

Multiple Team Membership in Fluid Teams: How Strategic Cores and Familiarity Impact Performance

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Requiring employees to hold Multiple Team Memberships (MTMs) concurrently can have both positive and negative effects on team performance (O'Leary et al., 2011; Rishani et al., 2024). On the one hand, exposure to diverse teams can improve knowledge sharing and team learning, as members bring insights from different experiences to their teams (Bertolotti et al., 2015; van de Brake et al., 2020). On the other hand, the increased cognitive and time demands on individuals balancing several tasks and switches between team contexts can lead to distractions, divided attention, and role overload, thus overall reducing effectiveness in each team (Margolis, 2020; van de Brake and Berger, 2023). Empirical research has identified positive, negative, and curvilinear effects of the number of MTMs on team performance (Crawford et al., 2019, van de Brake et al., 2020, Chan, 2014), reflecting mixed findings on how MTM influences team outcomes. To better understand these dynamics, it is crucial to distinguish between different types of teams and the distinct roles played by their members. This paper focuses on the MTM experiences of core and peripheral members within fluid teams.

In fluid teams, members contribute for a period of time to accomplish highly complex tasks and then leave the team when their task is completed (Busche and Chu, 2011; Valentine, 2018; Tonellato et al., 2024). In these teams, some team members are “core” as they focus on the strategic tasks of the team and are relatively stable for the temporary duration of the team, and others are “peripheral,” as they attend to marginal or on-demand part of the work for a shorter

period (Mayo, 2022: 1; Ancona and Bresman, 2007). In many knowledge intensive settings, such as software development, healthcare, and engineering, teams are fluid. Unfortunately, we do not know having core and periphery members simultaneously participating in multiple fluid teams, impacts team performance.

To understand how core and periphery members holding multiple team memberships affect fluid team performance, we draw on the theory of the strategic core of teams (Humphrey, et al., 2009). In highly specialized teams, strategic decisions are not made as a group. Instead, a smaller core subgroup of core members tends to work together intensively on all decisions, while the contributions of the other members, i.e. the periphery, vary depending on the issues involved. Membership in specialized teams is fluid, typically consisting of a “stable core group” combined with a “dynamic periphery” – i.e. a changing set of individuals who work together closely with the core group to address specific challenges (Roberto, 2003; Humphrey et al., 2009).

Hypotheses

Core members dedicate significant time to monitoring and controlling team processes and performance (Roberto, 2003). This becomes particularly challenging for fluid teams in MTM scenarios because members frequently transition between teams, leaving little time to engage and collaborate effectively with other team members (Mortensen, 2014). Therefore, we argue that team members in the strategic core will experience more role overload created by engaging in several teams at the same time, whereas periphery members with supporting role experience less pressure originating from their role being more focused on task execution. For core members, participating in multiple teams can be advantageous only up to a certain threshold, beyond which the demands become detrimental. When the number of MTMs is manageable, core members can

leverage their experiences from multiple teams and apply the acquired knowledge to make better decisions in their focal teams (Mayo et al., 2024). However, we propose that when the number of MTMs becomes too high, these benefits are outweighed by the increased demands imposed by multiple teams. Conversely, peripheral members are likely to benefit from participation in multiple teams. Peripheral members are often involved to offer a unique contribution of knowledge or supply additional resources to support the core team's work (Cummings and Pletcher, 2011). If a member plays a limited role in decision making and monitoring work, instead focusing on delivering a distinct, specialized contribution and moving directly to a unique task, their simultaneous involvement in multiple teams is less likely to negatively impact team performance. Therefore, in fluid teams:

H1: The relationship between strategic core's number of MTMs and team performance is curvilinear in the shape of an inverted U.

H2: The number of MTMs of periphery members positively impacts team performance.

We further propose that, for fluid teams with members involved in multiple teams, the degree to which each team member has worked with one another in the past, or familiarity (Hinds and Cramton, 2014), positively moderates the above relationships (Huckman et al., 2009). Participants in fluid teams experience different levels of team familiarity because they are usually drawn from a larger workforce (i.e., larger clinical unit or staff) and collaborate on a limited number of tasks (Kim et al., 2023, Akşin et al., 2023). Team familiarity can be beneficial for team processes in multiple ways, for example it results in a lower number of errors (Huckman et al., 2009) and facilitates coordination among team members (Espinosa et al., 2007). In fluid settings where team members are part of multiple teams, familiarity, especially between

core and periphery members, can improve performance due to improved coordination and facilitated knowledge sharing (Reagans et al. 2005, Huckman et al. 2009).

H3: The inverted U-shaped relationship between strategic cores' MTM and team performance is positively moderated by team familiarity between core and periphery members.

H4: The positive relationship between periphery members' MTM and team performance is positively moderated by the team familiarity between core and periphery members.

Data and Methods

To test our hypotheses (see Figure 3), we collected data in a specialized hospital in the field of orthopedic surgery and traumatology in Northern Italy. Here, teams of orthopedic surgeons provide customized treatments using 3D printing technology. The strategic core in these teams includes one head surgeon and one team leader with decision-making roles. The periphery is composed of surgeons invited to the teams based on the characteristics of each orthopedic problem. The data sources are paper-based surveys and archival data stored in the hospital's database. Like previous studies, we measured team performance as the duration of stay in hospital after surgery (Avgerinos et al., 2020; Kc & Terwiesch, 2009; Talamini et al., 2004). The number of MTMs was measured as the average number of teams each individual participated simultaneously per month (van de Brake et al., 2018). Familiarity was assessed with the formula by Huckman et al. (2009). We included team size, case severity, and organization tenure as the control variables, while accounting for year and patients' gender fixed effects.

Preliminary Results and Contributions

We adopted Ordinary Least Square (OLS) regression with robust standard errors clustered in 6 head surgeons. Our results support H1: there is an inverted U-shaped relationship between the number of MTMs of core members and team performance (see Figure 4). Supporting H2, an

increasing number of MTMs for peripheral members is associated with higher team performance. Our H3 is not supported. Contrary to what we hypothesized, familiarity between core and periphery members has a *negative* impact on the relationship between the number of MTMs of core members and team performance. Figure 5a shows that at higher levels of team familiarity team performance has lower values. Despite this, higher levels of team familiarity between core and peripheral members lead to a more pronounced improvement in performance compared to situations with lower team familiarity. However, when core members are engaged in many teams, the decline in performance is more significant at higher levels of team familiarity than at lower levels (see Figure 5a). A possible explanation for this finding is that when core and periphery members know each other, they may assume their teamwork is less demanding, leading to reduced attention and effort in coordinating with one another. Additionally, higher familiarity may be related to surgeons having already shared cases and unique knowledge in the past, thus further limiting the positive effects of holding multiple team memberships. In support of hypothesis 4, our findings indicate that higher levels of team familiarity positively influence team performance when the periphery's MTM increases (see Figure 5b).

Our results contribute to the literature on MTM and fluid teams (van de Brake et al., 2020; Chan, K.Y, 2014; Rishani et al., 2024) suggesting that distinguishing between core and peripheral member roles is crucial for understanding how MTMs affect fluid team performance. Additionally, we highlight a double-edged sword of familiarity: while familiarity between core and peripheral members enhances performance at higher levels of the periphery's MTM, it has a negative impact on team performance as the core's MTM increases. Overall, we contribute to a more nuanced understanding of fluid teams' performance in knowledge intensive organizations.

FIGURE 3: Hypotheses model

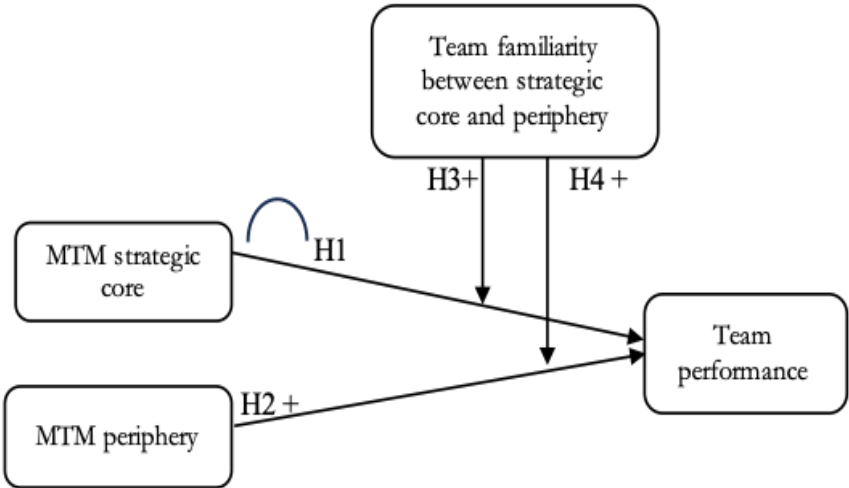


FIGURE 4: The inverted U-shaped relationship between MTM core and familiarity between core and periphery.

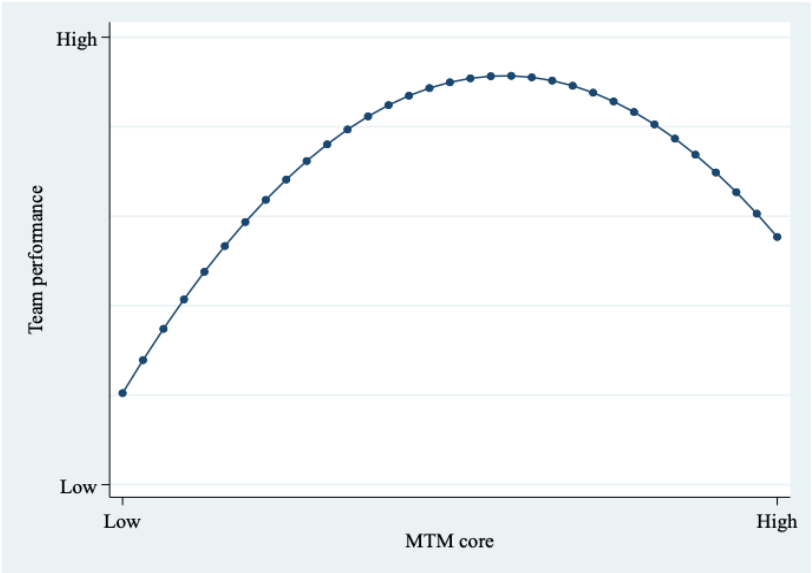
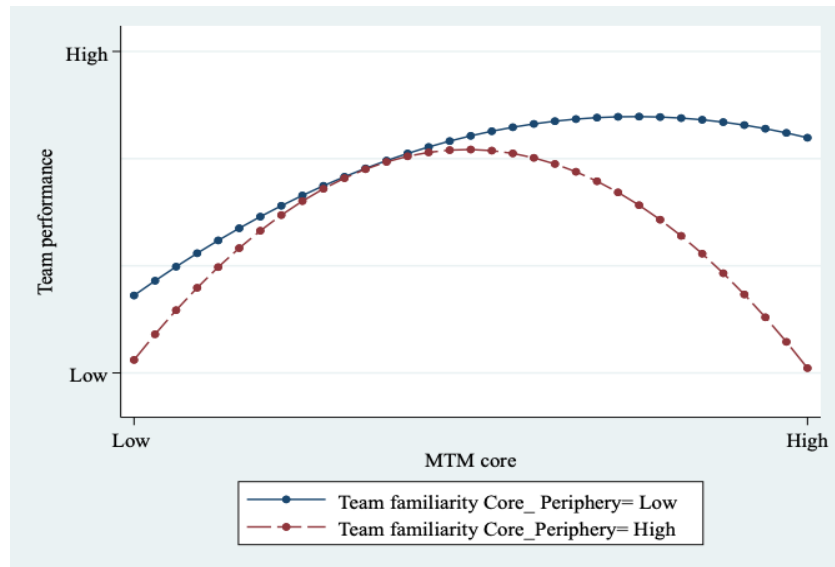
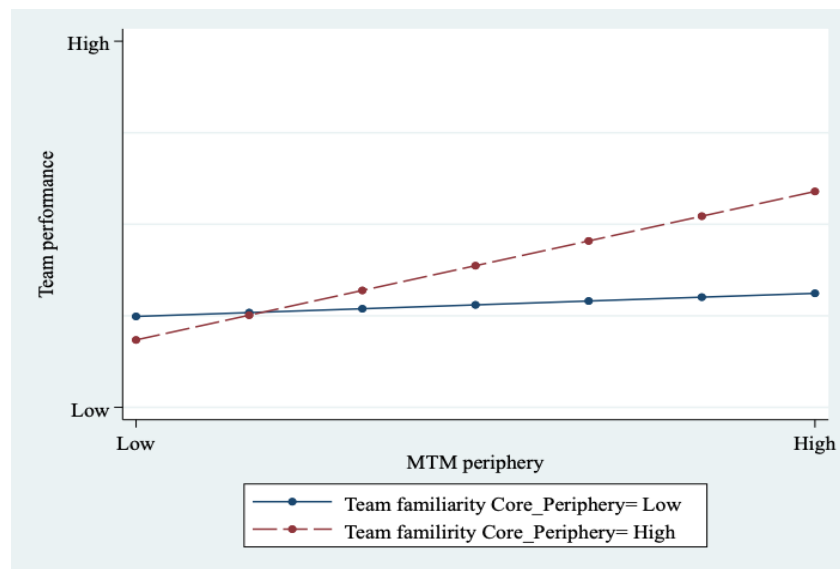


FIGURE 5: Moderating role of familiarity between core and periphery on a) the inverted U-shaped relationship between MTM core and team performance and b) the relationship between MTM periphery and team performance.



a)



b)

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