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Anticipatory Coordination Reconfiguration Before Team Membership Change: Evidence from an Online Team Experiment

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Abstract

Research on team membership change has focused on what happens after members leave or join, overlooking the interval between the announcement of a change and its implementation. Drawing on change theory and social identity theory, this study examines how teams respond during this pre-change period. In an online experiment, 52 three-person teams completed four rounds of a video-production task. After the second round, each team learned that a randomly selected member would be replaced by a newcomer midway through the third round. Team identification, coordination effectiveness, observer-rated flux in coordination, and observer-rated team performance were analyzed with paired contrasts, mixed-effects models, and regression-based mediation analysis. Coordination effectiveness was lower at the pre-change measurement than in the second round. Departing members' team identification did not decline, contrary to the anticipatory deidentification hypothesis. Flux in coordination was unrelated to departing members' identification and to coordination effectiveness, and it did not predict change-period or post-change performance. Team processes already changed during the pre-change period, before any member left or joined. Exploratory analyses suggest that staying members' identification may be a more proximal antecedent of coordination change.

Keywords: team membership change; flux in coordination; team identification; anticipatory change; newcomers

1. Introduction

Teams across industries frequently experience membership change—the entry and exit of individuals from groups or teams (Stuart, 2017, p. 284). Members voluntarily leave teams to develop their careers (e.g., join MBA programs) and seek better job opportunities. Some organizations rotate employees between different teams to make them versatile, transfer knowledge between work units, and mitigate boredom. Sports teams trade their players to discharge underperformers and to acquire skill sets lacking in a team.

Given the prevalence of membership change in teams, it is important to understand the team-level effects of membership change. From prior research, we know that team membership change has mixed effects on team performance (Trainer et al., 2020). There are some positive functions of team membership change, such as enhanced team creativity, removal of underperformers, and knowledge transfer between work units (Choi & Thompson, 2005; Felps et al., 2006; Kane et al., 2005). However, studies have found that

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team performance typically decreases after membership change (De Stefano et al., 2019; Hausknecht, 2017; Hom et al., 2017; Reagans et al., 2005; Stuart, 2017; Summers et al., 2012; Van der Vegt et al., 2010). Membership change can undermine team performance by disturbing coordination between members (Reagans et al., 2005; Stuart, 2017; Summers et al., 2012).

Despite the accumulated knowledge on how team activities can shift *after* membership change, we only have half the picture of how team membership change influences team performance. Little research has investigated what happens in a team *before* a member joins or leaves. However, except for unpredictable accidents such as injuries, team members usually know that change will occur *before* the change actually occurs. Members typically notify their managers and colleagues about their turnover plan in advance as a courtesy or due to internal regulations (e.g., two weeks' notice). Professional workers tend to determine and announce their next positions a few months ahead. In this study, the *pre-change period* refers to the interval after a team learns that a membership change has been decided and before a member exits or joins. The *post-change period* refers to the time after a member exits or joins.

It is important to understand how team processes and performance change during the pre-change period for two reasons. First, in addition to the membership change's effects during the post-change period, there can be additional, yet to be revealed, effects of membership change during the pre-change period. Second, challenges that emerge during the pre-change period can have lasting effects on team processes and performance during the post-change period.

To better understand how membership change influences team performance, this study develops a theoretical model of how teams respond to the news of upcoming membership change and how such responses *before* the change are related to team activities *after* the change. The model uses change theory (Cummings et al., 2016; Lewin, 1951) as its overarching frame: the announcement of a membership change is treated as an event that unfreezes a team's established ways of working, so that the team may begin adjusting its coordination before anyone leaves or joins. Within this frame, social identity theory (Ashforth & Mael, 1989) explains how individual members, particularly departing members, respond to the news, and these responses are expected to shape how much the team changes its coordination. The model was tested in an online experiment with 52 three-person teams. While working on a series of tasks, teams were informed that one member would leave their team and a new member would replace them. Team members knew who would leave a team ahead of the change.

This research makes three contributions. First, it examines team processes during the pre-change period, which research on membership change has largely overlooked. Second, it treats the pre-change period as the first phase of the change process rather than as a waiting period and considers departing and staying members, not only newcomers (e.g., Choi & Thompson, 2005; Cooper et al., 2021; Rink et al., 2013; see Bunderson et al., 2014; Stuart & Moore, 2017, for exceptions). Third, the design follows the same teams across four rounds and combines self-reports with independent observer ratings. Each team can therefore be compared with itself before and after the announcement, and these changes can be separated from pre-existing differences between teams. Studies that observe teams only after a member has left or joined cannot make these comparisons (e.g., Stuart, 2017; Summers et al., 2012).

2. Theoretical Development and Hypotheses

2.1. Overarching Framework: Membership Change as a Change Process

This study draws on change theory (Cummings et al., 2016; Gersick, 1994; Lewin, 1951) as an overarching framework for the team-level process that unfolds when a membership change is announced. Lewin's model describes change as a sequence of unfreezing, moving, and refreezing. Applied to membership change, the announcement can act as an unfreezing event that disrupts the assumption that existing roles and routines will continue. During the pre-change period, teams may move by modifying how they coordinate their work, consistent with research on team adaptation (Christian et al., 2017; Maynard et al., 2015). After the change, teams refreeze around coordination mechanisms that include the newcomer. Change of this kind also consumes members' limited time and attention, which are the resources needed both to perform the task and to integrate newcomers (Kammeyer-Mueller & Wanberg, 2003; Rink et al., 2013).

Within this framework, the study examines three links. First, at the individual level, the announcement may change how departing members identify with the team. Second, departing members' identification may shape how much the team modifies its coordination mechanisms during the pre-change period. Third, these modifications may affect coordination effectiveness and performance during the round in which the change occurs, as well as performance after the newcomer has joined.

Several constructs are central to this process. *Flux in coordination* refers to the degree of change in a team's coordination mechanisms—its roles, interaction patterns, routines, and timing (Summers et al., 2012). The construct describes the amount of change, not its quality: a given modification may be an adaptive anticipatory reconfiguration (e.g., preparing notes to brief a newcomer) or disruptive churn (e.g., abandoning a functioning role structure). *Coordination effectiveness* refers to the extent to which members' interdependent actions are harmonized without duplication or gaps (Hoegl et al., 2004). *Change-period performance* refers to team performance while the membership change is under way, and *post-change performance* refers to team performance after the newcomer has joined the team.

2.2. Members' Identity Shift During the Pre-Change Period

In organizations, employees can develop organizational identification, which is a specific form of social identity that targets an organization (Ashforth & Mael, 1989). Particularly, employees who are assigned to teams can feel a sense of belonging in the affiliated team, which is called team identification. Researchers found that individuals who strongly identify with their teams perform not only the roles that are expected and required by the job, but also positive and discretionary behaviors that are not specified by their job prescriptions such as helping other in-group members (for meta-analysis, see Riketta, 2005, and Riketta & Van Dick, 2005).

In many cases of team membership change, such as personnel rotation and voluntary turnover, team members receive information about the change ahead of the actual change. From two weeks to a couple of months ahead of the change, members know who stays, who leaves, and when the change happens. When team members are informed about the impending change, they are classified into two subgroups based on their future prospects—members who will stay and members who will leave the team. Because two subgroups have different goals and are clearly distinctive, team members will identify less with the team as a whole but instead with the subgroup to which they are classified.

Once one's exit from a team is determined, departing members' team identification will be attenuated. Ashforth (2000) used the term *anticipatory deidentification* to describe a process through which an individual who anticipates leaving a group separates one's identity based on group membership from self-concept. Deidentification occurs because

departing members no longer view themselves as similar to other staying members and do not share goals with a team. Departing members have a different, personal goal, which is to successfully manage their career after exiting the team. On the other hand, staying members share a goal with a team, which is to successfully complete team tasks despite the change. As a result, team identification of staying members will not decrease due to the upcoming change.

Anticipatory deidentification is not inevitable, however. The argument above assumes that an impending exit weakens the departing member's stake in the team. Several conditions may weaken or even reverse this tendency: whether the departure is voluntary or imposed, the quality of members' relationships before the announcement, departing members' expectations about life after the exit, and whether the departure and its terms are perceived as fair (Ashforth, 2000; Kurtz, 2008). For example, when a departure is externally imposed after positive interactions and the remaining time together is salient, departing members may become more rather than less attached to the team. Hypothesis 1 states the baseline prediction derived from anticipatory deidentification.

Hypothesis 1. *Departing members' team identification decreases during the pre-change period compared to before the announcement of upcoming membership change.*

2.3. Effects of Members' Identification on Flux in Coordination

Coordination—the process of orchestrating the sequence and timing of interdependent actions (Marks et al., 2001, pp. 367–368)—is a critical team process that enables members to combine their efforts to achieve collective goals. Coordination mechanisms such as roles, routines, and schedules help a team establish accountability (i.e., who's responsible for what subtask), predictability (i.e., what members are doing by when), and shared understanding (i.e., members are on the same page with regard to who does what and when things are done by whom) (Okhuysen & Bechky, 2009). After teams initially set up their plans, roles, and routines, teams would coordinate their activities by using these organized mechanisms to accomplish task work. When a team works on the same job in a static environment with the same members, teams can repeatedly use their coordination mechanisms.

During the pre-change period, the announcement itself can threaten a team's established coordination. Once members know that some of them will leave, they can no longer assume that the current division of labor will hold until the task is completed. Work assigned to departing members may need to be finished early, documented, or reassigned, and the remaining members may need to anticipate how the work will be handed over.

In response to such threats against their coordination, team members can modify their coordination mechanisms, a process known as *flux in coordination* (Summers et al., 2012). For example, members may reassign roles so that the departing member's responsibilities are taken over before the exit, or adjust their time plan to complete critical subtasks before the change occurs.

One of the factors that can influence a team's flux in coordination would be an attenuation of departing members' team identification. As departing members identify less with their current teams, the extent to which staying members and departing members share a superordinate social identity would decrease. As a result, cooperative interactions between the two subgroups can decrease. In addition to the shared identity and emotional attachment, individuals have an instrumental motive to cooperate with others. Individuals become more likely to help others when their cooperative behaviors are expected to be reciprocated by those who receive help (Deckop et al., 2003). Because departing and staying members will soon be unavailable to each other, cooperative behaviors between them are less likely to be reciprocated and thus less likely to be given.

Departing members with low team identification will become less committed to team tasks and decrease their extra-role behaviors. Departing members can aim to satisfy only the minimum job requirements to avoid potential penalties. Because one of the strongest penalties that management can give to employees—firing—is not applicable, departing members may not even complete their required roles. Departing members can prioritize their personal goals during the pre-change period. To enhance their self-esteem and to reduce uncertainty related to the future, departing members can focus on preparing their careers after exiting the current team.

As staying members can anticipate that departing members will be less committed to the task or as staying members have actually observed that departing members reduced their task commitment, staying members can adjust a team's role structure. To reduce potential damage to teamwork due to departing members' low task commitment, staying members can assign departing members to roles that are less critically related to the success of the team or reduce the number of roles assigned to departing members.

Staying members can also adjust a team's routines to decrease the number of members who are task-wise related to departing members to make the post-change transition easier. By doing so, even if departing members poorly perform their tasks, their output will have a limited impact on the overall quality of teamwork. When a member who takes a central versus peripheral network position leaves a group, the post-exit shock on team performance can be greater. This is because a larger set of relationship-specific knowledge and work practices (e.g., communication shortcuts uniquely interpretable between a dyad) would be lost when a member who is highly involved with other members exits a team (Stuart, 2017). Therefore, staying members can re-assign departing members to peripheral roles to reduce the amount of disruption caused by membership change. To sum up, when departing members are disengaged from their current tasks, teams would adjust their coordination mechanisms to protect their teamwork.

Hypothesis 2. *Departing members' team identification is negatively related to the degree of flux in coordination during the pre-change period.*

2.4. Effects of Pre-Change Flux in Coordination on Coordination Effectiveness and Change-Period Performance

Flux in coordination will decrease the effectiveness of coordination and undermine team performance, at least during the change period (Summers et al., 2012). It takes time for a team to figure out alternative coordination mechanisms that properly function. For example, to switch roles, a team needs to assess the person-role fit of members and identify which members possess knowledge and skills that can meet the demands of alternative roles. The more time a team spends revising its coordination mechanisms, the less time and energy it can spend on activities that are directly related to task accomplishment.

However, shortly after a team modifies its coordination mechanisms during the pre-change period, these mechanisms can fail to achieve their goals. Until members fully adapt to the changed system, meaning that members become comfortable with their roles, know for sure who needs to finish what task by when, and share such knowledge among them, teams would be unable to effectively perform their tasks (Faraj & Xiao, 2006; Okhuysen & Bechky, 2009; Reagans et al., 2005, 2016).

Hypothesis 3. *Coordination between members becomes less effective during the pre-change period compared to before the announcement of the upcoming membership change.*

Hypothesis 4. *The effectiveness of team coordination during the pre-change period partially mediates the negative relationship between flux in coordination during the pre-change period and a team's change-period performance.*

2.5. Effects of Pre-Change Flux in Coordination on Post-Change Performance

In addition to its immediate effects, flux in coordination during the pre-change period can have lasting effects on team performance after the newcomer joins. From the perspective of change theory, pre-change flux has two simultaneous consequences for the post-change period: it consumes the resources that newcomer integration requires, and it unfreezes routines in ways that can make later adaptation easier (Audia et al., 2000; Gersick, 1994; Lewin, 1951). The resource consideration draws on a resource-based perspective (Coff, 1999; Ericksen & Dyer, 2004) and is treated here as part of the change process rather than as a competing theory.

After the change, newcomers need time to learn and adapt to a team's coordination mechanisms. Veteran members take on additional roles such as training, backing up, and socializing with new members, and they may therefore be less committed to their primary roles. Moreover, new members and veteran members who have not shared work experience have limited ability to anticipate and understand one another's actions and have little attachment between them (Argote & Guo, 2016; Reagans et al., 2005).

The Resource Cost of Pre-Change Flux. From a resource-based perspective, teams that secure key resources would outperform teams that lack resources (Coff, 1999; Ericksen & Dyer, 2004). Key resources that a team needs to facilitate newcomer adjustment include incumbent members' time and energy to socialize with, train, and help newcomers (Kammeyer-Mueller & Wanberg, 2003; Rink et al., 2013). However, the availability of these resources during the post-change period can vary depending on the extent to which teams experienced flux in coordination during the pre-change period. A high degree of flux in coordination during the pre-change period can reduce the amount of resources that are available for newcomer adjustment.

After a newcomer joins a team, it takes incumbent members' time and energy to build a relationship with and train new members. Emotional and instrumental support from team members is essential for newcomers to quickly learn team coordination mechanisms and feel welcomed in a new work environment (Rink et al., 2013). As noted above, given that members' time and energy are limited resources, teams that spent more time and energy modifying their coordination mechanisms would have fewer resources to focus on their primary tasks. As a result, a team that experienced a high degree of flux in coordination during the pre-change period can become busy catching up with their schedule and thus lack enough time and energy to socialize with, train, and help newcomers.

When newcomers feel unwelcomed and not supported by incumbent members, their contributions to a new team would be limited. Teams that can effectively utilize the knowledge and information that newcomers bring are more likely to perform well over time (Rink et al., 2013). When newcomers do not want to share their knowledge and information with a team, or when a team is unwilling to accept and appreciate newcomers' contributions, teams would struggle after the change.

The Unfreezing Benefit of Pre-Change Flux. On the other hand, flux in coordination during the pre-change period may improve subsequent team performance. According to Lewin (1951), a successful change project involves three steps which are unfreezing, moving, and refreezing. In general, people tend to resist or avoid making changes (Oreg et al., 2011). For teams to successfully adapt to changes, members' resistance to change needs to be overcome first (Audia et al., 2000; Gersick & Hackman, 1990).

Flux in coordination during the pre-change period can be a triggering event that unfreezes the rigid mindset of team members. After modifying their coordination

mechanisms during the pre-change period to deal with threatening factors (e.g., departing members' low task commitment), members can become less reluctant to make further changes. As a result, when additional challenges arise, members who have already experienced flux in coordination can have more flexible mindsets and better adapt to the challenges. When membership change happens, especially when members are cohesive with each other, staying members can miss their old partners and refuse to accept new members. When team members' mindsets become unfrozen due to flux in coordination during the pre-change period, they can be more welcoming of new members in their team.

Combining Costs and Benefits. Because these two mechanisms operate at the same time, their combination implies a curvilinear relationship (Haans et al., 2016). At low levels of flux, the unfreezing benefit is small. As flux increases, the benefit grows, but the resource cost rises at an increasing rate. Post-change performance should therefore be highest at moderate levels of pre-change flux and lower at both low and high levels.

Too high a level of flux in coordination during the pre-change period would stress out members and leave members with no slack time and energy to facilitate newcomer adjustment. After experiencing turbulent disruptions during the pre-change period, members can become demoralized and even give up when other tough challenges arise later. Too low a level of flux in coordination during the pre-change period can lead members to become overconfident about their existing mechanisms. Too high trust in their coordination mechanisms can lead members to become reluctant to promptly adjust their system even when members face difficulties in coordinating their actions after new members join.

On the other hand, a moderate level of flux in coordination during the pre-change period can lead members to have reasonable doubt about their system but not be too overwhelmed by future challenges. Therefore, a moderate level of flux in coordination during the pre-change period can improve a team's post-change performance by enabling a team to make better adjustments when they experience other challenges during the post-change period.

Hypothesis 5. *Pre-change flux in coordination has an inverted U-shaped relationship with post-change team performance, such that post-change performance is highest at moderate levels of flux and lower at both low and high levels.*

3. Method

3.1. Research Setting and Participants

Data were collected in 53 experimental sessions of four participants each. After the exclusion described below, the analytic sample comprised 208 participants in 52 teams (mean age = 20.0 years, *SD* = 1.45; 70% female). Participants were either current students or recent graduates of a U.S. university and received course credit or a participation payment. In addition, participants received an extra $10 if their performance was rated as top 20 percent among all participants.

This study was conducted via Zoom, which is an online platform for virtual meetings. Each session was approximately two hours long. One session was excluded from the analysis because one participant disrupted the experiment by not letting other participants speak. In addition, because of a technical problem with Zoom, one session was not recorded; observer ratings of coordination and team performance are therefore unavailable for this team, but its members' survey data were retained. Accordingly, analyses of self-reported variables are based on 52 teams (208 participants), and analyses involving observer-rated variables are based on 51 teams.

3.2. Procedure

In each session, four participants were randomly assigned to one of the three roles, which were staying members (i.e., participants who stay in a three-person team throughout the experiment), a departing member (i.e., a participant who leaves a team in the middle of the experiment) and a new member (i.e., a participant who joins a team in the middle of the experiment). There were two staying members, one departing member, and one new member in each session. At the beginning of the study, two staying members and one departing member were assigned to the first meeting room, while another participant—a new member—was assigned to the second meeting room. In the first meeting room, three participants were grouped as one team. After watching a pre-recorded video in which the experimenter explains what their task is and how to perform the task, a three-person team had three minutes to introduce themselves to each other and come up with a team name to be used in the study. This was to help participants feel more comfortable with each other and develop a group-based social identity. A three-person team was informed that they would work as a team for four rounds and did not know that there would be a member change during the study.

One participant who was randomly selected as a new member worked solo in the second meeting room. A new member also watched a pre-recorded video in which the experimenter explains what their task is and how to perform the task. A new member did not know that other participants were working as a team in another meeting room and was informed that they would work solo until the end of the study.

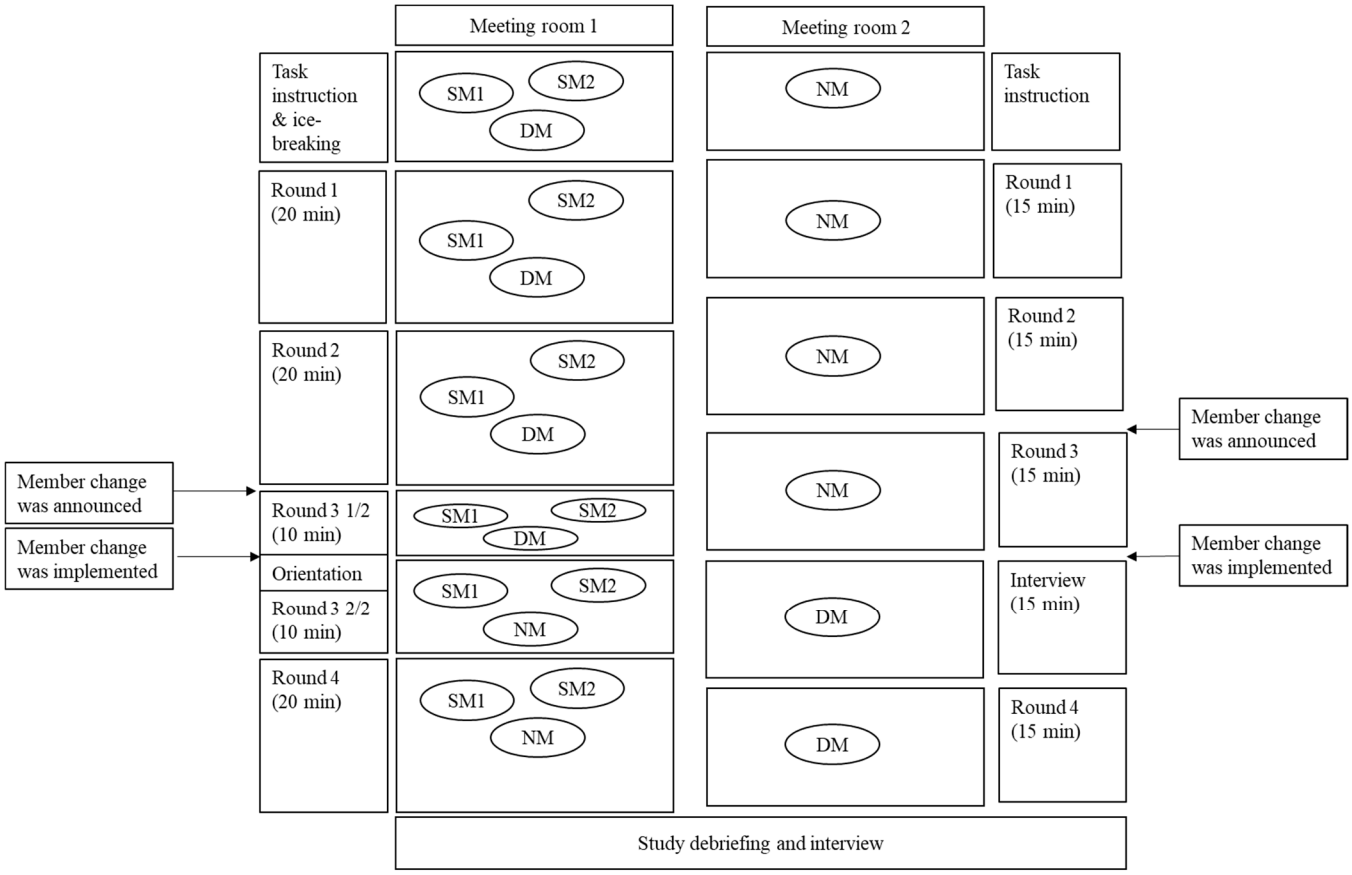
After a team completed the first two rounds, the experimenter announced the upcoming membership change. The experimenter explained that one of them was needed for another project and would therefore leave the current team in 10 min, halfway through the third round. The experimenter also announced who would leave the team: the participant who had been randomly selected as the departing member. The experimenter informed the team that even if the team became eligible for the extra $10 incentive, the departing member would not receive it. This feature was included to mirror organizational settings in which members who leave a team do not share in rewards the team earns after their departure. The experimenter also informed the team that a new member would join them right after the departing member left. At the same time, the experimenter also informed the new member in the second meeting room that, after completing one more round, they would join other participants who had been working together as a team. The experimenter asked the new member to work with other team members to complete the team's ongoing third-round project.

After ten minutes, the new member replaced the departing member. At the point of the change, before the new member joined, the departing member and the two staying members completed a brief survey (the pre-change measurement). After the new member joined, the team was given five minutes of orientation so that the staying members could explain the current project to the new member and the team members could get to know each other. After five minutes, the team continued to finish the second half of their third round. Then the team completed the fourth round. In the meantime, the departing member was moved to the second meeting room. The experimenter had a short interview with the departing member and asked about their experience on the team. After the interview, the departing member completed one more round alone, which was a filler task to ensure that all participants finished at about the same time. After all participants completed their last round, the experimenter debriefed the participants and had a post-experiment interview with them. Throughout the study, both meeting rooms were video- and audio-recorded. Figure 1 visualizes the timeline of the experiment.

Random assignment determined each participant's role (staying, departing, or new member), so departure status was assigned at random. The four video topics were

presented in the same order in all sessions; topic is therefore confounded with round, although mean team performance did not differ across rounds (see Section 4.2), which suggests that the topics were of comparable difficulty. No separate manipulation check was administered. The announcement was delivered by the experimenter in every session, and several teams explicitly discussed the upcoming change in the recorded interactions (see Section 5.1).

Inferential Scope of the Design. The study uses a within-team, repeated-measures design without a no-announcement comparison condition. Differences between the second round and the pre-change measurement may reflect the announcement, but they may also reflect accumulated task experience, fatigue, or differences between rounds. The findings are therefore interpreted as changes observed after the announcement rather than as causal effects of the announcement. In addition, because departing members were excluded from the performance incentive, anticipated departure is confounded with reward exclusion in this design.



Note. SM = Staying Member. DM = Departing Member. NM = New Member.

Figure 1. Timeline of the Experiment.

3.3. Task

Participants were asked to record three-to-four-minute-long YouTube-style videos about a given topic in each round. Three-person teams completed four rounds, and each round was 20-min long. Four video topics for each round were "introduce a fast-food restaurant of your choice," "discuss how to maintain health both physically and mentally," "introduce a smartphone of your choice," and "introduce a kind of animal of your choice." In the second meeting room in which either a new member (before the change) or a departing member (after the change) worked solo, each round was 15-min long.

3.4. Measures

Team Identification. Team identification was measured using a 4-item self-report survey measure from Van der Vegt and Bunderson (2005). Sample items are: "I feel emotionally attached to my team." and "I feel a strong sense of belonging to my team." Participants responded to survey items using a seven-point Likert-type scale ranging from 1 = "Disagree strongly" to 7 = "Agree strongly." The departing member and the two staying members completed this measure after Round 1, after Round 2, and at the pre-change measurement in the middle of Round 3. Departing members' responses are used to test H1 and H2; staying members' responses are used in exploratory analyses. The internal reliability of the four items was high. For departing members, Cronbach's alpha was 0.94 after Round 1, 0.96 after Round 2, and 0.96 at the pre-change measurement; for staying members, the corresponding values were 0.93, 0.96, and 0.95.

Flux in Coordination During the Pre-Change Period. Flux in coordination during the pre-change period was measured using third-party ratings of the recorded interaction of a team. In this study, the pre-change period was operationalized as the first half of Round 3 because this is a time after members were informed about the upcoming change and before the change actually happened.

Two research assistants who were blind to the hypotheses independently coded each interaction video. Because the construct concerns changes relative to a team's established coordination, flux in coordination was not coded for a team's interaction during Round 1 and Round 2. After observing how teams coordinated their activities during Round 1 and Round 2, coders rated shifts in the way members coordinated their work during the first half of Round 3 (i.e., pre-change period).

Coders rated the extent to which a team engaged in the following behaviors using five-point scales (1 = not at all, 5 = entire time). Sample behaviors of flux in coordination during the pre-change period included: "Interaction patterns (e.g., who talks first, who talks most) between members changed, compared to the earlier rounds." "Members shifted roles (e.g., who takes note of the group discussion), compared to the earlier rounds." Interrater reliability was ICC(1) = 0.48 for a single rater and ICC(2) = 0.65 for the mean of the two raters (median *r*wg = 0.95), so flux in coordination during the pre-change period was operationalized as the mean score across two raters.

Coordination Effectiveness. Coordination effectiveness was measured using a 3-item self-report survey measure adapted from Hoegl et al. (2004). Sample items are: "The work done was closely harmonized." and "My team avoided duplication of effort." Participants responded to survey items using a seven-point Likert-type scale ranging from 1 = "Disagree strongly" to 7 = "Agree strongly."

All three team members completed this measure after Round 1, after Round 2, and at the pre-change measurement. Cronbach's alpha for the three items was 0.83, 0.82, and 0.86, respectively. Aggregation to the team level was evaluated with indices of within-team agreement and between-team variance (Bliese, 2000; LeBreton & Senter, 2008; Woehr et al., 2015). Median *r*wg(j) was 0.89, 0.94, and 0.94 for the three measurements using a skewed null distribution with an expected variance of 2.0, and 0.94, 0.97, and 0.96 using a uniform null distribution. ICC(1) was 0.23, 0.23, and 0.17 (F tests: all $p < 0.05$), and ICC(2) was 0.47, 0.47, and 0.37. Although agreement within teams was high, the ICC(2) values indicate that team means are only moderately reliable indicators of differences between teams, largely because ratings clustered near the top of the scale (see Table 1 in Section 4.1). Coordination effectiveness was operationalized as the mean score across the three members. Because limited reliability attenuates relationships involving this variable, H3 was also tested at the individual level (see Analytic Strategy).

Newcomer Acceptance. Newcomers' perceived acceptance by the staying members was measured after the newcomer had joined the team with three items adapted from

Bauer and Green (1998) and Bauer et al. (2007), using the same seven-point scale. Cronbach's alpha was 0.84. This measure is used only in exploratory analyses.

Team Performance. Team performance in each round was measured using third-party ratings of recorded YouTube-style videos which were outputs of the video-recording task. A research assistant and the author rated the quality of videos using seven items. To address potential single-source bias in testing the hypotheses (Podsakoff et al., 2003), the raters of team performance did not code team interactions. Coders rated the extent to which a recorded video meets the following standards using five-point scales (1 = strongly disagree, 5 = strongly agree). Sample items are "Overall, the video quality was high," "The video shared useful and interesting information related to the topic." The internal reliability of the seven items was high (Cronbach's alpha = 0.87). Interrater reliability was ICC(1) = 0.54 for a single rater and ICC(2) = 0.70 for the mean of the two raters (median *r*wg(j) = 0.95), so team performance was operationalized as the mean score across two raters. Round 3 performance is referred to as change-period performance and Round 4 performance as post-change performance. Because Round 4 ended approximately 35 min after the newcomer joined, these labels refer to phases of the membership change within a single session rather than to short- and long-term outcomes.

Control Variables. The Big Five personality traits, gender diversity (i.e., single-gender vs. mixed-gender), age, and the use of English as a first language were considered as team-level control variables. In previous studies, researchers found that the personality traits of members had a close relationship with team performance (O'Neill & Allen, 2011; Peeters et al., 2006). Moreover, gender diversity of teams can influence team performance, especially when the task requires close collaboration between members (Bear & Woolley, 2011). Although all participants in this study were either current students or recent graduates of a U.S. university, some participants were international students and their English proficiency levels varied. Because the current task requires participants to verbally record YouTube-style videos, participants' English proficiency level could influence their performance. Lastly, the average age of team members can influence how members coordinate with others and perform and thus was considered as a control variable (Szatmari, 2022; Tanikawa et al., 2017). Given the number of teams, these variables were not included in all models; their use is described in the Section 3.5 (Becker et al., 2016).

A ten-item Big Five personality measure with a 7-point Likert-type scale (Gosling et al., 2003) was used, and the average level of each trait within a team was calculated. Using participants' self-report of their gender, team gender diversity was operationalized as a binary variable (1 = mixed-gender team, 0 = single-gender team). Using participants' self-report of their first language, the proportion of team members who use English as their first language was calculated. Composition variables were computed separately for the pre-change team (the departing member and the two staying members) and the post-change team (the two staying members and the new member).

Factor Structure of the Self-Report Measures. The factor structure and distinctness of the self-report scales were examined with individual-level confirmatory factor analyses in lavaan (Rosseel, 2012), using robust maximum likelihood estimation with standard errors adjusted for the clustering of members within teams; with 52 teams, a team-level factor analysis was not feasible. For the incumbent members (the departing member and the two staying members; n = 154–155), a two-factor model in which the four team identification items and the three coordination effectiveness items loaded on separate factors fit the data at each measurement: Round 1, $\chi^2(13) = 24.06$, $p = 0.031$, CFI = 0.984, RMSEA = 0.079, SRMR = 0.032; Round 2, $\chi^2(13) = 31.62$, $p = 0.003$, CFI = 0.981, RMSEA = 0.095, SRMR = 0.036; pre-change measurement, $\chi^2(13) = 23.46$, $p = 0.036$, CFI = 0.985, RMSEA = 0.080, SRMR = 0.040. Standardized loadings ranged from 0.66 to 0.96, and the two factors correlated at 0.46 to 0.51. At each measurement, the two-factor model fit better than a one-factor model

($\Delta\chi^2(1) \geq 126.20$, all $p < 0.001$; one-factor CFI ≤ 0.852, RMSEA ≥ 0.254). CFI and SRMR met conventional guidelines (Hu & Bentler, 1999); RMSEA was higher, which is common in models with few degrees of freedom and small samples (Kenny et al., 2015). For newcomers (n = 48 with complete responses), a three-factor model with newcomer acceptance, team identification, and coordination effectiveness fit better than a one-factor model ($\Delta\chi^2(3) = 115.74$, $p < 0.001$), but its fit was weaker ($\chi^2(32) = 68.74$, $p < 0.001$, CFI = 0.923, RMSEA = 0.148, SRMR = 0.062), and newcomer acceptance correlated 0.88 with newcomers' ratings of coordination effectiveness, possibly because one of the acceptance items refers to staying members explaining their ongoing task to the newcomer. Newcomer acceptance therefore overlaps substantially with newcomers' general evaluation of team functioning, which should be considered in interpreting the exploratory analyses that use it; newcomers' ratings of coordination effectiveness were not used in any analysis.

3.5. Analytic Strategy

All analyses were conducted in R (R Core Team, 2024) using the nlme, lme4, lmerTest, psych, boot, and lavaan packages (Bates et al., 2015; Kuznetsova et al., 2017; Rosseel, 2012). The data contain three kinds of units, which are distinguished throughout: teams (52 for self-reported variables and 51 for observer-rated variables), participants (208), and repeated observations of the same team or participant across rounds. Unless stated otherwise, the unit of analysis is the team.

H1 and H3 predict a change from Round 2 to the pre-change measurement. These hypotheses were therefore tested with paired-samples t-tests comparing the pre-change measurement with Round 2, and effect sizes are reported as Cohen's d computed from difference scores. Because coordination effectiveness is an aggregated measure, H3 was also tested at the individual level with linear mixed models that compared the same two measurements while accounting for repeated observations of participants nested in teams.

H2 was tested with ordinary least squares regression of flux on departing members' pre-change identification, with and without their Round 2 identification as a covariate. H4 was tested with regression-based path analysis: the indirect effect was estimated as the product of the a path (flux → coordination effectiveness) and the b path (coordination effectiveness → change-period performance, controlling for flux), and its uncertainty was estimated with 5000 nonparametric bootstrap resamples (percentile and bias-corrected and accelerated confidence intervals; Efron & Tibshirani, 1993). H5 was tested by regressing post-change performance on mean-centered flux and its square (Haans et al., 2016). Changes in team performance across the four rounds were examined with growth models that included a random intercept for teams (Bliese & Ployhart, 2002). Nested models, including models with different random-effects structures, were compared with likelihood-ratio tests, AIC, and BIC, all based on maximum likelihood estimation.

Because team performance was relatively stable across rounds (ICC(1) = 0.69; correlations between rounds = 0.54 to 0.80), an association between flux and performance in a given round may reflect pre-existing differences between teams. Analyses involving performance were therefore estimated with and without prior (Round 2) performance as a covariate. Given the number of teams, composition controls were added only in additional specifications, and conclusions are based on results that hold across specifications (Becker et al., 2016). Analyses that were not planned before the data were examined are reported separately and labeled exploratory (Kerr, 1998).

4. Results

4.1. Descriptive Statistics

Table 1 provides descriptive statistics for and correlations among the main study variables.

Table 1. Means, standard deviations, and correlations of main study variables.

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10
1. DM identification, R1	4.74	1.46										
2. DM identification, R2	5.17	1.45	0.85 **									
3. DM identification, pre-change	5.35	1.47	0.75 **	0.87 **								
4. Flux in coordination, pre-change	2.91	0.87	0.00	0.04	−0.01							
5. Coordination effectiveness, R1	6.05	0.68	0.49 **	0.43 **	0.45 **	0.15						
6. Coordination effectiveness, R2	6.38	0.50	0.53 **	0.52 **	0.51 **	0.12	0.71 **					
7. Coordination effectiveness, pre-change	6.21	0.57	0.59 **	0.60 **	0.63 **	0.04	0.62 **	0.67 **				
8. Team performance, R1	3.06	0.74	0.25 †	0.19	0.14	0.30 *	0.40 **	0.47 **	0.38 **			
9. Team performance, R2	3.09	0.75	0.00	0.00	−0.01	0.18	0.11	0.32 *	0.19	0.77 **		
10. Team performance, R3	3.03	0.70	0.17	0.17	0.15	0.20	0.22	0.28 *	0.25 †	0.80 **	0.75 **	
11. Team performance, R4	3.15	0.63	0.07	0.13	0.18	0.16	0.08	0.11	0.10	0.55 **	0.54 **	0.71 **

Note. N = 52 teams for self-reported variables and 51 teams for observer-rated variables (flux in coordination and team performance), because one session was not recorded; correlations are based on all available pairs. DM = departing member; R1–R4 = Rounds 1–4; R3 = change-period performance; R4 = post-change performance. Departing members' team identification is reported by the one departing member in each team; coordination effectiveness is the mean of three members' ratings. *M* and *SD* are used to represent mean and standard deviation, respectively. † indicates $p < 0.10$; * indicates $p < 0.05$; ** indicates $p < 0.01$.

4.2. Test of Hypotheses

All hypotheses were tested at the team level, and H3 was additionally tested at the individual level. The analytic procedures are described in the Analytic Strategy section.

Hypothesis 1 proposed that departing members' team identification would decrease after they learned that they would soon leave the team. As Table 2 shows, departing members' identification did not decline from Round 2 (M = 5.17) to the pre-change measurement (M = 5.35), $t(51) = 1.75$, $p = 0.086$, $d = 0.24$; the difference was in the direction opposite to the prediction, and identification had already risen from Round 1 (M = 4.74) to Round 2. Hypothesis 1 was not supported.

Table 2. Means and paired contrasts for team identification and coordination effectiveness.

Variable	Round 1 *M* (*SD*)	Round 2 *M* (*SD*)	Pre-Change *M* (*SD*)	Δ	*t*(51)	*p*	*d*
Departing members' identification (H1)	4.74 (1.46)	5.17 (1.45)	5.35 (1.47)	0.18	1.75 †	0.086	0.24
Coordination effectiveness (H3)	6.05 (0.68)	6.38 (0.50)	6.21 (0.57)	−0.17	−2.86 **	0.006	−0.40
Staying members' identification (exploratory)	4.64 (1.23)	4.78 (1.29)	5.07 (1.25)	0.29	4.18 **	<0.001	0.58

Note. N = 52 teams. Departing members' identification: one departing member per team. Coordination effectiveness: mean of the three members' ratings. Staying members' identification: mean of the two staying members (exploratory). Δ = pre-change mean minus Round 2 mean; t = paired-samples t test of this difference; d is computed from difference scores. † $p < 0.10$; ** $p < 0.01$.

Hypothesis 2 proposed that departing members' team identification would be negatively related to flux in coordination during the pre-change period. Departing members' pre-change identification was unrelated to flux ($B = -0.01$, $SE = 0.08$, $p = 0.948$), including when their Round 2 identification was controlled ($B = -0.14$, $SE = 0.20$, $p = 0.474$). Hypothesis 2 was not supported.

Hypothesis 3 proposed that coordination between members would become less effective after members learned about the upcoming membership change. Coordination effectiveness was lower at the pre-change measurement ($M = 6.21$) than in Round 2 ($M = 6.38$), $t(51) = -2.86$, $p = 0.006$, $d = -0.40$, 95% CI of the difference [−0.30, −0.05] (Table 2). This decline followed an increase from Round 1 ($M = 6.05$) to Round 2. The decline was also found at the individual level (311 observations from 156 participants in 52 teams; $B = -0.17$, $SE = 0.05$, $p = 0.001$). Hypothesis 3 was supported.

Hypothesis 4 proposed that coordination effectiveness during the pre-change period would partially mediate a negative relationship between pre-change flux in coordination and change-period performance (Round 3). Figure 2 reports the component paths. Flux was unrelated to coordination effectiveness ($a = 0.03$, $SE = 0.09$, $p = 0.776$), and coordination effectiveness was not significantly related to change-period performance when flux was controlled ($b = 0.30$, $SE = 0.17$, $p = 0.083$). The indirect effect was close to zero ($ab = 0.008$; 95% percentile bootstrap CI [−0.083, 0.071]; BCa CI [−0.051, 0.102]). The total association between flux and change-period performance was also not significant ($c = 0.16$, $SE = 0.11$, $p = 0.157$). When Round 2 performance was controlled, the indirect effect remained close to zero ($ab = 0.001$; 95% CI [−0.053, 0.024]), and the direct association between flux and change-period performance, controlling for coordination effectiveness and Round 2 performance, was not significant ($B = 0.05$, $p = 0.498$). Hypothesis 4 was not supported.

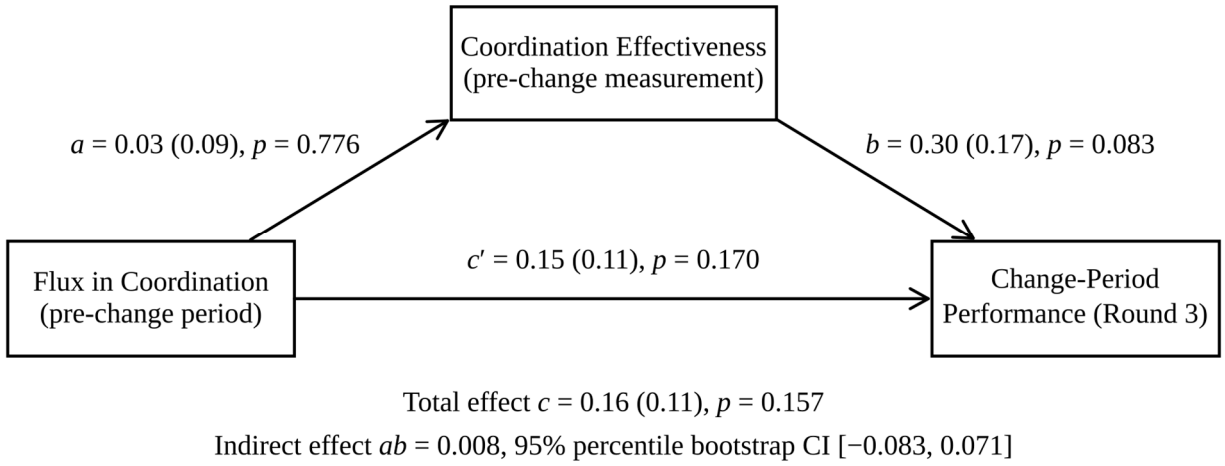


Figure 2. Test of the indirect effect of flux in coordination on change-period performance through coordination effectiveness (Hypothesis 4). Note. $N = 51$ teams. Unstandardized coefficients with standard errors in parentheses. The indirect effect was estimated with 5000 nonparametric bootstrap resamples.

Before Hypothesis 5 was tested, changes in team performance across rounds were examined (Table 3). In models with the fixed effects of Model 2, a random intercept for teams substantially improved model fit (likelihood-ratio test: $\chi^2(1) = 96.09$, $p < 0.001$; AIC = 404.31 vs. 310.22; BIC = 440.81 vs. 350.04), whereas adding a random slope for time did not ($\chi^2(2) = 3.64$, $p = 0.162$; AIC = 310.58; BIC = 357.03); the models in Table 3 therefore include a random intercept. Team performance did not change linearly ($B = 0.02$, $p = 0.408$) or curvilinearly (Model 3 vs. Model 2: $\chi^2(1) = 0.75$, $p = 0.386$) across rounds, and a repeated-

measures ANOVA likewise showed no difference between rounds, $F(3, 150) = 0.94$, $p = 0.423$. Teams' relative standing was moderately stable (ICC(1) = 0.69).

Table 3. Growth models of team performance across rounds.

Predictor	Model 1	Model 2	Model 3
Intercept	3.03 (0.11) **	2.21 (1.52)	2.32 (1.53)
Team extraversion	—	0.09 (0.06)	0.09 (0.06)
Team agreeableness	—	0.15 (0.09) †	0.15 (0.09) †
Team conscientiousness	—	0.33 (0.09) **	0.33 (0.09) **
Team emotional stability	—	−0.08 (0.08)	−0.08 (0.08)
Team openness	—	0.03 (0.09)	0.03 (0.09)
Team gender diversity	—	0.02 (0.11)	0.02 (0.11)
Team age	—	−0.12 (0.06) †	−0.12 (0.06) †
Team English as first language	—	0.53 (0.29) †	0.53 (0.29) †
Time	0.02 (0.02)	0.01 (0.02)	−0.10 (0.13)
Time²	—	—	0.02 (0.03)
Random intercept variance	0.34	0.30	0.30
Residual variance	0.16	0.14	0.14
Number of parameters	4	12	13
Log-likelihood (ML)	−157.07	−143.11	−142.73
AIC (ML)	322.15	310.22	311.47
BIC (ML)	335.42	350.04	354.60
LRT vs. previous model	—	$\chi^2(8) = 27.93$, $p < 0.001$	$\chi^2(1) = 0.75$, $p = 0.386$

Note. 204 observations (4 rounds) from 51 teams. All models include a random intercept for teams. Time is coded Round 1 = 1 to Round 4 = 4. Composition controls are time-varying: values for the pre-change team are used for Rounds 1–2 and values for the post-change team for Rounds 3–4. Gender diversity: 1 = mixed-gender team. Coefficients are restricted maximum likelihood estimates; the number of parameters, log-likelihood, AIC, BIC, and likelihood-ratio tests (LRT) comparing each model with the previous model are from maximum likelihood estimation. Standard errors are in parentheses. † $p < 0.10$; ** $p < 0.01$.

Table 4 reports the relationships between pre-change flux and team performance with and without control variables. Flux was not significantly related to change-period performance in the bivariate model ($B = 0.16$, $SE = 0.11$, $p = 0.157$), with the eight composition controls ($B = 0.10$, $p = 0.401$), with Round 2 performance controlled ($B = 0.05$, $p = 0.495$), or with all controls ($B = -0.01$, $p = 0.861$). Flux was, however, positively correlated with performance in Round 1, before the announcement ($r = 0.30$, $p = 0.034$), although not in Round 2 ($r = 0.18$, $p = 0.200$); that is, teams that changed their coordination more during the pre-change period had tended to perform better at the start of the study.

Hypothesis 5 proposed an inverted U-shaped relationship between pre-change flux and post-change performance (Round 4). Neither the linear nor the squared term of flux was significant in any specification (squared term: bivariate, $B = 0.09$, $p = 0.395$; with composition controls, $B = -0.01$, $p = 0.914$; with Round 2 performance, $B = 0.11$, $p = 0.219$; with all controls and Round 2 performance, $B = 0.02$, $p = 0.829$). Hypothesis 5 was not supported.

Table 4. Regression of change-period and post-change performance on pre-change flux in coordination.

	Change-Period Performance (Round 3)				Post-Change Performance (Round 4)			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
Flux in coordination	0.16 (0.11)	0.10 (0.12)	0.05 (0.08)	−0.01 (0.08)	0.13 (0.10)	0.06 (0.11)	0.06 (0.09)	0.00 (0.09)
Flux in coordination²	—	—	—	—	0.09 (0.11)	−0.01 (0.11)	0.11 (0.09)	0.02 (0.10)
Round 2 performance	—	—	0.69 (0.09) **	0.74 (0.09) **	—	—	0.46 (0.10) **	0.44 (0.11) **
Composition controls	No	Yes	No	Yes	No	Yes	No	Yes
R^2	0.04	0.20	0.57	0.71	0.04	0.26	0.32	0.47

Note. $N = 51$ teams; ordinary least squares regression. Each outcome is estimated with and without control variables (composition controls and Round 2 performance). Models 1–4: change-period performance (Round 3) regressed on flux. Models 5–8: post-change performance (Round 4) regressed on mean-centered flux and its square. Composition controls are the eight post-change team composition variables (five personality traits, gender diversity, age, and the use of English as a first language); their coefficients are omitted for space. Standard errors are in parentheses. ** $p < 0.01$.

4.3. Exploratory Analyses

The following analyses were not planned before the data were examined and should be treated as exploratory. First, staying members' team identification increased from Round 2 ($M = 4.78$) to the pre-change measurement ($M = 5.07$), $t(51) = 4.18$, $p < 0.001$, $d = 0.58$ (Table 2). The increase in staying members' identification was positively related to pre-change flux in coordination ($B = 0.62$, $SE = 0.23$, $p = 0.009$; $r = 0.36$).

Second, newcomers' perceived acceptance by the staying members, measured after the newcomer joined, was marginally related to pre-change flux ($B = 0.29$, $SE = 0.14$, $p = 0.050$), and this association remained marginal when Round 2 performance was controlled ($B = 0.29$, $p = 0.056$). Third, departing members' pre-change identification was positively related to Round 2 coordination effectiveness ($B = 1.50$, $p < 0.001$) and to observer-rated team positive affect in Round 2 ($B = 0.72$, $p = 0.041$). Team positive affect was rated by two observers on a five-point scale (ICC(2) = 0.69).

5. Discussion

5.1. Discussion of Study Findings

This study examined how teams respond during the interval between the announcement of a membership change and its implementation. The findings fall into three groups. *Supported:* coordination effectiveness declined from Round 2 to the pre-change measurement (H3), a pattern also found at the individual level; team performance did not change across rounds. *Not supported:* departing members' team identification did not decline (H1), departing members' identification was unrelated to flux in coordination (H2), coordination effectiveness did not mediate a relationship between flux and change-period performance (H4), and there was no curvilinear relationship between flux and post-change performance (H5). *Exploratory:* staying members' identification increased after the announcement, and this increase was related to flux. The explanations offered below for the unsupported predictions and the exploratory findings were developed after examining the results and should be read as hypotheses for future research rather than as confirmed explanations.

Contrary to Hypothesis 1, departing members' team identification did not decrease during the pre-change period. Several features of the design may have contributed to this result. The departure was externally imposed rather than chosen; it was announced after members had worked together for about 50 min, and the remaining time together was short and salient. Departing members were also excluded from the performance incentive; because reward exclusion would, if anything, be expected to lower identification (Brockner et al., 1994), it is unlikely to explain the absence of a decline, although it may have affected other responses. Beyond these design features, two substantive explanations are possible. First, departing members may have felt more attached to other teammates as they realized that this was their last time together. Kurtz (2008) found that as college students think about the imminent ending of a positive life experience (i.e., graduation), they tend to appreciate the present experience more and increase their college-related activities. When departing members were interviewed immediately after they left a team, several participants said that they felt sad and even sorry for leaving their teammates in the middle of the projects, although it was not their voluntary decision to leave a team. On the other hand, departing members who had not enjoyed the task mentioned that they became uninterested in team activities after being informed that they would soon leave teams.

Exploratory analyses are consistent with this explanation: departing members' pre-change identification was higher in teams with higher Round 2 coordination effectiveness and team positive affect.

Second, team members could have become more united to better deal with the impending challenge to their teamwork—membership change. External threats can unite group members so that a group can collectively overcome the threat. Some participants in this study viewed membership change as a threat to their performance because newcomers could slow down teamwork and disagree with the ongoing work. Although departing members did not have to be a part of a team's collective efforts to overcome the challenge, they could have felt compassion for their teammates. This explanation is consistent with the exploratory finding that staying members' identification increased after the announcement.

Flux in coordination during the pre-change period was positively correlated with team performance in Round 1 ($r = 0.30$, $p = 0.034$), before the announcement, although not significantly in Round 2 ($r = 0.18$, $p = 0.200$), and in exploratory analyses it was marginally related to observer-rated team positive affect in Round 2 ($B = 0.17$, $p = 0.073$). Flux was not related to change-period or post-change performance. Together, these patterns suggest that flux in coordination may partly reflect pre-existing team capacity. When teams learned about an upcoming event that could disrupt their ongoing work, teams that had been working effectively may have responded to the news by adjusting their coordination mechanisms, whereas less effective teams may have given less attention to the news.

Contrary to prediction, there was no significant relationship between flux in coordination and coordination effectiveness during the pre-change period. It was theorized that flux in coordination could disrupt team coordination and performance because it takes time and effort to modify the established coordination mechanisms and to adjust to the modified mechanisms. One potential moderator of the relationship between flux in coordination and coordination effectiveness is the complexity of coordination mechanisms. In this study, teams developed relatively simple coordination mechanisms as they were working on a relatively simple task. As a result, it could have been fairly easy for teams to modify their coordination mechanisms and adjust to the modified system, which might have led to a null relationship between flux in coordination and coordination effectiveness during the pre-change period ($r = 0.04$, $p > 0.10$).

Contrary to Hypotheses 4 and 5, flux in coordination was not negatively or curvilinearly related to subsequent performance; it was not significantly related to change-period or post-change performance in any specification. Together with its association with Round 1 performance, this is consistent with the interpretation above: flux may be a characteristic of teams that were already effective rather than a cause of later performance. The following observations, made after examining the recordings, suggest a second possibility that future research could test directly.

It is also possible that some teams could perform better *because* they modified coordination mechanisms. After receiving the news of the upcoming change, several teams expressed concerns that they might fail to complete the task within a given time because passing the work from a departing member to a new member would take time. Some teams were even annoyed by the change because they liked each other and thought that they worked well as a team. From the perspective of staying members, working with a new member who joins a team in the middle of a project entails uncertainty. A new member may dislike their ideas, and they may then have to redo their work. During the pre-change period, some teams coped with the uncertainty by speeding up their work process and completing the task in the 10 min before the change occurred.

Other teams prepared newcomer onboarding by taking notes of team discussions and individual work. Although these teams only verbally discussed their work without sharing notes during the first two rounds, during the pre-change period, they took notes so that they could easily explain their ongoing work to a new member. These modifications during the pre-change period could have facilitated newcomer adjustment and thus helped teams perform better during the post-change period. In an exploratory analysis, newcomers reported marginally higher acceptance by staying members in teams that experienced more pre-change flux in coordination ($p = 0.050$), and this association remained marginal when prior performance was controlled. It is also possible that, through the process of modifying their coordination mechanisms, team members became more mindful about how the work is being done in a team and thus could better explain their ongoing work to a new member.

Lastly, in this study, membership change did not enhance or undermine team performance. Team performance remained largely constant over time. Teams with a good start tended to maintain their high performance until the end of the study despite the membership change, whereas teams with a poor start tended not to use membership change as a turning point to make a fresh start (Ericksen & Dyer, 2004).

5.2. Theoretical Contributions

This study extends the temporal framework of team membership change by examining the pre-change period. To understand the effects of team membership change on team performance, researchers have mainly investigated the post-change period, which is the time *after* a member leaves or joins a team. The present study complements this focus by investigating the pre-change period, which is likely to exist in many real-world cases of team membership change. Its main empirical finding is that coordination effectiveness declined between the announcement of a membership change and its implementation. Observer ratings also indicated that teams modified their coordination to varying degrees during this period. After learning about an upcoming change, members may modify their coordination mechanisms to deal with concurrent issues (e.g., a departing member's reduced commitment) and to prepare for expected future issues (e.g., helping a newcomer adjust quickly).

The study also distinguished change-period from post-change performance. Although the predicted effects of flux on performance were not observed, the distinction remains useful because the consequences of anticipatory coordination change may differ

before and after a newcomer joins. To understand why the effects of membership change on team performance vary, research has mainly examined static factors such as the network position and role of the member being replaced (Stuart, 2017; Stuart & Moore, 2017; see also Humphrey & Aime, 2014). The present findings suggest that the dynamics of the pre-change period are a further source of variation worth examining, although the data do not show that these dynamics account for differences in performance.

This research also contributes to social identity theory by pointing to boundary conditions of the anticipatory deidentification process of departing members (Ashforth, 2000). Contrary to the prediction, departing members' team identification did not decline after they learned that they would soon leave a team. The discussion above suggests that the quality of existing relationships, the voluntariness and perceived fairness of the departure, and departing members' post-exit plans may determine whether anticipatory deidentification occurs. When departing members have positive relationships with staying members, they may become more committed to their team during the pre-change period to savor the last moment with their teammates. When departing employees plan to change their career path significantly after exiting, they may instead disengage and focus on preparing for their post-exit career. To understand the extent to which an individual identifies with a team during the pre-change period, it is therefore not enough to consider whether the individual shares the team's goals at the moment; researchers also need to consider what the individual experienced before (e.g., the quality of relationships with teammates) and what will happen after the exit. Testing these conditions directly is a task for future research.

5.3. Practical Implications

Compared to team members, team leaders often have better access to information regarding membership change. As a result, leaders need to decide whether to share the news about upcoming membership change with their members or keep the news to themselves until the actual change. Some managers may consider hiding the news from their members to prevent members from being distracted by the change. The observation that some teams used the pre-change period to prepare for the newcomer suggests that advance notice may give teams an opportunity to prepare, a possibility that should be tested in designs that vary whether and when a change is announced. Hiding news about an upcoming change may also lower employees' trust in their leaders. Brockner et al. (1994) found that when supervisors explained the reason for layoffs and shared the news in advance with employees, layoff severity did not decrease downsizing survivors' trust in the organization.

5.4. Limitations and Future Research

The study has several limitations. First, the design does not include a no-announcement comparison condition. Changes between Round 2 and the pre-change measurement may reflect the announcement, but they may also reflect accumulated task experience, fatigue, or differences between rounds, including the fixed order of the video topics. Future studies should vary whether and when a membership change is announced. Second, departing members were excluded from the performance incentive. Anticipated departure is therefore confounded with reward exclusion and possibly with perceived unfairness, and changes in departing members' identification, motivation, and cooperation cannot be attributed to impending departure alone. In addition, no separate manipulation check was administered.

Third, identification and coordination effectiveness for the pre-change period were measured once, at the point of the change, so the study cannot show how these variables evolved within the pre-change period.

Fourth, because this research was an experimental study with a university student sample, it remains unknown whether real-world teams experience flux in coordination during the pre-change period of membership change. Future field research is needed to check whether real-world teams would also experience flux in coordination during the pre-change period.

Fifth, the duration of the experiment (i.e., two-hour-long) might have been too short for participants to develop team identification and stabilize coordination mechanisms. To theorize the effects of upcoming membership change on ongoing team processes, it was assumed that members had already developed a social identity based on their team membership and established coordination mechanisms before they learned about the upcoming change. In the study, teams were informed about the impending change approximately 50 min after the team was initially assembled. It is possible that if teams had a longer history of working together, members could have had even stronger team identification.

Finally, the current findings are specific to the type of team task used in the study and cannot be generalized to teams that work on different tasks. A relatively simple team task was used in this study so that teams could quickly develop and stabilize their coordination mechanisms. However, a relatively simple team task led participants to develop and rely on simple coordination mechanisms, which could have mitigated the potential negative shock of flux in coordination on team performance. Previous research showed that membership change could be a positive factor if a team engages in a creativity task (Choi & Thompson, 2005). Future work that uses various team tasks is needed to determine whether the effects of membership change on team performance may vary across task types.

Future research could build on these findings by testing a model of anticipatory reconfiguration, which the present results suggest but do not test. In such a model, the announcement of a membership change increases awareness and urgency; teams may respond with adaptive reconfiguration or disruptive churn; the form and quality of this response shape newcomer acceptance, coordination effectiveness, and subsequent performance; prior team performance and positive affect act as pre-existing capacities; and relationship quality, task complexity, perceived fairness, voluntariness of departure, and the length of advance notice serve as boundary conditions.

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