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Collective fit increases team performances: extending regulatory fit from individuals to dyadic teams

Daniel Memmert[1], Henning Plessner[2], Stefanie Hüttermann[1], Georg Froese[2,3], Carolin Peterhänsel[3], Christian Unkelbach[4]

[1]German Sport University Cologne
[2]University of Heidelberg
[3]Department of Psychosomatic Medicine and Psychotherapy, University of Leipzig
[4]University of Cologne

Correspondence concerning this article should be addressed to Daniel Memmert, Institute of Cognitive and Team/Racket Sport Research, German Sport University Cologne, Am Sportpark Müngersdorf 6, 50933 Köln, Germany. E-mail: memmert@dshs-koeln.de

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Abstract

People experience "regulatory fit" when they pursue a goal in a manner that suits their chronic regulatory orientation. This regulatory fit impacts performance positively. The present research extends performance gains due to fit from individuals to dyadic team performance. Study 1 manipulated team fit of 32 table football participants (i.e., promotion vs. prevention orientation and offense vs. defense positions). Team fit significantly predicted team success in an experimental tournament beyond team skill level. Study 2 replicated this result with data from a real-life tournament including 66 highly experienced competitors. These findings broaden the concept of regulatory fit from individual to dyadic teams, and suggest collective fit as a possible important predictor for team success.

It is almost a truism that teams show better performance when team members' abilities fit the individuals' roles within the team (Belbin, 1993). However, the motivational aspects of such roles within teams have rarely been investigated. An intriguing question is therefore if team performance does not only depend on ability fit, but on motivational fit as well. An influential explanatory construct for performance improvements due to motivational fit has been "regulatory fit" (Spiegel, Grant-Pillow, & Higgins, 2004). The idea of regulatory fit derives from regulatory focus theory, which proposes that people pursue goals either with a relative promotion or a prevention focus (Higgins, 1997, 1998); that is, focusing on a given task's possible gains of possible losses, respectively. People may experience regulatory fit when they pursue goals in a manner that suits their chronic orientation.[1] Such regulatory fit improves individual performances compared to non-fit (e.g., Förster & Higgins, 2005). The present study investigates whether team performance benefits from a "collective fit" in a similar way, thereby broadening the theoretical scope of the regulatory fit concept from individual performances to dyadic team performances. While prior work on dyadic regulatory fit has primarily focused on how regulatory fit affects individuals' experiences of tasks (e.g., Bohns & Higgins, 2011; Bohns et al., 2013) or benefits individual goal pursuit (Righetti, Finkenauer, & Rusbult, 2011), the influence of complementary goal-pursuit strategies on overall team performance has been largely neglected. The current research sought to provide evidence that complementary self-regulatory orientations that fit the role affordances in a team improve task performance in dyadic teams.

[1]Fit may also follow between a temporarily induced focus and the affordances of a given task (Higgins, 2000).

Regulatory focus and regulatory fit

Higgins (1997, 1998) proposed that goals can be achieved with two different modes of self-regulation: a promotion focus and a prevention focus. There are at least two factors that influence the regulatory mode: people have a chronic self-regulatory focus and situations afford promotion or prevention foci. A promotion focus is associated with aspirations and accomplishments while a prevention focus is associated with responsibilities and safety. Neither prevention nor promotion foci have distinct advantages *per se*; advantages in goal attainment and performance arise when people's stable regulatory modes fit a given task's regulatory requirements, as such regulatory fit increases motivation and thereby enhances performance (Freitas & Higgins, 2002; Higgins & Spiegel, 2004). Effects of regulatory fit on performances have

been found in creativity (Förster & Higgins, 2005), problem solving (Shah, Higgins, & Friedman, 1998), category learning (Grimm, Markman, Maddox, & Baldwin, 2008), attentional tasks (Memmert, Unkelbach, & Ganns, 2010), explicit rule-based processing (Maddox, Baldwin, & Markman, 2006), sport performances (Memmert, Plessner, & Maaßmann, 2009; Plessner, Unkelbach, Memmert, Baltes, & Kolb, 2009), persuasive communication (Lee & Aaker, 2004), and general cognitive processing (Spiegel et al., 2004).

The present study investigates whether regulatory fit also influences performances in dyadic teams, thereby addressing motivational role fit in teams and extending regulatory fit theory to team processes and performances (cf. Dimotakis, Davison, & Hollenbeck, 2012). Recent research suggests that complementary self-regulatory orientations emerge more strongly in tasks with divisible components (Bohns & Higgins, 2011; Bohns et al., 2013). By allowing each individual of the team to take the preferred strategic role, the overall relationship satisfaction increases. Since there is evidence that individuals' satisfaction can increase the performance level (Anik, Aknin, Norton, Dunn, & Quoidbach, 2013), we assume that dyadic teams with "collective fit"—in which members' chronic regulatory mode fits the requirements of their role within the team—should outperform teams in which such fit is not given. Collective fit is thereby defined as a team's overall fit between the task demands of a team role and each individual team member's respective chronic regulatory orientation. We chose table football as an ideally and naturally occurring task which is clearly divisible into a promotion and a prevention component (cf. Bohns & Higgins, 2011). We tested the predicted performance improvements within a table football tournament with randomly assigned players and with field data from a genuine table football tournament.

In most sports, defensive positions also require attacking roles and, vice versa, attacking positions also require defensive roles (e.g., Beauchamp, Bray, Eys, & Carron, 2002). However, table football as a sport is ideally suited to test the hypothesis of collective fit, as the tasks within this team situation have immediate and apparent prevention or promotion affordances. Figure 1 presents the standard setup of table football. In team competitions, two people are on both sides of the table. One team member controls the two defensive rows in the back (goalkeeper and defenders); the other member controls the two offensive rows in the front

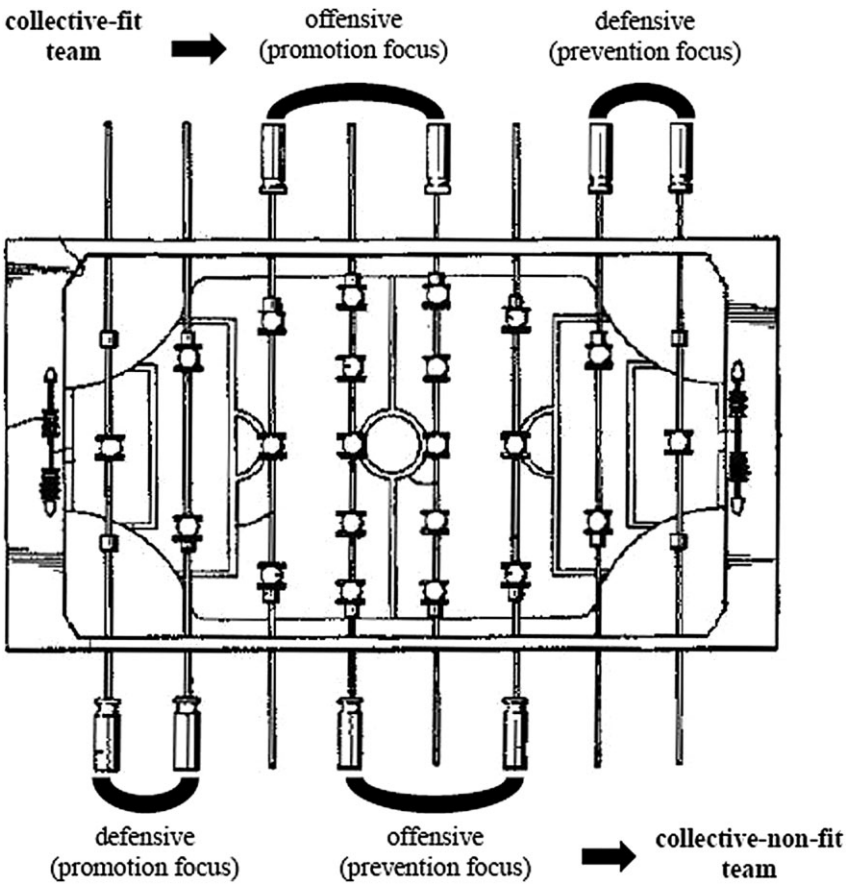

Figure 1 Standard table football layout and assigned regulatory orientation.

(midfielders and attackers). The defensive rows therefore require the prevention of goals (i.e., a prevention focus) and the offensive rows require the shooting of goals (i.e., a promotion focus). In line with previous research (Yen, Chao, & Lin, 2011), we predicted that offensive players require eager advancement to be successful while defensive players require careful vigilance to be successful.

Study 1 investigated the main prediction in a table football tournament of 16 dyadic teams. We randomly assigned people to two conditions: Thirty-two people formed eight "collective fit teams" with chronic prevention focus participants as defensive players and chronic promotion focus participants as offensive players, and eight "collective non-fit teams" with chronic prevention focus participants as offensive players and chronic promotion focus participants as defensive players. We predicted that team success would depend on the team members' regulatory foci (relative promotion or prevention foci) and that their allocated role (offense or defense) would yield a regulatory fit or non-fit. Specifically, we predicted that collective fit teams would show better performance in terms of tournament rankings and average goal differences than collective non-fit teams while holding overall team ability constant. Study 2 tested this prediction in a genuine table football tournament with highly experienced table football players.

Study 1

Method

Thirty-two female students ($M_{age} = 23.91$; $SD = 2.94$ years) voluntarily participated in a table football tournament. All of them were non-experts in table football and confirmed that they had never played table football more than five times in their lives. Written informed consent was obtained before commencing the study.

One week prior to the tournament, we measured participants' chronic regulatory focus using Keller and Bless' (2006) German version of the Lockwood Scales (Lockwood, Jordan, & Kunda, 2002).[2] In addition, participants took a standardized skill level test at the table football. This test included defense and an offense part. In defense part, participants had to prevent a ball rolling from a heightened ramp from entering the goal 12 times. In the offense part, participants had 12 shots and should score as many goals as possible.

From the skill test and self-reported frequency of playing table, we estimated participants' table football aptitude (Bloom, 1995). We subtracted the results of the skill level test and the self-reported frequency of playing table football; this subtraction corrects for task experience. Participants who played more frequently but achieved similar test scores compared to participants who played less thereby received lower aptitude scores (e.g., participants reaching 12 points in the test without any playing experiences have apparently higher aptitudes compared to participants who also reached 12 points but already played table football). In addition, we weighted the more objective test performance more heavily (i.e., $2/3 \times$ summation of the achieved score in the skill level test minus $1/3 \times$ mentioned frequency of playing table football).

We indexed players' chronic regulatory orientation by subtracting participants' prevention scores from their promotion scores. Higher values of this index indicate a relatively higher promotion focus; lower values a relatively higher prevention focus (for applying the same procedure, cf. Keller & Bless, 2006). By using the median split method, half of the participants were classified as promotion focus ($M_{\text{regulatory focus score}} = 2.27$, $SD = 0.94$) participants and the other half as prevention focus ($M_{\text{regulatory focus score}} = 0.26$, $SD = 0.74$) participants.[3] The focus scores of the participants, which were defined as promotion focused, significantly differed from the scores of those defined as prevention focused, $t(30) = 6.71$, $p < .001$, $d = 2.37$. While median split is not ideally suited for statistical analyses, the present design required a categorical assignment.

Based on these classifications, we created eight dyadic teams with a collective fit (i.e., both team members with fit of position and orientation) and eight teams with a collective non-fit (i.e., both team members with no fit of position and orientation). Each dyadic team consisted of one player with a relatively higher chronic promotion focus and another player with a relatively higher chronic prevention focus. In teams with collective fit, participants with chronic higher promotion focus played in the offense, while participants with higher prevention focus played in the defense; these assignments were switched in the teams with collective non-fit (cf. Figure 1). There was no significant difference on the average skill level between collective non-fit teams ($M = 14.30$,

[2]Participants completed two more regulatory focus questionnaires developed by Higgins et al. (2001) and Summerville and Roese (2008). There was *a priori* decision to use Keller and Bless' (2006) German version of the regulatory focus questionnaire by Lockwood et al. (2002) based on our own success with these scales (Unkelbach, Plessner, & Memmert, 2009). The other measures of regulatory focus were included to confirm the team classification. They did not significantly differ from the scale we used to classify participants.

[3]In general, athletes have a higher chronic promotion focus than prevention focus (Unkelbach et al., 2009). Since all of the participants in the present study have been doing sports regularly at the time of the investigation, it is not surprising that both participants defined as promotion focused and prevention focused had a regulatory focus score (mean promotion/prevention difference score) above zero (rather than the promotion focused reflecting a positive score and the prevention focused a negative score). Furthermore, it is no wonder that the median score of the difference between promotion and prevention scores was 1.24 ($SD = 1.31$; participants who scored above the median score were categorized as promotion oriented and participants who scored below this score as prevention oriented).

Table 1 Rankings and Average Goal Differences of Collective Fit Teams and Collective Non-Fit Teams

Ranking	Team	Goals scored	Goals conceded	Goal difference	Games	Average goal difference
1	Fit team 7	54	27	27	6	4.50
2	Fit team 8	48	28	20	6	3.33
3	Fit team 2	68	49	19	6	3.17
4	Fit team 1	65	33	32	6	5.33
5	Fit team 6	47	19	28	4	7.00
6	Non-fit team 3	35	29	6	4	1.50
7	Fit team 4	32	29	3	4	0.75
8	Non-fit team 6	24	40	–16	4	–4.00
9	Non-fit team 4	16	17	–1	3	–0.33
10	Fit team 5	11	18	–7	3	–2.33
11	Non-fit team 7	14	26	–12	3	–4.00
12	Non-fit team 2	17	41	–24	3	–8.00
13	Non-fit team 1	11	38	–27	3	–9.00
14	Fit team 3	17	32	–15	3	–5.00
15	Non-fit team 8	16	32	–16	3	–5.33
16	Non-fit team 5	14	31	–17	3	–5.67

$SD = 0.35$) and collective fit teams ($M = 14.25$, $SD = 0.34$), $t(14) = .33$, $p = .75$. While in fit teams players assigned to the offensive position had higher promotion scores than players assigned to the defensive position, in non-fit teams, participants assigned to the defensive position had higher promotion scores than players assigned to the offensive position (interaction between player's position and team status, $F(1, 14) = 10.418$, $p = .006$, $\eta_p^2 = .43$. Vice versa, players assigned to the defensive position had higher prevention scores than players assigned to the offensive position in fit teams, and in non-fit teams participants controlling the two offensive rows showed higher prevention scores than players assigned to the defensive position (interaction between player's position and team status, $F(1, 14) = 25.684$, $p < .001$, $\eta_p^2 = .65$. On the average, relative regulatory focus difference values of collective fit teams ($M = 1.31$, $SD = 0.63$) and collective non-fit teams ($M = 1.22$, $SD = 0.62$) did not differ significantly, $t(14) = .27$; $p = .79$.

We wanted to arrange a real tournament with a final and a third-place play-off to increase the participants' motivation and therefore conducted a standard tournament mode combining the round robin and the knockout. We organized teams into four different groups. Each group was composed of two collective fit teams and two collective non-fit teams. The tournament lasted 2 days and started with a round robin group phase on day 1 (each dyadic team played every other team in the group once). Teams who finished first and second in a group of 4 qualified for the final knockout round on day 2. In this round, teams finishing first in their group played against teams finishing second in another group. The respective winners of this round were the semifinalists and semifinals' winners entered the final. Semifinals' losers played the third place. A final rank was assigned to each team depending on its performance in the group phase and its success in the knockout phase (best eight teams).

Results and discussion

The main dependent variables are team ranking and goal difference; although these tend to be correlated as they are both based on the same performance, it is theoretically possible to have a high rank with a small goal difference and vice versa (e.g., by winning all games by a small margin and losing one game with a high margin).

Table 1 shows the tournament results from all 16 dyadic teams. This overview suggests already the advantage of collective, dyadic fit teams. To test the influence of collective fit on dyadic teams' performance (ranking, goal difference), we conducted stepwise linear regression analyses with team ranking and goal difference as criterions and collective fit (fit, non-fit) as well as the teams' skill level as predictors. We found that collective fit significantly predicted the teams' ranking ($B = -2.750$; $SE = .989$; $\beta = -.597$; $t = 2.781$; $p = .015$) as well as the goal difference ($B = 3.224$; $SE = .952$; $\beta = .671$; $t = 3.386$; $p = .004$). As predicted, collective fit teams achieved higher rankings, that is, smaller mean sums than collective non-fit teams and scored more/conceded less goals, resulting in a higher goal difference (see Figure 2). Finally, teams' skill level did not predict the results beyond the level of collective fit (for ranking: $\beta = .297$, $t = 1.43$, $p = .18$; for goal difference: $\beta = -.245$, $t = 1.26$, $p = .23$).

Thus, we found the predicted effect of collective fit on performance. Two individuals under regulatory fit (collective fit team) were more successful than two individuals under regulatory non-fit (collective non-fit team).[4] Collective fit teams

[4]In a further regression analysis, promotion and prevention levels of the teams were submitted as additional predictors. Neither promotion nor prevention level significantly predicted teams' ranking and goal difference, indicating that it is not the strength of regulatory concerns (as reflected in the players' promotion and prevention focus level) but rather the team fit that was decisive for team success.

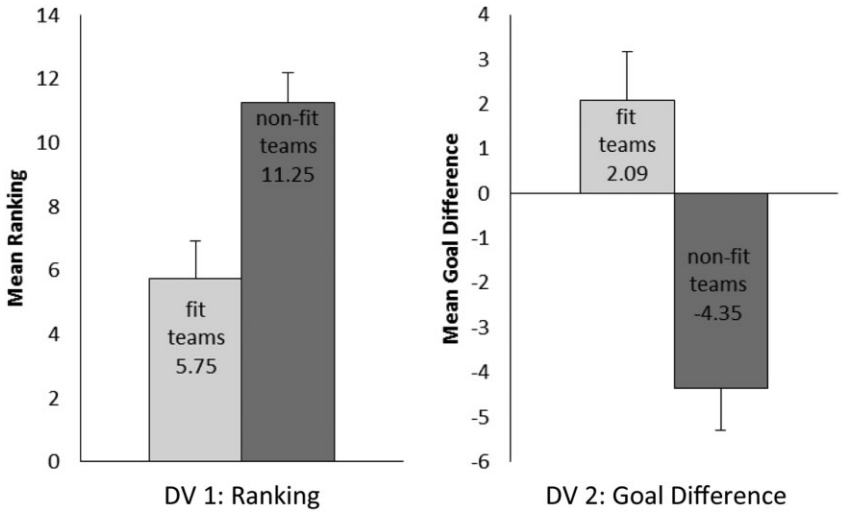

Figure 2 Mean values of the ranking and the goal difference as a function of dyadic team fit (fit vs. non-fit teams). Low rank scores and positive goal differences indicate better performance. Error bars represent standard deviations.

achieved better rankings than collective non-fit teams and average goal differences of collective fit teams were higher than those of collective non-fit teams. The present study thereby shows regulatory fit effects on a dyadic team level.

The basic premise of the research approach in Study 1 was that the offensive rows require a promotion focus and the two defensive rows a prevention focus. We disregarded the impact of a wholly promotion team whose backfield might also attack via feeding the strikers, as well as a team whose strikers and defenders are both prevention oriented. Beauchamp et al. (2002) indicate that in most team sports, defensive positions also require attacking roles and attacking positions also require defensive roles. They emphasized that team sports, such as rugby, would involve dynamic team play in which member roles are highly interdependent. Moreover, the present performance situation in Study 1 might not represent a good model for dyadic team performances in realistic settings for obvious reasons, especially given the players' novice status. We therefore conducted Study 2 to replicate the fit/non-fit team difference from Study 1, additionally including collective half-fit teams (both promotion oriented or both prevention orientated) in a professional table football tournament.

Study 2

Method

We assessed existing collective fit (i.e., match of players' chronic regulatory orientation and offensive and defensive positions) of 33 teams who participated in a genuine regional championship tournament. On average, the competing 66 players (8 female, 58 male; mean age = 29.91; $SD = 7.61$ years) had played table football for 7.95 ($SD = 7.47$) years and trained on average 6.80 ($SD = 6.63$) hours/week.

We assessed chronic regulatory focus using the German version of the Lockwood Scales by Keller and Bless (2006) from Study 1 and asked each dyadic team which player typically controls the offense and defense positions. These assessments were done shortly before the competition. We again computed relative prevention versus promotion orientation by subtracting participants' prevention indexes from their promotion indexes. Participants above the median of the difference score were considered as promotion oriented, while participants with a score below the median as prevention oriented. Based on this relative regulatory orientation and each player's main position, we classified 14 dyadic teams as collective fit teams (promotion oriented in the front, prevention in the back), 14 dyadic teams as collective half-fit teams (both promotion oriented or both prevention oriented), and 5 dyadic teams as collective non-fit teams (promotion oriented in the back, prevention in the front). In addition, table football leagues provide a ranking system of team's actual strength (P4P, similar to ELO in chess).[5] We used the P4P team ranking as a measure of skill level.

The tournament took place during 2 days and was organized as a group phase plus knockout phase tournament similar to the one that we organized for Study 1. We used the final ranking in the tournament as dependent variable.

[5]The abbreviation P4P stands for "Players 4 Players," a ranking that is commonly used for the appraisal of the playing ability of table football players in Germany. It is similar to the worldwide-known ELO System, named after its inventor Arpad Elo, which is usually applied to diverse sports like chess.

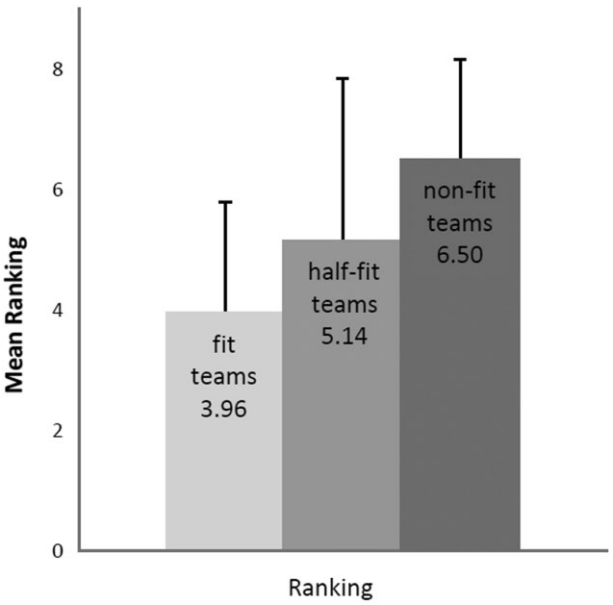

Figure 3 Mean values of the ranking as a function of dyadic team fit (fit, half-fit, non-fit teams). Low rank scores indicate better performance. Error bars represent standard deviations.

Results and discussion

To test the influence of collective fit on dyadic teams' performance (ranking in the championship), a linear regression analysis (enter method) was conducted with team ranking in the championship tournament as criterion and collective fit (as a factor with three levels: fit, half-fit, non-fit) and the teams' skill level (P4P ranking) as predictors. We found that collective fit significantly predicted dyadic team success in the championship ($B = -.953$; $SE = .443$; $\beta = -.292$; $t = 2.15$; $p = .040$) in addition to teams' skill level ($B = .007$; $SE = .002$; $\beta = .567$; $t = 4.18$; $p < .001$; $R^2 = .460$, adjusted $R^2 = .424$). Figure 3 shows the tournament results from all 33 dyadic teams as a function of their collective fit. As in Study 1, collective fit teams achieved higher rankings, that is, smaller mean sums ($M = 3.96$, $SD = 1.83$) than collective non-fit teams ($M = 6.50$, $SD = 1.66$), $t(17) = 2.71$, $p = .015$, $d = 1.42$. There was neither a difference between fit teams and half-fit teams ($M = 5.14$, $SD = 2.71$), $t(26) = 1.35$, $p = .19$, nor between half-fit teams and non-fit teams, $t(17) = 1.04$, $p = .31$. Altogether, collective fit also influenced performance in a genuine team competition scenario with highly experienced team members beyond the ability of the competing teams.

General discussion

The concept of regulatory fit (Higgins, 2000) has received attention because it relates regulatory focus theory to performance outcomes. Accordingly, many studies show a positive impact of regulatory fit on performance at the individual (e.g., Förster & Higgins, 2005) and team (Dimotakis et al., 2012) levels. Previous work on dyadic regulatory fit (e.g., Bohns & Higgins, 2011; Bohns et al., 2013) gave evidence that regulatory focus combined with team members' agreement regarding their goals leads to greater overall liking and satisfaction with the relationship. Our studies pursue this approach by directly relating the team attribute of collective fit to dyadic team performance. For the first time, we provide evidence for an influence of the psychological construct of collective fit to dyadic teams' success.

While previous studies have already shown that individuals perform better under fit than non-fit, the present study highlights the logical consequence that two individuals under regulatory fit together perform better than two individuals under regulatory non-fit. Previous research showed that overall satisfaction increases when two individuals with complementary goal-pursuit strategies interact in divisible tasks (cf. Bohns & Higgins, 2011). Using a table football setting as a divisible task, we investigated whether complementary chronic regulatory focus orientation positively affects performance in a dyadic team as well. Generally, promotion-focused people use eager strategies of goal pursuit and prevention-focused people prefer vigilant strategies of goal pursuit (e.g., Molden, 2012; Molden, Lee, & Higgins, 2008). Considering the two different roles in a dyadic table football team, the offensive player requires eager advancement to be successful in shooting goals while the defensive player requires careful vigilance to be successful in preventing opposing goals. The current studies have supported our hypotheses by providing evidence that dyadic teams in which the promotion-focused partner is taking the eager role and the prevention-focused partner is leading the vigilant role not only lead to greater relationship satisfaction for both individuals (cf. Bohns et al., 2013) but also to better performance. We found that the resulting collective fit improved dyadic team performance both for novice and experienced teams.

The present studies extend previous research on task-related advantages of complementary self-regulatory orientations; yet, it is still to be clarified whether the success of the fit teams can be explained by the increased motivation and engagement each individual player feels by virtue of being assigned to a role that fits his individual regulatory focus or whether the success might also be attributable to the fact that teams with greater fit like each other more and therefore exhibit enhanced communication and teamwork (e.g., Hamstra, Van Yperen, Wisse, & Sassenberg, 2013; Righetti et al., 2011; Sassenberg, Jonas, Shah, & Brazy, 2007; Sassenberg & Woltin, 2008). Further, the present designs do not allow assessing if what we have termed collective fit leads to nonlinear team performance increases. That is, it is possible that simultaneous individual fit in a dyadic team leads not only to collective fit, but to "team fit"—performance

gains might be more than the sum of two individuals under fit. We could not investigate such an interactive effect here because we could not estimate the individual performance gains due to fit, but only the resulting dyadic team performance. Addressing the question of true "team-fit" will be a challenge for future research. Moreover, because the present studies did not investigate whether team fit enhances performance or non-fit diminishes performance, this might be a further topic for future research. Despite this limitation, the present studies show the usefulness of regulatory fit theory toward understanding of team performances. In addition, there are immediate consequences for applied settings, such as selection processes in team sports. The data suggest that in cases of doubt, teams should be composed in a manner that leads to maximum fit between each member's chronic regulatory orientation and the specific affordances of the tasks assigned to a team role. For example, in the area of team sports, assessment of athletes' chronic regulatory orientation could be of importance for the selection of athletes, but also to coaches' adjustment of tactics, strategies, and instructions (e.g., Memmert, Hüttermann, & Orliczek, 2013). In complex team sports, for instance, it might be possible to assign players to a certain position according to their chronic regulatory focus and not just their skills, experiences, and tactical knowledge. Offensive positions might be best occupied by players with a chronic promotion focus who prefer eager strategies of goal pursuit whereas players with a chronic prevention focus preferring vigilant strategies of goal pursuit might be best playing in defensive positions. However, the precise underlying processes of how collective fit relates to better team performance need to be addressed in future studies.

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