote their continuous development.

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