Closing the Psychological Distance: Effect of Social Interactions on Team Performance

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Abstract

Social interaction in workplaces fosters mutual understanding and narrows psychological distances between team members. We model this interdependence in team production with complementary efforts, examining how social interaction improves team performance. Our theoretical framework predicts that social interaction enhances performance by reducing the prosociality gap—the differences in how much teammates care about each other—among team members, with stronger effects in teams with higher effort complementarity and risk aversion. We tested these predictions in a pre-registered experiment with 74 two-person teams performing a collaborative typing task. Treatment teams engaged in a structured pre-task social interaction, while control teams worked individually. Results confirm that social interaction significantly reduced the prosociality gap and improved team performance. We find that the reduction in the prosociality gap mediates the effect of social interaction on performance improvement. Furthermore, emotional perceptiveness—the ability to accurately infer a teammate's feelings—emerged as a particularly strong and positive mediator of the effect of social interaction, facilitating convergence in prosociality between teammates. Moderation analyses demonstrated that these positive effects were stronger in same-gender teams and teams with higher risk aversion. Our findings contribute to the team effectiveness literature by identifying specific psychological mechanisms through which social interaction enhances performance, offering implications for team composition and management practices.

Keywords: team production, social interaction, prosociality, peer effects, emotional perceptiveness, lab experiment
JEL Classification: C72; C92; D91; M54; J24

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1 Introduction

In recent years, business leaders and global corporations have increasingly emphasized the crucial role of face-to-face social interaction in the workplace. When designing Pixar's headquarters, Steve Jobs famously arranged the space to maximize spontaneous encounters, believing that creativity emerges from informal conversations (Isaacson, 2011). Similarly, Google's Silicon Valley campus was deliberately designed to maximize "chance encounters" among employees (Waber et al., 2014).

This deliberate integration of social interaction into corporate culture extends beyond office architecture. Companies like Nike, Airbnb, and the LEGO Group organize employee sporting activities, events, and celebrations throughout the year, creating opportunities to share the core values of fun and learning.[1] These organizations prioritize building informal social communities within the workplace to enhance trust, belonging, innovation, and team performance.

Empirical evidence supports the positive impacts of workplace social interaction. Studies have documented enhanced team performance, increased job satisfaction, and improved creativity resulting from social exchanges among colleagues (Riordan and Griffeth, 1995; Hodson, 1997; Nielsen et al., 2000; Perry-Smith, 2006; Baer, 2010). Researchers have also demonstrated beneficial peer effects on productivity and mood (Johnson, 2008; Mas and Moretti, 2009; Volmer, 2012). Concepts such as "team altruism" and "team prosociality" have emerged as crucial factors that complement material motivations in driving collaborative success (Li et al., 2014).

However, social interactions can also generate negative outcomes. The reciprocal nature of human behavior suggests that interactions with less prosocial colleagues might decrease one's own prosociality (Rabin, 1993; Fehr and Schmidt, 1999), potentially creating negative peer effects. Studies have documented the contagious spread of problematic behaviors, including illegal drug use among professional athletes (Gould and Kaplan, 2011), financial misconduct among employees (Dimmock et al., 2018), and academic cheating among students (Carrell et al., 2008). This contagion extends to emotional states and behavioral tendencies, with research showing that greed, selfishness (Cardella et al., 2019), and dishonesty (Robert and Arnab, 2013) can spread through peer interactions.

This duality of outcomes highlights a significant research gap: while we know social interaction matters for team performance, the precise psychological mechanisms that determine whether such interaction leads to positive or negative outcomes remain underexplored. Specifically, how does social interaction influence prosociality among team members, and how does this in turn affect their performance on collaborative tasks?

This paper investigates how team performance is enhanced through social interaction among colleagues. By integrating theoretical modeling and laboratory experimentation, we develop and test a comprehensive framework explaining the psychological and behavioral mechanisms through which social interaction influences team outcomes.

We begin by developing a two-person model of team production with complementary efforts that incorporates reciprocal peer effects resulting from social interaction. Our model proposes that social interaction reduces the prosociality gap between team members through a convergence mechanism—increasing prosociality for less prosocial members while potentially decreasing it for more prosocial members. This convergence, in turn, affects individual effort allocation and overall team performance. Our theoretical analysis yields three key predictions: (1) social interaction necessarily increases the effort of less prosocial members. For more prosocial members, effort increases only when task complementarity is high, where the motivating influence of their teammate's increased effort outweighs the reduction in their prosociality caused by convergence; (2) social interaction necessarily enhances team performance, even when it reduces the effort of more prosocial members, and regardless of initial prosociality distributions; and (3) the positive effect of social interaction on team performance strengthens with greater effort complementarity and higher risk aversion among team members.

To test these predictions, we conducted a pre-registered laboratory experiment involving 74 two-person teams of university students. Treatment groups engaged in a 10-minute brainstorming exercise prior to the main task (constituting social interaction), while control groups completed the same brainstorming exercise individually without interaction. All teams then performed the SLAP typing task (hereafter SLAP task)—a collaborative computer-based activity specifically designed to measure team performance under conditions of high effort complementarity. Our primary hypotheses predicted that engaging in pre-task social interaction (via

[1] Ahrensbach, A. 5 reasons why community-building in the workplace is no longer a nice-to-have, but a business imperative. LinkedIn, Nov 8, 2022. Accessed March 31, 2025.
`https://www.linkedin.com/pulse/community-building-workplace-from-nice-have-business-ahrensbach`

joint brainstorming) would reduce the prosociality gap—the differences in teammates' mutual prosocial feelings measured immediately before the main task—and enhance team performance on the subsequent SLAP task.

The experimental results strongly support our hypotheses. Social interaction was found to reduce the prosociality gap between teammates and improve team performance by 14.4%. More importantly, mediation analyses revealed the underlying psychological mechanism: social interaction enhanced emotional perceptiveness—the ability to accurately predict teammates' prosociality—which in turn reduced the prosociality gap and improved performance. This sequential pathway accounted for a sizable portion of the overall effect. Furthermore, moderation analyses showed that the positive effect of social interaction on team performance was amplified in same-gender teams—where effort complementarity is plausibly higher due to lower communication barriers—and in teams with higher risk aversion, aligning with our theoretical predictions.

Our study makes three primary contributions. First, we develop a novel team production model that captures prosociality convergence through social interaction, providing clear theoretical predictions about how effort complementarity and risk aversion moderate the effects of social interaction on team performance. Second, we introduce the SLAP task, a methodological innovation that effectively captures effort complementarity in experimental settings, offering researchers a powerful tool for investigating team dynamics. Third, we empirically establish not only that social interaction improves team performance by reducing the prosociality gap, but also identify emotional perceptiveness as the critical psychological mechanism enabling this effect—a finding that supports and extends recent work on social perception in team effectiveness (Weidmann and Deming, 2021).

Our findings suggest that emotional alignment is a strategic asset in collaborative environments. Structured social interaction initiatives should be implemented during team formation, particularly for tasks requiring complementary efforts. Organizations should tailor social interaction strategies based on team composition, recognizing that same-gender and risk-averse teams may derive greater benefits. Additionally, fostering environments that enhance emotional perceptiveness can amplify the positive effects of social interaction on team performance.

The paper is organized as follows. Section 2 reviews related literature. Section 3 presents a theoretical model of how social interaction shapes team performance. Section 4 describes the experimental design and hypotheses. Section 5 presents the results and Section 6 concludes with implications.

2 Related Literature

In this section, we provide a thorough review of the literature related to various topics, including the influence of peers, the significance of communication and social interaction within organizations, and the economic theories of team production, emphasizing the importance of prosociality and reciprocity.

2.1 Peer Effects and Social Interaction in Teams

Research on teamwork has become increasingly central to understanding organizational effectiveness (Alchian and Demsetz, 1972; Kozlowski and Ilgen, 2006). Team members continuously influence each other through various peer effects. Mas and Moretti (2009) demonstrate that workers' productivity increases in the presence of more capable colleagues, with this effect strengthening as social interaction among coworkers deepens.[2] This finding aligns with our theoretical framework examining how social interaction affects team performance through peer influence mechanisms. Similarly, Jarosch et al. (2021) document how learning from coworkers improves individual productivity.

The emotional dimension of peer effects is particularly relevant to our investigation of prosociality alignment. Research on emotional contagion demonstrates that affective states spread bidirectionally between team members (Bakker et al., 2006; Westman, 2001). This contagion extends to behavioral tendencies, including both prosocial behaviors and negative behaviors such as selfishness (Cardella et al., 2019) and dishonesty (Robert and Arnab, 2013). These findings support our theoretical assumption that prosociality levels can converge through social interaction, with highly prosocial members potentially becoming less prosocial when interacting with low-prosocial teammates, and vice versa.

[2]A recent study using professional basketball data finds positive peer effects, where increased effort by one team member positively influences teammates' efforts, thereby enhancing overall team performance. This peer effect is amplified by existing social relationships among specific players, potentially supporting our assumption that social interaction strengthens positive peer influences (Guryan et al., 2023).

Social interaction through communication and relationship-building influences team cohesion and performance, though effects vary by team composition and context. Studies across various settings show that communication among team members fosters mutual understanding, which in turn affects performance outcomes (Büyükboyacı and Robbett, 2017; Marlow et al., 2018; Janardhanan et al., 2020; Battiston et al., 2021). Even in geographically dispersed teams, voluntary communication shapes coordination (Hinds and Mortensen, 2005). Van den Bulte and Moenaert (1998) found that co-location of functional teams accelerated product development—illustrating how physical proximity, by facilitating social interaction, can improve team performance in projects characterized by effort complementarity, as in our framework. Recent research highlights that not only the frequency but also the quality of team discussions significantly affects team performance. Aggarwal et al. (2022) show that greater discursive diversity within teams can enhance the innovativeness of ideas generated, though it may simultaneously reduce decision-making efficiency. Cooper et al. (2021) demonstrate that in situations where workers with heterogeneous abilities are paired, high-ability workers are more motivated to join teams when they have opportunities to teach their lower-ability teammates through communication, especially if they expect such teaching behavior to lead to future monetary gains. This indicates that the teaching-related social interaction generates expectations of increased future rewards, thereby enhancing motivation to participate in teams.

Our research extends this literature by examining how social interaction reduces differences in prosociality between team members through a convergence process involving both upward and downward adjustments in individual prosociality, particularly in contexts requiring complementary efforts. This bidirectional prosociality alignment mechanism represents a novel pathway through which social interaction influences team dynamics and performance.

2.2 Prosociality and Team Performance

The link between prosociality—the tendency to consider others' welfare—and team performance has been documented across various contexts. Li et al. (2014) demonstrate that prosocial orientations enhance team cooperation and trust, which in turn drive performance improvements. This aligns with our framework, though we extend it by examining not just average levels of prosociality but the distribution and alignment of prosocial tendencies within teams. Stevens et al. (2020) found that team altruism scores predict success in the National Hockey League better than individual skills—a finding that resonates with our focus on prosociality as a key determinant of team effectiveness.

Psychological safety—defined as a shared belief that a team environment permits interpersonal risk-taking—has been widely recognized as a key determinant of effective teamwork (Kahn, 1990; Edmondson, 1999; Carmeli et al., 2010). When team members perceive the environment as psychologically safe, they are more likely to engage openly and authentically with one another, facilitating deeper interpersonal understanding. Our finding that social interaction had a stronger impact on team performance in more risk-averse teams is consistent with the idea that risk-averse individuals benefit more from environments that feel socially safe.

Second, the interpersonal understanding facilitated by psychological safety aligns closely with the development of emotional perceptiveness—an individual's ability to accurately infer a teammate's feelings—which our study identifies as a key mechanism linking social interaction to improved team performance. In this sense, our findings suggest that the well-documented benefits of psychological safety may, at least in part, operate via enhanced emotional perceptiveness that promotes prosociality alignment within teams.

This interpretation resonates with recent evidence from Weidmann and Deming (2021), who demonstrate that successful 'team players' excel at reading others' emotional states, and that this ability substantially contributes to team success. Our experimental results not only complement this insight but also offer a more precise pathway: we show that social interaction enhances emotional perceptiveness, which in turn reduces the prosociality gap and boosts team performance.

2.3 Economics Theory and Experiments for Team Production

When team members are rewarded based on the team's collective output, the non-excludable nature of the rewards can incentivize individual members to under-contribute voluntarily, resulting in inefficient team per-

formance.[3] This feature is captured by the team production model, which is based on the theory of private provision of public goods pioneered by Bergstrom et al. (1986). While these basic team production models typically assume substitutable efforts among members, where team performance is often defined as the sum of individual contributions, our study maintains the public good nature of team performance but differs by considering complementary efforts.

There are many theoretical and experimental studies that demonstrate the importance of "social norms" based on prosociality (altruism) and reciprocity among team members for team efficiency (e.g., Fehr and Gachter, 2000; Fehr and Schmidt, 2006). Carpenter et al. (2009) demonstrate, through theory and experiments, that agents with unconditional altruism and reciprocity motives can achieve high levels of cooperation by willingly bearing costs to punish non-contributing members when reciprocity is strong. While we also assume the presence of agents with intrinsic prosociality, our focus is on the reciprocal effect among members brought about by social interaction. Baldassarri (2015) conducts a lab-in-the-field experiment in Uganda and shows that reciprocity among teammates is more important for promoting cooperative behavior than consideration for others such as altruism and group solidarity. Our research differs from theirs in that we consider the efficiency of team production with reciprocity as a two-way peer effect.[4]

2.4 Endogenous Altruism in Teams

While peer effects and team prosociality have been widely studied, few economic models explicitly consider how social interaction dynamically shapes prosociality among teammates. A pioneering contribution is Rotemberg (1994), who develops a model where agents derive utility not only from their own payoffs but also from their teammates', and where tasks exhibit strategic complementarity. He shows that under such conditions, committing to higher altruism becomes a rational strategy—a logic he summarizes as "complementarity breeds altruism." However, his model treats altruism as a strategic choice, rather than an evolving disposition influenced by interaction.

Levine (1998) introduces a more dynamic view of altruism, proposing that individuals' prosocial tendencies respond to the perceived altruism of others—a formulation of reciprocal altruism. In his model, an agent's willingness to act prosocially is not fixed but varies according to the characteristics of their interaction partner, especially the partner's level of altruism. This interaction is governed by fairness concerns: agents with stronger fairness preferences are more sensitive to the altruism levels of others, becoming more altruistic toward generous individuals and less so toward selfish ones. Supporting this view, Fehr and Schmidt (1999) provide both a formal model and experimental evidence that people care about fairness and are willing to sacrifice material payoffs to reduce inequity, especially when they feel unfairly treated.

Dur and Sol (2010) build on these ideas by introducing a multi-agent model in which intrinsic altruism develops through workplace social interaction. They show that workers can increase others' altruism toward them by providing attention—a form of effort that enhances interpersonal closeness. Their model highlights the malleable nature of prosocial dispositions and the role of relational dynamics in shaping them.

Our approach builds on these insights by modeling prosociality not as a strategic choice or an outcome of attention-seeking behavior, but as a trait that naturally converges between teammates through reciprocal peer influence. This formulation captures how team members' prosocial orientations can shift over time through repeated social engagement. We further extend this theoretical perspective by validating it empirically: our experimental findings show that social interaction reduces the prosociality gap through increased emotional perceptiveness, providing direct evidence of endogenous prosociality alignment in teams.

[3]There are many studies that use principal-agent theory, such as Lazear and Rosen (1981) and Holmström (1982), to consider the moral hazard problem in teams and the optimal compensation design under it, including studies by McAfee and McMillan (1991), Itoh (1991), Che and Yoo (2001), and Rayo (2007) among others. Our study focuses on the analysis of how social interaction affects the strategic effort decision of team members under a common reward based on team performance, so there is little relevance to studies using these contract-theory approaches.

[4]Regarding the examination of reciprocity between principals and agents, rather than among team members, Itoh (2004) considers agents' altruism and inequity aversion, Bassi et al. (2014) investigate reciprocal altruism between principal and agent, and Dur et al. (2010) analyze optimal incentive contracts for agents who reciprocate to the principal's attention.

3 Theoretical Framework

We develop a simple model of team production with two members whose efforts are complementary. The outcome from team production has the characteristics of a public good shared by both members. Each member may have different degrees of prosociality (altruistic preferences) toward their teammate and exhibit risk aversion regarding project failure. Under this framework, we analyze the effects of social interaction that reduces the prosociality gap between the members.

3.1 Model Setup

We consider a team production model where two members, indexed by $i = 1, 2$, exert efforts e_1 and e_2, respectively, to contribute to the success of a joint project. The project succeeds with probability $P \in [0, 1]$, which is given by:

$$P = e_1 + e_2 + \beta e_1 e_2,$$

where $\beta > 0$ captures the degree of complementarity in effort provision.[5] If the project succeeds, each member receives a reward $R_s > 0$; otherwise, they receive $R_f \geq 0$, where $R_s > R_f \geq 0$. We define the reward differential as $\Delta_R \equiv R_s - R_f > 0$. Each member incurs a personal effort cost given by $\frac{c}{2}e_i^2$, where $c > 0$ denotes the cost parameter.

Each member's utility consists of a materialistic component (comprising rewards and effort costs) and a psychological component (including prosociality towards the teammate and risk aversion to project failure).

The *materialistic* component of member i's utility, π_i, is given by expected monetary returns minus effort cost:

$$\pi_i(e_i, e_j) = PR_s + (1 - P)R_f - \frac{c}{2}e_i^2.$$

Then, the *psychological* utility of member i, u_i, is given by:

$$u_i = \pi_i + \phi_i(x)\pi_j - \gamma\Delta_R(1 - P),$$

where $\gamma \geq 0$ is the degree of risk aversion, $x \in [0, 1]$ is the level of social interaction between team members, and $\phi_i(\cdot) \in [0, 1]$ represents the degree of prosociality towards the teammate.

Regarding the relationship between social interaction and prosociality, we introduce the following key assumption:

Assumption (Prosociality Convergence)
Social interaction reduces the prosociality gap among team members, specifically $d|\phi_1 - \phi_2|/dx < 0$.

To formalize this assumption in our theoretical model, we consider, without loss of generality, the case where member 1 is more prosocial than member 2, i.e., $\phi_1(x) > \phi_2(x)$ for all $x < 1$ and $\phi_1(1) = \phi_2(1)$. We assume that the prosociality functions are differentiable, with $\phi_1'(x) < 0$ and $\phi_2'(x) > 0$, meaning that as social interaction x increases, member 1's prosociality decreases while member 2's prosociality increases. Additionally, we assume $\phi_1' = -\phi_2'$, implying that both members' prosociality levels change at exactly the same rate and converge to their average at $x = 1$.

For analytical simplicity, our model abstracts from the cost of social interaction itself. This is a reasonable simplification in contexts where such costs are negligible for team members or are absorbed by the organization.[6]

[5] This specification of effort complementarity in team production follows the framework used in Bose et al. (2010) and Hattori and Yamada (2020), who also model joint output as a function of both additive and multiplicative terms of individual efforts.

[6] Some organizational contexts naturally justify this assumption—for example, when the cost of social interaction is borne by the organization rather than by individual team members. These include expenditures on institutional arrangements that facilitate interaction, co-located workspaces, communal facilities (e.g., coffee areas, recreational spaces), company social events, or the opportunity costs of interaction time. Alternatively, one may consider environments in which social interaction is utility-neutral for team members—it brings neither burden nor joy—yet still generates peer effects that influence team dynamics and performance.

3.2 Nash Equilibrium

Each member i maximizes their psychological utility, u_i, with respect to e_i, taking e_j as given. The first-order condition is[7]:

$$\frac{\partial u_i}{\partial e_i} = \Delta_R(1+\beta e_j) - ce_i + \gamma\Delta_R(1+\beta e_j) + \phi_i\Delta_R(1+\beta e_j) = 0,$$

which gives the best response function of member i:

$$e_i = \frac{A_i(1+\beta e_j)}{c},$$

where $A_i \equiv \Delta_R(1+\phi_i(x)+\gamma) > 0$ for $i = 1, 2$. Note that given our assumption $\phi_1(x) > \phi_2(x)$ for all $x < 1$, it follows that $A_1 > A_2$ for all $x < 1$.

To ensure the local stability and existence of the Nash equilibrium of this simultaneous-effort-choice game, we assume

$$D \equiv c^2 - \beta^2 A_1 A_2 > 0.$$

This condition explicitly guarantees that the slopes of the two members' reaction functions are not too steep so that equilibrium is locally stable. In addition, To ensure analytical clarity, we assume the parameters are such that equilibrium outcomes remain within feasible bounds. In particular, we assume throughout that the equilibrium probability of project success satisfies $p^* \in [0, 1]$, thus guaranteeing the internal consistency of the model.

Solving each member's best-response conditions simultaneously yields equilibrium efforts explicitly as:

$$e_1^* = \frac{A_1(c+\beta A_2)}{D}, \quad e_2^* = \frac{A_2(c+\beta A_1)}{D}. \tag{1}$$

Hence, equilibrium success probability, which we hereafter refer to as *team performance*, becomes $P^* = e_1^* + e_2^* + \beta e_1^* e_2^*$.

3.3 The Impact of Social Interaction

We first investigate how social interaction affects the equilibrium effort of each member. Differentiating each member's equilibrium effort e_1^* and e_2^* with respect to x yields:

$$\frac{\partial e_1^*}{\partial x} = \frac{-A_1' c}{D^2}\left[\beta(c+\beta A_1)(A_1 - A_2) - (c^2 - \beta^2 A_1 A_2)\right] \tag{2}$$

$$\frac{\partial e_2^*}{\partial x} = \frac{-A_1' c}{D^2}[\beta(c+\beta A_2)(A_1 - A_2) + (c^2 - \beta^2 A_1 A_2)] > 0. \tag{3}$$

The detailed derivations are provided in Appendix A1. From equation (3), we find that social interaction necessarily increases the effort of the less prosocial member. In contrast, the effect on the more prosocial member's effort depends on the degree of asymmetry in prosociality and the strength of effort complementarity. Specifically. from equation (2), we can determine that $\frac{\partial e_1^*}{\partial x} \geq 0$ holds if and only if:

$$D \leq \beta(c+\beta A_1)(A_1 - A_2).$$

This condition becomes less likely to hold when A_1 and A_2 are close, implying that $\frac{\partial e_1^*}{\partial x} < 0$. However, when the asymmetry between A_1 and A_2 is sufficiently large and the effort complementarity parameter β is high, $\frac{\partial e_1^*}{\partial x} > 0$ becomes possible within the stable equilibrium range of $D \geq 0$.

This result reflects two opposing effects of social interaction on the more prosocial member's effort. While convergence reduces their own prosociality and motivation to contribute, their teammate's increased effort—induced by their rising prosociality through interaction—raises the marginal return to effort. When the prosociality gap and complementarity are both large, the positive effect can dominate; otherwise, the negative effect

[7]The second-order condition $\partial^2 u_i / \partial e_i^2 = -c < 0$ is satisfied, ensuring that the first-order condition yields a maximum.

prevails.

We now derive the effect of increased social interaction x on equilibrium team performance (success probability, P^*). After analyzing the components of P^* (see Appendix A2 for detailed derivations), we obtain the following result:

Result 1 (Performance Effect)
Social interaction increases team performance, specifically $\partial P^*/\partial x > 0$.

This result illustrates how prosociality convergence improves team performance through better effort balance. At first glance, if social interaction were to reduce the effort of the more prosocial member and increase that of the less prosocial one by an equal amount, the net effect on performance might appear neutral. But when a prosociality gap exists, it typically means that the less prosocial member is contributing less effort—creating a bottleneck in team performance due to complementarity. Social interaction raises the effort of this initially weaker contributor, directly addressing the team's main constraint. This rebalancing boosts the effectiveness of joint effort and leads to overall improvement. (Moreover, the decrease in the more prosocial member's effort is typically smaller than the increase in their teammate's effort—and in some cases, effort may even rise—further amplifying the performance gains.)

We next investigate the influence of members' risk aversion on equilibrium outcomes. Considering that $\partial A_1/\partial\gamma = \partial A_2/\partial\gamma = \Delta_R > 0$, from equation (1), we can observe that an increase in γ increases both members' equilibrium efforts by the same amount, thereby enhancing team performance.

We further analyze the moderating effect of members' risk aversion on how social interaction impacts team performance. We establish the following result (see Appendix A3 for proof):

Result 2 (Risk Aversion Moderation)
The higher the risk aversion of team members, the stronger the positive effect of social interaction on team performance, specifically, $\partial^2 P^*/\partial x\partial\gamma > 0$.

This result shows that social interaction is especially effective in teams composed of risk-averse members. Risk-averse members are more motivated to avoid project failure, leading them to contribute greater effort. When social interaction reduces differences in prosociality within a team, risk-averse members respond more strongly—further increasing their effort and improving team performance. How the risk preferences, along with other personality and behavioral traits, influence the effectiveness of social interaction will be systematically examined in our experimental analysis.

Finally, we investigate the influence of effort complementarity on equilibrium outcomes and its moderating effect on how social interaction impacts team performance. Considering that $\partial A_i/\partial\beta = 0$, $\partial e_i^*/\partial\beta = A_1A_2 > 0$, and $\partial D/\partial\beta > 0$, an increase in β raises both members' equilibrium efforts by the same amount, thereby enhancing team performance.

We establish the following result (proof in Appendix A4):

Result 3 (Complementarity Moderation)
The higher effort complementarity, the stronger the positive effect of social interaction on team performance, specifically, $\partial^2 P^*/\partial x\partial\beta > 0$.

Similar to the moderating effect of risk aversion, higher effort complementarity not only increases equilibrium effort levels and team performance directly, but also amplifies the positive impact of social interaction. Importantly, effort complementarity β is determined by both the inherent nature of the task and the compatibility of team members. Teams with effective communication patterns and mutual understanding likely exhibit higher complementarity than those without. Team composition factors such as gender homogeneity may also influence complementarity—same-gender teams might experience smoother communication and coordination than mixed-gender teams, potentially resulting in higher β values. These aspects of team diversity and their relationship to effort complementarity will be systematically examined in our experimental investigation.

To summarize our theoretical findings, we have established two key results regarding the impact of social interaction on team performance. First, social interaction that reduces the prosociality gap between members unambiguously enhances equilibrium team performance. Second, this beneficial effect of social interaction is amplified by higher team risk aversion and greater effort complementarity. These predictions, along with the testable assumption that social interaction reduces prosociality gap, form the basis of our empirical validation in a tightly controlled lab setting.

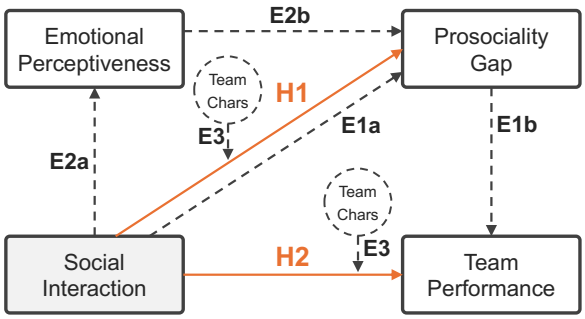

Figure 1: Conceptual Model of Hypothesized Relationships and Exploratory Analyses

Note: H1 and H2 represent the main hypotheses; E1, E2, and E3 represent exploratory analyses. Team Chars refers to team gender diversity, personality traits, and team roles and behaviors. E1a and E1b collectively represent the mediation analysis of social interaction's effect on team performance through prosociality gap. Similarly, E2a and E2b represent the mediation analysis of social interaction's effect on prosociality gap through emotional perceptiveness. E3 represents the moderation effect of team characteristics on H1 and H2.

4 Experimental Design and Methods

Our theoretical framework developed in the previous section provides testable predictions about how social interaction within teams affects the prosociality of members and, consequently, team performance. To test these predictions, we conducted a randomized controlled laboratory experiment where teams of two previously unacquainted individuals were assigned either to a social interaction condition or a control condition, and their performance on a collaborative keyboard typing task was subsequently compared. This section presents our hypotheses and experimental design.

4.1 Hypotheses

We begin with two pre-registered main hypotheses derived from our theoretical model. We then introduce exploratory analyses—some pre-registered and others developed during the study—that examine the underlying mechanisms and boundary conditions of the effects of social interaction. These are summarized in Figure 1.

4.1.1 Main Hypotheses

Building directly on our theoretical framework, we formulate two pre-registered main hypotheses testing key model predictions.

Hypothesis 1 (Reduction in Prosociality Gap)
Social interaction reduces the prosociality gap among team members.

This hypothesis (H1) directly tests Assumption (Prosociality Convergence) in our theoretical analysis. Specifically, we predict that teams that engage in social interaction (the Treatment group) will have a smaller gap in prosociality within the team compared to teams that do not engage in social interaction (the Control group).

Hypothesis 2 (Enhancement of Team Performance)
Social interaction increases team performance.

This hypothesis (H2) corresponds to Result 1 (Performance Effect) in our theoretical analysis. Specifically, we predict that the Treatment group will have higher team performance ($maximum\_score$) in the SLAP typing task compared to the Control group.

In addition to testing our main hypotheses (H1 and H2), we conduct several exploratory analyses to further understand the mechanisms and boundary conditions of the effects of social interaction on team members' emotional connection, emotional perception, and team performance.

Exploratory Analysis 1 (Mediating Role of Prosociality Gap)
Social interaction enhances team performance through the reduction in the prosociality gap.

This exploratory hypothesis (E1) naturally extends from H1 and H2 and is directly derived from our theoretical framework. By testing this mediation effect, we can determine the extent to which social interaction's positive impact on team performance is specifically channeled through the reduction in the prosociality gap among team members.

Exploratory Analysis 2 (Mediating Role of Emotional Perceptiveness)
Social interaction reduces prosociality gap through enhanced emotional perceptiveness among team members.

This exploratory analysis (E2) investigates the psychological mechanisms underlying how social interaction reduces prosociality gap within teams. We examine whether social interaction enhances emotional perceptiveness between team members, which in turn leads to smaller prosociality gap. We define emotional perceptiveness as the ability to accurately perceive others' prosocial attitudes. We operationalize this concept as *prosociality_prediction_error*, where lower values indicate higher emotional perceptiveness, specifically in predicting teammates' prosocial tendencies. The precise definition and measurement of this variable will be detailed in the next subsection.

Exploratory Analysis 3 (Moderating Role of Team Characteristics)
Social interaction affects prosociality gap and team performance depending on team characteristics.

This exploratory hypothesis (E3) examines how the effects predicted in H1 and H2 might vary across different team compositions and personality traits of members. It is closely related to our theoretical findings in Result 2 (Risk Aversion Moderation) and Result 3 (Complementarity Moderation), which suggest that risk aversion (γ) and effort complementarity (β) moderate the effects of social interaction. In our empirical analysis, we extend beyond risk aversion to explore how various personality traits and team compositions might influence the effectiveness of social interaction.

4.2 Experimental Design

4.2.1 Registration and Ethical Approval

The experiment was preregistered with the American Economic Association RCT Registry (AEARCTR-0013209). This preregistration process ensures scientific rigor and transparency in the research design before the commencement of data collection. The experiment also received approval from the Research Ethics Committee of Aoyama Gakuin University with the approval ID: 23-NR-008. The study was conducted in strict adherence to the university's ethical guidelines, particularly focusing on ensuring participants' anonymity and informed consent.

4.2.2 Participants and Recruitment

Participants were recruited through voluntary participation among students enrolled in the "Experimenting with Human Behavior" lecture conducted by the primary investigator at his university. The lecture is open to undergraduate students in all years and departments of the university. Among the participants, 65% were female, and the mean age was 18.38 years ($SD = 0.862$). Forty pairs (each pair consisting of two participants) were assigned to each group, and the experiment was conducted in two sessions with different pairings. An overview of participant demographics, including gender distribution, age, and academic background, is presented in Table B1 in the Appendix B1.

Our sample size was designed to detect a large effect size (Cohen's $d = 0.8$) with a significance level of 0.05 and a power of 0.95. This decision was made pragmatically, considering the absence of prior research or pilot studies to guide our effect size estimation.

4.2.3 Procedure

The experiment consisted of six main stages: (1) random assignment and pre-surveys, (2) team role behavior assessment, (3) experimental intervention, (4) team bonding measures, (5) the SLAP task, and (6) post-task assessments followed by a second round with reassigned teammates.

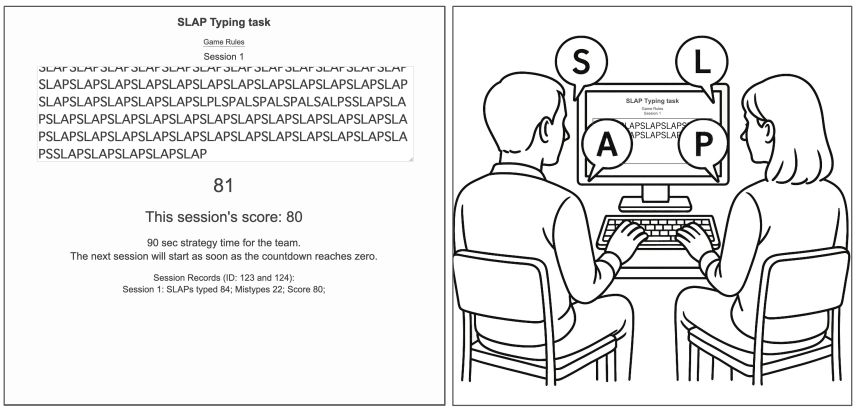

Figure 2: SLAP Typing Task Setup and Visualization

Note: The left panel shows an actual screenshot of the SLAP typing task interface. The right panel illustrates the physical setup of team members during the task, created using ChatGPT (OpenAI, 2023) and modified by the authors. In this collaborating typing task, one member (ID1) is responsible for the 'S' and 'A' keys, while the other member (ID2) is responsible for the 'L' and 'P' keys. Team members must coordinate their actions to type `SLAP` as many times as possible within the given time limit.

Participants ($N = 80$) were randomly paired into 40 teams and assigned to either the control condition (No Social Interaction; NSI) or the treatment condition (Social Interaction; SI). All participants first reported their age and gender, and whether they had any prior acquaintance with their assigned teammate, then completed 7-point Likert-scale assessments of personality traits (e.g., altruism, risk-taking propensity, and competitiveness) as well as three teamwork tendencies: opinion sharing, supportiveness, and leadership tendencies.[8] For the experimental intervention, the SI group engaged in a 10-minute brainstorming exercise with their teammate on workplace collaboration topics, while the NSI group engaged in the same exercise individually without any interaction with their teammate.

Following the intervention, we measured team bonding outcomes, including perceived closeness and prosociality toward their teammate. These measures allowed us to compute the prosociality gap—a key variable for testing Hypothesis 1. Next, teams completed the SLAP typing task, a collaborative typing task requiring high effort complementarity across three timed sessions (see Figure 2 and Section 4.2.5 for details). Team performance was recorded as both the average and the maximum score across sessions, with monetary incentives awarded to the highest-scoring team in each experimental condition.

After the task, participants completed a post-task survey measuring their perceptions of the team experience, including cohesion, enjoyment, and the quantity and quality of communication. The entire procedure was then repeated in a second round, during which participants were reassigned to new teammates within the same condition and given new discussion prompts. All other experimental procedures were held constant across rounds. Detailed procedural steps and the full set of survey instruments are provided in Appendix B2, and definitions of all measured variables are provided in Tables B2 and B3 in Appendix B1.

The experiment was conducted on April 19, 2024. Participants received partial course credit, with additional monetary incentives for high performance on the SLAP task. All statistical analyses were conducted using STATA, as specified in our pre-registration. The English and original Japanese versions of the survey questionnaire are available in Appendixes B3 and B4.

4.2.4 Measurement of Prosociality and Team Bonding

Following the experimental intervention, we measured team bonding metrics with a focus on prosociality. These assessments were conducted immediately before the SLAP task to capture participants' attitudes toward the upcoming collaborative activity.

[8]The personality trait measures were adapted from established scales in the literature. The altruism and risk-taking measures were based on Falk et al. (2023), competitiveness was measured following Fallucchi et al. (2020), and reciprocity was assessed using items from Perugini et al. (2003).

We measured prosociality using a method similar to the Visual Analogue Scale (VAS). Before responding to the Team Bonding Metrics, participants were explicitly informed that their responses should reflect their feelings toward their teammate in the context of the upcoming cooperative task, in which they would jointly perform a computer-based activity with potential monetary rewards. Participants then marked a vertical line on a 100-mm visual analogue scale to indicate their level of prosociality, addressing two key questions:

(1) "Are you more motivated to engage in this task for your own reward or for the benefit of your teammate?" This assessed each member's prosociality towards their teammate. We denote the prosociality level of Member 1 towards Member 2 as $prosociality_1$, and that of Member 2 towards Member 1 as $prosociality_2$. These variables correspond to ϕ_1 and ϕ_2, respectively, in our theoretical model.

(2) "Do you imagine that your teammate is more motivated to engage in this task for their own reward or for your benefit?" This question asked each member to predict their teammate's response to question (1). We denote Member 1's prediction of $prosociality_2$ as $expected\_prosociality_1$, and Member 2's prediction of $prosociality_1$ as $expected\_prosociality_2$.

Based on these measurements, we defined three key variables at the team level:

1. *prosociality*: The average prosociality of the two team members.

2. *prosociality_gap*: The absolute difference in prosociality between team members, corresponding to $|\phi_1 - \phi_2|$ in our theoretical model.

3. *prosociality_prediction_error* (hereafter *PPE*): The average error in predicting one's teammate's prosociality, calculated as

$$\frac{(|expected\_prosociality_1 - prosociality_2| + |expected\_prosociality_2 - prosociality_1|)}{2}.$$

This variable *PPE* operationalizes the concept of emotional perceptiveness—the ability to accurately gauge a teammate's prosocial tendencies. Lower *PPE* values indicate higher emotional perceptiveness, reflecting greater mutual understanding between teammates. Following Weidmann and Deming (2021), who found that the ability to perceive others' attitudes is critical for effective teamwork, we explore *PPE* as a potential mediator linking social interaction and the prosociality gap.

While an individual's prosocial sentiment toward their teammate ($prosociality_i$) and their trait-level altruism ($altruism_i$) may appear conceptually similar, they are empirically distinct: our correlation analysis shows only weak associations between the two (Table B6 in Appendix B1). Furthermore, $prosociality_i$ was not meaningfully correlated with PPE_i, suggesting that the ability to accurately infer a teammate's prosociality toward oneself is independent of one's own prosociality toward the teammate.

We also measured perceived closeness between teammates using a similar VAS approach, where participants indicated how close they felt to their teammate. This measure served as an additional team bonding metric to help understand the psychological effects of social interaction.

4.2.5 SLAP Typing Task Design and Performance Metrics

To empirically isolate the effect of complementary effort on team outcomes—distinct from individual ability or dominance effects—we developed the SLAP typing task as a novel cooperative real-effort paradigm.

A significant limitation in many existing team performance tasks is their vulnerability to individual dominance effects. Examples include group quizzes, business plan presentations, flight simulations, and classroom group work evaluations. Despite their intention to measure team performance, such tasks often allow a single high-ability member to drive overall success, reflecting the substitutability of team members' efforts rather than their interdependence.

The SLAP task, introduced in Hattori (2024), was specifically designed to capture the essence of complementary effort in teamwork as conceptualized in our theoretical model.[9] It also implements key elements of

[9]The SLAP task was developed specifically for this study as a novel experimental paradigm to measure complementary effort in team settings. It was inspired by the AB-typing task, an established real-effort paradigm where individuals alternately type `AB`

team processes proposed by Marks et al. (2001), incorporating transition processes (strategy discussions), action processes (coordinated typing), and interpersonal processes (communication and mutual understanding).

In this task, two team members share a single computer keyboard. As shown in Figure 2, one member (ID1) sits on the left side of the keyboard and is responsible for the S and A keys, while the other member (ID2) sits on the right side of the keyboard and is responsible for the L and P keys. Participants aim to type the word `SLAP` as many times as possible within the time limit by alternately pressing these keys in sequence.

The SLAP task embodies high effort complementarity (higher β) in several important ways. First, it requires precise alternating keystrokes between teammates—if either member fails to contribute adequately, the team's score will suffer significantly. Second, performance depends less on individual typing ability and more on coordination, synchronization, and effective communication. The multidimensional approach allows the SLAP task to capture the dynamic aspects of teamwork beyond mere typing skill, closely aligning with our theoretical conceptualization of complementary tasks where each member's contribution is essential for team success.

Teams performed three 60-second typing sessions, with 90-second strategy periods between sessions. During these strategy periods, teammates could discuss their approach and coordination techniques. Before beginning, participants received a brief explanation and demonstration by the instructor. No practice sessions were provided to avoid unintended social interaction that might dilute the experimental treatment effects.

For each session, teams earned a score based on the number of correctly typed `SLAP` sequences, with a penalty of 1 point deducted for every 5 mistyped characters. We calculated two performance metrics: (1) *average_score*, the mean score across all three sessions, and (2) *maximum_score*, the highest score achieved in any single session. The *maximum_score* served as our primary performance metric for testing Hypothesis 2, corresponding to the variable P^* in our theoretical model.[10]

To motivate performance, we provided monetary incentives based on *maximum_score*. In both the control and treatment groups, the team with the highest *maximum_score* received an incentive of 2,000 yen (approximately 13 U.S. dollars, or 6.5 U.S. dollars per member).[11] These incentives were awarded to one team from each experimental group (two teams total).

5 Results

In this section, we present the results of our experimental study, analyzing the effects of social interaction on the prosociality gap and team performance. We begin with data preprocessing procedures and randomization checks, followed by the main hypothesis tests examining whether social interaction reduces the prosociality gap (H1) and enhances team performance (H2). We then explore the underlying mechanisms through mediation analyses examining whether the prosociality gap mediates the relationship between social interaction and team performance (E1) and whether emotional perceptiveness mediates the relationship between social interaction and the prosociality gap (E3). Finally, we investigate how team characteristics such as gender composition and risk preferences moderate the effects of social interaction (E2).

5.1 Preliminary Analyses

Prior to analysis, we implemented specific procedures for data cleaning and preprocessing as pre-registered. This included removing two teams from the control group due to one participant's clear non-compliance with

sequences under time constraints (used in studies such as Amir and Ariely, 2008; Berger and Pope, 2011; DellaVigna and Pope. 2022; Lewis et al., 2023). While the AB-typing task measures individual real effort, the SLAP task extends this concept to a cooperative setting requiring synchronized inputs from multiple team members. The task offers several methodological advantages: it requires minimal resources (a single computer per team), captures multiple performance metrics (maximum and average scores across sessions, error rates, performance trajectories), and automatically records potential instances of cheating (e.g., copy-paste actions) without participants' awareness, making it applicable to research on ethical behavior in teams. The task is implemented in JavaScript, allowing for offline use (though without the automatic data transmission functionality), and is freely available for academic research at `https://github.com/httrksk/slaptyping`. For usage conditions and technical specifications, see Hattori (2024).

[10] Score distributions and learning curves across sessions are presented in Figure B4 of Appendix B1. While we observed mild improvement across the three sessions, these changes were small and not statistically significant.

[11] Incentives were based on the highest score achieved across the three sessions, rather than the average score, to maintain team motivation even if they had one low-scoring session.

task instructions during the SLAP task, reducing the total sample size from 80 to 78.[12] Additionally, based on responses to the *prior_interaction*$_i$ item in the survey, we excluded all teams whose members indicated any prior acquaintance other than "first meeting." As a result, the final sample consisted of 74 participants—35 in the control group and 39 in the treatment group.

Next, we defined a "filtered sample" by excluding teams that recorded negative scores in any of the three sessions.[13] This filtered sample ($N = 64$; 31 Control, 33 Treatment) was used for specific analyses, particularly when comparing average team performance (*average_score*) between groups, to mitigate the impact of extreme outliers. For analyses using *maximum_score* as the performance indicator, we retained the full sample ($N = 74$), as occasional negative scores may reflect rational trial-and-error in team dynamics. A detailed analysis of learning curves (i.e., session-by-session analysis of team performance) is provided in Figure B4 of Appendix B1, which further demonstrates the appropriateness of using the filtered sample for analyses of average performance.

Table B4 in Appendix B1 presents summary statistics for key team-level variables used in our analyses, including prosociality measures and team performance metrics.[14] The data show substantial variation in prosociality levels and team performance, providing sufficient variance to test our hypotheses. The prosociality gap between team members ranges from 0 to 95 points (on a 100-point scale), suggesting meaningful differences in prosocial motivations within teams. Similarly, team performance scores (*maximum_score*) vary widely from 28 to 82, indicating varying levels of coordination success. In Appendix B1, Figures B1 and B2 present the distributions of *prosociality_gap* and *maximum_score* across experimental conditions, respectively, while Figure B3 illustrates their overall association.

We confirmed both randomization success and the conceptual independence of key team-level constructs using baseline balance checks (including robustness checks by round) and polychoric correlation analyses (see Tables B7–B11 in Appendix B1). No significant differences in demographic or personality traits were found between control and treatment groups, and all correlation coefficients remained below 0.7 across the full sample as well as within same- and mixed-gender teams, supporting the construct distinctiveness of these measures (Shrestha, 2020).

5.2 Testing Main Hypotheses (H1 and H2)

We begin by conducting simple inter-group comparisons of outcome variables based on the presence or absence of social interaction as a hypothesis-testing analysis. Table 1 presents the means, standard deviations, p-values for inter-group comparisons, and effect sizes for the primary outcome measures: (i) team bonding metrics, (ii) SLAP task performance metrics, and (iii) perceived teamwork metrics, for the control group (NSI) and the treatment group (SI).

For the hypothesis-driven tests, H1 and H2 (the effect of social interaction on the prosociality gap and maximum score), adjusted p-values (p_{adj}) were calculated using the Bonferroni correction. For exploratory tests, unadjusted p-values are presented. Inter-group comparisons for (i) Team Bonding Metrics and (ii) SLAP Task Performance Metrics were conducted using Welch's t-test, while (iii) Perceived Teamwork Metrics was evaluated using the Wilcoxon rank-sum (Mann-Whitney) test. Effect sizes are reported as Cohen's d for Welch's t-test and r for the Wilcoxon rank-sum test.[15]

The following results related to the hypotheses can be derived from Table 1:

1. Social interaction significantly reduces the prosociality gap ($p_{adj} = .004$, Cohen's $d = 0.763$). Specifically, we observed a substantial 42.4% reduction in the prosociality gap between team members in the treat-

[12] One participant was excluded for using input behaviors resembling copy-paste shortcuts during the SLAP task, despite prior verbal instructions to engage in coordinated typing. This behavior was detected through a built-in logging feature and resulted in unrealistically high team scores in both rounds. The teams involving this participant were also disqualified from receiving the performance-based bonus.

[13] In the SLAP task, one point is deducted from the session score (represented by the number of accurately entered `SLAP`) for every five mistyped characters. Thus, a negative score would only occur if the team members deliberately and haphazardly pressed keys in an attempt to achieve a high score through an extremely low-probability coincidence. During the demonstration of the SLAP task by the instructor, participants were shown that such disorderly key-pressing has no possibility of yielding high scores. The presence of these extreme negative scores is evident in the summary statistics for team-level variables (see Table B4 in Appendix B1, specifically the minimum values for *score_session* variables).

[14] The full set of descriptive statistics for individual-level variables is available in Table B5 in Appendix B1.

[15] In this study, each group had a sample size ranging from 35 to 39. Based on the Central Limit Theorem, Welch's t-test was deemed appropriate despite potential deviations from normality. Additionally, Welch's t-test was used because it does not assume equal variances between groups.

Table 1: Comparison of Control (NSI) and Treatment (SI) Groups

	Control (NSI)		Treatment (SI)		Comparison (NSI vs. SI)	
	Mean	SD	Mean	SD	p-value	Effect size
(i) Team Bonding Metrics						
closeness	37.414	18.978	61.962	15.605	.000**	1.413
closeness_gap	26.771	21.589	20.487	18.102	.182	0.315
prosociality	44.771	20.421	56.410	14.665	.007***	0.655
prosociality_gap†	39.143	25.470	22.564	17.158	.002***	0.763
					(adj = .004***)	
prosociality_prediction_error	37.929	20.660	21.538	13.028	.000***	0.949
(ii) SLAP Task Performance Metrics						
average_score	34.876	13.804	39.658	19.494	.224	0.283
average_score_filtered	38.516	8.154	45.667	14.119	.016**	0.620
maximum_score†	45.886	9.667	52.487	13.479	.017**	0.563
					(adj = .034**)	
maximum_score_filtered	45.903	7.240	53.303	14.393	.012**	0.650
(iii) Perceived Teamwork Metrics						
frequent_interaction	7.500	1.741	8.359	1.164	.025**	0.261
meaningful_conversation	7.343	1.748	8.154	1.309	.036**	0.244
quick_problem_solving	6.371	2.224	7.128	1.681	.164	0.162
task_enjoyment	8.557	1.575	8.808	1.024	.838	0.024
team_cohesion	7.729	1.892	8.218	1.140	.509	0.077

Note: (1) In the table, † on the variable indicates hypothesis-driven tests. Adjusted p-values (p_{adj}) for the hypothesis-driven tests (the effects of social interaction on prosociality gap and maximum score) were calculated by multiplying the original p-values by 2, following the Bonferroni correction. (2) For exploratory tests, unadjusted p-values are presented. (3) Inter-group comparisons for (i) and (ii) were conducted using the Welch test, while (iii) was evaluated using the Wilcoxon rank-sum (Mann-Whitney) test. Effect sizes are reported as Cohen's d for the Welch test and r for the Wilcoxon rank-sum (Mann-Whitney) test. Significance levels: * $p < .10$, ** $p < .05$, *** $p < .01$.

ment group compared to the control group (from 39.143 to 22.564). Therefore, Hypothesis 1 is strongly supported.

2. Social interaction significantly enhances the team's maximum score ($p_{adj} = .034$, $d = 0.563$). The treatment group showed a 14.4% increase in maximum score compared to the control group (from 45.886 to 52.487). In the filtered sample, the average score is significantly higher ($p = .016$, $d = 0.620$), with an 18.6% improvement (from 38.516 to 45.667) and the maximum score is also significantly higher ($p = .012$, $d = 0.650$), with an 16.1% improvement (from 45.903 to 53.303). Therefore, Hypothesis 2 is also robustly supported.

These results not only demonstrate statistical significance but also highlight the practical importance of social interaction in reducing the prosociality gap among team members and in enhancing team performance. The observed effect sizes (ranging from 0.563 to 0.763 for our primary hypotheses) fall within the medium to large range, suggesting that social interaction has a substantial impact on both the prosociality gap among team members and team performance.[16] The treatment effects remain robust across different model specifications (see Table B12 in Appendix B1).

We next examine the inter-group differences in secondary outcomes. We find the following results:

1. Social interaction significantly increases the level of closeness ($p < .001$, $d = 1.413$) and prosociality ($p = .007$, $d = 0.655$) among team members, but no effect is observed in reducing the closeness gap.

2. Perceived teamwork metrics reveals that teams that engaged in social interaction had significantly higher

[16]In our sample size design, we aimed to detect a large effect size (Cohen's $d = 0.8$) due to the absence of prior research. The observed effect sizes align well with our expectations and provide valuable insights given the novelty of this research area.

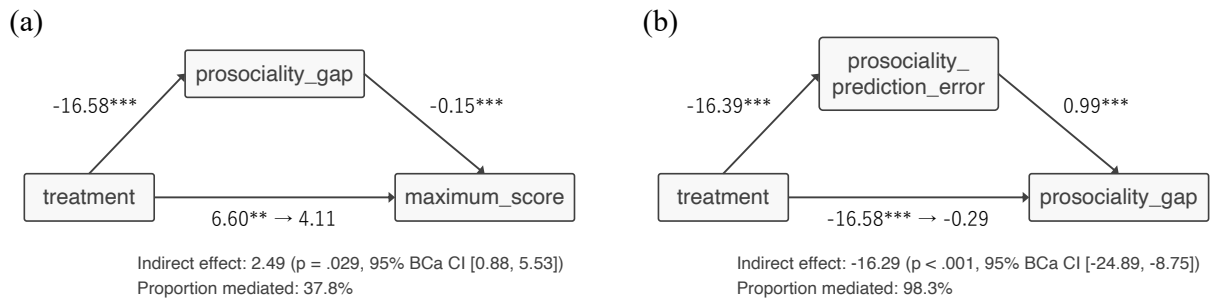

Figure 3: Mediation Models of Social Interaction Effects on Team Performance and Prosociality Gap

Note. (a) Mediating role of *prosociality_gap* in the effect of social interaction on *maximum_score*. (b) Mediating role of *prosociality_prediction_error* in the effect of social interaction on *prosociality_gap*. Path coefficients are unstandardized. Robust standard errors were used to account for heteroskedasticity. Significance levels: * $p < .10$, ** $p < .05$, *** $p < .01$.

quantity (*frequent_interaction*) and quality of communication (*meaningful_conversation*) compared to the control group ($p < .05$).

These results demonstrate that social interaction, as pre-registered hypotheses, reduces the prosociality gap among team members and enhances team performance. Moreover, social interaction also increases the level of closeness and prosociality among team members[17] and improves the quantity and quality of communication.

In supplementary analyses, we examined how the effects of social interaction unfold over time. Descriptive patterns in average team performance across sessions are shown in Figure B5 in Appendix B1. As shown in the figure, treatment teams performed significantly better than control teams in Round 2. Formal analyses of treatment effects across rounds (Table B13) reveal that participants in the treatment group exhibited significantly greater reductions in the prosociality gap than those in the control group, with the effect becoming stronger in Round 2. This suggests that participants developed and refined skills for aligning prosociality through repeated interaction. Importantly, these skills appear to be portable and transferable: when paired with new teammates in Round 2—who differed from their original partners—participants were able to apply these internalized skills to reduce a larger gap and improve coordination. This, in turn, likely drove the significant performance gains observed at that stage.[18]

5.3 Mediation Analysis: Prosociality Gap (E1)

Building upon our main hypotheses, we now turn to our first exploratory analysis (E1a and E1b, as outlined in Figure 1) to further investigate the mechanisms underlying the effect of social interaction on team performance. This analysis aimed to examine whether the reduction in the prosociality gap among team members mediates the relationship between social interaction and enhanced team performance.

As shown in panel (a) of Figure 3 and Table B15, the total effect of social interaction on maximum score was significant ($b = 6.601$, $p = .015$). Social interaction significantly reduced the prosociality gap ($b = -16.579$, $p = .001$), and reduced the prosociality gap was associated with higher maximum scores ($b = -0.150$, $p = .003$). Both the Sobel test and bootstrapping procedures confirmed the significance of the indirect effect ($b = 2.494$,

[17]Interestingly, our findings show that social interaction not only reduces the prosociality gap but also significantly increases the average prosociality level within teams. This suggests that in our context, interpersonal prosociality contagion tends to converge towards higher levels, contrasting with some previous studies such as Dimant (2019) which found antisocial behavior to be more contagious than prosocial behavior among peers. This observation provides an optimistic perspective on the potential of social interaction to foster more prosocial work environments.

[18]One potential alternative explanation for the observed Round 2 performance gains is that some participants were simply paired with better teammates. However, team reassignment was randomized within each condition, making such systematic improvements in match quality unlikely. Another possibility is that improvements resulted from increased task familiarity. Yet, performance among control group members remained flat across rounds, suggesting that task-specific learning alone cannot explain the treatment effect. The persistence and even strengthening of the prosociality gap reductions across new team pairings point instead to a transfer of alignment skills internalized at the individual level. Table B14 in Appendix B1 presents additional robustness checks for the treatment effect on score volatility and growth.

$p = .029$, 95% BCa CI [0.875, 5.531]), indicating that *prosociality_gap* fully mediates the relationship between social interaction and *maximum_score*. The proportion of the total effect mediated was 37.8%, indicating that over one-third of the effect of social interaction on team performance can be explained by the reduction in the prosociality gap. Detailed results of this mediation analysis are presented in Table B15 in Appendix B1.[19]

Further mediation analyses were conducted to examine whether *closeness*, *closeness_gap*, and *prosociality*, in addition to *prosociality_gap*, serve as significant mediators of the treatment effect on team performance. As shown in Table B16 in Appendix B1, the reduction in the prosociality gap was the primary and only significant positive mediator for the effect of social interaction on team performance. Notably, while social interaction significantly increased both the average level of closeness and the average level of prosociality among team members, our analyses revealed that these increases may actually hinder rather than enhance team performance, as indicated by their marginally significant negative mediation effects. This finding strongly suggests that the reduction in the prosociality gap, rather than merely increasing overall prosociality or closeness, is crucial for enhancing team performance.

5.4 Mediation Analysis: Emotional Perceptiveness (E2)

Following our examination of the prosociality gap's mediating role, we now turn to our second exploratory analysis (E2a and E2b, as illustrated in Figure 1). This analysis investigates the underlying mechanism of how social interaction affects the prosociality gap, focusing on the role of emotional perceptiveness.

In this context, we operationalize emotional perceptiveness as the accuracy with which team members can predict each other's prosociality levels. Specifically, we use *prosociality_prediction_error* as our measure, where lower values indicate higher emotional perceptiveness. This measure captures how accurately a team member can infer their teammate's prosocial tendencies toward them, as explained in Section 4.2.4.

To examine this mediating relationship, we conducted a mediation analysis investigating whether *prosociality_prediction_error* mediates the effect of *treatment* on *prosociality_gap*. As shown in panel (b) of Figure 3, the total effect of social interaction on the prosociality gap was significant ($b = -16.579$, $p = .001$). Social interaction significantly reduced the prosociality prediction error ($b = -16.390$, $p < .001$), and reduced the prediction error was strongly associated with smaller prosociality gap ($b = 0.994$, $p < .001$). The direct effect of social interaction on prosociality gap became non-significant when prosociality prediction error was included in the model ($b = -0.286$, $p = .926$). Both the Sobel test and bootstrapping procedures confirmed the significance of the indirect effect ($b = -16.293$, $p < .001$, 95% BCa CI [-24.893, -8.750]), indicating that prosociality prediction error fully mediates the relationship between social interaction and prosociality gap. The proportion of the total effect mediated was 98.3%, suggesting an almost complete mediation. Detailed results of this mediation analysis are presented in Table B17 in Appendix B1.[20]

Our mediation analyses reveal a remarkable finding: social interaction significantly reduces prosociality gap by improving team members' ability to accurately predict each other's prosociality levels—with this mechanism explaining an extraordinary 98.3% of the total effect. The identified causal chain is clear and compelling: social interaction enhances emotional perceptiveness, which directly leads to more aligned prosociality within teams, which ultimately improves team performance. The strength of this mediation effect suggests that accurately perceiving teammates' prosocial tendencies is not merely one factor among many, but rather the critical psychological process underlying successful social interaction in teams.

To further investigate the complete causal chain from social interaction to team performance through emotional perceptiveness and prosociality gap, we conducted a serial mediation analysis (Figure B6 in Appendix B1). Results confirmed a significant sequential pathway whereby social interaction enhanced emotional perceptiveness, which reduced the prosociality gap, ultimately improving team performance (serial indirect effect = 3.65, $p = .038$, 95% BCa CI [0.638, 7.599]), accounting for 55.4% of the total effect. As a robustness check, reversing the mediator order yielded no significant effect (Figure B7 in Appendix B1), further supporting our proposed mechanism.

[19] Robustness checks using both structural equation modeling and causal mediation analysis yield consistent evidence supporting the mediation pathways proposed in our main analysis (see Table B19 in Appendix B1).

[20] We test whether emotional perceptiveness mediates the effect of social interaction on various team bonding outcomes. As shown in Table B18 in Appendix B1, it significantly mediates the effect only on prosociality gap—not on average closeness, closeness gap, or average prosociality.

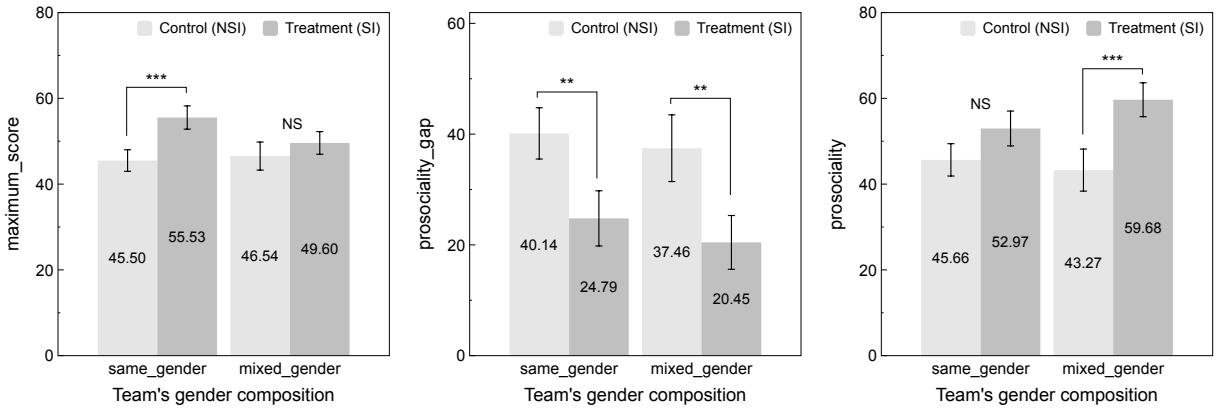

Figure 4: Moderating Role of Gender Composition on Treatment Effect

Note: The figure shows the differential effects of social interaction by team gender composition on maximum score (left panel), prosociality gap (center panel), and average prosociality (right panel). Error bars represent standard errors. Error bars represent standard errors. Significance levels: * $p < .10$, ** $p < .05$, *** $p < .01$.

5.5 Moderating Role of Team Characteristics (E3)

As pre-registered, we conducted exploratory analyses examining how the effects of social interaction on prosociality gap and team performance were moderated by team characteristics (E3, as illustrated in Figure 1). We investigated potential moderating effects of team gender composition (same-gender vs. mixed-gender teams) and various individual characteristics including personality traits and team behavior tendencies.

5.5.1 Moderation Effect of Team's Gender Composition

We first examined how the effects of social interaction on prosociality gap and team performance varied depending on team gender composition.

Figure 4 illustrates the various effects of social interaction across team gender compositions. A two-way ANOVA examining treatment and team gender diversity effects on performance revealed no significant interaction ($F(1, 70) = 1.55$, $p = .217$, partial $\eta^2 = 0.022$). However, simple main effects analysis with Holm-Bonferroni correction showed divergent outcomes. As depicted in the left panel, social interaction significantly enhanced performance in same-gender teams ($p_{adj} = 0.008$, $d = 1.15$), increasing mean scores by 22% (from 45.50 to 55.526). In contrast, mixed-gender teams showed no significant performance improvement ($p_{adj} = .469$, $d = 0.26$).

The center panel demonstrates that social interaction significantly reduced the prosociality gap in both team types, with a larger effect in same-gender teams ($p_{adj} = .027$, $d = 0.96$) compared to mixed-gender teams ($p_{adj} = .031$, $d = 0.78$). Intriguingly, the right panel shows that while social interaction significantly increased average prosociality levels in mixed-gender teams ($p_{adj} = .011$, $d = 0.92$), it had no significant effect in same-gender teams ($p_{adj} = .191$, $d = 0.56$).

These findings underscore that convergence in prosociality levels, rather than their overall increase, is the key driver of team performance improvements. Mixed-gender teams experienced increases in average prosociality and reductions in prosociality gap but did not exhibit improved performance following social interaction. In contrast, same-gender teams, which showed no significant change in average prosociality but the largest reduction in the prosociality gap, demonstrated substantial performance improvements.[21] As we shown in Section 5.3, increased prosociality levels may actually have a negative mediating effect on team performance. These results suggest that the performance benefits of social interaction may be more closely linked to reducing within-team prosociality disparities rather than elevating overall prosociality levels.

Table 2: Moderating Effects of Team Characteristics on the Effect of Social Interaction

	(A) Effects on Prosociality Gap			(B) Effects on Maximum Score		
Moderator	Int. Coef.	SE	95% CI	Int. Coef.	SE	95% CI
Personality Traits						
altruism	2.07	5.67	[-9.24, 13.37]	-3.27	3.12	[-9.49, 2.94]
competitiveness	0.07	4.04	[-7.99, 8.12]	-0.86	3.00	[-6.84, 5.13]
kindness	-10.28*	5.81	[-21.87, 1.31]	-1.94	2.78	[-7.49, 3.61]
reciprocity	11.41	6.97	[-2.50, 25.31]	-3.76	3.48	[-10.69, 3.18]
risk_taking	11.14**	5.17	[0.83, 21.46]	-4.97**	2.42	[-9.80, -0.14]
sociability	-0.45	2.92	[-6.27, 5.37]	2.71	2.25	[-1.77, 7.20]
self_disclosure	-2.16	3.84	[-9.83, 5.50]	3.57	2.52	[-1.47, 8.60]
Team Roles and Behaviors						
opinion_sharing	2.28	4.30	[-6.28, 10.85]	3.28	2.33	[-1.37, 7.93]
team_support	8.71	6.38	[-4.02, 21.44]	6.50*	3.49	[-0.45, 13.45]
leadership	5.05	4.67	[-4.27, 14.36]	-1.29	3.12	[-7.52, 4.94]

Note: The table presents the coefficients for the interaction terms (Treatment × Team Characteristic) from separate regression models. All team characteristics variables were mean-centered prior to analysis. Robust standard errors were used. Significance levels: * $p < .10$, ** $p < .05$, *** $p < .01$.

5.5.2 Moderation Effect of Personality Traits and Team Roles and Behaviors

We next tested interaction effects for all measured personality traits and team role behaviors on the relationship between social interaction and our key outcomes. For each team characteristic variable, we conducted separate regression analyses including the interaction term between treatment and the mean-centered team characteristic. Table 2 presents the results of these analyses. Among all the team characteristic variables tested, only risk-taking propensity (*risk_taking*) significantly moderated both the effect of social interaction on the prosociality gap (Panel A) and team performance (Panel B). Notably, the direction of these moderating effects was consistent with our theoretical predictions—teams with lower risk-taking propensity (more risk-averse teams) showed stronger effects of social interaction on both reducing the prosociality gap and improving performance.

Figure 5 illustrates the interaction effects between treatment and risk-taking propensity on *prosociality_gap* and *maximum_score*. For *prosociality_gap* (left panel), the interaction term *treatment*×*risk_taking* was significant ($b = 11.14$, $SE = 5.17$, $p = .035$, $f^2_{int} = 0.075$)[22]. Simple slope analysis revealed that social interaction significantly reduced the prosociality gap in teams with low risk-taking propensity (-1 SD) ($b = -27.80$, $SE = 7.35$, $p < .001$), while showing no significant effect in teams with high risk-taking propensity (+1 SD) ($b = -3.95$, $SE = 7.50$, $p = .601$).

For team performance (*maximum_score*, right panel), the interaction term was also significant ($b = -4.97$, $SE = 2.42$, $p = .044$, $f^2_{int} = 0.051$). Simple slope analysis showed a similar pattern: social interaction significantly improved team performance in teams with low risk-taking propensity (-1 SD) ($b = 12.94$, $SE = 3.88$, $p = .001$), but had no significant effect for teams with high risk-taking propensity (+1 SD) ($b = 2.29$, $SE = 3.81$, $p = .549$). These consistent patterns suggest that team members' risk attitudes significantly moderate the effect of social interaction on prosociality alignment and overall team performance.

As summarized in Tables B20, B21, and B22 in Appendix B1, along with explanatory notes, we tested the moderating effects of all measured team characteristics on the relationship between social interaction and our outcome variables. Notably, *risk_taking* significantly moderated all four SLAP performance metrics, confirming the robustness of its moderating role across task performance measures. Other traits also showed meaningful patterns: for instance, *kindness* negatively moderated prosociality prediction error (*PPE*), indicating that teams with higher kindness showed larger reductions in PPE, which suggests improved emotional perceptiveness through social interaction; *sociability* negatively moderated task enjoyment, and *leadership* negatively moderated team cohesion.

[21] A more detailed breakdown by team gender composition is shown in Figure B8 in Appendix B1.

[22] The effect size for the interaction (f^2_{int}) was calculated as $(R^2_{full} - R^2_{reduced})/(1 - R^2_{full})$, where R^2_{full} and $R^2_{reduced}$ are the R-squared values of the models with and without the interaction term, respectively.

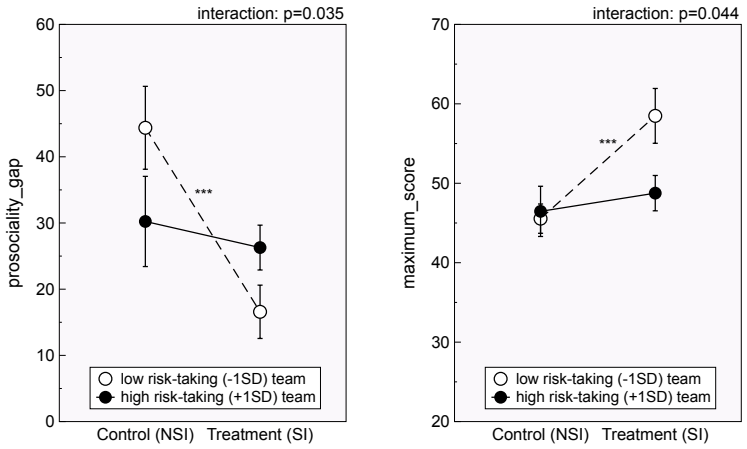

Figure 5: Moderating Role of Risk-Taking Propensity on Treatment Effect

Note: Treatment effects on prosociality gap and maximum score are plotted at high (+1 SD) and low (-1 SD) levels of team's risk-taking attitude. *** indicates significant simple slopes ($p < .001$) for the treatment effect in the low *risk_taking* group. Error bars indicate standard error of the mean (SEM).

6 Discussion and Conclusion

This study develops a formal model of team production that highlights the role of social interaction in aligning prosocial tendencies among teammates, and empirically tests its predictions through a laboratory experiment. The model predicts that social interaction enhances team performance by reducing disparities in prosociality between team members. It also predicts that social interaction has stronger performance effects in teams with more risk-averse members and greater effort complementarity. To test these predictions, we conducted a laboratory experiment using a collaborating typing task. While our primary focus was on two main hypotheses—that social interaction reduces the prosociality gap between team members and enhances team performance—we also explored a broader set of theoretical implications and psychological mechanisms, including potential mediators and moderators of these effects. In this discussion, we examine how our findings support or challenge these predictions and consider their implications for team functioning and organizational management.

Our experimental results provide strong empirical support for our theoretical predictions, while also offering new insights into the mechanisms of team performance enhancement. We found robust evidence that social interaction significantly reduces the prosociality gap between team members. Our results also confirm the prediction that social interaction enhances team performance, with a significant 14.4% improvement in team performance scores for groups that engaged in a ten-minute social interaction. Importantly, our mediation analysis revealed that the reduction in the prosociality gap was the primary mechanism through which social interaction improved team performance. This finding provides empirical support for our theoretical model, demonstrating that social interaction enhances team performance specifically by narrowing the prosociality gap among team members. These results not only confirm our main hypotheses but also offer valuable insights into the mechanisms underlying effective teamwork, suggesting that social interaction helps align team members' prosocial attitudes, facilitating better coordination and cooperation, which translates into tangible benefits for team productivity. These findings extend the work of Mas and Moretti (2009) on peer effects in the workplace by demonstrating that social interaction can actively shape these effects, rather than merely observing them. Moreover, our results provide a more detailed understanding of the mechanisms behind the positive peer effects observed in previous studies (e.g., Johnson, 2008; Volmer, 2012).

Building on these primary findings, our exploratory analysis revealed a crucial mechanism underlying how social interaction reduces the prosociality gap: the improved accuracy in predicting teammates' prosociality levels. This finding aligns with Weidmann and Deming's (2021) research on "team players," which found that individuals who consistently enhanced team performance scored higher on the Reading the Mind in the Eyes Test (RMET), a measure of emotional state inference. The parallel between RMET and our concept of prosociality

prediction accuracy is striking, and our research extends this insight by demonstrating that this crucial ability can be enhanced through structured social interaction. Our mediation analysis showed that social interaction significantly reduced the prosociality prediction error, suggesting improved mutual understanding as a key factor in narrowing the prosociality gap and enhancing team performance.[23]

Psychological research further supports this interpretation. Nettle and Liddle (2008) provide indirect evidence that individuals with higher theory-of-mind (ToM) abilities—particularly the capacity to infer others' internal emotional states—are more likely to form positive interpersonal relationships. This finding suggests a psychological pathway through which emotional perceptiveness fosters prosociality alignment: as individuals become better at understanding how others feel, they may respond with greater interpersonal sensitivity and consideration, thereby adjusting their own prosocial stance. In team settings, such perceptual accuracy may promote mutual trust and responsiveness, ultimately narrowing the prosociality gap and enhancing overall team performance.

These findings not only reinforce the importance of social skills in effective teamwork but also suggest that organizations should foster environments that enhance social perception and interaction among team members. By elucidating these psychological mechanisms, our study adds a new dimension to understanding how social interaction fosters team cohesion and effectiveness, potentially offering a pathway to develop "team players" within organizations. This connection between social perception and team performance adds a new dimension to the literature on team altruism (Li et al., 2014) and compassion in organizations (Barghouti et al., 2022), suggesting that these prosocial attributes can be cultivated through structured social interaction.

Our moderation analyses revealed that team gender composition significantly influenced the effectiveness of social interaction. Same-gender teams—particularly female-female pairs—experienced greater performance improvements than mixed-gender or male-only teams. These findings are consistent with our theoretical Result 3, which predicts that the benefits of social interaction increase with higher effort complementarity (β). Given that communication barriers tend to be lower in same-gender dyads, such teams may naturally form stronger implicit complementarity in collaborative settings. As a result, they may be better positioned to leverage the coordination-enhancing effects of social interaction.

This interpretation aligns with our conceptual framework and helps reconcile seemingly divergent findings in the literature. For instance, Hardt et al. (2024) report that all-male teams performed better in business case discussions, which may place greater demands on assertiveness and individual leadership. In contrast, our SLAP task emphasizes not dominance but mutual coordination—requiring participants to jointly strategize, synchronize their timing, and adapt to one another across multiple rounds. These differences in task demands suggest that while male-only teams may excel in competitive or leader-driven contexts, female-female teams may be especially effective in settings that reward relational coordination and shared control.

We found that social interaction led to greater prosociality alignment and performance improvements in teams with more risk-averse members, consistent with our theoretical prediction (Result 2). Specifically, social interaction may foster a sense of psychological safety—defined as a shared belief that the team environment is safe for interpersonal risk-taking (Edmondson, 1999; Frazier et al., 2017)—that is particularly salient for risk-averse team members. In our experiment, structured social interaction appeared to reduce interpersonal ambiguity and strengthen mutual understanding, thereby enabling more hesitant individuals to engage fully in coordinated action. These findings not only reinforce the behavioral predictions of our model but also contribute to the psychological literature by elucidating how personality traits such as risk aversion interact with social processes to influence team effectiveness.

Drawing on our theoretical and experimental findings, we outline several actionable implications for organizations seeking to improve team performance via social interaction. First, structured opportunities for interaction should be embedded at the team formation stage, where prosociality gaps are most likely to emerge. Such interventions can enhance coordination by aligning prosociality among members, particularly in tasks characterized by high effort complementarity. To institutionalize these effects, organizations may benefit from regular team-building activities aimed at mitigating motivational bottlenecks. Notably, our results indicate that the benefits of social interaction not only persist but also transfer across team contexts—suggesting that prosociality alignment becomes internalized and portable across collaborative settings.

Our findings also have important implications for personnel selection and team composition. Organizations

[23]This finding is also consistent with He et al. (2017), who demonstrated in a two-person prisoner's dilemma experiment that face-to-face communication improves individuals' ability to perceive their partner's behavioral type—an essential factor for fostering cooperation.

should prioritize candidates who demonstrate high teamwork abilities, particularly those with high prosociality towards teammates and strong emotional perceptiveness. These employees can serve as catalysts for reducing the prosociality gap when interacting with less prosocial members, thereby alleviating motivational bottlenecks that often constrain team performance. Additionally, selecting candidates with positive dispositions toward social interaction can leverage the performance benefits we identified. This recommendation aligns with broader labor market trends—occupations requiring high levels of social skills have grown substantially, commanding significant wage premiums (Deming, 2017).[24]

Our findings also suggest tailoring social interaction approaches based on team characteristics. For instance, risk-averse teams and same-gender teams appear to benefit more from social interaction interventions. Organizations should recognize that while diverse teams and those with higher risk-taking propensity did not show significant performance improvements in our study, this may not indicate that social interaction is ineffective for these teams. Rather, it may suggest that different types or intensities of social interaction might be necessary for these teams to experience similar benefits. Future research should explore whether more extended or differently structured social interaction opportunities could produce positive effects in these contexts.

Additionally, fostering a culture of psychological safety can facilitate accurate prosociality predictions among team members, further enhancing team dynamics. Finally, organizations might consider including team prosociality and cooperative behaviors in performance evaluation systems to encourage participation in social interaction.

It's crucial to note that while these strategies are grounded in our research, their implementation should be context-sensitive. Organizations should carefully adapt these approaches to their specific environments and continuously measure their impact. By thoughtfully implementing these strategies, organizations can leverage social interaction to narrow the prosociality gap and ultimately enhance team performance, particularly in tasks requiring complementary efforts.

Our study has several limitations that should be addressed in future research. First, our experiment involved Japanese university students in a simplified laboratory setting, which may limit the generalizability of our findings to real-world workplaces and other cultural contexts, where team members often collaborate over longer periods, take on real responsibilities, and interact within established roles and norms. Second, our prosociality measures relied on self-reports, which may be subject to social desirability bias. Third, the relatively small sample size (74 teams) and short-term nature of our experiment limit the statistical power of our exploratory analyses and our ability to observe long-term effects. Fourth, we focused on a specific type of complementary task (the SLAP typing task), and the effects of social interaction might vary for different types of tasks with varying degrees of interdependence. Finally, although our exploratory analyses were preregistered, they were not confirmatory in nature. Future hypothesis-driven experiments are needed to validate these findings and further clarify the processes through which social interaction influences team functioning.

Future research should address these limitations by extending our investigations to field settings with actual work teams from diverse occupational and cultural backgrounds, employing behavioral measures of prosociality, examining a broader range of task types with varying interdependence levels (including those with effort substitutability), and investigating the effects of different forms (e.g., formal vs. informal, work-related vs. social) and durations of social interaction.[25] Additionally, longitudinal studies could help understand the persistence of social interaction effects over time and across different team development stages. Further exploration of the specific mechanisms through which social interaction enhances emotional perceptiveness would also be valuable, potentially leading to more targeted interventions for team development. Such expanded research would not only address the methodological limitations of the current study but also provide more comprehensive guidance for organizational practices across diverse contexts.

[24]Recent surveys further indicate that over three-quarters of employers now prioritize teamwork abilities when evaluating job candidates (NACE, 2021), confirming the practical relevance of our findings for contemporary workforce management.

[25]Additionally, future research could examine whether social interaction enhances interpersonal relationships and performance similarly under individual-based reward systems, complementing existing evidence that transitioning to team-based incentives promotes cohesion and productivity (Delfgaauw et al., 2022). Moreover, exploring how social interactions within and across multiple teams influence prosociality and performance aligns with Bornstein and Gneezy (2012), who study how intergroup competition affects altruistic and antisocial motivations toward in-group and out-group members.

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A Theory Appendix

A1 Derivation of Members' Equilibrium Effort Changes with Social Interaction

In this appendix, we derive the expressions for how equilibrium efforts, e_1^* and e_2^*, change with social interaction. We use the following properties of the prosociality functions for $x \in [0, 1)$:

- $A_1(x) > A_2(x)$
- $A_1'(x) = -A_2'(x) < 0$
- $D'(x) = \beta^2 A_1'(x)(A_1(x) - A_2(x)) < 0$

Differentiating e_1^* in equation (1) with respect to x yields:

$$\frac{\partial e_1^*}{\partial x} = \frac{(A_1'(c + \beta A_2) + A_1 \beta A_2')D - A_1(c + \beta A_2)D'}{D^2}.$$

Using the condition $A_1' = -A_2'$, we can rewrite this as:

$$\frac{\partial e_1^*}{\partial x} = \frac{-A_1'}{D^2}\left[A_1(c + \beta A_2)\frac{D'}{A_1'} - (c - \beta(A_1 - A_2))D\right].$$

Substituting $\frac{D'}{A_1'} = \beta^2(A_1 - A_2)$:

$$\begin{aligned}
\frac{\partial e_1^*}{\partial x} &= \frac{-A_1'}{D^2}\left[A_1(c + \beta A_2)\beta^2(A_1 - A_2) - (c - \beta(A_1 - A_2))D\right] \\
&= \frac{-A_1'}{D^2}\left[A_1(c + \beta A_2)\beta^2(A_1 - A_2) + \beta(A_1 - A_2)D - cD\right] \\
&= \frac{-A_1'}{D^2}\left[\beta\left\{A_1(c + \beta A_2)\beta + D\right\}(A_1 - A_2) - cD\right] \\
&= \frac{-A_1'}{D^2}\left[\beta(c\beta A_1 + c^2)(A_1 - A_2) - cD\right] \\
&= \frac{-A_1' c}{D^2}\left[\beta(c + \beta A_1)(A_1 - A_2) - D\right]
\end{aligned}$$

This corresponds to equation (2) in the main text.

Through analogous steps and using the same conditions, we obtain:

$$\frac{\partial e_2^*}{\partial x} = \frac{-A_1' c}{D^2}\left[\beta(c + \beta A_2)(A_1 - A_2) + D\right] > 0.$$

This corresponds to equation (3) in the main text.

A2 Proof of Result 1 (Performance Effect)

We demonstrate that P^* strictly increases with respect to x by analyzing each component of $P^* = e_1^* + e_2^* + \beta e_1^* e_2^*$.

First, consider the sum component $e_1^* + e_2^*$. We have:

$$e_1^* = \frac{A_1(c + \beta A_2)}{D} \text{ and } e_2^* = \frac{A_2(c + \beta A_1)}{D}.$$

Using (2) and (3), we have

$$\frac{de_1^*}{dx} + \frac{de_2^*}{dx} = \frac{(-A_1')\beta c}{D^2}[(2c + \beta(A_1 + A_2)](A_1 - A_2) > 0. \tag{A1}$$

Next, consider the interaction term $e_1^* e_2^*$, which can be expressed as:

$$e_1^* e_2^* = \frac{A_1 A_2 (c + \beta A_1)(c + \beta A_2)}{D^2}.$$

To determine the sign of $\frac{d(e_1^* e_2^*)}{dx}$, we examine the monotonicity of the numerator and denominator separately:

1. For the denominator: Since D is monotonically decreasing in x, which implies D^2 is also monotonically decreasing.

2. For the numerator component $A_1 A_2$:

$$\frac{d(A_1 A_2)}{dx} = A_1' A_2 + A_1 A_2' = -A_1'(A_1 - A_2) \geq 0.$$

   Therefore, $A_1 A_2$ is monotonically increasing in x.

3. For the numerator component $(c + \beta A_1)(c + \beta A_2)$:

$$\frac{d((c + \beta A_1)(c + \beta A_2))}{dx} = -\beta^2 A_1'(A_1 - A_2) \geq 0.$$

   Thus, this term is also monotonically increasing in x.

Since the numerator is monotonically increasing and the denominator is monotonically decreasing with respect to x, it follows that $\frac{d(e_1^* e_2^*)}{dx} > 0$.

Finally, combining these results:

$$\frac{\partial P^*}{\partial x} = \frac{d(e_1^* + e_2^*)}{dx} + \beta \frac{d(e_1^* e_2^*)}{dx} > 0.$$

Thus, P^* strictly increases with x.

□

A3 Proof of Result 2 (Risk Aversion Moderation)

We demonstrate that the marginal effect of x on P^* increases with γ by examining the cross-partial derivative.

Given that $P^* = e_1^* + e_2^* + \beta e_1^* e_2^*$, we have:

$$\frac{\partial^2 P^*}{\partial x \partial \gamma} = \frac{\partial^2 (e_1^* + e_2^*)}{\partial x \partial \gamma} + \beta \frac{\partial^2 (e_1^* e_2^*)}{\partial x \partial \gamma}.$$

We utilize the following properties of functions A_1 and A_2 with respect to γ:

- $\frac{\partial A_1}{\partial \gamma} = \frac{\partial A_2}{\partial \gamma} = \Delta_R > 0$
- $\frac{\partial^2 A_i}{\partial x \partial \gamma} = 0$ for $i = 1, 2$
- $\frac{\partial D}{\partial \gamma} = -\beta^2 \Delta_R (A_1 + A_2) < 0$

First, consider the sum component $e_1^* + e_2^*$. From (A1), we established:

$$\frac{\partial (e_1^* + e_2^*)}{\partial x} = \frac{(-A_1')\beta c}{D^2} [(2c + \beta(A_1 + A_2)](A_1 - A_2)$$

To find $\frac{\partial^2 (e_1^* + e_2^*)}{\partial x \partial \gamma}$, we analyze how γ affects each component:

1. The term $(A_1 - A_2)$ remains constant with respect to γ since both A_1 and A_2 increase by the same amount Δ_R.

2. The term $(A_1 + A_2)$ increases with γ:

$$\frac{\partial(A_1 + A_2)}{\partial\gamma} = 2\Delta_R > 0$$

3. The denominator D^2 decreases since $\partial D/\partial\gamma < 0$.

Thus, we have $\frac{\partial^2(e_1^*+e_2^*)}{\partial x\partial\gamma} > 0$.
Next, consider the interaction term $e_1^*e_2^* = \frac{A_1A_2(c+\beta A_1)(c+\beta A_2)}{D^2}$.
When γ increases:

1. The term A_1A_2 increases:

$$\frac{\partial(A_1A_2)}{\partial\gamma} = A_1\Delta_R + A_2\Delta_R = \Delta_R(A_1 + A_2) > 0$$

2. Both $(c + \beta A_1)$ and $(c + \beta A_2)$ increase:

$$\frac{\partial(c + \beta A_1)}{\partial\gamma} = \beta\Delta_R > 0 \text{ and } \frac{\partial(c + \beta A_2)}{\partial\gamma} = \beta\Delta_R > 0$$

3. The denominator D^2 decreases as established earlier.

These effects all contribute to increasing $\frac{\partial(e_1^*e_2^*)}{\partial x}$ when γ increases, therefore $\frac{\partial^2(e_1^*e_2^*)}{\partial x\partial\gamma} > 0$.
Combining these results:

$$\frac{\partial^2 P^*}{\partial x\partial\gamma} = \frac{\partial^2(e_1^* + e_2^*)}{\partial x\partial\gamma} + \beta\frac{\partial^2(e_1^*e_2^*)}{\partial x\partial\gamma} > 0$$

Thus, the marginal effect of x on P^* is strictly increasing in γ, establishing that x and γ are complementary inputs in determining P^*.

□

A4 Proof of Result 3 (Complementarity Moderation)

We demonstrate that the marginal effect of x on P^* increases with β by examining the cross-partial derivative.
Given that $P^* = e_1^* + e_2^* + \beta e_1^*e_2^*$, differentiating with respect to β yields:

$$\frac{\partial^2 P^*}{\partial x\partial\beta} = \frac{\partial^2(e_1^* + e_2^*)}{\partial x\partial\beta} + \frac{\partial(e_1^*e_2^*)}{\partial x} + \beta\frac{\partial^2(e_1^*e_2^*)}{\partial x\partial\beta}$$

We utilize the following properties with respect to β:

- $\frac{\partial A_i}{\partial\beta} = 0$ for $i = 1, 2$
- $\frac{\partial D}{\partial\beta} = -2\beta A_1A_2 < 0$
- $\frac{\partial^2 D}{\partial x\partial\beta} = 2\beta A_1'(A_1 - A_2) < 0$

First, consider the sum component $e_1^* + e_2^*$. From Proposition 1, we established:

$$\frac{\partial(e_1^* + e_2^*)}{\partial x} = \frac{(-A_1')\beta c}{D^2}[(2c + \beta(A_1 + A_2)](A_1 - A_2)$$

To find $\frac{\partial^2(e_1^*+e_2^*)}{\partial x\partial\beta}$, we analyze how β affects each component:

1. The factor β in the numerator increases directly with β.
2. The term $(2c + \beta(A_1 + A_2))$ increases with β since $A_1 + A_2 > 0$.

3. For the denominator D^2, we have $\frac{\partial D}{\partial \beta} = -2\beta A_1 A_2 < 0$, which means D decreases as β increases, causing D^2 to decrease as well.

All these effects work in the same direction to increase $\frac{\partial(e_1^*+e_2^*)}{\partial x}$ when β increases, thus $\frac{\partial^2(e_1^*+e_2^*)}{\partial x \partial \beta} > 0$.

Second, from Proposition 1, we have already established that $\frac{\partial(e_1^* e_2^*)}{\partial x} > 0$, which contributes positively to $\frac{\partial^2 P^*}{\partial x \partial \beta}$.

Third, consider the interaction term $e_1^* e_2^* = \frac{A_1 A_2 (c+\beta A_1)(c+\beta A_2)}{D^2}$.

When β increases:

1. Both $(c + \beta A_1)$ and $(c + \beta A_2)$ increase directly with β.
2. The denominator D^2 decreases as established earlier.
3. The sensitivity of D to changes in x increases with β since:

$$\frac{\partial D}{\partial x} = \beta^2 A_1'(A_1 - A_2) \leq 0$$

The magnitude of this effect increases with β.

These effects all contribute to increasing $\frac{\partial(e_1^* e_2^*)}{\partial x}$ when β increases, therefore $\frac{\partial^2(e_1^* e_2^*)}{\partial x \partial \beta} > 0$.

Combining these results:

$$\frac{\partial^2 P^*}{\partial x \partial \beta} = \frac{\partial^2(e_1^* + e_2^*)}{\partial x \partial \beta} + \frac{\partial(e_1^* e_2^*)}{\partial x} + \beta \frac{\partial^2(e_1^* e_2^*)}{\partial x \partial \beta} > 0$$

Since all terms in this expression are positive, the cross-partial derivative $\frac{\partial^2 P^*}{\partial x \partial \beta} > 0$. Thus, the marginal effect of x on P^* is strictly increasing in β, establishing that x and β are complementary inputs in determining P^*.

□

B Experiment Appendix

B1 Tables and Figures

Table B1: Participant Demographics ($N = 80$)

Category	Frequency (N)	Percentage (%)
Gender		
Male	28	35.0
Female	52	65.0
Academic Year		
First year	68	85.0
Second year	8	10.0
Third year	2	2.5
Fourth year or above	2	2.5
Age		
18	62	77.5
19	11	13.8
20	4	5.0
21	2	2.5
23	1	1.2
Department		
Economics & Management	22	27.5
Law & International Studies	16	20.0
Psychology & Education	13	16.3
Humanities	29	36.2

Note: The distribution of participants by academic department represents consolidated categories from the original 17 academic majors. While individual-level academic affiliations were not recorded for each participant, these grouped departments are based on the overall enrollment distribution of the course from which participants were recruited, providing a reasonable approximation of participant backgrounds.

Table B2: Definition of Individual-Level Variable

Individual-Level Variable	Survey question	Scale	Source
(i) Demographic Variables			
$prior\_interaction_i$	Please circle your level of prior interaction with your teammate.	3 options (I have never spoken with them before today/ I have had brief greetings with them before today/ I have had conversations beyond brief greetings with them before today.)	own
$gender_i$	Please indicate your gender.	3 options (male/female/other)	own
age_i	Please indicate your age.	Numerical values.	own
(ii) Personality Traits			
$altruism_i$	I do good deeds without expecting anything in return.	1 (Strongly disagree) - 7 (Strongly agree)	Falk et al. (2023)
$competitiveness_i$	Competition brings the best out of me.	1 (Strongly disagree) - 7 (Strongly agree)	Fallucchi et al. (2020)
$kindness_i$	I consider myself to be a considerate and kind person.	1 (Strongly disagree) - 7 (Strongly agree)	own
$reciprocity_i$	I go out of my way to help somebody who has been kind to me before.	1 (Strongly disagree) - 7 (Strongly agree)	Perugini et al. (2003)
$risk\_taking_i$	I am generally willing to take risks.	1 (Strongly disagree) - 7 (Strongly agree)	Falk et al. (2023)
$sociability_i$	I am good at initiating conversations with strangers.	1 (Strongly disagree) - 7 (Strongly agree)	own
$self\_disclosure_i$	When I am facing difficulties or problems, I find it easy to confide in others about them.	1 (Strongly disagree) - 7 (Strongly agree)	own
(iii) Team Roles and Behaviors			
$opinion\_sharing_i$	In a team or group setting, I can clearly express my ideas and opinions to my teammates.	1 (Strongly disagree) - 7 (Strongly agree)	own
$team\_support_i$	In a team or group setting, I often invest time and effort into helping and supporting my teammates.	1 (Strongly disagree) - 7 (Strongly agree)	own
$leadership_i$	In a team or group setting, I often naturally take on a leadership role.	1 (Strongly disagree) - 7 (Strongly agree)	own
(iv) Team Bonding Metrics			
$closeness_i$	How close do you feel to the teammate you are paired with this time?	0 (Neutral) - 100 (Feel very close) on a 100 mm Visual Analogue Scale, indicating closeness towards the teammate.	own
$prosociality_i$	Are you more motivated to engage in this task for your own reward or for the benefit of your teammate?	0 (For yourself) - 100 (For your teammate) on a 100 mm Visual Analogue Scale, indicating prosociality towards the teammate.	own
$expected\_prosociality_i$	Do you imagine that your teammate is more motivated to engage in this task for their own reward or for your benefit?	0 (For themselves) - 100 (For you) on a 100 mm Visual Analogue Scale, indicating the expected degree of the teammate's prosociality.	own
(v) Perceived Teamwork Metrics			
$frequent\_interaction_i$	We were able to make many contributions to the discussion.	1 (Strongly disagree) - 10 (Strongly agree)	own
$meaningful\_conversation_i$	We had meaningful conversations that contributed to the success of the task.	1 (Strongly disagree) - 10 (Strongly agree)	own
$quick\_problem\_solving_i$	We were able to respond quickly to problems that arose during typin.	1 (Strongly disagree) - 10 (Strongly agree)	own
$task\_enjoyment_i$	We were able to work on the task enjoyably as a team.	1 (Strongly disagree) - 10 (Strongly agree)	own
$team\_cohesion_i$	My team demonstrated a high level of cohesion.	1 (Strongly disagree) - 10 (Strongly agree)	own

Note: This table summarizes the individual-level variables collected through questionnaires at different stages of the experiment. Demographic characteristics, personality traits, and team roles and behaviors were assessed prior to the social interaction task; team bonding metrics were measured after the interaction task but before the SLAP task; and perceived teamwork metrics were collected after completing the typing task. All variables listed here were used to construct team-level variables (Table B3), such as team means or within-team differences, which serve as key outcomes or control variables in the main analyses. In the second round of the experiment, only $prior\_interaction_i$, team bonding, and perceived teamwork metrics were reassessed.

Table B3: Definition of Team-Level Variables

Team-Level Variable	Definition
(0) Intervention	
treatment	0 if the group performed the task without interaction (control); 1 if the group engaged in a 10-minute social interaction before the SLAP typing task (treatment).
(i) Demographic Variables	
prior_interaction	0 if both team members selected "I have never spoken with them before today"; 1 if either member selected "brief greetings" or "conversations."
gender_diversity	0 if team members are of the same gender, 1 if team members are of different genders.
age	Average of individual team members' age.
(ii) Personality Traits	
altruism	Average of individual team members' scores.
competitiveness	Same as above.
kindness	Same as above.
reciprocity	Same as above.
risk_taking	Same as above.
sociability	Same as above.
self_disclosure	Same as above.
(iii) Team Roles and Behaviors	
opinion_sharing	Average of individual team members' scores.
team_support	Same as above.
leadership	Same as above.
(iv) Team Bonding Metrics	
closeness	Average of individual team members' scores.
closeness_gap	Absolute difference between team members' scores.
prosociality	Average of individual team members' scores.
prosociality_gap	Absolute difference between team members' scores.
prosociality_prediction_error	Average of the absolute differences between each member's prediction of their partner's prosociality and the partner's actual prosociality score: $(\lvert expected\_prosociality_1 - prosociality_2\rvert + \lvert expected\_prosociality_2 - prosociality_1\rvert)/2$
(v) SLAP Performance Metrics	
score_session(t),	The score for every session t ($t = 1, 2, 3$) is calculated based on the number of accurately entered `SLAP`, with one point deducted for every five mistyped characters.
average_score	Average score across all three sessions.
average_score_filtered	Average score across all three sessions, excluding teams with any negative session scores.
maximum_score	Maximum score across all three sessions.
maximum_score_filtered	Maximum score across all three sessions, excluding teams with any negative session scores.
(vi) Perceived Teamwork Metrics	
frequent_interaction	Average of individual team members' scores.
meaningful_conversation	Same as above.
quick_problem_solving	Same as above.
task_enjoyment	Same as above.
team_cohesion	Same as above.

Note: This table summarizes the team-level variables used in the main and supplementary analyses. These variables were constructed by aggregating individual-level measures (Table B2) within each team. Aggregation methods include team averages (e.g., for personality traits), within-team differences (e.g., for *prosociality_gap*), and binary indicators of team composition (e.g., gender diversity). Performance variables were derived from the SLAP task, using either team-level maximum or average scores across the three sessions. All variables were computed separately for each round, and values used in the analyses reflect the relevant round of observation.

Table B4: Summary Statistics for Team-Level Variables

Team-Level Variable	N	Mean	SD	Min	Max
Intervention					
treatment	74	0.527	0.503	0.000	1.000
Demographic Variables (team average)					
gender_diversity (0: same, 1: mixed gender)	74	0.446	0.500	0.000	1.000
age	74	18.399	0.662	18.000	21.000
Personality Traits (team average)					
altruism	74	4.345	0.872	3.000	6.000
competitiveness	74	4.318	1.071	1.500	6.500
kindness	74	5.054	0.813	3.000	6.500
reciprocity	74	4.926	0.847	2.000	6.500
risk_taking	74	3.264	1.070	1.000	6.500
sociability	74	3.777	1.312	1.500	7.000
self_disclosure	74	3.919	1.092	1.500	7.000
Team Roles and Behaviors (team average)					
opinion_sharing	74	4.824	0.995	2.000	7.000
team_support	74	4.777	1.017	1.500	6.500
leadership	74	3.716	1.047	1.500	7.000
Team Bonding Metrics					
closeness	74	50.351	21.137	4.000	86.000
closeness_gap	74	23.459	19.940	1.000	72.000
prosociality	74	50.905	18.450	0.000	81.500
prosociality_gap	74	30.405	22.910	0.000	95.000
prosociality_prediction_error	74	29.291	18.843	2.000	75.000
SLAP Task Performance Metrics					
score_session1	74	37.203	19.888	-68.000	70.000
score_session2	74	38.514	24.467	-81.000	80.000
score_session3	74	36.473	31.451	-108.000	82.000
average_score	74	37.396	17.098	-14.667	75.667
average_score_filtered	64	42.203	12.078	18.000	75.667
maximum_score	74	49.365	12.211	28.000	82.000
maximum_score_filtered	64	49.719	12.003	32.000	82.000
Perceived Teamwork Metrics (team average)					
frequent_interaction	74	7.953	1.517	1.500	10.000
meaningful_conversation	74	7.770	1.575	1.000	10.000
quick_problem_solving	74	6.770	1.980	0.500	10.000
task_enjoyment	74	8.689	1.310	3.500	10.000
team_cohesion	74	7.986	1.550	2.500	10.000

Note: (i) Team-level variables for personality traits, team roles and behaviors, perceived teamwork metrics represent the average of paired team members' individual scores. (ii) In team bonding metrics, *closeness* and *prosociality* are team averages, while *_gap* variables denote the absolute difference between team members' scores. (iii) *prosociality_prediction_error* is calculated as the team average of the absolute difference between a member's prediction of their teammate's prosociality towards them and the teammate's actual reported prosociality.

Table B5: Summary Statistics for Individual-Level Variables

Individual-level variable	N	Mean	SD	Min	Max
Demographic Variables					
$gender_i$ (1: female)	80	0.650	0.480	0.000	1.000
age_i	80	18.375	0.862	18.000	23.000
Personality Traits					
$altruism_i$	80	4.388	1.248	2.000	7.000
$competitiveness_i$	80	4.350	1.631	1.000	7.000
$kindness_i$	80	5.088	1.171	2.000	7.000
$reciporocity_i$	80	4.950	1.242	2.000	7.000
$risk\_taking_i$	80	3.300	1.641	1.000	7.000
$sociability_i$	80	3.875	1.905	1.000	7.000
$self\_disclosure_i$	80	3.950	1.771	1.000	7.000
Team Roles and Behaviors					
$opinion\_sharing_i$	80	4.838	1.538	1.000	7.000
$team\_support_i$	80	4.800	1.247	1.000	7.000
$leadership_i$	80	3.775	1.699	1.000	7.000
1st Round					
$prior\_interaction_i$	80	1.100	0.439	1.000	3.000
Team Bonding Metrics					
$closeness_i$	80	51.113	26.637	2.000	100.000
$prosociality_i$	80	49.288	26.684	0.000	99.000
$expected\_prosociality_i$	80	45.588	23.235	0.000	99.000
Perceived Teamwork Metrics					
$frequent\_interaction_i$	80	7.912	1.829	2.000	10.000
$meaningful\_conversation_i$	80	7.838	1.852	2.000	10.000
$quick\_problem\_solving_i$	80	6.875	2.383	0.000	10.000
$task\_enjoyment_i$	80	8.688	1.643	1.000	10.000
$team\_cohesion_i$	80	8.000	1.821	1.000	10.000
2nd Round					
$prior\_interaction_i$	80	1.113	0.421	1.000	3.000
Team Bonding Metrics					
$closeness_i$	80	51.763	27.006	0.000	98.000
$prosociality_i$	80	52.438	26.381	0.000	99.000
$expected\_prosociality_i$	80	46.588	24.928	0.000	99.000
Perceived Teamwork Metrics					
$frequent\_interaction_i$	79	7.987	1.964	1.000	10.000
$meaningful\_conversation_i$	79	7.747	2.192	0.000	10.000
$quick\_problem\_solving_i$	79	6.785	2.324	1.000	10.000
$task\_enjoyment_i$	79	8.658	1.804	1.000	10.000
$team\_cohesion_i$	79	7.962	2.053	1.000	10.000

Note: This table reports summary statistics for individual-level variables used in the analyses. The slight reduction in sample size in the second round reflects one participant's non-response to the relevant questions.

Table B6: Correlation Matrix Between Individual Characteristics, Prosociality, and PPE

	Round 1		Round 2	
Variable	$prosociality_i$	PPE_i	$prosociality_i$	PPE_i
$prosociality_i$	1.00	-0.88	1.00	-0.15
PPE_i	-0.88	1.00	-0.15	1.00
$gender_i$	-0.03	0.01	0.04	-0.26
age_i	-0.07	-0.03	-0.06	0.12
$altruism_i$	0.25	0.07	0.12	-0.08
$competitiveness_i$	-0.11	0.05	-0.14	0.06
$kindness_i$	0.10	**0.28**	0.10	**0.31**
$reciprocity_i$	0.02	0.11	0.03	-0.04
$risk\_taking_i$	-0.03	-0.13	-0.12	0.06
$sociability_i$	-0.01	0.03	-0.13	0.07
$self\_disclosure_i$	-0.20	0.04	-0.16	0.13
$opinion\_sharing_i$	-0.02	0.06	-0.12	0.18
$team\_support_i$	0.21	-0.23	0.21	-0.14
$leadership_i$	0.11	-0.04	-0.06	0.09

Note: This table reports correlation coefficients between individual-level attributes (gender, age, and personality traits) and two key variables: $prosociality_i$ (state-level feeling toward the teammate) and PPE_i (prosociality prediction error), for both Round 1 and Round 2. $Prosociality_i$ was only weakly correlated with trait-level constructs such as altruism and kindness, suggesting it reflects a state-dependent relational feeling rather than a stable personality disposition. Similarly, most traits showed little association with PPE_i, indicating that the ability to infer a teammate's feelings depends more on interpersonal perception than stable traits. An exception was $kindness_i$, which showed the strongest correlation with PPE_i across all traits in both rounds (Round 1: $r = .278$, Round 2: $r = .314$). Notably, individuals who rated themselves lower in kindness more accurately inferred their teammate's prosociality—that is, they exhibited lower prediction errors. $Prosociality_i$ and PPE_i themselves were also only weakly correlated (Round 1: $r = -.08$, Round 2: $r = -.15$), underscoring their conceptual and empirical distinctiveness. These patterns suggest that $prosociality_i$ and PPE_i capture separate psychological constructs—state-level emotion and social-cognitive accuracy, respectively. Correlation patterns were stable across rounds, further supporting the robustness of these findings. All variables are measured at the individual level, as indicated by the subscript i, to distinguish them from team-level constructs used elsewhere in the analysis.

Table B7: Balance Check: Comparison of Control (NSI) and Treatment (SI) Groups

	Control (NSI)		Treatment (SI)		Comparison	
Variable	Mean	SD	Mean	SD	p-value	Adj. p-value
Demographic Variables						
gender_diversity	0.371	0.490	0.513	0.506	.222	1.000
age	18.329	0.618	18.462	0.701	.392	1.000
Personality Traits						
altruism	4.257	0.980	4.423	0.766	.484	1.000
competitiveness	4.329	1.131	4.308	1.030	.698	1.000
kindness	5.186	0.787	4.936	0.829	.178	1.000
reciprocity	4.757	0.950	5.077	0.721	.207	1.000
risk_taking	2.986	0.943	3.513	1.127	.063*	.567
sociability	3.643	1.493	3.897	1.131	.217	1.000
self_disclosure	4.086	1.179	3.769	0.999	.332	1.000
Observations	35		39		74	

Note: Statistical tests: t-test for *age*, chi-square test for *gender_diversity*, and Wilcoxon rank-sum test for all other variables. P-values were adjusted using the Bonferroni correction for multiple comparisons. Significance levels: * $p < .10$, ** $p < .05$, *** $p < .01$.

Table B8: Balance Check by Round (Robustness Check)

	First Round Teams						Second Round Teams					
	Control		Treatment		Comp.		Control		Treatment		Comp.	
Variable	Mean	SD	Mean	SD	p	adj.p	Mean	SD	Mean	SD	p	adj.p
Demographic Variables												
gender_diversity	0.35	0.49	0.45	0.51	.55	1.00	0.39	0.50	0.58	0.51	.25	1.00
age	18.35	0.66	18.45	0.69	.66	1.00	18.31	0.60	18.47	0.74	.45	1.00
Personality Traits												
altruism	4.29	0.95	4.45	0.90	.64	1.00	4.22	1.03	4.40	0.61	.59	1.00
competitiveness	4.27	1.19	4.35	0.89	.66	1.00	4.39	1.11	4.26	1.18	.74	1.00
kindness	5.15	0.90	4.95	0.90	.52	1.00	5.22	0.69	4.92	0.77	.23	1.00
reciprocity	4.77	0.85	5.10	0.64	.24	1.00	4.75	1.06	5.05	0.82	.54	1.00
risk_taking	2.94	1.01	3.55	1.21	.13	1.00	3.03	0.90	3.47	1.06	.28	1.00
sociability	3.56	1.45	3.90	1.17	.35	1.00	3.72	1.57	3.90	1.13	.44	1.00
self_disclosure	3.97	1.21	3.78	0.77	.77	1.00	4.19	1.18	3.76	1.22	.37	1.00
Observations	17		20		37		18		19		37	

Note: Statistical tests: t-test for *age*, chi-square test for *gender_diversity*, and Wilcoxon rank-sum test for all other variables. P-values were adjusted using the Bonferroni correction for multiple comparisons. No statistically significant differences were found between control and treatment groups in either round, confirming successful randomization. Significance levels: * $p < .10$, ** $p < .05$, *** $p < .01$.

Table B9: Polychoric Correlation Matrix for All Teams

	a	b	c	d	e	f	g	h	i	j
a. *altruism*	1.00									
b. *competitiveness*	-0.18	1.00								
c. *kindness*	0.22	0.01	1.00							
d. *reciprocity*	0.51	0.06	0.30	1.00						
e. *risk_taking*	0.44	0.15	-0.05	0.38	1.00					
f. *sociability*	0.22	0.01	-0.07	0.23	0.41	1.00				
g. *self_disclosure*	0.00	0.25	-0.10	-0.14	0.19	0.31	1.00			
h. *opinion_sharing*	0.30	-0.05	-0.08	0.29	0.52	0.59	0.37	1.00		
i. *team_support*	0.16	0.24	-0.05	0.30	0.05	0.10	-0.17	-0.07	1.00	
j. *leadership*	0.30	0.17	-0.04	0.27	0.44	0.48	-0.04	0.47	0.31	1.00

Note: The highest observed correlation is 0.59 between *opinion_sharing* and *sociability*.

Table B10: Polychoric Correlation Matrix for Same-Gender Teams

	a	b	c	d	e	f	g	h	i	j
a. *altruism*	1.00									
b. *competitiveness*	-0.20	1.00								
c. *kindness*	0.39	0.13	1.00							
d. *reciprocity*	0.55	0.02	0.26	1.00						
e. *risk_taking*	0.38	0.07	0.36	0.49	1.00					
f. *sociability*	0.16	0.10	0.06	0.29	0.31	1.00				
g. *self_disclosure*	-0.05	0.22	-0.01	-0.22	0.13	0.30	1.00			
h. *opinion_sharing*	0.22	-0.20	0.07	0.33	0.45	0.53	0.25	1.00		
i. *team_support*	0.27	0.24	-0.12	0.42	-0.01	0.19	-0.29	-0.19	1.00	
j. *leadership*	0.36	0.09	0.28	0.49	0.24	0.49	-0.14	0.36	0.40	1.00

Note: The highest observed correlation is 0.55 between *altruism* and *reciprocity*.

Table B11: Polychoric Correlation Matrix for Mixed-Gender Teams

	a	b	c	d	e	f	g	h	i	j
a. *altruism*	1.00									
b. *competitiveness*	-0.12	1.00								
c. *kindness*	0.05	-0.19	1.00							
d. *reciprocity*	0.46	0.20	0.38	1.00						
e. *risk_taking*	0.50	0.26	-0.40	0.24	1.00					
f. *sociability*	0.29	-0.17	-0.23	0.13	0.57	1.00				
g. *self_disclosure*	0.13	0.32	-0.26	0.06	0.32	0.33	1.00			
h. *opinion_sharing*	0.45	0.25	-0.28	0.23	0.64	0.68	0.57	1.00		
i. *team_support*	-0.16	0.22	0.09	-0.10	0.15	-0.06	0.07	0.18	1.00	
j. *leadership*	0.23	0.25	-0.17	0.09	0.57	0.51	0.08	0.64	0.22	1.00

Note: The highest observed correlation is 0.68 between *opinion_sharing* and *sociability*.

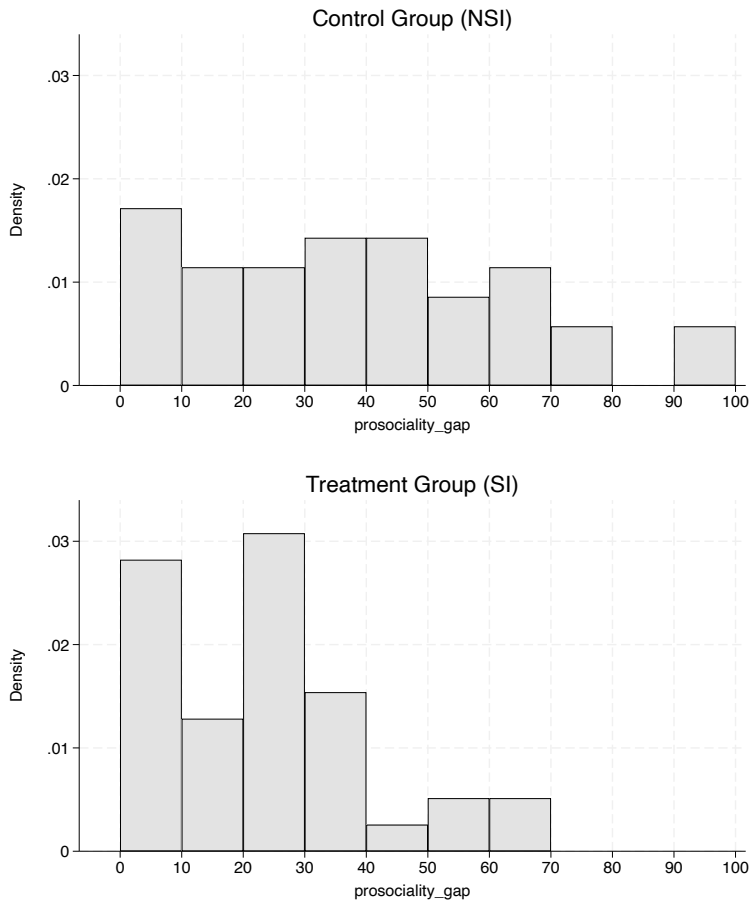


Figure B1: Distribution of Prosociality Gap across Experimental Conditions

Note: This figure shows the distribution of *prosociality_gap* across control group (top panel) and treatment group (bottom panel). The horizontal axis represents the absolute value of the difference in prosociality levels between team members, while the vertical axis indicates the density. The treatment group (SI) shows a more concentrated distribution toward smaller prosociality gap compared to the control group (NSI), suggesting that the intervention may have reduced heterogeneity in prosociality among team members.

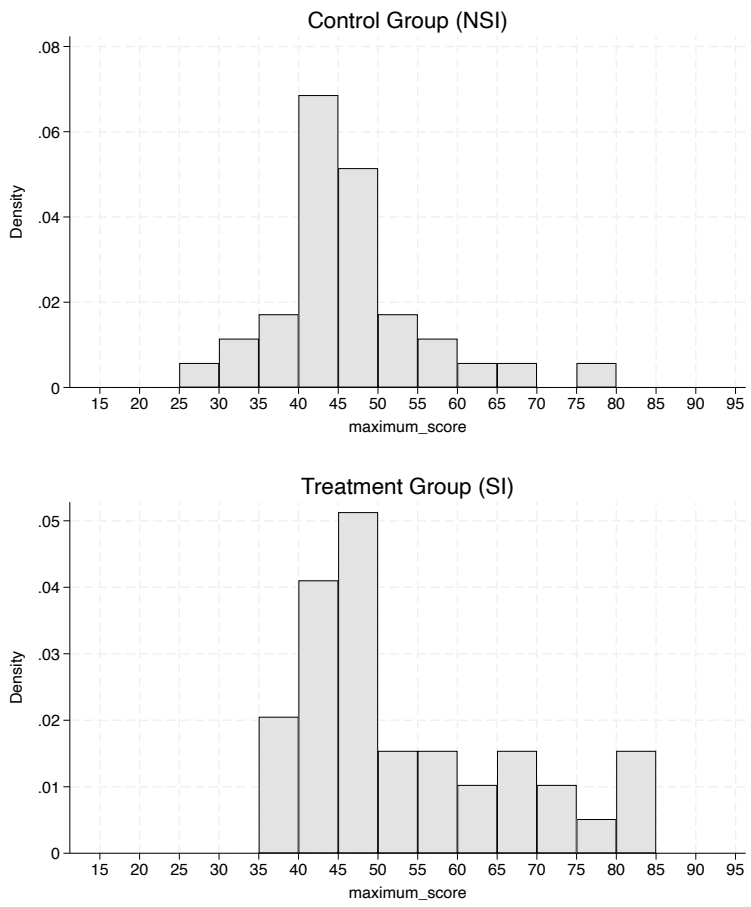


Figure B2: Distribution of Team Performance (Maximum Score) across Experimental Conditions

Note: This figure shows the distribution of *maximum_score* across control group (top panel) and treatment group (bottom panel). The horizontal axis represents the highest score achieved by each team across three SLAP task sessions, while the vertical axis indicates the density. The treatment group shows a higher proportion of teams achieving scores above 60 compared to the control group.

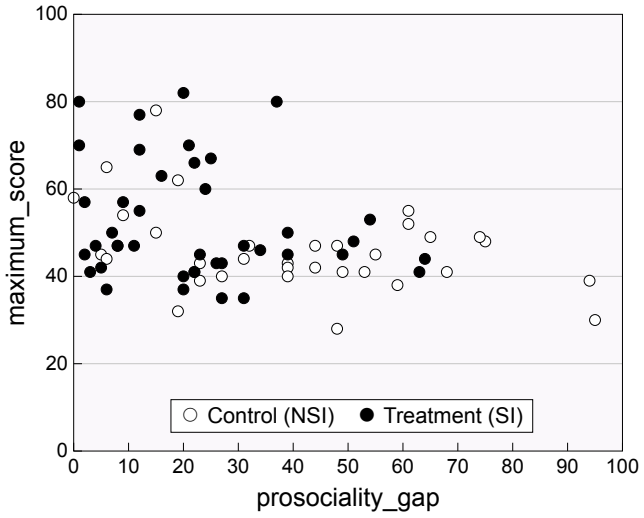


Figure B3: Scatterplot of Prosociality Gap and Maximum Score by Treatment Status

Note: The x-axis is a team's prosociality gap between members and y-axis is the maximum score of the team's SLAP task.

Table B12: Treatment Effects on Prosociality Gap and Team Performance (Robustness Check)

	H1: Prosociality Gap		H2: Maximum Score	
	Basic Controls	Full Controls	Basic Controls	Full Controls
treatment	-16.496***	-11.503**	7.533***	8.062**
	(5.174)	(4.403)	(2.717)	(3.423)
gender_diversity	-3.412	-2.810	-2.965	-1.767
	(4.832)	(4.833)	(2.715)	(2.724)
age	3.009	0.746	-3.851**	-2.751
	(2.747)	(3.019)	(1.469)	(2.104)
altruism		2.815		-0.994
		(3.009)		(1.852)
competitiveness		6.236**		-2.180
		(2.345)		(1.573)
kindness		8.278**		-0.669
		(3.485)		(1.706)
reciprocity		-6.132		0.654
		(5.043)		(1.995)
risk_taking		-2.757		-1.481
		(2.744)		(1.657)
sociability		4.260**		0.133
		(1.715)		(1.248)
self_disclosure		2.264		1.122
		(2.565)		(1.516)
R-squared	0.146	0.359	0.129	0.182
Observations	74	74	74	74

Note: This table reports OLS regressions with robust standard errors (in parentheses). Columns 1–2 show results for *prosociality gap* (H1); Columns 3–4 show results for *team performance* (H2). Basic Controls include *gender diversity* and *age*. Full Controls include demographic and all personality measures. While the sample size limits statistical power, the inclusion of covariates serves to test robustness rather than identification. Significance levels: $^{*}p < .10$, $^{**}p < .05$, $^{***}p < .01$.

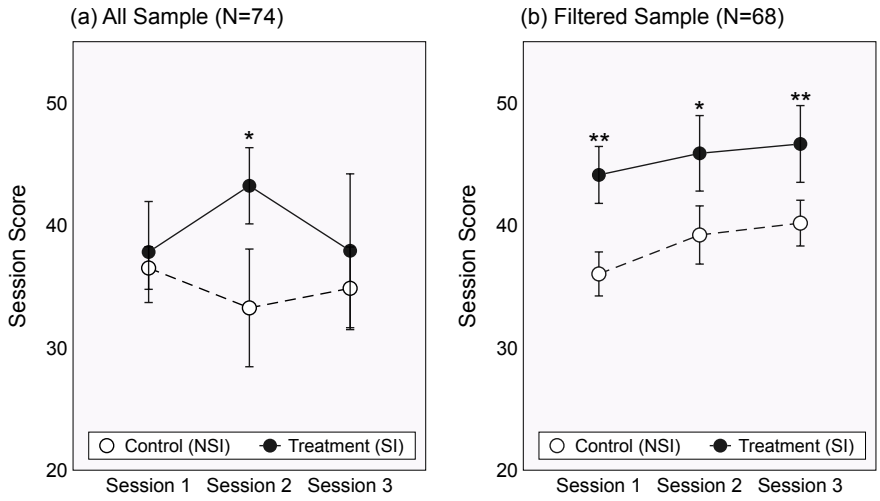


Figure B4: Mean SLAP Typing Scores by Session for Control and Treatment Groups

Note: Error bars represent standard errors of means. Panel (a) shows results for the full sample ($N = 74$), while panel (b) represents the filtered sample ($N = 68$), excluding teams that recorded a negative score in any of the three sessions. In the filtered sample, the treatment group demonstrated significantly higher scores compared to the control group in Session 1 ($p = .020$, $d = 0.586$) and Session 3 ($p = .039$, $d = 0.515$), with a marginally significant difference in Session 2 ($p = .091$, $d = 0.421$), while the full sample showed no significant between-group differences (all p-values> .05). These results justify the use of the filtered sample in our primary analyses and demonstrate the persistent positive impact of social interaction on team performance across all typing sessions. Significance levels: * $p < .10$, ** $p < .05$, *** $p < .01$.

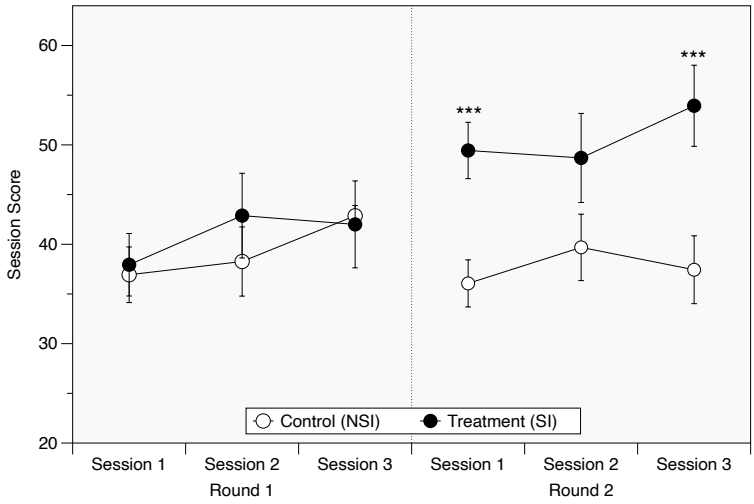


Figure B5: SLAP Typing Scores by Session Across Partner Reassignment for Control and Treatment Groups

Note: This figure provides a detailed examination of SLAP task performance across sessions in both rounds, with partner reassignment between rounds. Error bars represent standard errors. Data are drawn from the filtered sample ($N = 68$; Round 1 $n = 32$, Round 2 $n = 32$). Three key patterns emerge: (1) performance differences between treatment and control groups first emerge in Round 2, indicating that social skills developed through interaction in Round 1 were later applied and expressed in new team configurations; (2) control group members showed no performance improvement across rounds despite repeated task exposure, confirming that the SLAP task captures genuine coordination rather than individual learning effects; (3) performance gaps between groups widen over time, with the largest divergence observed in Round 2. Together, these findings demonstrate that social interaction produces enduring, transferable teamwork capabilities rather than merely temporary effects. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B13: Estimated Treatment Effects by Round

	Treatment Effect (SE)		
Outcome Variable	Round 1	Round 2	p-value (R1 / R2)
prosociality_gap	-16.03* (7.60)	-17.13** (7.05)	0.042 / 0.020
prosociality_prediction_error	-14.79*** (5.15)	-17.79*** (6.29)	0.007 / 0.008
maximum_score	2.45 (3.88)	10.85*** (3.78)	0.531 / 0.007
average_score_filtered	1.59 (3.77)	12.96*** (4.06)	0.677 / 0.003

Note: Each coefficient represents the estimated effect of the treatment condition (vs. control) from separate linear regressions for Round 1 and Round 2. Robust standard errors are shown in parentheses. Performance measures (maximum and average scores) show significant treatment effects only in Round 2, while prosociality-related outcomes show consistent and slightly stronger effects in Round 2. This pattern suggests that social alignment skills developed through interaction may accumulate over time and be effectively applied in new team contexts. Significance levels: * $p < .10$, ** $p < .05$, *** $p < .01$.

Table B14: Treatment Effects on Score Volatility and Growth (Robustness Check)

	Mean (SD)			
Outcome	Control	Treatment	Difference	p-value
score_volatility				
Overall	6.73 (4.09)	7.28 (4.63)	-0.54	0.622
Round 1	6.21 (3.43)	8.43 (4.70)	-2.22	0.142
Round 2	7.22 (4.69)	6.05 (4.36)	1.18	0.468
average_score_growth				
Overall	0.14 (0.30)	0.17 (0.44)	-0.03	0.743
Round 1	0.19 (0.23)	0.24 (0.58)	-0.05	0.747
Round 2	0.10 (0.36)	0.10 (0.17)	0.00	0.980

Note: This table reports means and standard deviations for score volatility and average score growth, comparing treatment and control groups overall and by experimental round. p-values are based on two-sided t-tests assuming equal variances. Observations flagged as filtered are excluded. *score_volatility* is the standard deviation of *session_score1*, *session_score2*, and *session_score3*. *average_score_growth* is defined as the mean of the relative increase from session 1 to 2 and from session 2 to 3. No statistically significant differences were found in any round or outcome.

Table B15: Mediation Analysis: The Effect of Social Interaction on Team Performance Through Prosociality Gap

Effect	Coef.	SE
Total Effect (*treatment* → *maximum_score*)	6.601**	2.708
Indirect Path Components:		
treatment → *prosociality_gap*	-16.579***	5.105
prosociality_gap → *maximum_score*	-0.150***	0.051
Direct Effect (*treatment* → *maximum_score*)	4.107	2.763
Mediation Effect		
Indirect Effect (Sobel Test)	2.494**	1.139
95% BCa CI (5000 replications)	[0.875, 5.531]	
Proportion of total effect mediated	37.8%	

Note: This analysis tests whether the prosociality gap mediates the relationship between social interaction treatment and team performance (*maximum_score*). The direct effect represents the effect of social interaction on maximum score when controlling for prosociality gap. Robust standard errors were used. BCa = bias-corrected and accelerated bootstrap method.

Table B16: Comparison of Potential Mediators Between Social Interaction and Team Performance

	Path Coefficients			
Mediator	Treatment → Mediator	Mediator → Maximum Score	Indirect Effect	95% BCa CI
closeness	24.547***	-0.136*	-3.346*	[-7.761, -0.406]
closeness_gap	-6.284	0.032	-0.202	[-1.784, 0.292]
prosociality	11.639***	-0.129**	-1.501*	[-3.856, -0.111]
prosociality_gap	-16.579***	-0.150***	2.494**	[0.875, 5.531]

Note: This table compares the mediation effects of different team bonding metrics on the relationship between social interaction and team performance. Interestingly, while prosociality and closeness show marginally significant mediation effects, these effects are negative, suggesting that increased levels of these metrics may actually hinder performance. In contrast, the reduction in the prosociality gap shows a significant positive mediation effect. These findings emphasize that social interaction enhances team performance specifically through aligning team members' prosociality levels rather than by simply increasing average prosociality or closeness. BCa = bias-corrected and accelerated bootstrap confidence intervals based on 5,000 replications. Significance levels: $^{*}p < .10$, $^{**}p < .05$, $^{***}p < .01$.

Table B17: Mediation Analysis: The Effect of Social Interaction on Prosociality Gap Through Emotional Perceptiveness

Effect	Coef.	SE
Total Effect (*treatment* → *prosociality_gap*)	-16.579***	5.105
Indirect Path Components:		
treatment → *prosociality_prediction_error*	-16.390***	4.066
prosociality_prediction_error → *prosociality_gap*	0.994***	0.069
Direct Effect (*treatment* → *prosociality_gap*)	-0.286	3.086
Mediation Effect		
Indirect Effect	-16.293***	4.101
95% BCa CI (5000 replications)	[-24.893, -8.750]	
Proportion of total effect mediated	98.3%	

Note: This analysis tests whether emotional perceptiveness (prosociality prediction error) mediates the relationship between social interaction treatment and prosociality gap. The direct effect represents the effect of social interaction on prosociality gap when controlling for prosociality prediction error. Robust standard errors were used. BCa = bias-corrected and accelerated bootstrap method. Significance levels: $^{*}p < .10$, $^{**}p < .05$, $^{***}p < .01$.

Table B18: Mediation Analysis: Emotional Perceptiveness (PPE) as a Mediator for Team Bonding Outcomes

	Path Coefficients			
Outcome Variable	Treatment → PPE	PPE → Outcome	Indirect Effect	95% BCa CI
closeness	-16.390***	0.094	-1.534	[-5.194, 2.128]
closeness_gap	-16.390***	-0.128	2.100	[-2.358, 6.558]
prosociality	-16.390***	0.094	-1.533	[-5.194, 2.129]
prosociality_gap	-16.390***	0.994***	-16.293***	[-24.893, -8.750]

Note: This table presents the mediation effects of emotional perceptiveness (*PPE*) on various team bonding outcomes. *PPE* was measured as the prosociality prediction error. Among the four outcomes, only the reduction in the prosociality gap was significantly mediated by *PPE*, suggesting that social interaction enhances team alignment in prosociality through increased emotional perceptiveness. All estimates are based on SEM models with 5,000 bias-corrected and accelerated (BCa) bootstrap replications. Significance levels: $^{*}p < .10$, $^{**}p < .05$, $^{***}p < .01$.

Table B19: Comparison of SEM and Causal Mediation Analysis with Control Variable (Robustness Check)

	SEM		Causal Mediation Analysis	
	Estimate	95% BCa CI	Estimate	95% BCa CI
Model 1: Social Interaction → Prosociality Gap → Team Performance				
Indirect Effect	2.52**	[0.30, 4.74]	2.87	[-0.98, 6.71]
Direct Effect	4.13	[-1.11, 9.36]	4.13	[-1.46, 9.72]
Total Effect	6.65**	[1.32, 11.97]	6.99**	[1.66, 12.33]
Model 2: Social Interaction → Emotional Perceptiveness → Prosociality Gap				
Indirect Effect	-16.23***	[-24.38, -8.08]	-18.43***	[-27.57, -9.29]
Direct Effect	0.17	[-7.27, 7.60]	2.37	[-4.72, 9.46]
Total Effect	-16.06***	[-25.79, -6.33]	-16.06***	[-26.00, -6.12]

Note: This table presents a robustness check comparing Structural Equation Modeling (SEM) and causal mediation analysis. Both analyses control for gender diversity to account for potential confounding effects of team composition. For SEM, indirect effects were estimated using bootstrap with 5,000 replications. For causal mediation analysis, Natural Indirect Effect (NIE) and Natural Direct Effect (NDE) are reported. In Model 1, both methods yield consistent results showing that social interaction indirectly enhances team performance by reducing the prosociality gap. In Model 2, both methods confirm that social interaction substantially reduces prosociality gap through enhanced emotional perceptiveness. While the indirect effect in Model 1 is statistically significant in SEM but not in the causal mediation analysis, both estimates are directionally and numerically consistent, and their confidence intervals largely overlap. These consistent findings across different methodological approaches provide strong evidence for the robustness of our main results. Confidence intervals (95%) were obtained through BCa bootstrap for SEM and normal-based intervals for causal mediation analysis. Significance levels: $^*p < .10$, $^{**}p < .05$, $^{***}p < .01$.

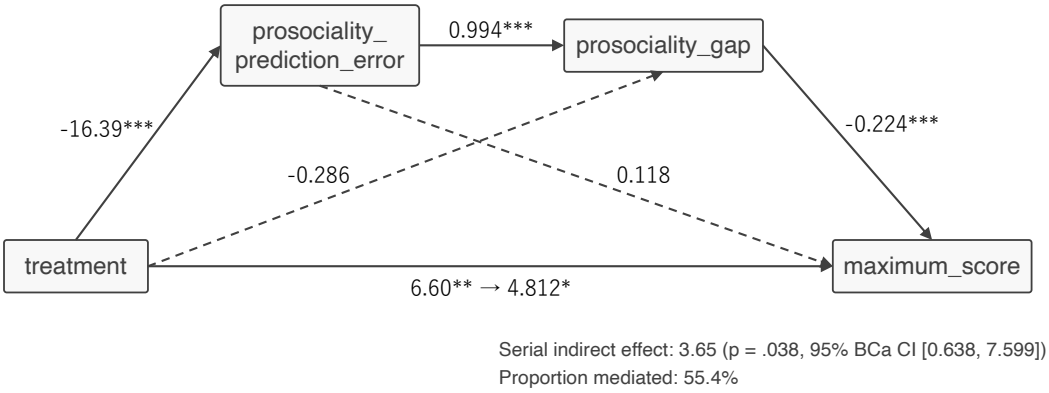


Figure B6: Serial Mediation Model: From Social Interaction to Team Performance Through Emotional Perceptiveness and Prosociality Gap

Note: Path coefficients are unstandardized. Solid lines indicate significant paths ($p < .05$), while dashed lines indicate non-significant paths. The analysis used structural equation modeling (SEM) with maximum likelihood estimation and robust standard errors. Results demonstrate a significant serial mediation process: social interaction significantly reduced the prosociality prediction error (improved emotional perceptiveness), which in turn reduced the prosociality gap, ultimately enhancing team performance. This sequential pathway accounts for 55.4% of the total effect, while direct paths from prosociality prediction error to maximum score and from treatment to prosociality gap were not significant. The significant serial indirect effect (3.65, $p = .038$, 95% BCa CI [0.638, 7.599]) suggests that improved emotional perceptiveness is a critical mechanism through which social interaction reduces prosociality gaps and subsequently enhances team performance. Significance levels: $^*p < .10$, $^{**}p < .05$, $^{***}p < .01$.

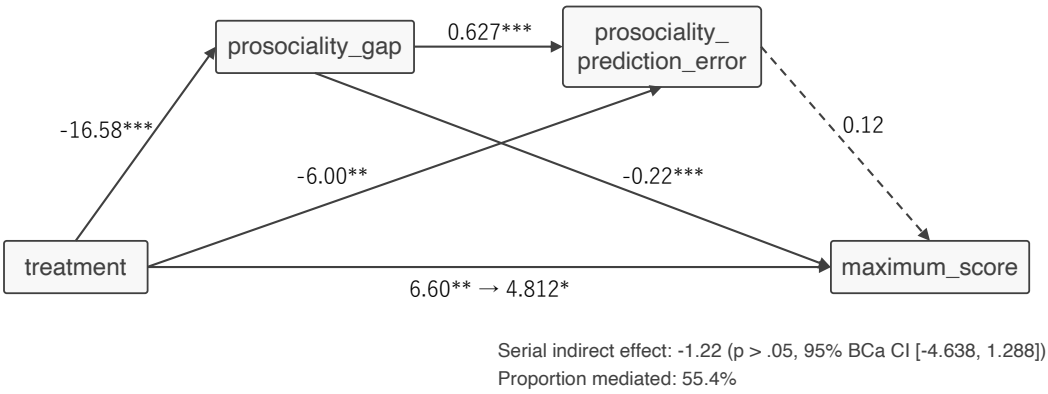


Figure B7: Alternative Specification of Serial Mediation Model (Robustness Check)

Note: This figure presents an alternative specification of the serial mediation model with reversed mediator ordering (*prosociality_gap* → *prosociality_prediction_error*) as a robustness check. Unlike our primary theoretical model (Figure B6), this alternative specification yields a non-significant serial indirect effect (-1.22, $p > .05$, 95% BCa CI [-4.638, 1.288]), providing further support for our hypothesized causal ordering where emotional perceptiveness (*prosociality_prediction_error*) precedes prosociality gap reduction. Path coefficients are unstandardized. Solid lines indicate significant paths, while dashed lines indicate non-significant paths. Significance levels: $^{*}p < .10$, $^{**}p < .05$, $^{***}p < .01$.

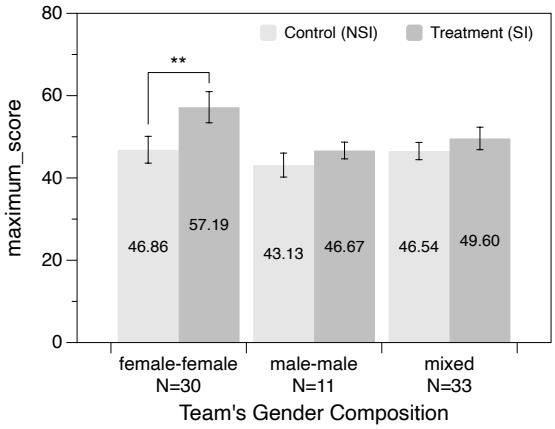


Figure B8: Team Performance by Detailed Gender Composition (Female-female, Male-male, and Mixed) and Treatment Condition

Note: Error bars represent standard errors of means. The figure shows the maximum score achieved by teams with different gender compositions (female-female, male-male, and mixed) across control (NSI) and treatment (SI) conditions. Due to the small sample size of male-male teams ($N = 11$), teams were categorized as "same-gender" (combining female-female and male-male teams) versus "mixed-gender" teams in the main analysis. The significant treatment effect is only observed in female-female teams ($p < .05$), as indicated by the asterisks.

Table B20: Moderating Effects of Team Characteristics on the Relationship Between Social Interaction and Team Bonding

	Closeness			Closeness Gap		
Moderator	Int. Coef.	SE	95% CI	Int. Coef.	SE	95% CI
Personality Traits						
altruism	-2.16	4.16	[-10.46, 6.13]	2.29	5.23	[-8.14, 12.73]
competitiveness	-1.51	3.27	[-8.04, 5.01]	-1.05	4.00	[-9.03, 6.93]
kindness	-3.07	4.25	[-11.55, 5.41]	6.48	6.07	[-5.63, 18.59]
reciprocity	6.30	4.29	[-2.25, 14.85]	1.05	4.90	[-8.73, 10.83]
risk_taking	-4.96	4.18	[-13.30, 3.38]	-0.17	5.16	[-10.46, 10.11]
sociability	-5.24	3.21	[-11.64, 1.16]	2.17	3.54	[-4.89, 9.23]
self_disclosure	-8.68**	3.88	[-16.42, -0.93]	-0.47	4.51	[-9.47, 8.52]
Team Roles and Behaviors						
opinion_sharing	-3.84	4.64	[-13.09, 5.42]	5.42	4.87	[-4.30, 15.13]
team_support	1.61	5.01	[-8.37, 11.60]	5.32	4.85	[-4.35, 14.99]
leadership	-3.59	3.65	[-10.87, 3.70]	2.62	5.10	[-7.55, 12.79]

	Prosociality			Prosociality Gap		
Moderator	Int. Coef.	SE	95% CI	Int. Coef.	SE	95% CI
Personality Traits						
altruism	7.69*	4.37	[-1.03, 16.41]	2.07	5.67	[-9.24, 13.37]
competitiveness	0.48	5.11	[-9.72, 10.67]	0.07	4.04	[-7.99, 8.12]
kindness	-6.51	4.42	[-15.32, 2.29]	-10.28*	5.81	[-21.87, 1.31]
reciprocity	-0.69	4.24	[-9.15, 7.77]	11.41	6.97	[-2.50, 25.31]
risk_taking	9.83**	3.80	[2.24, 17.41]	11.14**	5.17	[0.83, 21.46]
sociability	-5.82*	3.25	[-12.31, 0.67]	-0.45	2.92	[-6.27, 5.37]
self_disclosure	3.34	3.70	[-4.04, 10.73]	-2.16	3.84	[-9.83, 5.50]
Team Roles and Behaviors						
opinion_sharing	5.92	3.98	[-2.02, 13.86]	2.28	4.30	[-6.28, 10.85]
team_support	-14.27***	4.68	[-23.60, -4.95]	8.71	6.38	[-4.02, 21.44]
leadership	2.39	3.32	[-4.23, 9.02]	5.05	4.67	[-4.27, 14.36]

	Prosociality Prediction Error		
Moderator	Int. Coef.	SE	95% CI
Personality Traits			
altruism	3.86	4.40	[-4.92, 12.65]
competitiveness	0.77	3.37	[-5.94, 7.49]
kindness	-11.04**	4.50	[-20.02, -2.07]
reciprocity	8.77	5.38	[-1.97, 19.50]
risk_taking	6.36	4.14	[-1.89, 14.61]
sociability	0.51	2.32	[-4.11, 5.13]
self_disclosure	-0.33	3.27	[-6.85, 6.18]
Team Roles and Behaviors			
opinion_sharing	-1.39	3.32	[-8.02, 5.24]
team_support	4.97	4.81	[-4.62, 14.57]
leadership	-1.08	3.69	[-8.44, 6.28]

Note: The table presents the coefficients for the interaction terms (Treatment × Team Characteristic) from separate regression models. All team characteristics variables were mean-centered prior to analysis. Robust standard errors were used. Several significant moderating effects emerged: *risk_taking* positively moderated the treatment effect on prosociality ($p = .012$) and prosociality gap ($p = .035$), indicating that teams with higher risk-taking tendencies showed greater improvements in prosocial behavior following social interaction. *self_disclosure* negatively moderated the effect on closeness ($p = .029$), suggesting teams with higher self-disclosure tendencies experienced smaller increases in closeness from social interaction. *team_support* showed a strong negative moderating effect on prosociality ($p = .003$), indicating teams with stronger support orientations had reduced the prosociality under social interaction conditions. Interestingly, although self-rated $kindness_i$ was positively correlated with higher prediction error (PPE_i) at the individual level—as shown in Table B6—suggesting that individuals with higher kindness were initially less accurate in inferring their teammate's prosociality, our moderation analysis revealed the opposite pattern at the team level. Teams with higher *kindness* experienced larger reductions in PPE following social interaction, indicating that kindness moderated the effect of social interaction on emotional perceptiveness in a compensatory manner. Significance levels: * $p < .10$, ** $p < .05$, *** $p < .01$.

Table B21: Moderating Effects of Team Characteristics on the Relationship Between Social Interaction and SLAP Performance

	Average Score			Maximum Score		
Moderator	Int. Coef.	SE	95% CI	Int. Coef.	SE	95% CI
Personality Traits						
altruism	-5.41	4.47	[-14.33, 3.50]	-3.27	3.12	[-9.49, 2.94]
competitiveness	-5.10	3.91	[-12.91, 2.70]	-0.86	3.00	[-6.84, 5.13]
kindness	0.32	4.77	[-9.20, 9.84]	-1.94	2.78	[-7.49, 3.61]
reciprocity	-3.17	5.85	[-14.84, 8.50]	-3.76	3.48	[-10.69, 3.18]
risk_taking	-7.29**	3.36	[-13.99, -0.59]	-4.97**	2.42	[-9.80, -0.14]
sociability	3.68	2.98	[-2.27, 9.63]	2.71	2.25	[-1.77, 7.20]
self_disclosure	3.55	3.35	[-3.12, 10.23]	3.57	2.52	[-1.47, 8.60]
Team Roles and Behaviors						
opinion_sharing	2.91	3.43	[-3.93, 9.75]	3.28	2.33	[-1.37, 7.93]
team_support	5.14	5.62	[-6.07, 16.34]	6.50*	3.49	[-0.45, 13.45]
leadership	0.28	4.14	[-7.97, 8.53]	-1.29	3.12	[-7.52, 4.94]

	Average Score (Filtered)			Maximum Score (Filtered)		
Moderator	Int. Coef.	SE	95% CI	Int. Coef.	SE	95% CI
Personality Traits						
altruism	-3.94	3.13	[-10.20, 2.31]	-2.68	3.01	[-8.71, 3.35]
competitiveness	-3.44	3.22	[-9.88, 3.01]	-3.20	2.98	[-9.16, 2.75]
kindness	-3.89	3.43	[-10.76, 2.98]	-3.49	3.32	[-10.12, 3.15]
reciprocity	-6.96	4.45	[-15.85, 1.94]	-5.33	4.29	[-13.92, 3.26]
risk_taking	-5.64**	2.76	[-11.16, -0.12]	-5.80**	2.52	[-10.85, -0.76]
sociability	3.06	2.49	[-1.92, 8.04]	3.15	2.40	[-1.64, 7.94]
self_disclosure	3.20	2.67	[-2.14, 8.54]	2.94	2.63	[-2.33, 8.20]
Team Roles and Behaviors						
opinion_sharing	2.05	2.65	[-3.24, 7.34]	3.45	2.48	[-1.52, 8.42]
team_support	5.56	4.87	[-4.17, 15.30]	8.42**	4.22	[-0.02, 16.85]
leadership	-3.14	2.73	[-8.61, 2.33]	-1.16	2.60	[-6.36, 4.03]

Note: The table presents the coefficients for the interaction terms (Treatment × Team Characteristic) from separate regression models. All team characteristics variables were mean-centered prior to analysis. Robust standard errors were used. Several significant moderating effects emerged: *risk_taking* showed significant negative interaction effects across all four outcome measures (all $p < .05$), suggesting that teams with higher risk-taking tendencies benefited less from social interaction in terms of task performance. *team_support* showed a marginally significant positive interaction effect on *maximum_score* ($p < .10$) and a significant positive effect on *maximum_score_filtered* ($p = .050$), indicating teams with stronger support orientations performed better on maximum task scores following social interaction. Most other moderators did not show statistically significant interaction effects, suggesting their minimal role in moderating the relationship between social interaction and task performance. Significance levels: * $p < .10$, ** $p < .05$, *** $p < .01$.

Table B22: Moderating Effects of Team Characteristics on the Relationship Between Social Interaction and Perceived Teamwork

	Frequent Interaction			Meaningful Conversation		
Moderator	Int. Coef.	SE	95% CI	Int. Coef.	SE	95% CI
Personality Traits						
altruism	-0.14	0.38	[-0.90, 0.62]	0.01	0.38	[-0.75, 0.78]
competitiveness	0.31	0.29	[-0.25, 0.88]	0.41	0.36	[-0.32, 1.14]
kindness	-0.03	0.41	[-0.85, 0.79]	0.29	0.39	[-0.49, 1.07]
reciprocity	0.68*	0.38	[-0.08, 1.44]	0.08	0.58	[-1.09, 1.25]
risk_taking	0.53*	0.31	[-0.09, 1.15]	0.11	0.33	[-0.54, 0.76]
sociability	-0.22	0.22	[-0.66, 0.21]	-0.18	0.24	[-0.66, 0.29]
self_disclosure	-0.03	0.28	[-0.59, 0.53]	0.06	0.27	[-0.48, 0.60]
Team Roles and Behaviors						
opinion_sharing	-0.12	0.39	[-0.89, 0.65]	-0.03	0.43	[-0.89, 0.82]
team_support	0.03	0.44	[-0.84, 0.90]	-0.50	0.60	[-1.70, 0.69]
leadership	-0.58	0.36	[-1.30, 0.15]	-0.09	0.42	[-0.94, 0.76]

	Quick Problem Solving			Task Enjoyment		
Moderator	Int. Coef.	SE	95% CI	Int. Coef.	SE	95% CI
Personality Traits						
altruism	-0.77	0.54	[-1.84, 0.30]	0.24	0.36	[-0.47, 0.95]
competitiveness	0.04	0.44	[-0.84, 0.91]	-0.16	0.31	[-0.78, 0.47]
kindness	0.11	0.55	[-0.99, 1.21]	0.31	0.36	[-0.41, 1.03]
reciprocity	0.01	0.62	[-1.23, 1.25]	0.72*	0.39	[-0.05, 1.49]
risk_taking	-0.10	0.56	[-1.21, 1.01]	0.04	0.31	[-0.58, 0.66]
sociability	-0.14	0.34	[-0.82, 0.55]	-0.53***	0.19	[-0.91, -0.15]
self_disclosure	-0.10	0.32	[-0.74, 0.54]	-0.44*	0.23	[-0.90, 0.02]
Team Roles and Behaviors						
opinion_sharing	-0.49	0.46	[-1.41, 0.43]	-0.40	0.36	[-1.11, 0.31]
team_support	-0.58	0.55	[-1.67, 0.51]	-0.02	0.42	[-0.86, 0.83]
leadership	-0.68*	0.41	[-1.49, 0.12]	-0.51	0.40	[-1.30, 0.29]

	Team Cohesion		
Moderator	Int. Coef.	SE	95% CI
Personality Traits			
altruism	0.26	0.47	[-0.68, 1.21]
competitiveness	-0.16	0.34	[-0.84, 0.52]
kindness	0.45	0.52	[-0.59, 1.48]
reciprocity	0.63	0.54	[-0.46, 1.71]
risk_taking	0.37	0.35	[-0.34, 1.07]
sociability	-0.46**	0.22	[-0.90, -0.01]
self_disclosure	-0.12	0.26	[-0.63, 0.39]
Team Roles and Behaviors			
opinion_sharing	-0.52	0.41	[-1.34, 0.31]
team_support	-0.45	0.50	[-1.46, 0.56]
leadership	-0.96**	0.46	[-1.88, -0.04]

Note: The table presents the coefficients for the interaction terms (Treatment × Team Characteristic) from separate regression models. All team characteristics variables were mean-centered prior to analysis. Robust standard errors were used. Several significant moderating effects emerged: *sociability* showed a significant negative interaction with treatment for both task enjoyment ($p = .007$) and team cohesion ($p = .044$), suggesting that more sociable teams experienced less improvement in enjoyment and cohesion from social interaction. *leadership* showed a significant negative interaction effect on team cohesion ($p = .040$), indicating teams with stronger leadership characteristics reported less improvement in cohesion following social interaction. Significance levels: * $p < .10$, ** $p < .05$, *** $p < .01$.

B2 Experimental Procedure

The experiment was conducted with randomly formed two-person teams, which were then randomly assigned to either the treatment (SI) or control (NSI) group. These groups were placed in separate experimental rooms. The procedure consisted of two rounds, with team reorganization between rounds. Instructions given to participants are presented in bold.

Detailed Procedure

Participants were recruited from undergraduate students enrolled in the "Experimenting with Human Behavior" lecture at the university in Japan. Initially, all participants gathered in a single laboratory room where they received questionnaire booklets with cover pages containing participation guidelines. Each booklet was pre-assigned a unique three-digit identifier (ID), with IDs starting with "1" (e.g., 103, 124) assigned to the Control group, and those starting with "2" (e.g., 204, 213) assigned to the Treatment group.

To ensure strict randomization and minimize potential selection biases due to seating arrangements or personality clustering, we employed a two-stage randomization process. First, all participant IDs were randomized using Excel's `RAND()` function. These IDs were then printed on stickers and affixed to the booklets in randomized order by the research staff. After receiving their materials, participants were directed to laboratory room A or B based on their assigned ID range (Control vs. Treatment). Upon arrival, they were guided to specific seating locations displayed on a screen.

Both laboratory rooms were computer rooms with carefully standardized environmental conditions, including room size, lighting, temperature, humidity, and the volume of instructor microphones, to minimize any environmental confounds between conditions. In both rooms, team pairs were seated with one empty row between teams to maintain privacy. Although each participant had access to an individual PC and monitor, the SLAP task required teams to share a single monitor and keyboard. For consistency, all teams used the monitor and keyboard of the member seated on the left side.

After providing general instructions about the experiment, including a mention of potential rewards without specifying amounts or conditions, the experimental procedure began. Full details of these instructions can be found in Appendix B3 (English translation) and Appendix B4 (original Japanese version).

Figure B9 provides visual documentation of the experimental environment, showing participants engaged in both the social interaction treatment (collaborative brainstorming) and the SLAP task. As illustrated, we maintained consistent experimental conditions across both control and treatment groups through careful standardization of the laboratory settings.

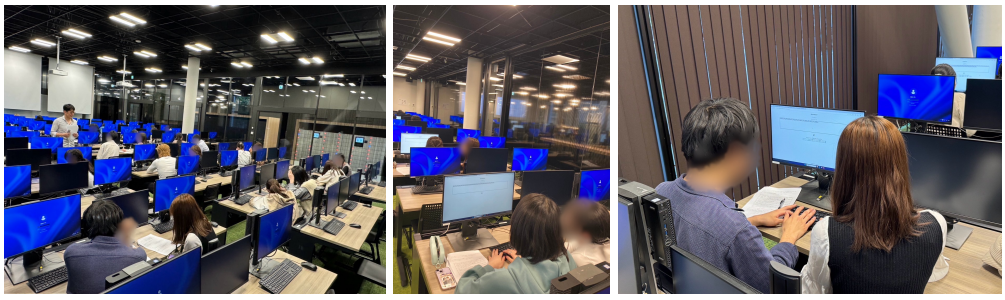


Figure B9: Laboratory Experiment Setup

Note: The left image shows participants in the treatment group engaging in the 10-minute collaborative brainstorming task (STEP 2). The center and right images depict participants performing the SLAP task (STEP 5). To ensure consistent experimental conditions for both Control and Treatment groups, two separate computer rooms with identical seating arrangements were used. Environmental factors such as room temperature and humidity, instruction microphone volume, and the number and gender of assistant staffs were also kept constant across both conditions.

■ First Round

1. STEP 1: Collection of Demographic and Personality Trait/Team Roles and Behavior Information

Participants were asked to provide demographic information and respond to personality trait questions using a 7-point Likert scale (Strongly Disagree to Strongly Agree):

(a) **Please circle your level of prior interaction with your teammate:** (Variable: $prior\_interaction_i$)
- **I have never spoken with them before today.** ($prior\_interaction_i = 0$)
- **I have had brief greetings with them before today.** ($prior\_interaction_i = 1$)
- **I have had conversations beyond brief greetings with them before today.** ($prior\_interaction_i = 2$)

Note: Pairs where at least one member had a $prior\_interaction_i$ value greater than 0 were excluded from the sample to ensure no prior familiarity between teammates.

(b) **Please indicate your gender.** (Variable: $gender_i$)

(c) **Please indicate your age.** (Variable: age_i)

(d) **Please select the option that best describes how much the following statements apply to you:** (Personality Traits)
i. **I do good deeds without expecting anything in return.** (Variable: $altruism_i$)
ii. **Competition brings the best out of me.** (Variable: $competitiveness_i$)
iii. **I consider myself to be a considerate and kind person.** (Variable: $kindness_i$)
iv. **I go out of my way to help somebody who has been kind to me before.** (Variable: $reciprocity_i$)
v. **I am generally willing to take risks.** (Variable: $risk\_taking_i$)
vi. **I am good at initiating conversations with strangers.** (Variable: $sociability_i$)
vii. **When I am facing difficulties or problems, I find it easy to confide in others about them.** (Variable: $self\_disclosure_i$)

(e) **Please select the option that best describes how much the following statements apply to you:** (Team Roles and Behaviors)
i. **In a team or group setting, I can clearly express my ideas and opinions to my teammates.** (Variable: $opinion\_sharing_i$)
ii. **In a team or group setting, I often invest time and effort into helping and supporting my teammates.** (Variable: $team\_support_i$)
iii. **In a team or group setting, I often naturally take on a leadership role.** (Variable: $leadership_i$)

2. STEP 2: 10-minute collaborative (or individual) brainstorming task

In this step, participants were divided into two groups: the treatment group, which engaged in social interaction (Treatment (SI)), and the control group, which did not engage in social interaction (Control (NSI)).

For Treatment (SI) group:

> **For the next 10 minutes, you will have a conversation with your partner about the three themes and provide your responses. During the conversation, please discuss each theme thoroughly, list as many possible answers as you can, and select the one you think is most important. Then, write down your chosen answer and a brief reason in the space provided. This conversation is a valuable opportunity to gain diverse perspectives. Please participate actively and share your honest opinions.**

For Control (SI) group:

> **For the next 10 minutes, you will individually engage with the three themes and provide your responses. Without discussing with others, please consider each theme from various angles, list as many possible answers as you can, and select the one you think is most important. Then, write down your chosen answer and a brief reason in the space provided. This is a valuable opportunity to reflect on your own experiences and thoughts. Please provide your honest opinions.**

Themes for discussion/contemplation:

(a) **What do you think are the essential elements for the success of team activities?**

(b) **What types of activities or events do you think would positively impact the team?**

(c) **What do you think could be the obstacles during team activities?**

Participants were free to discuss the three themes in any order and to allocate time among them as they saw fit. During the brainstorming task, the instructor only provided occasional time announcements; otherwise, both the instructor and assistant staff maintained a natural, non-intrusive presence to ensure that the environment remained consistent with each condition's design.

3. STEP 3: Measuring Team Bonding Metrics

   Participants were asked to respond to the following questions using a Visual Analogue Scale (100mm line). These measures constitute our team bonding metrics:

   (a) **How close do you feel to the teammate you are paired with this time?** *(Variable: $closeness_i$)*

   (b) **Are you more motivated to engage in this task for your own reward or for the benefit of your teammate?** *(Variable: $prosociality_i$)*

   (c) **Do you imagine that your teammate is more motivated to engage in this task for their own reward or for your benefit?** *(Variable: $expected\_prosociality_i$)*

4. STEP 4: SLAP Typing Task Explanation and Demonstration

   The SLAP task was explained and demonstrated to participants.

5. STEP 5: SLAP Typing Task

   Teams then performed the task, which consisted of three one-minute typing sessions with 90-second strategy periods between sessions. During these strategy periods, team members were allowed to discuss and plan their approach for the next session.

   The following variables were measured from the SLAP task, constituting our SLAP task performance metrics:

   - Individual session scores: *score1*, *score2*, *score3*
   - Average score across the three sessions: *average_score*
   - Maximum score achieved in any of the three sessions: *maximum_score*

   As incentives were provided based on the *maximum_score*, this variable was defined as the primary measure of team performance in our study.

6. STEP 6: Perceived Teamwork Metrics

   After completing the SLAP task, participants were asked to provide Perceived Teamwork Metrics, self-assessing their team's performance using an 11-point Likert scale (0: Strongly Disagree to 10: Strongly Agree):

   (a) **We were able to make many contributions to the discussion.** *(Variable: $frequent\_interaction_i$)*

   (b) **We had meaningful conversations that contributed to the success of the task.** *(Variable: $meaningful\_conversation_i$)*

   (c) **We were able to respond quickly to problems that arose during typing.** *(Variable: $quick\_problem\_solving_i$)*

   (d) **We were able to work on the task enjoyably as a team.** *(Variable: $task\_enjoyment_i$)*

   (e) **My team demonstrated a high level of cohesion.** *(Variable: $team\_cohesion_i$)*

   After completing STEPS 1 to 6, teams within each group (treatment and control) were randomly reorganized, ensuring that no participant was paired with their previous teammate.

■ Second Round

In the second round, participants were reassigned to new teammates within the same experimental condition using pre-randomized seating charts generated via Excel's `RAND()` function. This within-condition reassignment was critical to avoid revealing the nature of the intervention—cross-condition reallocation could have led participants to infer the experimental manipulation based on whether social interaction was permitted.

The second round followed the same procedure as the first, with the following modifications:

- STEP 1 was omitted as demographic and personality information had already been collected.
- STEP 2 used a different set of discussion/contemplation themes:
  1. **What qualities do you think are important for an ideal leader in a team?**
  2. **What actions or behaviors of a team leader do you think motivate team members?**
  3. **What actions or behaviors of a team leader do you think would negatively impact the team?**
- STEP 3 (Measuring team bonding metrics) was conducted with the new teammate.
- STEP 4 was omitted.
- STEP 5 (the task execution) was conducted with the new teammate.
- STEP 6 (Perceived Teamwork Metrics) was conducted again with respect to the new team's performance.

At the conclusion of the second round, the instructor expressed gratitude to all participants for their involvement in the experiment. Assistant staff then collected all materials. Participants were reminded that the team with the highest maximum score in each round would receive a monetary reward (2,000 yen, approximately 13 U.S. dollars, or 6.5 U.S. dollars per member) to be distributed one week after the experiment. At this point, participants were not informed which teams had earned the rewards. The entire experimental procedure, from receiving the initial questionnaire booklet to completing the final task, lasted approximately 62–64 minutes per participant.

Data Collection Methods

Data for STEP 1, 2, 3, and 6 were collected using paper-based questionnaires distributed to each participant. For the SLAP task (STEP 4-5), a computer program automatically recorded and transmitted performance data to the experimenters. This data included group ID, session-specific scores, number of mistyped characters, total number of characters typed, and timestamp of data transmission.

To minimize experimenter effects, all instructions were delivered according to pre-prepared standardized scripts provided identically to both groups. Furthermore, SLAP task performance data was automatically recorded by computer software, while participants also manually recorded their scores in designated spaces in their questionnaire booklets. This dual recording system allowed for verification of data integrity (although no discrepancies were found between computer-recorded and participant-reported scores). Although blinding experimenters to condition assignment was not feasible due to the nature of the procedure, all experimental instructions were fully scripted and standardized across conditions to minimize experimenter effects and demand characteristics.

B3 Survey Questionnaire: English-Translated Version

For both Control and Treatment group:

Instructions for the Experiment

*Please carefully read the following instructions.

1. In today's experiment, you will complete a questionnaire and perform simple tasks on a computer as part of a team. The experiment will be conducted twice and is expected to take about 60 minutes in total.
2. Participation in this experiment is entirely voluntary. Even after agreeing to participate, you are free to withdraw at any time for any reason.
3. If you follow the rules and participate in this experiment, you will earn 2 points. Top performers in the tasks will also receive a Quo Card. If you decide not to participate, you can complete an alternative task to make up for it.
4. Your actions, responses, and task scores during the experiment will not affect your points. However, please refrain from any behavior that contradicts the experiment's instructions or the staff.
5. Please turn off all electronic devices, including smartphones. The use of electronic devices during the experiment is prohibited.
6. Always wait for the instructor's signal before turning to the next page of the booklet.
7. You will need a black writing instrument, such as a pencil, mechanical pencil, or ballpoint pen. Please do not use thick markers. If you don't have a writing instrument, please inform the staff.
8. The data collected in this experiment will be used exclusively for research purposes. The results will be processed statistically, and no personal information will be linked to the data. Your identity will remain confidential.
9. The survey results will be handled with strict confidentiality. After the research is completed, all answer sheets will be promptly shredded and securely disposed of.
10. If you have any concerns or questions about the experiment, please do not hesitate to raise your hand and ask the instructor.

*Please do not turn the page until instructed by the facilitator.

*Attach ID sticker here.

1

For both Control and Treatment group:

In this experiment, the person sitting next to you is your teammate (pair). There will be some questionnaires and tasks that you will complete individually, and some tasks where you will work together as a team (pair).

Please read the following question and circle the option that applies to you. Circle your answer in the ( ).

Q1. Please circle your level of prior interaction with your teammate.

( ) I have never spoken with them before today.
( ) I have had brief greetings with them before today.
( ) I have had conversations beyond brief greetings with them before today.

*Please do not turn the page until instructed by the facilitator.

2

For both Control and Treatment group:

Please answer the following questions about yourself. Fill in the blanks or check the appropriate ◯.

Sample Answer: ☑

Q2. Please indicate your gender.

◯ Male ◯ Female ◯ Other

Q3. Please indicate your age. _____ years old

Q4. Please select the option that best describes how much the following statements apply to you.

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
I do good deeds without expecting anything in return.	◯	◯	◯	◯	◯	◯	◯
Competition brings the best out of me.	◯	◯	◯	◯	◯	◯	◯
I consider myself to be a considerate and kind person.	◯	◯	◯	◯	◯	◯	◯
I go out of my way to help somebody who has been kind to me before.	◯	◯	◯	◯	◯	◯	◯
I am generally willing to take risks.	◯	◯	◯	◯	◯	◯	◯
I am good at initiating conversations with strangers.	◯	◯	◯	◯	◯	◯	◯
When I am facing difficulties or problems, I find it easy to confide in others about them.	◯	◯	◯	◯	◯	◯	◯

*Please proceed to the next page.

For both Control and Treatment group:

Q4. (Continued)

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
In a team or group setting, I can clearly express my ideas and opinions to my teammates.	○	○	○	○	○	○	○
In a team or group setting, I often invest time and effort into helping and supporting my teammates.	○	○	○	○	○	○	○
In a team or group setting, I often naturally take on a leadership role.	○	○	○	○	○	○	○

*Please do not turn the page until instructed by the facilitator.

4

For Control group:

- For the next 10 minutes, you will individually engage with the three themes presented in Q5, Q6, and Q7 and provide your responses.
- Without discussing with others, please consider each theme from various angles, list as many possible answers as you can, and select the one you think is most important. Then, write down your chosen answer and a brief reason in the space provided.
- This is a valuable opportunity to reflect on your own experiences and thoughts. Please provide your honest opinions.

Q5. What do you think are the essential elements for the success of team activities?

Possible elements for the success of team activities:

_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,

From the list above, choose the element you consider most important: _____

Reason:

Q6. What types of activities or events do you think would positively impact the team?

Possible team-building activities or events:

_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,

From the list above, choose the activity or event you consider most important: _____

Reason:

Q7. What do you think could be the obstacles during team activities?

Possible obstacles during team activities:

_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,

From the list above, choose the obstacle you consider most significant: _____

Reason:

*Please do not turn the page until instructed by the facilitator.

5

For Treatment group:

- For the next 10 minutes, you will have a conversation with your partner about the three themes presented in Q5, Q6, and Q7 and provide your responses.
- During the conversation, please discuss each theme thoroughly, list as many possible answers as you can, and select the one you think is most important. Then, write down your chosen answer and a brief reason in the space provided.
- This conversation is a valuable opportunity to gain diverse perspectives. Please participate actively and share your honest opinions.

Q5. What do you think are the essential elements for the success of team activities?

Possible elements for the success of team activities:

_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,

From the list above, choose the element you consider most important: _____

Reason:

Q6. What types of activities or events do you think would positively impact the team?

Possible team-building activities or events:

_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,

From the list above, choose the activity or event you consider most important: _____

Reason:

Q7. What do you think could be the obstacles during team activities?

Possible obstacles during team activities:

_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,

From the list above, choose the obstacle you consider most significant: _____

Reason:

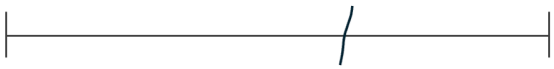
*Please do not turn the page until instructed by the facilitator.

5

For both Control and Treatment group:

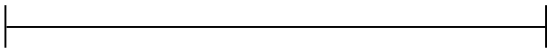
You and your partner will now work together on a simple task using a computer. This task will require both of your efforts and cooperation. Before starting the task, please answer the following questions.

Q8. For the following questions about your partner, please draw a vertical line on the provided scale to indicate your feelings.
(While you are answering the questions, do not consult with your partner, and make sure your responses are not visible to them.)

Sample Answer: 

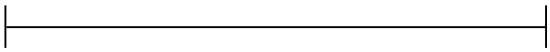
(1) How close do you feel to the teammate you are paired with this time?

Neutral — Feel very close



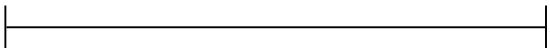
(2) Are you more motivated to engage in this task for your own reward or for the benefit of your teammate?

For yourself — For your teammate



(3) Do you imagine that your teammate is more motivated to engage in this task for their own reward or for your benefit?

For themselves — For you



*Please do not turn the page until instructed by the facilitator.

6

For both Control and Treatment group:

You and your partner will perform a simple game task using a computer. This task is a cooperative activity where you and your partner will share one keyboard.

If your ID is an odd number, please access the course page on CoursePower and click on the URL for the SLAP task.

【Game Rules】

① One person will use the 'S' and 'A' keys on the left side of the keyboard, while the other uses the 'L' and 'P' keys on the right side. The goal is to accurately type the sequence SLAP as many times as possible within one minute.
② There will be three one-minute typing sessions. For each session, your score is based on the number of accurately typed 'SLAP' sequences. From this score, one point will be deducted for every five mistyped characters.
③ Between sessions, there will be a 90-second strategy period. During this time, please discuss with your teammate to plan for the next session.
④ After completing all three sessions, the results will be recorded. Please do not close the browser or touch the PC until instructed.
⑤ During the sessions and strategy time, do not talk to other teams or look at their scores.
⑥ Each member of the team with the highest score in a single session will receive a Quo Card worth 1,000 yen.

- Please pay attention to the instructor's demonstration.
- Please enter both your ID and your partner's ID on the SLAP Task screen. After entering the IDs, press the 'Confirm ID' button.

*Do not press the 'Start' button until the instructor gives the signal to start.

After completing all three sessions, please do not close the browser or touch the PC. Please record the results from all three sessions in the space provided below.

Session 1: Number of SLAP inputs [ ]; Number of mistypes [ ]; Score [ ]

Session 2: Number of SLAP inputs [ ]; Number of mistypes [ ]; Score [ ]

Session 3: Number of SLAP inputs [ ]; Number of mistypes [ ]; Score [ ]

*Please do not turn the page until instructed by the facilitator.

7

For both Control and Treatment group:

Q9. Please assess your team's teamwork in the SLAP typing task you just completed, rating each item individually.

(While you are answering the questions, do not consult with your partner, and make sure your responses are not visible to them.)

	Strongly Disagree					Neutral					Strongly Agree
	0	1	2	3	4	5	6	7	8	9	10
We were able to make many contributions to the discussion.	○	○	○	○	○	○	○	○	○	○	○
We had meaningful conversations that contributed to the success of the task.	○	○	○	○	○	○	○	○	○	○	○
We were able to respond quickly to problems that arose during typing.	○	○	○	○	○	○	○	○	○	○	○
We were able to work on the task enjoyably as a team.	○	○	○	○	○	○	○	○	○	○	○
My team demonstrated a high level of cohesion.	○	○	○	○	○	○	○	○	○	○	○

The first experiment is now complete. Please turn over this sheet, leave the PC screen as it is, and wait.

After receiving instructions from the instructor, participants with even-numbered IDs should follow the guidance and move with their booklets.

Participants with odd-numbered IDs should close their browsers, turn off their displays, and remain in their seats. (Please do not log out.)

8

For both Control and Treatment group:

In this experiment, the person sitting next to you is your teammate (pair). There will be some questionnaires and tasks that you will complete individually, and some tasks where you will work together as a team (pair).

Please read the following question and circle the option that applies to you. Circle your answer in the ( ).

Q10. Please circle your level of prior interaction with your teammate.

( ) I have never spoken with them before today.
( ) I have had brief greetings with them before today.
( ) I have had conversations beyond brief greetings with them before today.

*Please do not turn the page until instructed by the facilitator.

For Control group:

- For the next 10 minutes, you will individually engage with the three themes presented in Q11, Q12, and Q13 and provide your responses.
- Without discussing with others, please consider each theme from various angles, list as many possible answers as you can, and select the one you think is most important. Then, write down your chosen answer and a brief reason in the space provided.
- This is a valuable opportunity to reflect on your own experiences and thoughts. Please provide your honest opinions.

Q11. What qualities do you think are important for an ideal leader in a team?

Possible qualities that an ideal leader should have in a team:

_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,

From the list above, choose the quality you consider most important: _____

Reason:

Q12. What actions or behaviors of a team leader do you think motivate team members?

Possible actions or behaviors:

_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,

From the list above, choose the action or behavior you consider most important: _____

Reason:

Q13. What actions or behaviors of a team leader do you think would negatively impact the team?

Possible actions or behaviors:

_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,

From the list above, choose the action or behavior you consider most harmful: _____

Reason:

*Please do not turn the page until instructed by the facilitator.

10

For Treatment group:

- For the next 10 minutes, you will have a conversation with your partner about the three themes presented in Q11, Q12, and Q13 and provide your responses.
- During the conversation, please discuss each theme thoroughly, list as many possible answers as you can, and select the one you think is most important. Then, write down your chosen answer and a brief reason in the space provided.
- This conversation is a valuable opportunity to gain diverse perspectives. Please participate actively and share your honest opinions.

Q11. What qualities do you think are important for an ideal leader in a team?

Possible qualities that an ideal leader should have in a team:

_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,

From the list above, choose the quality you consider most important: _____

Reason:

Q12. What actions or behaviors of a team leader do you think motivate team members?

Possible actions or behaviors:

_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,

From the list above, choose the action or behavior you consider most important: _____

Reason:

Q13. What actions or behaviors of a team leader do you think would negatively impact the team?

Possible actions or behaviors:

_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,

From the list above, choose the action or behavior you consider most harmful: _____

Reason:

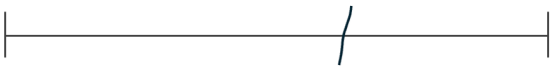
*Please do not turn the page until instructed by the facilitator.

10

For both Control and Treatment group:

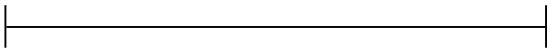
You and your partner will now work together on a simple task using a computer. This task will require both of your efforts and cooperation. Before starting the task, please answer the following questions.

Q14. For the following questions about your partner, please draw a vertical line on the provided scale to indicate your feelings.
(While you are answering the questions, do not consult with your partner, and make sure your responses are not visible to them.)

Sample Answer: 

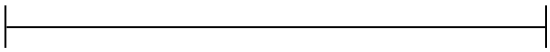
(4) How close do you feel to the teammate you are paired with this time?

Neutral — Feel very close



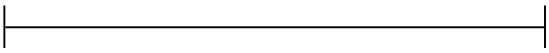
(5) Are you more motivated to engage in this task for your own reward or for the benefit of your teammate?

For yourself — For your teammate



(6) Do you imagine that your teammate is more motivated to engage in this task for their own reward or for your benefit?

For themselves — For you



*Please do not turn the page until instructed by the facilitator.

For both Control and Treatment group:

You and your partner will perform a simple game task using a computer. This task is a cooperative activity where you and your partner will share one keyboard.

If your ID is an odd number, please access the course page on CoursePower and click on the URL for the SLAP task.

【Game Rules】

⑦ One person will use the 'S' and 'A' keys on the left side of the keyboard, while the other uses the 'L' and 'P' keys on the right side. The goal is to accurately type the sequence SLAP as many times as possible within one minute.

⑧ There will be three one-minute typing sessions. For each session, your score is based on the number of accurately typed 'SLAP' sequences. From this score, one point will be deducted for every five mistyped characters.

⑨ Between sessions, there will be a 90-second strategy period. During this time, please discuss with your teammate to plan for the next session.

⑩ After completing all three sessions, the results will be recorded. Please do not close the browser or touch the PC until instructed.

⑪ During the sessions and strategy time, do not talk to other teams or look at their scores.

⑫ Each member of the team with the highest score in a single session will receive a Quo Card worth 1,000 yen.

- Please pay attention to the instructor's demonstration.
- Please enter both your ID and your partner's ID on the SLAP Task screen. After entering the IDs, press the 'Confirm ID' button.

*Do not press the 'Start' button until the instructor gives the signal to start.

After completing all three sessions, please do not close the browser or touch the PC. Please record the results from all three sessions in the space provided below.

Session 1: Number of SLAP inputs [	]; Number of mistypes [	]; Score [	]
Session 2: Number of SLAP inputs [	]; Number of mistypes [	]; Score [	]
Session 3: Number of SLAP inputs [	]; Number of mistypes [	]; Score [	]

*Please do not turn the page until instructed by the facilitator.

12

For both Control and Treatment group:

Q15. Please assess your team's teamwork in the SLAP typing task you just completed, rating each item individually.

(While you are answering the questions, do not consult with your partner, and make sure your responses are not visible to them.)

	Strongly Disagree					Neutral					Strongly Agree
	0	1	2	3	4	5	6	7	8	9	10
We were able to make many contributions to the discussion.	○	○	○	○	○	○	○	○	○	○	○
We had meaningful conversations that contributed to the success of the task.	○	○	○	○	○	○	○	○	○	○	○
We were able to respond quickly to problems that arose during typing.	○	○	○	○	○	○	○	○	○	○	○
We were able to work on the task enjoyably as a team.	○	○	○	○	○	○	○	○	○	○	○
My team demonstrated a high level of cohesion.	○	○	○	○	○	○	○	○	○	○	○

All tasks are now complete. Please turn over this sheet, leave the PC screen as it is, and wait.

Using your smartphone, please take a photo of your participant ID for this session, which is on the cover of your booklet. If your team is selected as the best-performing team in the SLAP task, this photo will serve as proof when you receive your prize.

The instructor will now collect the booklets. Please stay seated.

13

B4 Survey Questionnaire: Original (Japanese) Version

For both Control and Treatment group:

実験に関する説明書

*必ず全文に目を通してください。

1. 本日の実験では、質問紙を使用した課題と、チームで PC を使った簡単なタスクを行います。実験は 2 回行われ、60 分ほどで終了する予定です。
2. この調査への参加は強制されるものではありません。実験参加に同意した後でも、理由の如何を問わず辞退することも自由です。
3. この調査には、ルールを守って参加することで 2 ポイント、そしてタスクの好成績者には Quo カードが与えられます。調査に参加しなかった場合には、他の代替的な課題で埋め合わせることができます。
4. 実験内でのあなたのいかなる行動や回答、作業内容のスコアなどは、ポイントとは無関係です。ただし、実験の指示やスタッフの指示に反する行為はしないでください。
5. スマートフォンなど電子機器の電源はお切りになってください。実験中での電子機器の使用はできません。
6. この冊子の先のページに進むときは常に、インストラクターがそう指示したときのみにしてください。
7. 黒色の筆記用具、鉛筆やシャープペンシル、ボールペン、が必要です。太いマジックペンなどは使用しないでください。筆記用具がない方は、スタッフにお申し出ください。
8. 実験によって集まったデータは、研究目的のみに使用し、結果は統計的に処理され、あなたの個人情報と結び付けられることは一切ありません。個人が特定されることもありません。
9. 調査結果は、厳重に管理されます。また、研究終了後には回答用紙はすべて速やかにシュレッダーによって廃棄処分されます。
10. 本実験について心配な点や疑問点があれば、挙手をしてインストラクターに遠慮なくお申し出ください。

*インストラクターの指示があるまで、ページをめくらないでください。

*ID シール貼り付け

1

For both Control and Treatment group:

今回の実験では、隣の席の人とあなたはチーム（ペア）です。個人で取り組むアンケートやタスクもあれば、チーム（ペア）で協力するタスクもあります。

次の問いを読み、当てはまるものに○をつけてください。○は（　）に記してください。

Q1. あなたは、チームメイト（ペアの相手）となった人と、
（　　）今日より以前に全く会話をしたことがない。
（　　）今日以前にもあいさつ程度の会話をしたことがある。
（　　）今日以前にもあいさつ程度以上の会話をしたことがある。

*回答後、インストラクターの指示があるまで、ページをめくらないでください。

2

For both Control and Treatment group:

あなたについて以下の質問にお答えください。回答は記入、または該当する ◯ にチェックを入れてください。

回答の見本. 

Q2. あなたの性別をお答えください。

◯ 男性　◯ 女性　◯ その他

Q3. あなたの年齢をお答えください。_____ 歳

Q4. 以下の項目があなた自身にどのぐらい当てはまるかについて、最も適切なものを選んでください。

	全く当てはまらない	当てはまらない	あまり当てはまらない	どちらとも言えない	やや当てはまる	当てはまる	とても当てはまる
私は見返りを期待することなく、善い行いをする。	◯	◯	◯	◯	◯	◯	◯
競争によって、私の能力は最大限に引き出されると思う。	◯	◯	◯	◯	◯	◯	◯
私は人に気をつかう、やさしい人間だと思う。	◯	◯	◯	◯	◯	◯	◯
以前私を助けてくれた人のためなら、犠牲を厭わない。	◯	◯	◯	◯	◯	◯	◯
私は普段、リスクを取ることを恐れない。	◯	◯	◯	◯	◯	◯	◯
私は見知らぬ人に自分から話しかけることが得意だ。	◯	◯	◯	◯	◯	◯	◯
困難や悩みを抱えている時、私は他人にそれを打ち明けることができる。	◯	◯	◯	◯	◯	◯	◯

*次のページに進んでください。

For both Control and Treatment group:

Q4. (続き)

	全く当てはまらない	当てはまらない	あまり当てはまらない	どちらとも言えない	やや当てはまる	当てはまる	とても当てはまる
チームやグループの状況で、私はチームメイトに対して自分の意見や考えを明確に伝えることができる。	○	○	○	○	○	○	○
チームやグループの状況で、私はチームメイトを助け、サポートすることに時間や労力を費やすことが多い。	○	○	○	○	○	○	○
チームやグループの状況で、私は自然とリーダーの役割を引き受けることが多い。	○	○	○	○	○	○	○

*回答後、インストラクターの指示があるまで、ページをめくらないでください。

For Control group:

- これから 10 分間、あなたはひとりで、3 つのテーマについて考えていただきます。
- Q5, Q6, Q7 の 3 つのテーマについて、それぞれ、回答となるような候補をできるだけたくさん列挙して、その後、その中で最も重要だと思うものを選び、その簡単な理由を書いてください。
- チームメイトや周囲の人と話すことなく、各テーマについて様々な角度から考え、あなたの考えを空欄に記入してください。自分自身の経験や考えを深く掘り下げることができる貴重な機会です。ぜひ、率直な意見を記載してください。

Q5. チームでの活動を成功させるために、重要な要素は何だと思いますか？

要素の候補

_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,

上記のうち、最も重要だと思う要素 _____

その理由:

Q6. どのようなアクティビティやイベントを実施することが、チームに良い影響を及ぼすと思いますか？

イベントの候補

_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,

上記のうち、最も重要だと思うイベント _____

その理由:

Q7. チーム活動を行う上で、障害となりうる要素は何だと思いますか？

要素の候補

_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,

上記のうち、最も重要だと思う要素 _____

その理由:

*回答後、インストラクターの指示があるまで、ページをめくらないでください。

5

For Treatment group:

- これから 10 分間、あなたペアとなった相手と一緒に、3 つのテーマについて考えていただきます。
- Q5, Q6, Q7 の 3 つのテーマについて、それぞれ、回答となるような候補を 2 人で会話しながらできるだけたくさん列挙して、その後、あなたがその中で最も重要だと思うものを選び、その簡単な理由を書いてください。
- チームメイトとの会話を通じて、多様な視点を得ることができる貴重な機会です。ぜひ積極的に交流し、率直な意見を交換してください。

Q5. チームでの活動を成功させるために、重要な要素は何だと思いますか？

要素の候補

_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,

上記のうち、最も重要だと思う要素 _____

その理由:

Q6. どのようなアクティビティやイベントを実施することが、チームに良い影響を及ぼすと思いますか？

イベントの候補

_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,

上記のうち、最も重要だと思うイベント _____

その理由:

Q7. チーム活動を行う上で、障害となりうる要素は何だと思いますか？

要素の候補

_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,

上記のうち、最も重要だと思う要素 _____

その理由:

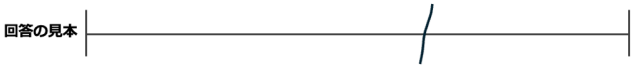
*回答後、インストラクターの指示があるまで、ページをめくらないでください。

5

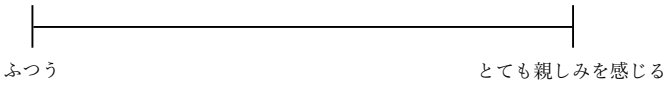
For both Control and Treatment group:

これからあなたとあなたのペアと二人で協力して、ある PC を使った簡単なタスクを行なってもらいます。タスクにはお互いの労力と協力が必要です。タスクに入る前に、以下の質問にお答えください。

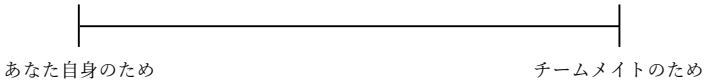
Q8. あなたのペアにかんする以下の質問に対するあなた個人の答えとして、適切であると思う直線上の場所に縦線を入れて、あなたの気持ちのレベルをお答えください。
（回答の際はペアになった人と相談せず、また回答がペアの人から見えないように、回答してください。）



(1) 今回ペアになったチームメイトに対して、親しみを感じる。



(2) あなたはこのタスクを、自らの報酬のため、もしくはチームメイトのため、どちらの動機で取り組む気持ちが大きいですか。



(3) あなたのチームメイトは、自らの報酬のため、もしくはチームメイトであるあなたのため、どちらの動機で取り組む気持ちが大きいと想像しますか。

*回答後、インストラクターの指示があるまで、ページをめくらないでください。

For both Control and Treatment group:

これから、あなたとパートナーの 2 人で、PC を使った簡単なゲームタスクを行なってもらいます。このタスクは、あなたとパートナーが、一つのキーボードを共有して実施する協力型タスクです。

ID が奇数番号の方は CoursePower の本講義のページにアクセスしてください。
次に、SLAP タスクの URL をクリックし、ページを開いてください。

【ルール】

① 一人がキーボード左側の「S」と「A」を、もう一人が右側の「L」と「P」を担当し、制限時間 1 分間で「SLAP」 という文字列をどれだけ多く正確にタイプできるかを測定します。
② 1 分間の入力セッションを 3 回行います。SLAP と入力された回数があなたのスコア（点数）になりますが、**ミスタイプは、5 文字ごとにスコアを 1 点減点します。**
③ セッション間には 90 秒の作戦タイムが設けられます。この作戦タイムの間に、次のセッションに向けて、チームで話し合ってください。
④ 合計 3 回のセッション終了後、全ての成績を記載してください。そのままブラウザを閉じず、PC にも触れないでそのままにしておいてください。
⑤ セッション中や作戦タイム中には、他のチームの人たちと話をしたり、他のチームの成績を覗き見たりしないようにしてください。
⑥ このタスクにおいて、ペアのベストスコアが最も高いチームには、メンバーそれぞれに 1,000 円分の Quo カードを贈呈します。

- デモンストレーションがありますので、注意してご覧ください。
- SLAP タスクの画面に 2 名分の ID を入力し、ID 入力後にクリックを押したのち、そのままでタスク開始ボタンを押さずに待機してください。

＊インストラクターの 「はじめ」 の合図があるまでは、[タスク開始] ボタンを押さないでください。

SLAP タスクが終了したら、画面を閉じたり、触ったりしないようにしてください。
各セッション、3 回分の記録を、以下に転載してください。

セッション 1：SLAP 入力数 [　　]; ミスタイプ数 [　　]; スコア [　　]

セッション 2：SLAP 入力数 [　　]; ミスタイプ数 [　　]; スコア [　　]

セッション 3：SLAP 入力数 [　　]; ミスタイプ数 [　　]; スコア [　　]

*回答後、インストラクターの指示があるまで、ページをめくらないでください。

7

For both Control and Treatment group:

Q9. 今行った SLAP 入力タスクにおける、あなたのチームのチームワークについて項目ごとに自己採点してください。
（回答の際はペアになった人と相談せず、また回答がペアの人から見えないように、回答してください。）

	全くそう思わない 0	1	2	3	4	どちらとも言えない 5	6	7	8	9	とてもそう思う 10
お互いに多くの発言ができた。	○	○	○	○	○	○	○	○	○	○	○
タスクの成果につながる中身ある会話ができた。	○	○	○	○	○	○	○	○	○	○	○
入力中に発生した問題に、素早く対応できた。	○	○	○	○	○	○	○	○	○	○	○
チームでタスクに楽しく取り組むことができた。	○	○	○	○	○	○	○	○	○	○	○
自分のチームは団結力が高かった。	○	○	○	○	○	○	○	○	○	○	○

これで 1 回目の実験における全てのタスクは終了です。回答冊子を閉じて、PC の画面もそのままにしてください。

インストラクターの指示後、参加者 ID が偶数番号の人は、案内に従って冊子と共に移動してください。

奇数番号の人は、ブラウザを閉じ、ディスプレイの電源を落としてその場で待機してください
（ログアウトはしないでください）。

8

For both Control and Treatment group:

今回の実験では、隣の席の人とあなたはチーム（ペア）です。個人で取り組むアンケートやタスクもあれば、チーム（ペア）で協力するタスクもあります。

次の問いを読み、当てはまるものに○をつけてください。○は（　）に記してください。

Q10. あなたは、チームメイト（ペアの相手）となった人と、
（　　）今日より以前に全く会話をしたことがない。
（　　）今日以前にもあいさつ程度の会話をしたことがある。
（　　）今日以前にもあいさつ程度以上の会話をしたことがある。

*回答後、インストラクターの指示があるまで、ページをめくらないでください。

For Control group:

- これから 10 分間、あなたはひとりで、3 つのテーマについて考えていただきます。
- Q11, Q12, Q13 の 3 つのテーマについて、それぞれ、回答となるような候補をできるだけたくさん列挙して、その後、その中で最も重要だと思うものを選び、その簡単な理由を書いてください。
- チームメイトや周囲の人と話すことなく、各テーマについて様々な角度から考え、あなたの考えを空欄に記入してください。自分自身の経験や考えを深く掘り下げることができる貴重な機会です。ぜひ、率直な意見を記載してください。

Q11. チームにとって理想的なリーダーが備えるべき、重要な要素は何だと思いますか？

要素の候補

_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,

上記のうち、最も重要だと思う要素 _____

その理由:

Q12. チームのリーダーのどのような行動や言動が、チームメンバーをやる気にさせると思いますか？

行動・言動の候補

_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,

上記のうち、最も重要だと思う行動・言動 _____

その理由:

Q13. チームのリーダーのどのような行動や言動が、チームに悪影響をもたらすと思いますか？

行動・言動の候補

_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,

上記のうち、最も重要だと思う行動・言動 _____

その理由:

*回答後、インストラクターの指示があるまで、ページをめくらないでください。

10

For Treatment group:

- これから 10 分間、あなたペアとなった相手と一緒に、3 つのテーマについて考えていただきます。
- Q11, Q12, Q13 の 3 つのテーマについて、それぞれ、回答となるような候補を 2 人で会話しながらできるだけたくさん列挙して、その後、あなたがその中で最も重要だと思うものを選び、その簡単な理由を書いてください。
- チームメイトとの会話を通じて、多様な視点を得ることができる貴重な機会です。ぜひ積極的に交流し、率直な意見を交換してください。

Q11. チームにとって理想的なリーダーが備えるべき、重要な要素は何だと思いますか？

要素の候補

_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,

上記のうち、最も重要だと思う要素 _____

その理由:

Q12. チームのリーダーのどのような行動や言動が、チームメンバーをやる気にさせると思いますか？

行動・言動の候補

_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,

上記のうち、最も重要だと思う行動・言動 _____

その理由:

Q13. チームのリーダーのどのような行動や言動が、チームに悪影響をもたらすと思いますか？

行動・言動の候補

_____, _____, _____, _____, _____,

_____, _____, _____, _____, _____,

上記のうち、最も重要だと思う行動・言動 _____

その理由:

*回答後、インストラクターの指示があるまで、ページをめくらないでください。

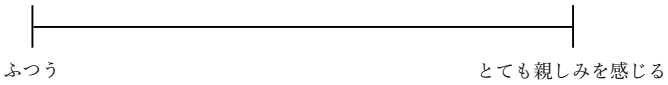
10

For both Control and Treatment group:

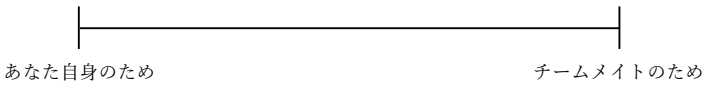
これからあなたとあなたのペアと二人で協力して、ある PC を使った簡単なタスクを行なってもらいます。タスクにはお互いの労力と協力が必要です。タスクに入る前に、以下の質問にお答えください。

Q14. あなたのペアにかんする以下の質問に対するあなた個人の答えとして、適切であると思う直線上の場所に縦線を入れて、あなたの気持ちのレベルをお答えください。
（回答の際はペアになった人と相談せず、また回答がペアの人から見えないように、回答してください。）

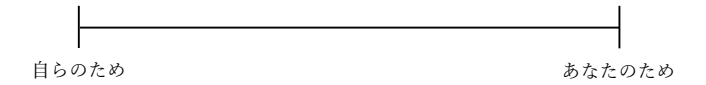
(4) 今回ペアになったチームメイトに対して、親しみを感じる。



(5) あなたはこのタスクを、自らの報酬のため、もしくはチームメイトのため、どちらの動機で取り組む気持ちが大きいですか。



(6) あなたのチームメイトは、自らの報酬のため、もしくはチームメイトであるあなたのため、どちらの動機で取り組む気持ちが大きいと想像しますか。



*回答後、インストラクターの指示があるまで、ページをめくらないでください。

11

For both Control and Treatment group:

これから、あなたとパートナーの 2 人で、PC を使った簡単なゲームタスクを行なってもらいます。このタスクは、あなたとパートナーが、一つのキーボードを共有して実施する協力型タスクです。

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【ルール】

⑦ 一人がキーボード左側の「S」と「A」を、もう一人が右側の「L」と「P」を担当し、制限時間 1 分間で「SLAP」 という文字列をどれだけ多く正確にタイプできるかを測定します。
⑧ 1 分間の入力セッションを 3 回行います。SLAP と入力された回数があなたのスコア（点数）になりますが、**ミスタイプは、5 文字ごとにスコアを 1 点減点します。**
⑨ セッション間には 90 秒の作戦タイムが設けられます。この作戦タイムの間に、次のセッションに向けて、チームで話し合ってください。
⑩ 合計 3 回のセッション終了後、全ての成績を記載してください。そのままブラウザを閉じず、PC にも触れないでそのままにしておいてください。
⑪ セッション中や作戦タイム中には、他のチームの人たちと話をしたり、他のチームの成績を覗き見たりしないようにしてください。
⑫ このタスクにおいて、ペアのベストスコアが最も高いチームには、メンバーそれぞれに 1,000 円分の Quo カードを贈呈します。

- デモンストレーションがありますので、注意してご覧ください。
- SLAP タスクの画面に 2 名分の ID を入力し、ID 入力後にクリックを押したのち、そのままでタスク開始ボタンを押さずに待機してください。

＊インストラクターの 「はじめ」 の合図があるまでは、[タスク開始] ボタンを押さないでください。

SLAP タスクが終了したら、画面を閉じたり、触ったりしないようにしてください。
各セッション、3 回分の記録を、以下に転載してください。

セッション 1：SLAP 入力数 [　　]; ミスタイプ数 [　　]; スコア [　　]

セッション 2：SLAP 入力数 [　　]; ミスタイプ数 [　　]; スコア [　　]

セッション 3：SLAP 入力数 [　　]; ミスタイプ数 [　　]; スコア [　　]

*回答後、インストラクターの指示があるまで、ページをめくらないでください。

12

For both Control and Treatment group:

Q15. 今行った SLAP 入力タスクにおける、あなたのチームのチームワークについて項目ごとに自己採点してください。
（回答の際はペアになった人と相談せず、また回答がペアの人から見えないように、回答してください。）

	全くそう思わない 0	1	2	3	4	どちらとも言えない 5	6	7	8	9	とてもそう思う 10
お互いに多くの発言ができた。	○	○	○	○	○	○	○	○	○	○	○
タスクの成果につながる中身ある会話ができた。	○	○	○	○	○	○	○	○	○	○	○
入力中に発生した問題に、素早く対応できた。	○	○	○	○	○	○	○	○	○	○	○
チームでタスクに楽しく取り組むことができた。	○	○	○	○	○	○	○	○	○	○	○
自分のチームは団結力が高かった。	○	○	○	○	○	○	○	○	○	○	○

これで全ての実験は「終了です。回答冊子を閉じて、PC をログアウトしてください。

今から、あなたのスマートフォンで、回答用紙表紙にある、あなたの今回の参加者 ID の写真を撮っておいてください。
あなたが SLAP タスク最優秀チームであった場合に、賞品の受け渡し時に、それが証明となります。

回答用紙の回収を行いますので、そのままで待機してください。

13