BETTER TOGETHER:

MEMBER PROACTIVITY IS BETTER FOR TEAM PERFORMANCE WHEN ALIGNED WITH CONSCIENTIOUSNESS

ABSTRACT

Proactivity, the tendency to create change in the work environment, typically improves team performance. This relationship is far from perfect, however. We explore inconsistencies in the team proactivity literature to shed light on an important question – when is member proactivity beneficial or dysfunctional for teams? First, we consider the composition of member proactivity at the team level and whether a simple 'more is better' heuristic neglects a more complex relationship linking member proactivity to team coordination and performance. Second, we explore whether proactivity is better when aligned with another individual difference focused on the propensity to plan and coordinate with others (i.e., conscientiousness). In two studies, we compare traditional additive and configurational compositional approaches to these two attributes with a new attribute alignment approach, allowing us to examine the co-occurrence of proactivity and conscientiousness within some team members relative to others. First, we find that team member proactivity-conscientiousness alignment (P-C alignment) predicts the performance of MBA consulting teams better than the other team composition models we considered. Then, we replicate this finding in a laboratory simulation, finding that it occurs because P-C alignment improves team coordination. Our results demonstrate that member proactivity is most effective for the team when it aligns with conscientiousness.

Teams in organizations perform their work in increasingly dynamic and uncertain contexts (Mathieu, Gallagher, Domingo, & Klock, 2019; Wageman, Gardner, & Mortensen, 2012). Particularly important for team effectiveness, therefore, is the question of how to create teams that are proactive in anticipating and solving problems, rather than simply being reactive or responsive only when directed (Harris & Kirkman, 2017). The construct of proactivity has emerged to explain this distinction, referring to teams and their members who have the tendency to bring about self-initiated and future-focused change in the work environment (Bateman & Crant, 1993; Parker, Bindl, & Strauss, 2010; Williams, Parker, & Turner, 2010).

In highly dynamic environments, however, the distinction of initiating versus responding to change is not enough. Teams must not only initiate change-focused activity, but also coordinate that activity with few process losses (e.g., Steiner, 1972). After all, simply adding more future-focused activity in a team is not helpful if it is not coordinated. As Williams et al., (2010) argue, "individuals within a team might behave proactively, such as by introducing new methods, but unless this effort is coordinated, the team itself might not be proactive" (p. 302).

For that reason, we question the assumption supporting much of the existing literature: that effective team proactivity is best understood as the simple total of individual members' proactivity (cf. Zhang, Li, & Gong, 2021). In this paper, we explore alternatives to this 'more is better' approach for considering how the composition of individual team members' proactivity affects team performance through the coordination of the team's resources. Particularly, this approach neglects the complex and multilevel nature of teams themselves (Mathieu et al., 2019), resulting in mixed findings regarding the utility of member proactivity. While member proactivity is generally beneficial for organizational teams (e.g., Lam, Lee, Taylor, & Zhao, 2018; Strauss, Griffin, & Rafferty, 2009; Williams et al., 2010), there are anomalies in that a

significant number of studies have found no relationship between member proactivity and team performance (e.g., Chiu, Owens, & Tesluk, 2016), while others have found having too many proactive members does not help team performance (e.g., Zhang et al., 2021).

Intriguingly, recent research considering this complexity finds that the positive effects of member proactivity on team effectiveness depend on the diversity of proactivity within the team rather than the mean level (Zhang et al., 2021). These scholars suggest that a complementarity approach to member proactivity, where highly proactive members define strategy while less proactive members follow that strategy, may help teams coordinate to enact constructive change. However, there is a significant and unexplored assumption supporting this complementarity argument; specifically, that the team members who are more proactive will also engage in the planning and organization necessary to coordinate with others. This assumption may or may not be true, and the degree to which it is or is not the case could help account for the differing findings considering how proactivity relates to team performance. After all, careful planning helps individuals to use their proactivity "wisely" in social contexts (Parker et al., 2019). For that reason, if there is an absence of planning, proactive team members are likely to cause team coordination failures by engaging in behaviors that are considered inappropriate, ill-timed, and ineffective (Chan, 2006; Grant & Ashford, 2008).

We decided to explore this assumption considering team members' tendencies to plan as well as their proactivity to help us better understand when and why member proactivity benefits teams. To capture team member tendencies for planning, we turn to conscientiousness, one of the Big Five traits in the Five Factor Model of personality (Digman, 1990). Conscientiousness describes individuals who are purposeful, prepared, organized, and deliberate in accomplishing goals (McCrae & Costa, 2010). Conscientiousness positively predicts job performance and

leadership across a wide variety of contexts (Barrick & Mount, 1991; Judge, Bono, Ilies, & Gerhardt, 2002), and is positively associated with situational judgment and contextual performance in individual and team settings (Cabrera & Nguyen, 2001; Chan & Schmitt, 2002; Morgeson, Reider, & Campion, 2005; Whetzel & McDaniel, 2009). As such, member conscientiousness should help teams better engage in a comprehensive and coordinated process of proactivity, which includes both anticipation of future change and planning to coordinate efforts to implement actions that generate that change (Grant & Ashford, 2008).

The team composition literature contains several plausible conjectures as to how proactivity and conscientiousness might best come together among team members (e.g., Chan, 1998; Emich, Lu, Ferguson, Peterson, & McCourt, 2022; Mathieu, Tannenbaum, Donsbach, & Alliger, 2014). We explore the four most widely adopted team composition models here, where each model contains distinct theoretical assumptions about the ideal configurations of proactivity and conscientiousness.

First, we explore the most frequently used model of team composition, the additive model (Chan, 1998), which assumes that having a large reserve of proactivity and conscientiousness, usually in the form of respective mean levels, is enough to develop effective team-level coordination and performance. Second, we explore whether simply having one highly proactive and one highly conscientious member, in the form of respective maximum values, is enough for a team to leverage their complementary benefits. Third, we ask whether having dispersed proactivity and conscientiousness on a team, in the form of respective variances, is enough for its proactive members to dictate strategy while others follow, improving coordination and performance. Fourth, we ask if teams coordinate and perform better when proactivity and conscientiousness coexist within some team members relative to others, creating attribute

alignment within members across the team (Emich et al., 2022). We examine these conjectures abductively, using a combination of exploratory and confirmatory tests over multiple studies to select the best explanation from several plausible but competing explanations (e.g., Mantere & Ketokivi, 2013; Martin, Harrison, Hoopes, Schroeder, & Belmi, 2022; Mueller, 2018; Sætre & Van de Ven, 2021).

Specifically, to examine the independent and simultaneous effects of proactivity and conscientiousness on team coordination and performance, we conduct two studies: a field study of MBA consulting teams and a controlled laboratory simulation. In both, we examine the theoretical assumptions of each of the four team composition models suggesting how member proactivity and conscientiousness combine to create effective team-level coordination and performance. Our findings point to the value of considering proactivity in combination with conscientiousness, while recognizing that the configuration of these attributes matters. Specifically, we find that teams perform better when their members who are more proactive are also more conscientious, while their less conscientious members are also less proactive, and that this alignment matters significantly more than the amount of proactivity or conscientiousness present in a team.

Along the way, we explore different 'patterns' of alignment versus unalignment and map them across team members, providing a new way of visualizing team composition. Additionally, our second study demonstrates that P-C aligned teams outperform P-C unaligned teams because they are better at team-level coordination, offering evidence for a key process criterion to proactivity research (Lu et al,. 2023; Williams et al., 2010; Wu, Parker, Wu, & Lee, 2018; Zhang et al., 2021). Taken together, we discover that teams where proactivity and conscientiousness align are more coordinated and perform better than teams where these attributes do not align. We

conclude by discussing how these emergent findings inform scholarly research on team composition and processes, while also surfacing practically important implications for teams.

PROACTIVITY AND CONSCIENTIOUSNESS AMONG TEAM MEMBERS

We focus on proactivity and conscientiousness as stable individual differences that affect individual behavior and may vary across the individuals who comprise teams. Proactivity in this sense, or proactive personality, is defined as "the relatively stable tendency to effect environmental change" (Bateman & Crant, 1993, p. 103). People high in proactivity scan for opportunities and show initiative in bringing about change (Bateman & Crant, 1993), which can include behaviors such as feedback seeking (Ashford & Cummings, 1983), building social networks (Morrison, 1993; Thompson, 2005), exchanging information (Gong, Cheung, Wang, & Huang, 2012), innovating, gaining political knowledge, taking career initiative (Seibert, Kraimer, & Crant, 2001) and championing issues (Dutton & Ashford, 1993; Dutton, Ashford, O'Neill, & Lawrence, 2001). Proactivity also extends across multiple contexts, which can include efforts directed toward an individual's work unit or team. For example, proactive individuals may suggest new work methods for their teams, anticipate future problems rather than reacting to them, or identify opportunities for the team (Williams et al., 2010).

Despite some evidence of a generally positive relationship between proactive personality and effectiveness for both individuals (Fuller & Marler, 2009) and teams (Lam et al., 2018; Williams et al., 2010), one concern with proactivity from a team composition standpoint is that having too many proactive people on a team is likely to result in lack of coordination. This is a logical outcome when every team member is proactive, as the actions of proactive teammates are often directed towards implementing different changes (Harris & Kirkman, 2017; Williams et al., 2010; Zhang et al., 2021). Moreover, proactive team members are likely to pursue these different

directions even in the face of teammate opposition (Bateman & Crant, 1993). As such, recent work suggests that having some proactive team members and some team members who are not proactive may constitute an ideal team proactivity composition (Zhang et al., 2021).

Although diversity in proactivity may help teams, coordination problems may persist if those who are proactive are unable to effectively plan their change initiatives. For example, proactive individuals are focused on "making things happen", but this may not always be beneficial without carefully considering task and strategic elements of the situation (Parker et al., 2019). When individuals do not consider these situational demands, their proactivity can be ineffective because it is not pursued realistically (Chan, 2006; Sun & van Emmerik, 2015). As such, the emphasis on order, dutifulness, and planning associated with conscientiousness (McCrae & Costa, 2010) may help to orient proactivity to the situational context. It may also enable the planning and organization necessary to coordinate any anticipated changes with teammates, as coordinated action is positively associated with conscientiousness in teams (Gevers & Peeters, 2009).

Although proactivity and conscientiousness tend to be modestly correlated, they are conceptually distinct and predict different outcomes (Bateman & Crant, 1993; Crant, 1995; Major, Turner, & Fletcher, 2006; Neal, Yeo, Koy, & Xiao, 2012). These attributes are similar in that both proactivity and conscientiousness are characterized by self-directed activity towards achieving goals (Barrick, Mount, & Strauss, 1993; Parker, Williams, & Turner, 2006). However, proactivity centers on bringing about change, and involves envisioning possible future events and outcomes (Grant & Ashford, 2008), whereas conscientiousness centers on bringing organization and structure to situations generally, which may or may not involve change (McCrae & Costa, 2010; Neuberg & Newsom, 1993). Indeed, conscientious members that are

not proactive may also limit their teams, especially in dynamic environments, for example if they are inflexible or narrow-minded when it comes to adopting new team strategies (Bradley, Klotz, Postlethwaite, & Brown, 2013). Proactivity and conscientiousness may thus complement one another such that the emphasis on change and foreseeing future opportunities gained from proactivity provides a compelling focus for the planning and preparation inherent in conscientiousness.

At the team level, however, it is unclear how member proactivity and conscientiousness should come together to allow the team to effectively coordinate and thus perform well, as different theoretical and empirical approaches provide different recommendations. To explore this, we describe conjectures from four different team composition approaches that could be used to answer this question, outlining their unique theoretical assumptions and methodological operationalizations. Then, we examine how these different configurations of member proactivity and conscientiousness relate to team coordination and performance across two empirical studies.

DIFFERENT THEORETICAL CONFIGURATIONS OF MEMBER PROACTIVITY AND CONSCIENTIOUSNESS

Our arguments above articulate the theoretical idea that, to be effective, teams need members who are both proactive and conscientious. Now, we consider conjectures from several different team composition models to explore the most effective way to arrange these constructs within teams – including traditional approaches, which comprise team-level assessments of attributes, and a new attribute alignment approach to team composition, which integrates individual-level and team-level assessments of attributes (Emich et al., 2022).

Traditional Team Composition Approaches

Mathieu et al. (2014) explain that team composition models have traditionally focused on either individual attributes that are aggregated to the team level (i.e., personnel models that consider individual knowledge, skills, or abilities that would benefit teamwork) or on assessing patterns or configurations of individual attributes (i.e., team profile models or relative contribution models: e.g., team diversity or minimum/maximum scores on attributes). The first approach commonly emphasizes additive models of attributes of interest (e.g., mean levels of proactivity) whereas the second considers other configurations of attributes of interest (e.g., proactivity dispersion or the team maximum score). Both approaches, however, are inherently variable-centered where each attribute is considered first as a team-level distribution in some form (Emich et al., 2022).

The most widely applied composition approach is the additive approach suggesting "more is better" when it comes to desirable knowledge, skills, and abilities, and thus it is more valuable for a team to contain higher overall levels of desirable attributes (Mathieu et al., 2014). From this perspective, proactivity and conscientiousness are both considered desirable attributes for teams (e.g., Barrick, Stewart, Neubert, & Mount, 1998; Chiu et al., 2016; Hyatt & Ruddy, 1997; Neuman & Wright, 1999; Williams et al., 2010). Thus, this approach assumes that teams benefit from generally higher levels of proactivity and conscientiousness among team members rather than low levels of these attributes. And, although magnitudes of these attributes considered independently might benefit teams, their joint consideration may illuminate their complementarity, i.e., this approach may theoretically assume that teams with higher amounts of *both* conscientiousness and proactivity perform better than teams with high amounts of only one or the other.

A second well-established team composition approach involves considering patterns of team member attributes at the team level, such as their variability or the impact of one very high or very low scoring member, on team processes or outcomes (e.g., Barrick et al., 1998; Emich & Lu, 2017; Ferguson & Peterson, 2015; Humphrey, Hollenbeck, Meyer, & Ilgen, 2007; Neuman, Wagner, & Christiansen, 1999). For example, we could examine whether having at least one person who is proactive will benefit the team because that person fulfills the need to initiate constructive change and whether having at least one person who is conscientious will benefit the team because that person fulfills the need to plan and organize activities related to implementing that change. Alternatively, we could examine relative scores across team members by considering the dispersion of these attributes. For example, in line with findings from previous research, complementarity of member proactivity and similarity in conscientiousness may positively influence team effectiveness (e.g., Barrick et al., 1998; Gevers & Peeters, 2009; Grant, Gino, & Hofmann, 2011; Zhang et al., 2021). These approaches are consistent with relative contribution models of team composition (Mathieu et al., 2014) and previous research highlighting the tendency for personality traits to correspond to task and process-related roles in group settings (Barry & Stewart, 1997; Stewart, Fulmer, & Barrick, 2005).

These traditional approaches to team composition carry certain assumptions. First, the additive approach and the maximum configurational approach suggest that it does not matter who is conscientious or proactive on the team (or how these attributes are distributed relative to each other) as long as those attributes are present. Additionally, both assume that "more is better", whether all team members contribute to high attribute levels (e.g., via mean levels) or specific individuals do (e.g., via maximum scores). Configurational approaches using dispersion do acknowledge the importance of complementarity or similarity among members, and therefore

the potential value of low scores on these attributes. However, like other traditional approaches, these only consider one attribute across team members at a time (e.g., a team-level dispersion score on proactivity and a team-level dispersion score on conscientiousness).

Yet, there is reason to believe that it may matter whether multiple attributes occur *within* team members in the context of their teammates (e.g., whether team members score high or low on *both proactivity and conscientiousness*, relative to the rest of the team). To explore this possibility, we turn to a new team composition approach that allows us to model multiple attributes both within and across team members – the attribute alignment approach to team composition (Emich et al., 2022).

Attribute Alignment Approach to Team Composition

The alignment approach allows us to examine the possibility that the alignment of proactivity and conscientiousness may be important, such that the members of the team who are proactive are also conscientious (and the team members who are not conscientious are not proactive). This approach generally assumes that the expression of individual team member attributes changes as a function of other within-person attributes, and thus simultaneously examining the configuration of member attributes before aggregating them to the team level may offer additional insight into how multiple compositional attributes influence team processes (Emich et al., 2022; in press). Specifically, when team members who are proactive are also conscientious, they may be more likely to propose actions to bring about change and engage in careful planning with respect to the actions they propose. Alternatively, members who score low on these attributes may be flexible in accepting the proposed changes and planning initiated by others, allowing for effective team coordination. Indeed, people who score low on both attributes

should be reliant on others to take initiative (Bateman & Crant, 1993) and be easy-going in accepting direction from others (McCrae & Costa, 2010).

Instead, if some team members are proactive but not conscientious, while others are conscientious but not proactive, there may be difficulties in coordinating anticipated changes. For example, team members who are proactive but not conscientious may drive risk-taking to bring about change, but a lack of planning and situational judgment may make their proposed changes ill-advised, poorly timed, or ineffective (Chan, 2006; Grant & Ashford, 2008; Parker et al., 2019). Similarly, team members who are conscientiousness but not proactive may use their dutiful planning to improve and implement existing team processes, instead of seeing a different future-oriented state which may include risk taking, innovating, or rule-breaking to create necessary change (Miron-Spektor et al., 2022; Morrison, 2006; Robert & Cheung, 2010). Thus, when high levels of conscientiousness and proactivity exist in different team members (i.e., there is unalignment of these attributes), team members may work against each other as they focus on different activities. Because of the potential for conscientiousness to influence the expression of proactivity within individual team members, considering P-C alignment may help to explain when team member proactivity is beneficial.

OVERVIEW OF STUDIES

We explored how these different team composition models of member proactivity and conscientiousness influence team coordination and performance in two studies. First, we conducted an exploratory study of MBA teams completing a consulting project in which they gathered and analyzed data, proposed recommendations, and presented their findings to client organizations. The ambiguity and uncertainty associated with consulting for real-world clients provided an ideal context in which to examine the proposed benefits of member proactivity and

conscientiousness for team performance. Second, we conducted a confirmatory study of teams completing a decision-making simulation in which they exchanged information, balanced individual and collective goals, and adapted to changing task conditions in a laboratory setting. This study provided more situational control in terms of team tasks and greater opportunity to observe team behaviors including coordination as well as team performance.

STUDY 1: MBA CONSULTING TEAMS

Participants and Procedure

Our sample comes from an ongoing data collection effort to examine team composition and outcomes among MBA students at a graduate business school in the United Kingdom. Our sample includes 610 individuals assigned to 92 teams of between five and eight members (M = 6.63, SD = .60). Of these, 539 (88%) provided usable data on all measures. Individuals were assigned to teams by the MBA program office with the intent to maximize diversity in functional expertise and nationality. They represented 64 countries, led by the United States (103), India (68), and the United Kingdom (65), and 467 companies across 16 industries. Their average age was 28.41 years (SD = 2.33), 76% were male, and they had average work experience of 5.55 years (SD = 2.07). Teams were assigned at the start of the students' first academic term in the MBA program and remained intact for one calendar year. Students completed all group project work across courses in these assigned teams.

The first week of the academic term was devoted to leadership assessment and training, where students received feedback on a personality inventory and 360-degree feedback ratings that were collected prior to the start of the MBA program. During this week, they completed several activities with their newly assigned teams (e.g., a team agreement exercise and a day-long business simulation). They then completed the first term of academic courses, and in the

second academic term the teams sourced and completed major consulting projects for external organizations. Team grades on this group project serve as team performance data and were assigned by the professors of the course, neither of whom were a part of this study, nor were they aware of our research questions.

Measures

***Proactivity*.** Members of the students' former organizations provided ratings of proactivity in the form of 360-degree feedback. In the summer prior to beginning the MBA program, each student asks members of his or her former organization to provide structured feedback via a 360-degree survey administered by an outside provider. Through this process, former peers, supervisors, and subordinates provide feedback, of which four items were identified as an appropriate measure for proactivity (described below). Although we were unable to collect self-report ratings of proactivity, ratings of personality attributes by others who are familiar with the person being rated (e.g., through observations and past experiences) tend to have high agreement with self-ratings, both generally (Funder & Colvin, 1988) and for proactivity in particular (Seibert, Crant, & Kraimer, 1999). Five hundred thirty-nine of the 610 team members had usable 360-degree feedback evaluations from 2,931 external raters (a rate of 88%), which represents an average of 5.44 raters per person.

Four items from the 360-degree feedback survey were used to measure proactivity: "Is adaptable and responsive to new situations", "Is able to motivate and energize others", "Has a high degree of personal energy", "and "Enjoys change". These items were rated on a 1 (*Very ineffective, one of his/her least developed skills. A definite gap in his/her skill set*), to 5 (*Very effective, one of his/her most successful skills. He/she acts as a role model for others*) scale (α = .79). These items are consistent with the definition of proactive individuals as those who "scan

for opportunities, show initiative, take action, and persevere until they reach closure by bringing about change" (Bateman & Crant, 1993, p. 105). However, we further validated these items in two ways. First, we followed other recent studies to establish content validity (e.g., Nurmohamed, 2020) by sharing these four items with six well-published personality scholars for review. All rated these four items combined as embodying proactive personality more than other plausibly-related personality constructs including openness, extraversion, self-monitoring, and narcissism. We also followed procedures by Schaumberg and Flynn (2012) and Jones and Shah (2016) to show convergent validity with Seibert, Crant, and Kraimer's (1999) established measure of proactive personality, which is a shortened version of Bateman and Crant's (1993) measure of proactive personality (example items: "Has been a powerful voice for constructive change", and "Is always looking for better ways to do things"). We surveyed 143 participants on Amazon's Mechanical Turk (73% Male; 60% White, 36% Asian, 4% Other Ethnicity). Participants were asked to consider a current or recent team leader (e.g., at work, at a recreational league, or another project) and answer questions about that person. They completed our 360-feedback measure and Seibert and colleagues' (1999) measure with their chosen leader in mind, as well as a series of filler measures. Our four-item measure strongly and positively correlated with Seibert, Crant and Kraimer's (1999) proactivity items ($r = .80$, $p < .01$). This correlation is comparable with those in other recent studies that follow this method to provide convergent validity (Jones & Shah, 2016; Schaumberg & Flynn, 2012). These procedures gave us confidence in using the 360-degree feedback ratings on these four items as a reasonable measure of proactivity (Individual-level: $M = 3.95$, $SD = .37$; Team-level: $M = 3.93$, $SD = .15$).

***Conscientiousness*.** Prior to beginning the MBA program, students completed the 240-item NEO-PIR Inventory (McCrae & Costa, 2010), of which 48 items measured

conscientiousness (α = .89) (Chan, 1998). Individual-level: *M* = 3.66, *SD* = 0.37; Team-level *M* = 3.66, *SD* = 0.16.

Team performance. We assessed team performance as team grades on the major consulting project for the core Organizational Behavior course, completed after nine months of working together. In this project, teams worked with outside organizations to design and implement a consulting project that would benefit the focal organization. This task required teams to work interdependently to complete multiple activities associated with the consulting engagement (e.g., meeting with the client, formulating plans, conducting research and analysis, and presenting their results and recommendations). Examples of consulting projects include assessing the performance of local bus service to the school, advising a local start-up how to establish a culture of motivation in their employees, and working with a moderate-size division of a large multinational company to understand why employee turnover was so high for mid-level managers but not for others. The final deliverable was a presentation to the client organization and a culminating project report, graded by the professor of the course with feedback from the client organizations – none of whom were involved in or aware of this study. Grades were assigned out of 50 possible points, which represented one-third of the students' overall grades in the course (*M* = 41.33, *SD* = 2.85, Range = 34-48). A Shapiro-Wilk test indicated that these performance scores were normally distributed, $W(92) = .98$, $p = .21$.

Control variables. Because teams were not randomly assigned, we included two control variables that could potentially influence their grades on the consulting project: mean GMAT

score, indicating additive collective cognitive ability, and class year (i.e., dummy coded) since different faculty members taught the course each year of our study[1].

Analytical Approaches

Additive and configurational approaches to conscientiousness-proactivity composition. Commensurate with the four plausible configurations of team proactivity and conscientiousness, we aggregated member proactivity and conscientiousness to the team level using team means, maximum scores, and standard deviations (Chan, 1998; Mathieu et al., 2014; Zhang et al., 2021). We also consider the interaction terms between team means, standard deviations, and maximums in our analysis.

Alignment approach to proactivity-conscientiousness composition. We followed Emich et al. (2022) by calculating the Euclidian distance between proactivity and conscientiousness vectors (comprising attribute scores across all team members), accounting for team size. Specifically, we calculated P-C alignment using the equation below, where *K* indicates the alignment of two attributes *x* and *z*, and *d* indicates team size. This resultant term is referred to as a vector norm distance. For more details of this method, see Emich et al. (2022).

$$K(x,z) = \frac{\left(\sum_{i=1}^{d} | x_i - z_i |^2\right)^{1/2}}{\sqrt{d}}$$

In this study, proactivity and conscientiousness had equivalent variances as measured, $F = .97$, $p = .74$, so no transformation was needed prior to calculating alignment (Emich et al., 2022).

[1] Note that our results are the same in terms of signs and significance levels with and without these control variables. In robustness checks, we also ran all models controlling for mean age, gender diversity, and ethnic diversity and our results were unchanged.

Results

Descriptive statistics and correlations between individual and team-level proactivity, conscientiousness, and performance can be seen in Table 1. We tested the different compositional approaches to considering these attributes using a series of linear regressions (see Tables 2 and 3).

---Insert Tables 1 and 2 about here---

First, in Model 1, we considered a traditional additive model by exploring whether a team's mean level of proactivity and conscientiousness relate to its performance. Mean proactivity negatively related to team performance (B = -4.53, SE = 2.00, t = -2.27, p = .03), and there were no effects of mean conscientiousness (B = 0.86, SE = 1.89, t = .45, p = .65; Model 1). This indicates that, in general, teams with members who had a greater tendency to make self-initiated efforts to bring about change performed worse than teams whose members had less of this tendency. Model 2 shows that the interaction between mean level proactivity and conscientiousness did not impact team performance (B = 18.24, SE = 11.23, t = 1.63, p = .11), however the negative effect of mean proactivity remained significant (B = -4.15, SE = 2.00, t = -2.08, p = .04).

Next, we explored a configurational explanation of team composition by examining whether having high member proactivity and conscientiousness within the team (but not necessarily in the same team member), measured using maximum scores, related to team performance. Model 3 reveals that neither maximum proactivity (B = -1.88, SE = 1.27, t = -1.49, p = .14) nor maximum conscientious (B = 1.72, SE = 1.46, t = 1.18, p = .24) related to team performance. Their interaction also did not relate to team performance (B = -3.58, SE = 5.79, t = -.62, p = .54; Model 4). Finally, exploring configurations using diversity in these attributes

shows that neither the standard deviation of proactivity (Model 5: B = -1.04, SE = 2.54, t = -.41 p = .68) nor conscientiousness (Model 5: B = 1.97, SE = 2.43, t = .81, p = .42) nor their interaction (Model 6: B = 6.85, SE = 19.70, t = .35, p = .73) significantly accounted for team performance. Models 1-6 also indicate that although the additive model did account for additional variance over the control model (ΔR^2 = .09, p = .049) standard deviations and maximums did not, as the change in R^2 for these models was not significant. Finally, we explored the alignment of these attributes (i.e., the distance between the vector norms of proactivity and conscientiousness in each team: P-C alignment) in Model 7. We found that P-C alignment alone negatively relates to team performance (B = -12.52, SE = 3.98, t = -3.14, p < .01), increasing the predictive capability of the control model by 10%. The negative coefficient in this model indicates that P-C alignment is positively related to team performance (where smaller distances indicate greater alignment).

---Insert Table 3 about here---

Models 8-11, displayed in Table 3, test the relative influence of P-C alignment on team performance over the other approaches tested. Model 8 indicates that the relationship between P-C alignment and team performance held when controlling for mean proactivity and conscientiousness and their interaction term – only P-C alignment significantly related to team performance (B = -10.92, SE = 5.44, t = -2.01, p = .048). Model 9 reveals that P-C alignment accounted for variance in team performance above maximum proactivity or conscientiousness and their interaction (B = -12.52, SE = 4.47, t = -2.80, p < .01), while Model 10 shows that this relationship held while controlling for the standard deviations of these attributes and their interaction (B = -17.92, SE = 4.57, t = -3.92, p < .01. Finally, Model 11 demonstrates that the relationship between P-C alignment and team performance holds when all other team

composition models are considered (B = -18.87, SE = 7.18, t = -2.63, p = .01), explaining 7% of the variance in team performance above the aggregate effects of these models.

These results reveal that P-C alignment best predicts team performance, and does so beyond the other approaches considered. Teams in which proactive members are also high in conscientiousness (and conversely, in which less conscientious members are also less proactive), performed better than teams in which these attributes were unaligned. That said, an outstanding question about the alignment of these attributes is how much the effects of alignment are dependent upon overall magnitudes of proactivity and conscientiousness in teams and/or whether these effects are being driven by specific individual(s).

To address these questions, we further explored our data in three ways. First, we assessed whether alignment interacts with mean or maximum levels of these attributes, or their standard deviations, to influence team performance. Neither the interaction between P-C alignment and mean proactivity (t = -.48, p = .64), nor the interaction between P-C alignment and maximum proactivity (t = -1.14, p = .26) significantly influenced team performance. Similarly, neither the interaction between P-C alignment and mean conscientiousness (t = .70, p = .49), nor the interaction between P-C alignment and maximum conscientiousness (t = -1.25, p = .14) significantly influenced team performance. Finally, we considered the interaction of the standard deviations, finding no effects on performance (P-C alignment and proactivity SD: t = .01, p = .99; P-C alignment and conscientiousness SD: t = -1.67, p = .10). This indicates that mean and maximum levels of team proactivity and conscientiousness, and their standard deviations, do not affect the relationship between P-C alignment and team performance in this sample.

Second, we assessed whether alignment within a subgroup or single individual within the team could account for our finding that global P-C alignment helps team performance. We ran a

linear regression model regressing four team subcomponents: 1) conscientiousness of most proactive member, 2) conscientiousness of least proactive member, 3) P-C alignment of high proactivity subgroup (as determined by team proactivity mean split), and 4) P-C alignment of low proactivity subgroup, on team performance. We found that none of these team subcomponents significantly predicted team performance (1: t = .61, p = .54; 2: t = -1.43, p = .16; 3: t = -1.79, p = .08; 4: t = -.89, p = .38). Further, despite high covariance, when team P-C alignment was added as a fifth predictor, only it significantly predicted team performance (t = 2.49, p = .02). These analyses indicate that P-C alignment across the team as a whole seems to drive its relationship to team performance in our sample.

---Insert Figure 1 about here---

Finally, we graphed the specific P-C alignment patterns of the 10 most aligned and 10 least aligned teams in this sample in Figure 1. This helped us to discover how different patterns of alignment and unalignment of proactivity and conscientiousness can contribute to similar levels of team performance. In each graph, we highlight two teams to show how alignment or unalignment may take on different patterns. The blue lines represent teams close to an 'ideal' pattern of alignment or unalignment (e.g., for alignment: team members who have higher proactivity also have higher conscientiousness and those with lower proactivity have lower conscientiousness; for unalignment: team members who have higher proactivity have lower conscientiousness and those with lower proactivity have higher conscientiousness). The red lines represent teams that may appear different from this 'ideal' pattern but are still aligned or unaligned and perform similarly to 'ideal' teams.

For example, Team 61 (blue line, left panel) exemplifies an ideal pattern of alignment: the least proactive member (2.98) is also the least conscientious (3.21) and the most proactive

member (4.19) is the most conscientious (4.25), while those members in between these extremes are moderately proactive and conscientious (team P-C alignment score = .14). This team scored a 43 on their consulting project, putting them above 75% of the teams in our sample. Team 2 (red line) has a similar P-C alignment score (.15) and team performance score (42) and nearly follows this ideal pattern, but has an obvious exception in that the least conscientious member has relatively high proactivity (the second highest on the team). This indicates that, in this case, the exception to P-C alignment within one team member did not negate the effects of the more global P-C alignment observed across the team.

The right panel has a similar display of unaligned teams. Team 57's (blue line) two least proactive members are the most conscientious, while the three most proactive members are the least conscientious (team P-C alignment score = .43; 40th percentile for team performance). Team 50 (red line) indicates a slightly different pattern of unalignment (team P-C alignment score = .33). The four least conscientious members are reverse ordered in terms of their proactivity (less conscientious members have higher proactivity), but there is one member who is high in conscientiousness and proactivity. This team performed slightly better than Team 57 (57th percentile), although it seems the one high P-high C member was not able to overcome the lack of alignment across the rest of her team. In short, these graphs and examples demonstrate that our observed P-C alignment effect on performance comes from alignment across the whole team, rather than the scores of any one or a few individual members.

Discussion

In summary, Study 1 discovers evidence that it is important to consider conscientiousness in conjunction with proactivity to better understand how to create teams that perform well. It also reveals that team-level alignment of these attributes within members considered across the team

is the most predictive of team performance of all the compositional models we considered. Further, had we only used traditional composition models of team conscientiousness and proactivity, we would have concluded that having higher mean levels of team proactivity negatively influences team performance. However, the alignment approach provides greater insight into this finding, suggesting that it is important to consider proactivity and conscientiousness simultaneously and as they coexist within team members.

However, while useful for examining our emergent ideas, Study 1 also has several limitations. First, although the sample of MBA consulting teams has the advantage of showing that these effects are relevant to real-world teamwork benefitting client organizations, it lacks control over contextual variables like the nature of the team tasks (i.e., although grading would have been similar across teams, consulting projects may have differed based on specific client needs and deliverables). Second, this data collection effort did not include an established measure of proactive personality. Although we took additional steps to verify the validity of the proactivity measure we used, we cannot rule out the possibility that our observed effects might have been different had we used a more traditional measure. Finally, we did not assess coordination of team member efforts during the consulting projects, limiting our ability to understand the processes by which P-C alignment affects team performance. We therefore conducted a more controlled, confirmatory study that addresses each of these limitations in Study 2 and provides greater confidence in the emergent findings.

STUDY 2: LABORATORY TEAMS

Participants and Procedure

Six hundred seventy-five undergraduate business students from an East Coast university were randomly assigned to 135 five-member teams to participate in Harvard's Everest

Leadership and Team Simulation (V2) (Roberto & Edmondson, 2011) for lab credit (51% male, 84% White, M_{age} = 20.12 years). The Everest Simulation consists of a simulated six-day climb of Mount Everest that takes approximately 90 minutes to complete. Team members are randomly assigned to team roles (Environmentalist, Leader, Marathoner, Photographer, and Physician) that include unique information which they can choose to share with their teammates. Each day (i.e., one simulation round), teams must share and analyze information on weather, health, supplies, and hiking speed to decide whether to move to the next camp or stay at their current location. They also complete three decision-making challenges: a medical challenge where participants must discern that the Environmentalist needs an inhaler, a weather challenge where participants must accurately predict the weather at their next camp, and an oxygen challenge where participants must decide how many oxygen tanks each member needs for the summit ascent.

After entering the behavioral research laboratory, each participant completed the proactivity and conscientiousness measures described below. Then, participants were randomly assigned to teams and simulation roles, and given detailed instructions about the task. Teams were co-located in the same room, but communicated only through a computer-mediated chat, which allowed us to track their interactions. Although participants generally find this task intrinsically engaging (Roberto & Edmondson, 2011), we also awarded $100 cash ($20 per member) to the two highest performing teams. This increased the importance of performing well on the task beyond receiving course credit.

Measures

***Proactivity*.** We measured proactivity using Seibert, Crant, and Kraimer's (1999) proactive personality measure, which is a shortened version of Bateman and Crant's (1993) measure. It has been used extensively in the organizational literature to measure proactive

personality and has shown good internal consistency, test-retest reliability, and discriminant, convergent, and criterion validity (Bateman & Crant, 1993; Seibert et al., 1999; Seibert et al., 2001). To complete this measure, participants rate the extent to which they agree that ten statements describe them from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*) (example items: "I am constantly on the lookout for new ways to improve my life" and "Wherever I have been, I have been a powerful force for constructive change") (α = .89; Individual-level: *M* = 3.74, *SD* = .58; Team-level: *M* = 3.74, *SD* = .23).

***Conscientiousness*.** We measured conscientiousness using Goldberg's (1992) International Personality Item Pool (IPIP). The IPIP consists of 50 items, ten for each Big Five personality trait. Subscales have been shown to have good internal consistency and appropriate convergent and discriminant validity (Lim & Ployhart, 2006). Participants rated the extent to which a series of statements described them compared to their peers from 1 (*Very Inaccurate)* to 5 (*Very Accurate*) (example items: "Am always prepared", "Pay attention to details") (α = .80; Individual-level: *M* = 3.58, *SD* = .60; Team-level: *M* = 3.58, *SD* = .25).

***Team coordination*.** We used the team chat logs to unobtrusively measure team coordination during the task. Teams communicated exclusively through the chat logs, so these logs recorded the entirety of their task interactions. Two research assistants who were blind to the study purpose read the team chat logs independently and rated each team on four team coordination survey items taken from Lewis (2003) and Mathieu et al. (2020): "The team worked together in a well-coordinated fashion", "The team communicated well with each other", "The team smoothly integrated their work efforts" and "The team re-established coordination when things went wrong" (rated on a 1 (*not at all*) to 7 (*to a very great extent*) scale). The research assistants assessed the first 20 teams independently, then met to resolve any discrepancies and

build a shared understanding of how to consistently assess task interactions in the chat logs according to these items. Then, they rated the next 20 team transcripts independently. This second set showed sufficient agreement (ICCs (2,1) = .75-.83; Shrout & Fleiss, 1979), so the research assistants went on to rate the remainder of the transcripts independently. Their final ratings of coordination for all transcripts also showed sufficient agreement: Item 1, ICC (2,1) = .83, Item 2, ICC (2,1) = .80, Item 3, ICC (2,1) = .82, Item 4, ICC (2,1) = .76, full scale, ICC (2,1) = .83, Cronbach's α = .94. For example, Team 63 was rated as having good coordination (7.00/7.00) as they got input from each member before making team decisions, consistently checked on each other's health, and gathered information on each team member after setbacks. Alternatively, Team 117 was rated as having poor coordination (1.63/7.00) as they barely communicated over the first two days of the simulation, did not ask for input from each other, and did not incorporate others' information when responding back to the group.

Team performance. In the Everest Simulation, team performance is calculated by considering the percentage of individual and team goals each team achieves. Each team member has between two and six individual goals, which often overlap. For example, each team member is tasked with surviving the climb, however only three members are tasked with staying an extra day at a particular camp and only two of these members may overlap on the same day. In all, individual goals account for 39 points. Collective goals, which include the team's ability to complete each of the three decision-making challenges, count for 20 points plus an additional 15-42 points depending on simulation-defined factors (e.g., team members' locations during the weather decision-making challenge) (see Roberto & Edmondson, 2011). Overall, the percentage of total possible points earned (0-100%) is a standard comparative measure of team performance

(Pearsall & Venkataramani, 2015; Tost, Gino, & Larrick, 2013). As in Study 1, a Shapiro-Wilk test indicated that these performance scores were normally distributed, $W(135) = .99$, $p = .13$.

Analytical Approaches

***Additive and configurational approaches to proactivity-conscientiousness composition*.** As in Study 1, we used the team mean, maximum scores, and standard deviations of proactivity and conscientiousness, as well as their interaction terms, to examine additive and configurational team composition models in predicting team performance.

***Alignment approach to proactivity-conscientiousness composition*.** We calculated P-C alignment as in Study 1. To account for the differences in response scales (5 vs. 7 points), we linearly transformed the proactivity scale to the conscientiousness scale by multiplying proactivity scores by $\frac{5}{7}$. This equated scale variances, $F = .93$, $p = .53$, confirming that both attributes contributed to the alignment score equally (Emich et al., 2022).

Results

Descriptive statistics and correlations between individual and aggregated proactivity, conscientiousness, coordination, and performance are presented in Table 4. As in Study 1, we examined the different team composition models using a series of linear regressions. Results are presented in Tables 5 and 6.

---Insert Tables 4, 5, and 6 about here---

First, we considered a traditional additive model by exploring whether a team's mean level of proactivity and conscientiousness relate to its performance. Results revealed no effects for mean proactivity (Model 1: B = -6.13, SE = 6.16, $t = -.99$, $p = .32$), mean conscientiousness (Model 1: B = 1.25, SE = 5.66, $t = .22$, $p = .83$), or their interaction (Model 2: B = -14.37, SE =

22.36, t = -.64, p = .52). Next, Models 3 and 4 indicated no effects for maximum proactivity (Model 3: B = 1.13, SE = 4.23, t = .27, p = .79), maximum conscientiousness (Model 3: B = 1.03, SE = 3.68, t = .28, p = .78) or their interaction (Model 4: B = 2.43, SE = 10.16, t = .24, p = .81). Finally, Models 5 and 6 show no effects of standard deviation in proactivity (Model 5: B = 7.11, SE = 6.47, t = 1.10, p = .27), standard deviation in conscientiousness (Model 5: B = 1.37, SE = 6.76, t = .20, p = .84), or their interaction (Model 6: B = 23.65, SE = 32.86, t = .72, p = .47). Similar to the results of Study 1, these initial analyses indicate that traditional additive and configurational models of team proactivity and conscientiousness did not directly explain much variance in team performance.

We examine P-C alignment in Model 7. As in Study 1, P-C alignment across team members negatively and significantly related to team performance (B = -42.03, SE = 13.12, t = -3.20, p < .01). Again, this indicates that having smaller distance between proactivity and conscientiousness (i.e., greater alignment) positively influences team performance. Models 8-10 indicate that this relationship holds even when controlling for additive and configurational explanations of how these attributes impact team performance. Finally, Model 11 shows that this relationship holds when considering all composition models simultaneously (B = -71.80, SE = 16.75, t = -4.29, p < .01). Further, it indicates that P-C alignment accounts for 13% of the variance in team performance above these other explanations.

Next, we assessed whether team coordination, as rated from teams' communication logs, helped to explain the relationship between P-C alignment and team performance. Since our alignment measure exists at the team level, we tested this using Hayes's PROCESS macro to conduct a bootstrapped mediation analysis with 5,000 resamples (Hayes, 2017). Results indicated that P-C alignment led to greater team coordination (B = -3.91, SE = 1.40, t = -2.79, p

< .01), team coordination led to greater team performance (B = 2.35, SE .86, t = 2.73, p < .01), and the indirect path from P-C alignment to team performance through team coordination was significant (95% CI [-22,69, -.98]) (R^2 = .15). This indicates that a significant portion of P-C alignment's impact on team performance occurs because it allows teams to coordinate better.

Because we used a different team task and measure of proactivity in Study 2, we also wondered whether the patterns of alignment we discovered in Study 1 would be similar or different in this sample. As in Study 1, we examined the influence of the interactions between P-C alignment and mean or maximum proactivity and conscientiousness, or their standard deviations, on team performance. None were significant. Similarly, the conscientiousness of the most proactive and least proactive team members, and the P-C alignment of the high and low proactivity subgroups (as determined by mean split) did not independently influence team performance[2].

---Insert Figure 2 about here---

Next, we graphed the top 10 aligned and unaligned teams in Figure 2. Figure 2 reveals similar patterns of alignment and unalignment, relative to means and individual team members, as we observed in Study 1. For example, Team 63 (blue line) has an 'ideal' pattern of alignment – each team member with a higher proactivity also has higher conscientiousness (P-C alignment score = .12). They scored a 67 in the simulation, which was the second highest score of any team, and they were rated as a perfect seven out of seven on coordination. The team communication log revealed consistent information seeking and input, primarily driven by the second and third most proactive members (who were also the second and third most conscientious). For example, one of these members consistently checked in regarding future-

[2] Results are available from first author upon request.

oriented actions (e.g., “does everyone wanna go to camp 1 right now?”; “everyone wants to stay for the day?”). In addition, the least proactive and conscientious member only provided information when asked (e.g., making only 9% of the comments over the first two days of the climb, but providing important information after the weather equipment failed on Day 3). Team 20 (red line) shows similar metrics on alignment, performance, and coordination (P-C alignment score = .12; team performance = 47; team coordination = 5.25); however, the most conscientious member is less proactive than three others on the team. This again indicates the team nature of attribute alignment. The two members with higher proactivity and slightly lower (but still high) conscientiousness helped to coordinate the team by sharing information about team goals (e.g., “for my role, I have to stay in camp 1 and 2 an extra day to take photos”) and asking specific questions about the team members’ health to assess readiness to move forward. Importantly, during this process members lower in proactivity and conscientiousness did not interrupt, which allowed the team to effectively coordinate their efforts.

We also see similar trends to Study 1 for the unaligned teams in Figure 2. Team 117 (blue line) is highly unaligned except for their centrally conscientious member (P-C alignment = .58). This team had the lowest score of any in our sample and scored in the 11^{th} percentile of coordination (1.63). The team communication log revealed that the team did not communicate often, but when they did the conversation was dominated by the two members with high proactivity and low conscientiousness. This pair dictated the team strategy without consulting anyone other than each other. The most conscientious member, who was the least proactive, almost never spoke up. Team 28 (red line) shows similar metrics but with a slightly different pattern (P-C alignment = .52; team performance = 24^{th} percentile; team coordination = 2.00, 16^{th} percentile). The team is relatively unaligned except the two most conscientious members are

moderately proactive. Still, the least conscientious member was one of the most proactive people in our entire sample and the second least conscientious member was also highly proactive. The team communication log indicated that proactivity on the part of these non-conscientious members overwhelmed any effort by the team's more conscientious members to coordinate. For example, these team members were eager to take action (e.g., "the weather looks good, so I think we should go"; "G-O") without considering important information from others that required coordination (e.g., that they needed to ration their oxygen canisters to attempt the summit).

Discussion

Study 2 replicates and extends the discovery that P-C alignment is the best predictor of how member proactivity and conscientiousness can come together to improve team performance. Teams perform best when they have some members who are proactive *and* conscientious and some members who are not. Importantly, we also find that this happens because of the team's ability to achieve effective coordination, offering evidence for a key process criterion to team proactivity research (Lu et al., 2023; Williams et al., 2010; Wu, Parker, Wu, & Lee, 2018; Zhang et al., 2021). We also note that this study provides initial evidence that highly proactive team members who are not conscientious may also present a threat to team coordination by pushing ahead without the information or skills that are needed to effectively do so. As such, we find that the proactivity of less conscientious members can dampen the participation of other potentially valuable team members.

GENERAL DISCUSSION

At the outset of this paper, we asked how organizations should create teams that are proactive, but that also engage in the planning necessary to coordinate that proactivity and perform well. Taken together, our studies reveal that teams in which member proactivity and

conscientiousness align within team members across the team are more coordinated and perform better than teams in which these attributes are unaligned. Further, we find evidence that considering P-C alignment is more useful in predicting how well a team will coordinate and perform than other plausible team composition models of these attributes.

Theoretical and Practical Implications of Proactivity-Conscientiousness Alignment Effects

The discovery of the importance of P-C alignment in influencing team coordination and performance is meaningful for several reasons. First, we provide further insight into the anomalies in the literature concerning whether and when team member proactivity is beneficial, detrimental, or does not matter for team performance. We confirm, for example, that it is not necessary to have high mean levels of proactivity for team performance (e.g., Chiu et al., 2016), and that a complementarity perspective is warranted (e.g., Zhang et al., 2021). Yet, we also find that complementarity in proactivity alone is not sufficient. Instead, proactivity should be considered in light of another individual difference that helps members plan and organize their activities: conscientiousness. Considering the coexistence of these attributes allowed us to address how organizations should compose teams that are proactive yet coordinate well, adding coordination as a key process criterion in the team proactivity literature (Williams et al., 2010; Wu et al., 2018; Zhang et al., 2021).

Second, our study amplifies discussion of the complexity and multilevel nature of teams and their members (Mathieu et al., 2019) by revealing the importance of the alignment of multiple traits within individual team members, specifically proactivity and conscientiousness. We not only explored several of the most widely used compositional models of these attributes (e.g., means, maximum scores, standard deviations), but we also employed the alignment approach to modeling teams as matrices of members and their attributes (Emich et al., 2022). We

discovered that the alignment approach provides the best path to understand how proactivity and conscientiousness coexisting at the individual-level may be considered across the team, allowing us to better understand how to create high performing teams. This answers calls to consider the complexities of team composition in general (Bell, Brown, Colaneri, & Outland, 2018; Emich & Lu, 2020; Emich et al., 2022) as well as to consider unique team composition models of proactivity in particular (Harris & Kirkman, 2017). It also echoes previous literature that considers the relative importance of team member attributes (e.g., social estimation schemes or social decision modeling) (Bonner, Sillito, & Baumann, 2007; Davis, 1973; Yetton & Bottger, 1983), but extends it by relating the coexistence of multiple within-person attributes to team processes and outcomes.

Practically, our findings can help managers appropriately staff teams and consider interventions aimed at increasing their coordination. For example, Woolley et al. (2008) find that teams that discuss collaborative planning for a few minutes before completing a task tend to coordinate better during the task. However, these authors are careful to note that high performance "requires both task-appropriate expertise and collaborative planning to identify strategies for optimally using that expertise" (p. 352). We echo this integrative approach. Interventions aimed to increase coordination should be considered in the context of team composition. Having a P-C unaligned team meet to discuss strategy may not be effective because proactive members who are not conscientious could still dominate that discussion with deleterious effects (e.g., as we observed in our second study). As Bell et al. (2018) summarize: "in teams, some combinations of people tend to work better together than others. Team composition research provides insights into why as well as the optimal combinations of team

members. Importantly, the research allows for the evidence-based staffing and management of teams" (p. 360).

That said, however, managers could also direct effort towards targeted interventions that align these two facets of personality within individual team members. For example, it may be possible to coach highly proactive but less conscientious team members to engage in more coordination-related activities, or more duty-oriented versus achievement-oriented displays of conscientiousness (Marinova, Moon, & Kamdar, 2013). Alternatively, highly proactive team members with lower conscientiousness could be directed to training or other development in project management or collaborative planning to ensure that, in the context of team and project-based work, they are able to create systems that maximize the value of their proactivity. Similarly, our findings suggest managers may do well to encourage and support highly conscientious yet less proactive team members to engage in more proactive ways of contributing to the team. For example, managers could actively solicit input from those team members, which can increase their perceived influence and willingness to engage in prosocial behavior (Martin & Harrison, 2022; Tangirala & Ramanujam, 2012). In effect, our findings encourage managers to consider both compositional and processual ways of aligning proactivity and conscientiousness to enhance team performance.

Future Directions for Further Exploration

Here we offer several other ideas for further exploration, regarding both P-C alignment and alignment effects in general. First, although we find that P-C alignment improves team coordination and performance, it may also result in some drawbacks, which we were unable to observe in our samples. For example, P-C alignment may somehow undermine learning for the low P-low C members who follow the lead of their high P-high C counterparts instead of

contributing to the team in a more active role. Over the long term, this might result in entrenched social dynamics which paradoxically may lead to reduced team flexibility. We also wonder whether P-C alignment might be particularly helpful for achieving coordination in teams acting in even more dynamic environments than those we reported; for example, in virtual teams, multiteam systems, or teams that experience frequent membership change (e.g., De Vries, Hollenbeck, Davison, Walter, & Van Der Vegt, 2016; Lanaj, Hollenbeck, Ilgen, Barnes, & Harmon, 2013). P-C alignment may result in more efficient processing when teams face even greater uncertainty from challenges in team design (e.g., shifting roles).

Additionally, one could combine work on social estimation schemes, specifically social permutation models (Bonner, 2004; Bonner et al., 2007), with work on attribute alignment to ask whether all members should contribute to alignment values equally. While we did not find that the conscientiousness of the most or least proactive member predicted team performance above global alignment, it is possible that attributes such as expertise, extraversion, and status may affect whether other member attributes are considered by the group (Baumann & Bonner, 2004; Bonner, 2004). For example, such attributes could be used to weight the importance of other attributes to teams (e.g., the proactivity and conscientiousness of the leader is weighted more than other members), or as separate vectors which may align with other attributes to predict team behavior (e.g., extraversion is added as a third attribute in addition to proactivity and conscientiousness. See Emich et al., in press).

Beyond examining future questions related to proactivity and conscientiousness, our exploration uncovered a number of insights about the nature of attribute alignment more broadly. First, a theoretically critical question is whether the attributes that align matter; or, can we simply assume that any positively-valenced attributes that coexist within a subset of team members

relative to others will improve team coordination and performance? While the alignment approach may be applied to any set of team member traits, thoughts, emotions, or behaviors (Emich et al, 2022), we believe the attributes under consideration do matter because of the specific team processes they would be expected to influence. For example, we observed initial evidence that P-C aligned teams had more effective coordination because when some team members had high proactivity and high conscientiousness they anticipated helpful changes and planned and organized them with respect to their team context, while other team members who were low on both traits let others initiate changes and were open to their direction. In contrast, P-C unaligned teams had members who sometimes worked against each other, e.g., proactive members who were not conscientious tried to direct changes that were ill-planned, and those who were conscientious did not offer corrections because they let others take the initiative.

However, alignment of other positively-valenced traits may not affect coordination, or may even affect it negatively. For example, if optimism and openness align such that some team members are high on openness and optimism, and others are low on openness and optimism, they may have difficulty coordinating their task strategies (e.g. highly open and optimistic members may have confidence in adopting innovative task strategies whereas closed and pessimistic members cling to more established strategies). Similarly, alignment that includes one or more negatively-valenced traits could result in dysfunctional processes such as conflict (e.g., neuroticism-agreeableness alignment increased relationship conflict as reported by Emich et al., 2022). As such, the theoretical properties of the attributes of interest should drive the cognitive, affective, and behavioral manifestations of their alignments.

A second critical question is how attribute alignment generally relates to, and may complement, more traditional ways of aggregating individual attributes to the team level. In our

study we did not find robust effects for traditional composition models using means, maximum values, or standard deviations of proactivity and conscientiousness, and we did not find that these traditional measures interacted with P-C alignment to influence team behavior. However, it is important to consider why this occurred; and in doing so, consider situations in which traditional approaches may better relate to team processes and outcomes than attribute alignment, or may interact with the alignment of team member attributes. To explore how attribute alignment complements other team compositional models conceptually, we created Figure 3, which maps theoretical patterns of P-C alignment, unalignment, and misalignment in nine hypothetical teams. In these graphs, each line represents a team, and each point represents a team member. Teams 1, 2 and 3 are aligned; Teams 4, 5, and 6 are unaligned, and Teams 7, 8, and 9 are misaligned (i.e., there is no relationship between member proactivity and conscientiousness). These nine teams also have different distributional properties of proactivity and conscientiousness in terms of their respective means, maximum values, and variances.

---Insert Figure 3 about here---

The graphs of these nine hypothetical teams show that it is theoretically plausible for alignment to explain team processes and outcomes that means, maximum values, or standard deviations cannot explain (as we found). For instance, Teams 1 and 4, 2 and 5, and 3 and 6 have the same mean levels and standard deviations of both proactivity and conscientiousness – only their alignment differs. If alignment matters independently of other distribution properties of these attributes we would expect the lower numbered teams (e.g., Team 1) to perform better than their higher-numbered counterparts (e.g., Team 4). We would also expect this effect to become particularly pronounced when considering teams with greater within-team variance (e.g., Team 2 and Team 5) as the conscientiousness associated with such teams proactive members varies

greatly. Thus, whenever there is moderate to high within-team variance (team lines slope severely), we would expect C-P alignment to predict team coordination and performance above mean levels of these attributes. This should also occur when there is little difference between team means (i.e., low between-team variance – team lines overlap). Indeed, this is what we observed in our samples (e.g., Figures 1 and 2, which show teams with similar means and standard deviations of proactivity and conscientiousness, but different alignments of these attributes). These comparisons illustrate why we found effects of P-C alignment on team performance, but did not find effects for means or the interactions between P-C alignment and means, maximum scores, and standard deviations.

However, the mean level of any given attribute may interact with alignment to predict how a team behaves. For example, there may be a threshold that exists below which alignment does not matter. Using P-C alignment as an illustration, if a team does not have any proactivity and thereby is unable to identify opportunities for change or does not have any conscientiousness and therefore is completely unable to plan, the fact that these attributes are aligned should not matter to team performance. In Figure 3, Team 3 may represent such a 'below threshold' case, where P-C alignment may not be relevant because the team has such low levels of proactivity and conscientiousness overall. If we had observed a range of teams including those like Teams 1, 3, 4, and 6 in our sample, we likely would have found a significant interaction between mean levels of these attributes and their alignment on team performance, or a simple additive mean effect. In addition, there may also be cases in which, as the levels of a given attribute increase, the importance of its concurrent attributes also increases. This may also pertain to variance – as variances in particular attributes increase, their alignment becomes more important – or other distribution properties such as minimum or maximum levels.

These speculations raise a broader point regarding the role of alignment in curvilinear team effects. Many sophisticated papers are tackling questions of curvilinearity (e.g. De Dreu, 2006), because too much of a good thing can turn into a bad thing (or a not as good thing) a lot of the time. Alignment may be one way to approach these theoretical puzzles as it provides a sense of closeness between attributes across the team, so it not only assesses whether attributes exist at high levels within some team members, but also whether they exist at low levels within others. As we found, considering teams as matrices of their members may provide more insight into complex problems than simply recommending that teams have more "good things". Moreover, this can extend from team composition problems to literatures investigating team member roles (Mathieu et al., 2015), leadership emergence in organizational contexts (Martin et al., 2022), and strategic governance (Hambrick, Misangyi, & Park, 2015). In each of these literatures, scholars have described the tradeoffs inherent in examples like sharing versus specializing in roles or team leadership, or initiating change versus maintaining the status quo in strategic decisions and governance. The attribute alignment framework could help explore how such tradeoffs are made.

Conclusion

In closing, this paper presents a new way to think about the composition of team member proactivity and how it relates to team coordination and performance. It also reminds us that proactivity, in the absence of the planning and organization necessary for coordination, (i.e., conscientiousness), may not be the positive force it is often argued to be. Indeed, via both exploratory and confirmatory studies in different contexts, we demonstrate the key role of conscientiousness in unlocking the full potential of member proactivity in teams. We also

explore new ways of theorizing about the role of individual attributes in teams, particularly their alignment, as well as how those attributes relate to collective outcomes. We believe this to be an exciting new direction for the broader literature on team composition and performance.

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Table 1.

Means, standard deviations, and correlations among Study 1 variables

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Class Year Dummy	---	---	-----	.09	-.13	-.17	.11	-.21*	.30**	-.07	.16	.03
2. GMAT Score	677.66	42.76	.03	-----	-.13	.06	-.04	.07	.08	.06	-.09	.16
3. Proactivity	3.95	0.37	-.07	<.01	-----	-.02	.55**	-.10	-.22*	-.13	.34**	-.25*
4. Conscientiousness	3.66	0.37	-.06	-.11*		-----	-.06	.62**	-.10	-.24*	-.47**	.06
5. Max Proactivity	4.41	0.24					-----	-.13	.58**	.-18	.41**	-.17
6. Max Conscientiousness	4.11	0.21						-----	-.15	.49**	-.17	.14
7. SD Proactivity	0.36	0.12							-----	-.08	.24*	-.03
8. SD Conscientiousness	0.35	0.12								-----	.36**	.10
9. P-C Vector Norm Distance	0.24	0.07									-----	-.32**
10. Performance	41.30	2.85										-----

[a]Variables below the diagonal are at the individual level; variables above the diagonal are at the group level.
Descriptive statistics are at the individual level for variables 2-4 and the team level for variables 5-10. *$p < .05$ ** $p < .01$.

Table 2.

Study 1: The Impact of the Alignment of Member Proactivity and Conscientiousness on Team Performance

Variables	Null Model	Model 1: Additive Model with Mean C,P	Model 2: Additive Model with Mean Interaction of C,P	Model 3: Max. Model of P,C	Model 4: Max. Model of P,C with Interaction	Model 5: Variance Model of P,C	Model 6: Variance Model of P,C with Interaction	Model 7: Alignment of P,C
Intercept	17.96 (15.91)	37.73 (19.46)	36.32 (19.30)	21.84 (17.73)	21.09 (17.84)	18.07 (16.02)	18.97 (16.30)	25.66 (15.37)
Data Year	.07 (.60)	-0.05 (.60)	0.01 (.59)	0.33 (.61)	0.37 (.61)	.18 (.63)	.20 (.63)	.38 (.58)
Mean GMAT Score	.03 (.02)	0.03 (.02)	0.03 (.02)	0.03 (.02)	0.03 (.02)	.03 (.02)	.03 (.02)	0.03 (.02)
Team Proactivity Mean		-4.53 (2.00)*	-4.15 (2.00)*					
Team Conscientiousness Mean		0.86 (1.89)	0.97 (1.88)					
Team Proactivity Mean x Team Conscientiousness Mean			18.24 (11.23)					
Team Proactivity Max				-1.88 (1.27)	-2.00 (1.28)			
Team Conscientiousness Max				1.72 (1.46)	1.91 (1.49)			
Team Proactivity Max x Team Conscientiousness Max					-3.58 (5.79)			
Team Proactivity SD						-1.04 (2.54)	-3.24 (6.82)	
Team Conscientiousness SD						1.97 (2.43)	-.43 (7.34)	
Team Proactivity SD x Team Conscientiousness SD							6.85 (19.70)	
Team P-C Alignment								-12.52 (3.98)**
F	1.10	1.93	2.10	1.57	1.32	0.76	0.63	4.10**
R^2	0.02	0.08	0.11	0.07	0.08	0.03	0.04	0.12
ΔR^2	0.02	0.06	0.08*	0.04	0.06	0.01	0.02	.10**

*p < .05 ** p < .01. DV = Team Performance. P = Proactivity. C = Conscientiousness.

Table 3.

Study 1: Comparison of P-C Alignment to Other Team Composition Approaches

Variables	Null Model	Model 8: Comparison to Additive Approach	Model 9: Comparison to Max Approach	Model 10: Comparison to Variance Approach	Model 11: Full Model with All Predictors
Intercept	17.96 (15.91)	41.69 (19.16)*	22.10 (17.17)	27.57 (15.25)	36.89 (19.46)
Data Year	.07 (.60)	0.19 (.59)	0.61 (.60)	.49 (.59)	.56 (.63)
Mean GMAT Score	.03 (.02)	0.03 (.02)	0.03 (.02)	.02 (.02)	.02 (.02)
Team Proactivity Mean		-2.57 (2.11)			-3.18 (3.88)
Team Conscientiousness Mean		-1.31 (2.17)			-2.76 (4.13)
Team Proactivity Mean x Team Conscientiousness Mean		6.83 (12.41)			1.95 (13.86)
Team Proactivity Max			-0.65 (1.33)		2.17 (2.86)
Team Conscientiousness Max			1.68 (1.44)		1.33 (3.50)
Team Proactivity Max x Team Conscientiousness Max			-7.15 (5.72)		-7.56 (6.38)
Team Proactivity SD				6.12 (6.75)	-.73 (8.87)
Team Conscientiousness SD				11.20 (7.41)	6.15 (9.51)
Team Proactivity SD x Team Conscientiousness SD				-14.47 (19.03)	-4.99 (21.26)
Team P-C Alignment		-10.92 (5.44)*	-12.52 (4.47)**	-17.92 (4.57)**	-18.87 (7.18)**
F	1.10	2.48	2.49	3.17**	1.77
R^2	0.02	0.15	0.15	0.18	0.21
ΔR^2	0.02	.04*	.08**	.14**	.07**

*p < .05 ** p < .01. DV = Team Performance. P = Proactivity. C = Conscientiousness.

Table 4.

Means, standard deviations, and correlations among Study 2 variables

Variable	Mean	SD	1	2	3	4	5	6	7	8
1. Proactivity	3.74	0.58	-----	.30**	.58**	.33**	-.10	.12	.24**	-0.08
2. Conscientiousness	3.58	0.60	.29**	-----	.10	.56**	-.15	-.07	-.22*	-.01
3. Max Proactivity	4.40	0.33			-----	0.24**	.63**	.25**	0.38**	0.03
4. Max Conscientiousness	4.28	0.38				-----	-.02	.67**	.19*	0.03
5. SD Proactivity	0.56	0.21					-----	.16	.29**	.10
6. SD Conscientiousness	0.57	0.20						-----	.45**	.03
7. P-C Vector Norm Distance	0.31	0.10							-----	-.27**
8. Performance	37.81	15.73								-----

Note. Variables below the diagonal are at the individual level; variables above the diagonal are at the group level. Descriptive statistics are at the individual level for variables 1-2 and the team level for variables 3-8. *$p < .05$ ** $p < .01$.

Table 5.

Study 2: The Impact of the Alignment of Member Proactivity and Conscientiousness on Team Performance

Variables	Model 1: Additive Model with Mean P,C	Model 2: Additive Model with Mean Interaction of P,C	Model 3: Max. Model of P,C	Model 4: Max. Model of P,C with Interaction	Model 5: Variance Model of P,C	Model 6: Variance Model of P,C with Interaction	Model 7: Alignment of P,C
Intercept	56.29 (25.76)*	-135.58 (299.62)	28.45 (21.30)	73.68 (190.39)	33.07 (5.02)**	41.09 (12.22)	50.77 (4.25)**
Team Proactivity Mean	-6.13 (6.16)	45.03 (79.83)					
Team Conscientiousness Mean	1.25 (5.66)	55.22 (84.16)					
Team Proactivity Mean x Team Conscientiousness Mean		-14.37 (22.36)					
Team Proactivity Max			1.13 (4.23)	-9.25 (43.60)			
Team Conscientiousness Max			1.03 (3.68)	-9.58 (44.53)			
Team Proactivity Max x Team Conscientiousness Max				2.43 (10.16)			
Team Proactivity SD					7.11 (6.47)	-7.30 (21.04)	
Team Conscientiousness SD					1.37 (6.76)	-12.08 (19.87)	
Team Proactivity SD x Team Conscientiousness SD						23.65 (32.86)	
Team P-C Alignment							-42.03 (13.12)**
F	0.50	0.47	0.10	0.08	0.68	0.62	10.26**
R^2	0.01	0.01	0.01	0.01	0.01	0.01	0.07

*p < .05 ** p < .01. DV = Team Performance. P = Proactivity. C = Conscientiousness.

Table 6.

Study 1: Comparison of P-C Alignment to Other Team Composition Approaches

Variables	Model 8: Comparison to Additive Approach	Model 9: Comparison to Team Max Approach	Model 10: Comparison to Variance Approach	Model 11: Full Model with All Predictors
Intercept	-293.07 (292.92)	-22.53 (183.84)	40.08 (11.51)**	-361.37 (301.80)
Team Proactivity Mean	96.63 (78.58)			133.15 (88.38)
Team Conscientiousness Mean	96.42 (82.14)			131.65 (91.76)
Team Proactivity Mean x Team Conscientiousness Mean	-26.93 (21.90)			-37.54 (24.42)
Team Proactivity Max		15.03 (42.19)		-18.33 (49.77)
Team Conscientiousness Max		11.08 (42.93)		-17.45 (49.87)
Team Proactivity Max x Team Conscientiousness Max		-1.96 (9.79)		5.14 (11.22)
Team Proactivity SD			16.66 (20.61)	18.24 (24.49)
Team Conscientiousness SD			17.05 (19.94)	11.73 (23.97)
Team Proactivity SD x Team Conscientiousness SD			-4.78 (31.67)	-9.82 (33.59)
Team P-C Alignment	-47.66 (14.49)**	-52.53 (14.34)**	-63.86 (15.15)**	-71.80 (16.75)**
F	3.08*	3.42**	4.97**	2.30*
R^2	0.09	0.10	0.13	0.16
ΔR^2	.08**	.09**	.12**	.13**

*p < .05 ** p < .01. DV = Team Performance. P = Proactivity. C = Conscientiousness.

Figure 1. Top 10 Aligned and Unaligned Teams in Study 1.

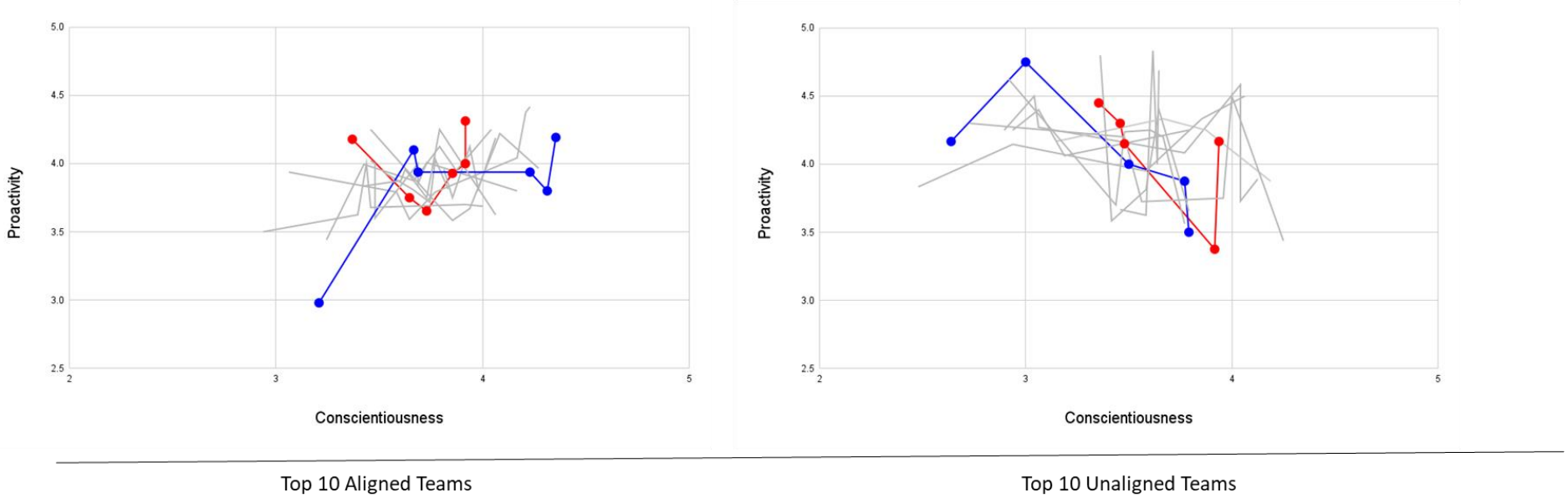

Figure 2. Top 10 Aligned and Unaligned Teams in Study 2.

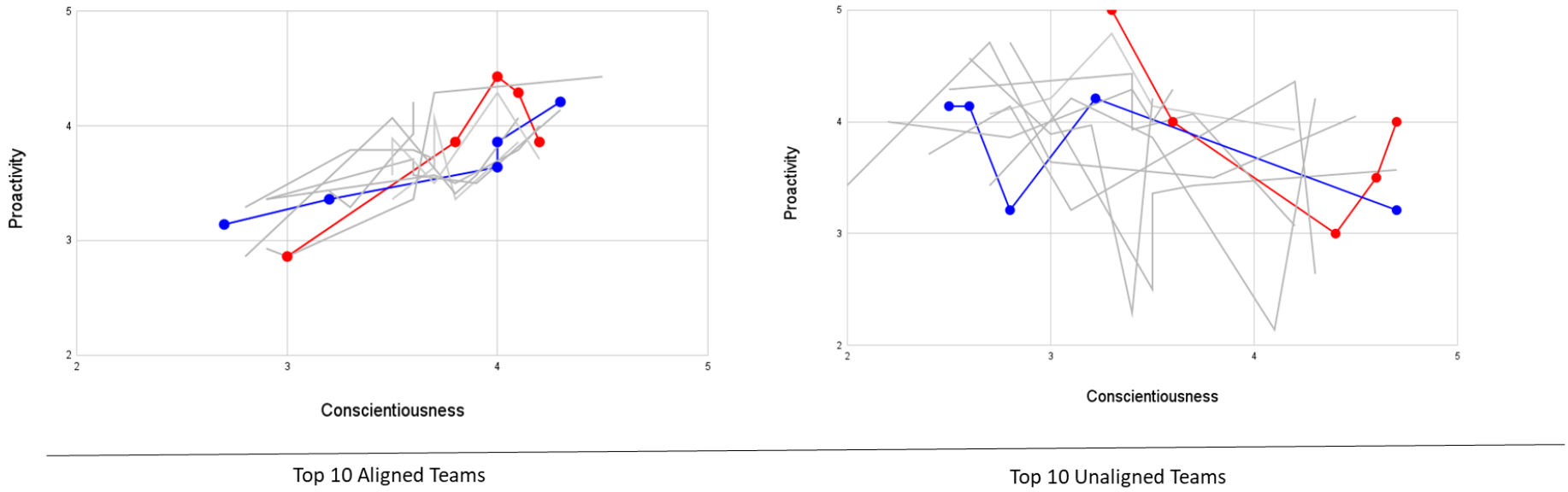

Figure 3. Theoretical alignment types at different mean levels of proactivity and conscientiousness.