

The Effects of Team Reflexivity on Psychological Well-Being in Manufacturing Teams

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While the impact of team reflexivity (a.k.a. after-event-reviews, team debriefs) on team performance has been widely examined, we know little about its implications on other team outcomes such as member well-being. Drawing from prior team reflexivity research, we propose that reflexivity-related team processes reduce demands, and enhance control and support. Given the centrality of these factors to work-based strain, we posit that team reflexivity, by affecting these factors, may have beneficial implications on 3 core dimensions of employee burnout, namely exhaustion, cynicism, and inefficacy (reduced personal accomplishment). Using a sample of 469 unskilled manufacturing workers employed in 73 production teams in a Southern Chinese factory, we implemented a time lagged, quasi-field experiment, with half of the teams trained in and executing an end-of-shift team debriefing, and the other half assigned to a control condition and undergoing periodic postshift team-building exercises. Our findings largely supported our hypotheses, demonstrating that relative to team members assigned to the control condition, those assigned to the reflexivity condition experienced a significant improvement in all 3 burnout dimensions over time. These effects were mediated by control and support (but not demands) and amplified as a function of team longevity.

Keywords: burnout, after-event-reviews, teams, team reflexivity

Team reflexivity is a process in which team members collectively reflect on the team's objectives, strategies, and processes and adapt accordingly (West, 1996, 2000, 2002). Studies suggest that structured forms of reflexivity (aka., team debriefings or after-event reviews; DeRue, Nahrgang, Hollenbeck, & Workman, 2012; Eddy, Tannenbaum, & Mathieu, 2013; Schippers, Edmondson, & West, 2014) are positively associated with a variety of team performance indicators including productivity, innovation, and

error-reduction (Schippers, Den Hartog, Koopman, & Wienk, 2003; Tannenbaum & Cerasoli, 2013; Schippers, West, & Dawson, 2015; Vashdi, Bamberger, & Erez, 2013). However, team performance does not solely constitute team effectiveness. Sustained team effectiveness is also contingent upon members' psychological well-being (Hackman, 1990). Moreover, when team members experience burnout (i.e., a prominent aspect of psychological well-being), team stability suffers (Le Blanc, Hox, Schaufeli, Taris, & Peeters, 2007) as does the team's productive capacity (Edmondson, Bohmer, & Pisano, 2001). Accordingly, if reflexivity takes a toll on members' psychological well-being, performance benefits may, over time, be diminished or perhaps even cancelled out. On the other hand, if reflexivity enhances member well-being, it is possible that the longer-term benefits of reflexivity may be even greater than performance-focused studies have estimated.

Unfortunately, however, we know little about team reflexivity's impact on members' psychological well-being, and even less about the mechanisms underlying such effects. In terms of its overall effects, reflexivity may take a toll on members' well-being by requiring team members to periodically: (a) review past performance processes, events, and outcomes; (b) critique the work of others; and (c) expose themselves to others' direct and public critique of their own job performance. On the other hand, consistent reflexivity activity on the part of teams, when structured around conventional reflexivity guidelines and best practices (Eddy, Tannenbaum, & Mathieu, 2013; Gabelica, Van den Boss-

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che, Maeyer, & Segers, 2014) may contribute to team member well-being. This may be the case as team reflexivity offers members a means by which to collectively craft their work in order to reduce overall team demands, while bolstering a sense of efficacy, and enhancing collaboration and cohesion (Ellis, Ganzach, Castle, & Sekely, 2010; Schippers et al., 2003). Of course, it is also possible that while team reflexivity has beneficial effects on team performance, its effects on member well-being are either null or simply too subtle to detect. Indeed, with the possible exception of Le Blanc et al. (2007), research suggests that many interventions aimed at enhancing team psychological wellbeing or diminishing members' negative emotional states such as burnout offer limited efficacy (Heaney, Price, & Rafferty, 1995; Semmer, 2006).

While theory suggests that improved team information sharing, learning, and coordination are the key mechanisms underlying reflexivity's effect on performance (Eddy et al., 2013), and as these same factors are not typically viewed as being associated with member well-being, in this study we propose and test an alternative theoretical framework explaining how and when reflexivity may affect member well-being. More specifically, we draw from research on team processes (Marks, Mathieu, & Zaccaro, 2001) as well as the job demands, control, and support (JDCS; Karasek & Theorell, 1990) theory in order to fill this gap. Team reflexivity scholars typically view reflexivity as a team transition process, occurring when teams "evaluate and/or plan activities to guide their accomplishment of team goals" (Marks et al., 2001, p. 360). Such processes enhance team performance by enhancing team members' *control* over critical team tasks, particularly in the face of shifting contingencies. However, structured team reflexivity may also facilitate performance-related, team action phase processes such as backing up/workload sharing, feedback, and implicit coordination (Vashdi et al., 2013), thereby allowing members to more efficiently regulate and address task *demands* (Vashdi et al., 2013). Finally, as reflexivity facilitates member conflict resolution, confidence-building and helping, it provides members a framework for developing more *supportive* team interpersonal processes (Eddy et al., 2013).

The JDCS model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Schaufeli & Bakker, 2004) offers a comprehensive yet

parsimonious framework for understanding how these reflexivity-related team processes may also have important and beneficial implications on member well-being by implicitly enhancing team members' sense of control and support, and reducing felt demands. Moreover, research suggests that reduced demands and enhanced control and support have beneficial implications on employee well-being in general (Diestel & Schmidt, 2009; Jex & Bliese, 1999) and on burnout dimensions in particular (Demerouti et al., 2001; Lourel, Abdellaoui, Chevaleyre, Paltrier, & Gana, 2008). Thus, we hypothesize that team members engaging in reflexivity manifest significant reductions in exhaustion, cynicism, and sense of inefficacy relative to team members engaging in other stress reduction/team building activities, with these beneficial effects largely explained on the basis of these JDCS mediators. However, as previous research suggests that team tenure can influence team processes linking reflexivity to control, demands, and support (e.g., Edmondson et al., 2001; Eddy et al., 2013), we also hypothesize that the beneficial effects of team reflexivity on member emotional well-being are amplified in teams characterized by greater team longevity or tenure.

We test a model comprising these hypotheses (displayed in Figure 1) in the context of a quasi-experiment executed in a manufacturing facility. Our findings offer an important theoretical contribution to team reflexivity research by extending the construct's nomological net beyond team performance. Indeed, by offering a theory-grounded framework for understanding reflexivity's implications on members' psychological wellbeing, we respond to Schippers et al.'s (2008) call for enriching research regarding the outcomes of reflexivity. Additionally, our findings offer an important empirical contribution by extending research on team reflexivity beyond the knowledge-based teams (e.g., Tjosvold, Tang, & West, 2004) and teams engaged in more "complex" tasks (DeRue et al., 2012; Ellis & Davidi, 2005; Kinni, 2003; Schippers et al., 2015) studied to date. They do so by demonstrating the burnout-related implications of team reflexivity among teams engaged in nonservice occupations and in more conventional work activities characterized by limited uncertainty and discretion. Given the widespread and rising adoption of team-based work structures across all fields of work activity (Cohen &

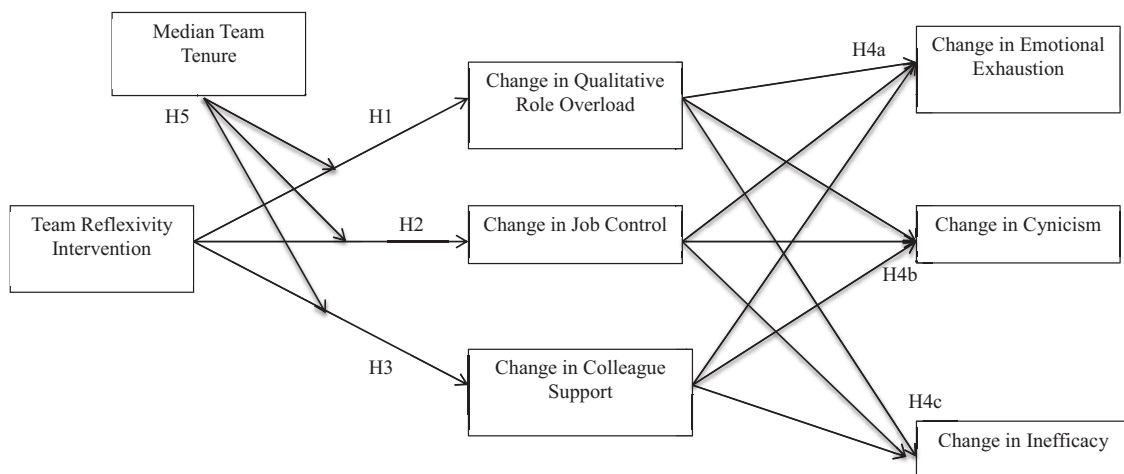


Figure 1. The proposed theoretical model.

Bailey, 1997), there is merit in examining the degree to which the benefits associated with reflexivity in such teams might also extend to more conventional work contexts such as manufacturing. Indeed, while burnout is usually associated with service work (Maslach et al., 1996, p. 4), there is increasing evidence that exhaustion, cynicism, and sense of inefficacy can also affect those engaged in manufacturing (Hu, Schaufeli, & Taris, 2011; Sassi, El Akremi, & Vandenberghe, 2015), and in particular, those performing monotonous tasks characterized by limited control (Karasek & Theorell, 1990; Toppinen-Tanner, Kalimo, & Mutanen, 2002; Winnubst, 1993). To the degree that burnout has been consistently found to be related to turnover (Campbell, Perry, Maertz, Allen, & Griffeth, 2013; Leiter & Maslach, 2009), burnout-targeted interventions have the potential to preserve team human capital, and thus enhance team effectiveness and productive capacity (Call, Nyberg, Ployhart, & Weekley, 2015; Edmondson et al., 2001; Nyberg & Ployhart, 2013).

Team Reflexivity and Burnout: The Mediating Role of Demands, Control, and Support

Burnout is an affective reaction to ongoing stress, characterized by the gradual depletion of the individual's intrinsic energetic resources (Shirom, 1989). Capturing an important aspect of workers' psychological well-being (Toker & Biron, 2012, p. 699), burnout is manifested along three primary dimensions (Maslach, 1982; Maslach, Schaufeli, & Leiter, 2001). The first of these dimensions is *emotional exhaustion*, characterized by feelings of being depleted of one's emotional resources (Maslach, Schaufeli, & Leiter, 2001). The second, *cynicism*, relates to negative attitudes involving frustration, disillusionment, and distrust toward the organization, people, groups, or objects (Andersson & Bateman, 1997; Dean, Brandes, & Dharwadkar, 1998). Finally, *inefficacy*—feelings of decline in one's competence and productivity and a lowered sense of personal accomplishment (Maslach, 1998, p. 69), comprises the third dimension. Although many studies of burnout, particularly those focusing on blue-collar workers operationalize the construct in terms of emotional exhaustion alone (Lee & Ashforth, 1996), as noted by Maslach, Schaufeli, and Leiter (2001, p. 403), "if one were to . . . simply focus on the individual exhaustion component, one would lose sight of the phenomenon entirely. . . . Exhaustion is not something that is simply experienced—rather, it prompts actions to distance oneself emotionally and cognitively from one's work." Accordingly, we examine how structured team reflexivity may differentially and uniquely affect each of these three aspects of burnout.

Despite consistent evidence that burnout is more a function of socioorganizational than individual factors (Schaufeli & Bakker, 2004), burnout interventions have largely focused more on the latter than the former (Le Blanc et al., 2007). Indeed, only a handful of organizational- or team-level interventions have been reported in the research literature, with most of these designed specifically to prevent or address burnout by either identifying and reducing work stressors, or boosting social support in order to buffer the effects of chronic strain (e.g., Burke & Richardson, 2000; Tarris et al., 2004). One noticeable exception was the intervention reported by Le Blanc et al. (2007) which found that a ward-level intervention aimed at empowering oncology staffers to identify and address stressful aspects of their work environment

had small but significant and long-term beneficial effects on members' emotional exhaustion. Moreover, although indirect effects via job demands, control, and support were not examined in this study, some of the findings suggest that enhanced support may provide a partial explanation for these effects. The current study, builds on these findings in three ways. First, rather than assessing the effects of an intervention explicitly designed to address burnout, we examine whether a conventional team reflexivity intervention, adopted by most organizations to enhance team performance, may nevertheless generate beneficial, health-related side effects. Second, we directly test hypotheses regarding the role played by job demands, control, and support in explaining such effects. Finally, we examine the degree to which such effects may be contingent on one key team characteristic, namely team tenure (i.e., team longevity).

Team Reflexivity

Reflexivity has been shown to enhance team effectiveness by helping team members better comprehend what is expected of them and develop new understandings and methods that respond to emerging conditions and challenges (Carter & West, 1998). Scholars have generally examined reflexivity in terms of team debriefings or "after-event reviews" (AER), both of which relate to a systematic and often guided, postexecution process of sharing observations and interpretations of team processes and performance (DeRue et al., 2012; Eddy et al., 2013; Ellis & Davidi, 2005; Ellis, Mendel, & Nir, 2006; Ellis, Ganzach, Castle, & Sekely, 2010, 2010). These post-execution processes typically involve four main subprocesses: (a) reflection and self-explanation, in which individuals analyze their own behavior and put forward explanations for their resulting success or failure (Ellis & Davidi, 2005; Ellis et al., 2010; Tannenbaum & Cerasoli, 2013); (b) data verification, which enables participants to cross-validate the information they hold prior to making changes (DeChurch & Mesmer-Magnus, 2010; DeRue et al., 2012; Ellis et al., 2010); (c) feedback seeking from peers (Ellis & Davidi, 2005; Ellis et al., 2010); and (d) planning—discussing and coming to agreement on team goals or action plans for future tasks taking into account the previous successes and failures reviewed (DeShon Kozlowski, Schmidt, Milner, & Wiechmann, 2004).

Empirical studies indicate that team reflexivity is generally associated with beneficial consequences including team effectiveness and performance (e.g., Konradt, Schippers, Garbers, & Steenfatt, 2015; Schippers et al., 2008, 2003; Vashdi et al., 2013), innovation (e.g., Hoegl & Parboteeah, 2006; Schippers et al., 2015; Schippers, West, & Edmondson, 2017; Tjosvold et al., 2004), and leadership development (DeRue et al., 2012). A recent meta-analysis of 46 samples indicated that debriefings improve effectiveness over a control group by approximately 25% and that the average effect sizes were similar for teams and individuals, across simulated and real settings, and for within- and between-groups control designs (Tannenbaum & Cerasoli, 2013).

Several studies have attempted to understand the mechanisms through which reflexivity interventions affect performance. For example, Ellis et al.'s study (Ellis et al., 2010) indicated that self-efficacy serves as the primary mediator of the debriefing-performance relationship. Vashdi et al. (2013) demonstrated that team reflexivity shortened surgical duration and reduced the risk of

medical error by facilitating helping and workload sharing. These findings are particularly relevant for the current study in that they suggest that reflexivity may influence several burnout-related vulnerability or protective factors associated with the JDCS model noted earlier.

Team Reflexivity and Job Demands, Control, and Support

As noted above, we propose that team reflexivity has important, beneficial consequences on team members' psychological well-being, with these effects occurring largely as a function of the team processes underlying and facilitated by structured team reflexivity, and their impact on members' sense of work-related demands, control, and support. The demand-control-support model (Johnson & Hall, 1988; Karasek & Theorell, 1990) has been a key anchoring point for research on the relationship between work characteristics and employee health and well-being for three decades (van Veldhoven, Taris, de Jonge, & Broersen, 2005), positing that work situations characterized by high demands, low control, and low social support to be the most harmful for workers' well-being (Hausser, Mojzisch, Niesel, & Schulz-Hardt, 2010). Job demands are typically operationalized both quantitatively (in terms of workload and time pressure; Karasek, 1985; van der Doef & Maes, 1999), and qualitatively (in terms of the degree to which demands exceed the competencies of role occupants; Karasek et al., 1998). Job control reflects the belief or cognition that one is able to influence or change a salient job-related situation (Ganster, 1989; Ganster & Fusilier, 1989), thus offering the potential to both directly reduce strain (e.g., by allowing workers to structure their work so as to maximize the potential for resource gain or at least limit resource depletion) as well as to buffer the negative consequences of resource-draining, high demands. Previous treatments of job control have incorporated a wide range of domains and factors in their conceptualization and operationalization of job control including such factors as skill discretion and variety (Karasek, 1979; Sauter & Hurrell, 1989), and self-determination and autonomy (Brockner, Spreitzer, Mishra, et al., 2004; Elsass & Veiga, 1997). Finally, research suggests that support (i.e., helpful relations with others; Dawson, O'Brien, & Beehr, 2015; Karasek & Theorell, 1990) can offer members an important basis from which to replenish personal resources often depleted as a function of ongoing stress (Bacharach & Bamberger, 2007). Accordingly, like control, support is posited by the JDCS model to have an inverse direct effect on strain, as well as an indirect effect, potentially buffering the adverse effects of job demands. Although the JDCS model was originally proposed as an environmental stress framework focusing on these three elements as objective characteristics of the job or work context, scholars have tended to operationalize this model in terms of respondents' individual-level *perceptions* of such factors (Bacharach & Bamberger, 2007).

Research suggests that the impact of team reflexivity on job demands may differ depending on the type of demands considered. *Quantitative demands* reflect the amount of work expected to be achieved in order for the team to meet its objectives. On the one hand, team reflexivity—by enhancing team action processes such as system monitoring, backing up behavior, and coordination (Eddy et al., 2013; Schippers, West, & Dawson, 2015)—may allow members to work more efficiently (Hoegl & Parboteeah,

2006; Tannenbaum & Cerasoli, 2013), thus reducing the amount of time required to meet team objectives (e.g., Ellis & Davidi, 2005; Vashdi et al., 2013). On the other hand, particularly in a manufacturing context, rather than resulting in a reduction in team members' hours, enhanced team efficiency is likely to be used as a means by which to produce more in the same amount of time. Moreover, because team reflexivity requires team members to participate in periodic debriefings, efficiency gains generated on the basis of reflexivity may be further offset (or even overcompensated) by the supplementary time demands the actual debriefing process imposes on the team (Vashdi et al., 2013). Accordingly, while taking into account the possible impact that team reflexivity may have on quantitative demands, we make no specific prediction as to the magnitude or nature of such an effect.

In contrast, for several reasons, team reflexivity is likely to generate a net reduction in *qualitative* demands. First, as demonstrated by Schippers, Edmondson, and West (2014, p. 731), team reflexivity reduces the risk of information-processing failures—"such as the failure to discuss privately held relevant information, biased processing of information, and failure to update conclusions when situations change"—that can occur in work teams and significantly add to qualitative demands as members are forced to perform tasks with incomplete information or address and correct their mistakes. Second, qualitative demands may also be reduced to the extent that reflexivity facilitates information exchange and elaboration (Schippers, Edmondson, & West, 2014), thereby giving members a sense that they have the knowledge and tools to collectively deal with complex problems (Schippers et al., 2015). Finally, team reflexivity enhances members' ability to anticipate the actions and needs of their colleagues, and dynamically adjust their own behavior accordingly without having to communicate directly with each other or plan the activity (Vashdi et al., 2013); what Rico, Sánchez-Manzanares, Gil and Gibson (2008, p. 164) refer to as "implicit coordination." By enabling such implicit coordination among team members, reflexivity is likely to facilitate more synergistic team action, with team members more likely to provide the right type of assistance and backing up behavior precisely when it is needed rather than when it is too early (and hence disruptive) or too late. Indeed, Vashdi et al. (2013) found that team reflexivity enhances perceptions of workload sharing, which previous research has linked to diminished job demand perceptions (Demerouti et al., 2001; van der Doef & Maes, 1999). Accordingly, we hypothesize:

Hypothesis 1: Relative to members of teams in the control condition (i.e., not engaging in team reflexivity), members of teams in the intervention condition (i.e., engaging in team reflexivity) manifest a greater reduction in qualitative job demands over time.

Team reflexivity is also posited to have a beneficial impact on team members' sense of job control for a number of reasons. First, team reflexivity enables members to systematically reflect and analyze their experiences and to identify needed behavioral changes (DeRue et al., 2012). To the extent that reflexivity involves team transition processes enabling members to target areas for reinforcement and improvement, and plan and execute such reinforcement and improvement strategies (Marks et al., 2001), members are likely to gain a sense of enhanced situational control.

Second, team reflexivity has been shown to have robust effects on members' sense of self-efficacy. More specifically, Ellis et al. (2010, p. 124) found that by helping team members "make sense of their past behavior by creating valid cognitive models of the reasons for their failed or successful performance," team reflexivity enhanced the self-efficacy of those team members studied. Similarly, Villado and Arthur (2013) found that teams conducting structured reflexivity sessions had enhanced levels of collective efficacy. While enhanced individual- and team-level efficacy need not necessarily result in team members' enhanced sense of job control, theory suggests that people's beliefs about their capabilities to produce designated levels of performance foster the confidence, persistence, and proactive tendencies that underlie a sense of agency and influence (Bandura, 1994, 1997). Hence, we hypothesize:

Hypothesis 2: Relative to members of teams in the control condition (i.e., not engaging in team reflexivity), members of teams in the intervention condition (i.e., engaging in team reflexivity) manifest a greater increase in their sense of job control over time.

Finally, research suggests that structured team reflexivity enhances team interpersonal processes, enabling teams to be more supportive, both instrumentally and emotionally, for their members (Smith-Jentsch, Cannon-Bowers, Tannenbaum, & Salas, 2008). In terms of instrumental support, Vashdi et al. (2013) posited that team debriefing experience enables team members to better anticipate when peers need assistance (rather than asking them to explicitly ask for assistance), and to better understand the precise type of assistance required. Consistent with this proposition, their findings indicated that teams with greater reflexivity experience heightened levels of interpersonal helping, a core element of supportive behavior. In terms of emotional support, studies of team reflexivity indicate that not all of the support that team members provide to one another in the context of structured reflexivity is instrumental in nature (Andela & Truchot, 2016). Rather, in the context of engaging in team transitional processes, team members also engage in affective supportive processes such as helping a teammate work through task or interpersonal conflicts, boosting one another's confidence, and helping to regulate members' emotions around work-related matters (Vashdi, Bamberger, Erez, & Weiss-Meilik, 2007). Findings from quantitative research provide further evidence that structured reflexivity enhances supportive team interpersonal processes (Eddy et al., 2013). Accordingly, we hypothesize:

Hypothesis 3: Relative to members of teams in the control condition (i.e., not engaging in team reflexivity), members of teams in the intervention condition (i.e., engaging in team reflexivity) manifest a greater increase in their sense of support over time.

The Indirect Effect of Team Reflexivity on Burnout Dimensions

As noted by Fila, Purl, and Griffeth (2017, p. 40) and suggested above, both the original JDC (Karasek, 1979) and extended JDCA (Karasek & Theorell, 1990) models were grounded on two "contrasting, but not mutually exclusive hypotheses." The first of these

focused on the direct and additive effects of high demands and low control and support, while the second focused on the interactive (i.e., multiplicative or buffering) effects of these same model components. According to Fila et al. (2017, p. 40), while reviews of the JDCA literature written over the past 25 years have consistently concluded that "demands, control, and support are independently related to various forms of strain, . . . a relative sparseness of multiplicative effects has led to doubts regarding the predictive value the buffer hypothesis." Accordingly, the model we develop in the current study focuses strictly on these independent, *direct* effects of demands, control, and support.

As suggested earlier, previous research has found a direct relationship between job demands and resources (i.e., control and support), and burnout-related outcomes. Indeed, meta-analytic studies offer robust support for the relationship between demands, control, and support and the three dimensions of burnout. For example, Fila et al. (2017) report the corrected correlations between demands, control and support (on the one hand) and emotional exhaustion (on the other) as .51 (95% CI [.48, .54]), $-.20$ (95% CI $[-.24, -.16]$) and $-.30$ (95% CI $[-.32, -.27]$), respectively with $k \geq 45$. Alarcon (2011) found the corrected correlations between control (on the one hand) and exhaustion, cynicism and inefficacy (on the other) to be $-.26$ (95% CI $[-.29, -.22]$), $-.29$ (95% CI $[-.31, -.26]$) and $-.39$ (95% CI $[-.43, -.34]$), respectively with $k > 34$. Finally, Halbesleben (2006) found the corrected correlations between work support, and exhaustion, depersonalization (i.e., cynicism), and personal accomplishment to be $-.26$ (95% CI $[-.41, -.03]$), $-.23$ (95% CI $[-.22, -.04]$) and $.24$ (95% CI $[.05, .34]$), respectively with $k \geq 99$. Accordingly, we hypothesize that team reflexivity, by reducing team members' job demands and enhancing job control and support, is likely to have a beneficial impact on all three dimensions of burnout, or in other words:

Hypothesis 4a/b/c: Change in team members' job demands, control, and support mediate the relationship between team reflexivity and the change in (a) emotional exhaustion/(b) cynicism/(c) inefficacy such that the beneficial impact of team reflexivity on the decline in emotional exhaustion/cynicism/inefficacy is at least partially explained by a decline in job demands and an increase in job control and support.

The Moderating Effects of Team Tenure

Team tenure, also referred to as team longevity, relates to the length of time team members have spent working together (Katz, 1982), and as such to the relative degree of continuity offered by a team's membership in retaining and carrying forth shared accounts of the past and the lessons drawn from them (Lippmann & Aldrich, 2016). Captured by the mean or median of the time that team members have been part of the specific team, team-tenure has been posited and found to have important implications on team learning and performance (Edmondson et al., 2001; Koopmann, Lanaj, Wang, Zhou, & Shi, 2016).

Previous research suggests that team tenure can influence all three of the team processes highlighted above as linking reflexivity to control, demands, and support. First, reflexivity as a team transition process involving evaluation and planning may be disrupted by the unfamiliarity occurring in new teams (i.e., short team

tenure). Previous research has shown that as team tenure increases there are more opportunities for members to develop common perspectives which facilitate sharing of knowledge and expertise among team members (Harrison et al., 2003). Thus, shorter tenured teams are likely to find it difficult to integrate knowledge emergent from reflective analysis of events recently experienced, and develop and execute collective strategies to address identified deficiencies (Edmondson et al., 2001; Liang, Moreland, & Argote, 1995). Accordingly, in the context of low team tenure, reflexivity may have a diminished impact on members' sense of situation control and self-efficacy. Similarly, to the extent that new team members often lack the experience to know what information is relevant to be shared, and when it is best to share such information, the reflexivity-based action processes such as information sharing in low tenure teams can be impeded. Short-term membership may also result in too little or too much information sharing, thus attenuating the generally positive implications of reflexivity on qualitative demands. Finally, team tenure is likely to impact the efficacy of reflexivity as a support-eliciting, interpersonal process. Specifically, as noted above, the beneficial effects of reflexivity on member support are process-dependent, with supportive relations emerging and strengthening as a function of members' implicit trust-building experiences in reflexivity over time. To the extent that low tenure teams have more limited process-dependent experiences, team tenure is likely to also attenuate the hypothesized link between reflexivity and team support (Huckman, Staats, & Upton, 2009; Sieweke & Zhao, 2015). Accordingly, we hypothesize:

Hypothesis 5: Team tenure moderates the relationship between team reflexivity and the change in team members' job demands, control and support, such that the relative impact of reflexivity involvement (vs. noninvolvement) on the change in demands, control and support is attenuated in teams characterized by lower team tenure.

Method

Data and Sample

The research reported here is the first publication from a larger study that received ethics approval from the Chinese National Science Foundation (grant 71571118). We tested our hypotheses using a sample of manufacturing workers employed by an electronics company in one of its production facilities in southern China. The facility employed 630 production workers assigned to one of 73 production teams. Employees in this facility were assigned to semiautonomous work teams characterized by a high level of outcome interdependence as members had to meet team-based, hourly production quotas and quality standards. Accordingly, teams had considerable autonomy with respect to how they would meet varying daily objectives, such as determining group work pace, and how tasks would be divided, shared, and rotated.

While all employees consented to participate in the initial waves of the experiment, we excluded from our data analysis 161 recently recruited employees who, at baseline (T_0) had been employed by the company for less than 4 weeks as they were still on probation, were still going through the onboarding process, and, based on company data, had a high probability of leaving the organization

before the end of the study period (indeed, 53% of them had either quit or been dismissed six weeks later, i.e., by T_1). While t test analyses indicated no significant difference along any of the study variables (at baseline; T_0) between these individuals and those included, we opted to exclude them from the analysis as the stressors associated with probation and onboarding could serve as robust confounds (an issue to which we return in discussing the study limitations). In addition, these newly recruited employees were evenly distributed across teams, $\chi^2(72) = 60.33, p > .05$; average number in each team = 2.21, $SD = 1.17$, and across experiment conditions, $\chi^2(1) = .236, p > .05$; 79 in the control condition and 82 in the experiment condition, suggesting that our exclusion of these employees is unlikely to cause any systematic bias in our analysis. Of the 469 participants remaining, 262 were male. The mean age was 26.20 years ($SD = 4.67$) and average years of education was 10.61 ($SD = 1.75$). Their average organizational tenure was 2.16 years ($SD = 2.37$).

Procedure

The study was designed as a quasi-experiment with three waves of data collection over a 9-week period. Prior to assigning production teams to experimental conditions (i.e., at T_0), we collected data on the three team-level burnout parameters and team-level demands, control, and support. We then assigned 36 teams to the intervention condition and the remaining teams to the control condition on the basis of the shift worked (i.e., day vs. night). This approach to condition assignment was deemed best in that in the particular plant studied, upon entry, employees were assigned to a team with all teams rotating shifts on a weekly basis (i.e., teams on the day shift in a given week rotate to the night shift the week after and vice versa), thus ensuring that day versus night work did not serve as a confound. Furthermore, this arrangement made it difficult for team members in one shift to converse with members in the other shift, thus reducing the risk of treatment diffusion, a threat to construct validity (Shadish, Cook, & Campbell, 2002). Finally, as the HR manager reported that initial shift assignment was random, within the context of our quasi-experimental design, this approach also allowed us to maximize randomization. To ensure the equivalence of the teams in the two conditions prior to treatment, we ran a series of t tests, the result of which are shown in Table 1. These tests indicate that with the exception of support (for which the difference between the teams was less than one standard deviation), on no other theoretical or composition parameter was there a statistically significant difference between teams in the two conditions.

Teams in the intervention condition underwent training in guided reflexivity on the basis of a postshift debriefing model as described below. The shift-end debriefing (herein referred to as SED) model that participants followed was similar to the after-event review model described by others (Ellis & Davidi, 2005; Ron, Lipshitz, & Popper, 2006; Vashdi et al., 2013), with the exception being that it occurred at the end of the team's shift rather than following a particular project, mission, assignment, or event. Thus, it was not an event- or mission-based review, but rather a temporally based debriefing. Accordingly, teams were told that while they should first review all of the shift's major events, they could subsequently opt to focus on whatever number of issues or events they wish as long as these issues had to do with any of the

Table 1
Comparison of Experimental and Control Groups

Variable	Experimental groups		Control groups		<i>df</i>	<i>T</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Baseline overload	3.33	.48	3.28	.51	71	-.41
Baseline control	2.73	.24	2.71	.26	71	-.38
Baseline support	3.78	.23	3.95	.22	71	3.28**
Baseline exhaustion	2.24	.54	2.46	.61	71	-1.62
Baseline cynicism	1.74	.43	1.83	.57	71	.77
Baseline inefficacy	2.32	.51	2.36	.34	71	.38
Percent male	.51	.24	.59	.31	68.77	1.35
Age (years)	26.08	4.66	26.24	4.68	461	.37
Education (years)	10.50	1.86	10.61	1.91	461	.57
Tenure (years)	2.05	2.20	2.08	2.21	461	.18
Performance (T_0)	85.38	13.25	86.33	13.41	460	.77

** $p < .01$.

following: team processes and cooperation, work hazards, product quality, and work and reporting processes.

Training was structured around an SED protocol. The protocol required that in each SED, teams: (a) review team objectives (e.g., minimize material waste); (b) discuss what went well in that shift and what facilitated meeting team objectives and adopting steps proposed in earlier SEDs (e.g., how adjusting methods for capturing and measuring waste affected their performance); (c) discuss what did not go well or proceed according to plan, and why some team objectives may not have been met and steps left unadopted (e.g., impact of machine malfunction; how team member fatigue affects waste monitoring); (d) identify steps that might be taken to improve outcomes in the next shift, determine who on the team needs to do what in order to ensure the adoption of these steps, and agree upon measures that might be used to assess the degree to which the team has progressed (e.g., development of a form to enable the tracking of machinery inspections and upkeep); and (e) summarize the lessons learned in the SED.

In order to train the team members assigned to the reflexivity condition, the researchers first trained eight senior production workers to serve as SED trainers. These trainers were selected by management on the basis of requirements provided by the researchers (i.e., trusted by coworkers, open to the opinions of others, a good listener rather than dominant personality; strong technical expertise). All eight had prior leadership experience in the company such as leading a quality review team, or organizing a social event for the various teams in their department. SED trainers were not given any incentive compensation for taking on this role, although some expressed hope that by serving in such a role, they might expedite their advancement into management.

SED trainers underwent a day-long training session (led by the first and second authors) on the principles of team reflexivity, the SED protocol, and team processes. Using role-playing exercises, SED trainers were instructed in how to help their teams look for patterns in both successes and failures, and to secure evidence before drawing conclusions. They were also taught steps to help their teams develop open, status-free, and transparent learning norms. Once trained, the SED trainers were each assigned several teams and, with the assistance of the first author, began training their assigned teams. This training, lasting 1 week, occurred on a daily basis at the end of each team's respective shift.

Teams assigned to the reflexivity condition began implementing daily SEDs at the start of the third week of the experiment. Daily SEDs lasted for 4 weeks (i.e., 20 SED sessions). During this period, SED trainers were instructed to assign the job of chairing the SED session to different team members (including the team's supervisor) on a rotating basis. The assigned session chairs were given a protocol-based check-list to help them guide the discussion. While rank and file team members chaired the SED session, SED trainers provided guidance where necessary and recorded the progress of the team in executing the SED protocol. Teams initially took about 20–30 min to complete the protocol-based review. However, by the end of the initial 4-week period, teams were completing the protocol in as little as five minutes when no events of particular importance occurred during the shift. Accordingly, per plan, we adjusted the frequency of SED sessions to every-other-day following the seventh week.

We monitored SED sessions carefully, with the SED chairs asked to submit an "SED Report Form" (shown in Appendix A) following each session. With the exception of one team which failed to submit reports for the first four training sessions, SED session chairs submitted reports on all sessions held. These reports indicate that team attendance averaged above 90%, with, on average, 93% (SD 3.3%) of those team members attending the session participating in the deliberations. SED chairs reported that, almost without exception, their SEDs followed the eight-step protocol indicated by the parameters listed on the report form (i.e., responding "Yes" to all of the items listed under Report Items 3 and 4). According to these chair-provided data, teams focused on a wide range of issues including, process control, equipment maintenance, cleanliness of work area, hazards and safety, materials handling, yield and quality, product quality and defects, output and quality measurement, and reporting practices. The reported time taken to cover these eight steps ranged from 5 to 30 min, with a team-specific average SED time of 13.5 min (SD 3 min). At less than 2 min per protocol step, the data indicate that SED participants spent little time engaging in idle banter or socializing with one another.

In order to reduce the risk of a Hawthorne Effect, teams assigned to the control condition participated in a team-building program (i.e., placebo). Specifically, in Weeks 3, 6, and 9 of the experiment, these teams, led by a team trainer engaged by management, participated in a variety of team-building exercises and games toward the end of their work day. The second and third team-building sessions were arranged to occur just prior to our mid- and end-of-experiment assessments.

As shown in Table 2, in addition to a baseline (T_0) assessment of the three dimensions of burnout and of team demands, control, and support occurring just prior to the start of the debriefing training sessions, we assessed demands, control, and support mid-experiment (T_1 , in Week 6), and the three burnout dimensions again at the end of the experiment (T_2 , following Week 9). A manipulation check of team reflexivity activity was conducted in Week 5. Specifically, we measured participants' perception of team reflexivity using five items from the scale developed by Carter and West (1998). A sample item was: "In this team we modify our objectives in light of changing circumstances." Comparing members' perceptions of team reflexivity in the two conditions, the results indicated that those in teams assigned to the reflexivity manipulation had a higher level of team reflexivity ($Mean = 4.66$, $SD = .70$) than those in the control condition

Table 2
Timeline of Research Process

Week	Activities
1	Baseline assessment of JDCS and burnout dimensions (T_0 assessment)
2	Training of SED for experimental group
3	Daily SED for experimental group, team building for control group
4	Daily SED for experimental group
5	Daily SED for experimental group, assessment of JDCS (T_{1a} assessment)
6	Daily SED for experimental group, team building for control group, assessment of burnout dimensions (T_{1b} assessment)
7	Every-other-day SED for experimental group
8	Every-other-day SED for experimental group
9	Every-other-day SED for experimental group, team building for control group, assessment of burnout dimensions (T_2 assessment)

Note. JDCS = job demands, control, and support; SED = shift-end debriefing.

(Mean = 4.30, $SD = .62$), $t = 2.28$, $p < .05$, which suggested that our manipulation did significantly increase their perception of team reflexivity.

Measures

The dependent variables.

Burnout dimensions. We assessed emotional exhaustion, cynicism, and inefficacy at baseline (T_0), midterm (T_{1b} ; Week 6), and at the end of the experiment (T_2 ; i.e., after Week 9) on the basis of the Chinese version of the Maslach Burnout Inventory (Li, Shi, Luo, Yang, & Li, 2003) which consists of 15 items (five per dimension) scored on a 7-point frequency scale with ratings ranging from 0 (*never*) to 6 (*daily*). Sample items include “I feel emotionally drained from my work” (emotional exhaustion), “I have become less interested in my work since I started this job” (cynicism), and “I feel exhilarated when I accomplish something at work” (inefficacy; reverse-scored). We opted to focus on the change in these dimensions from midterm to the experiment’s end (and not from baseline to the end of the experiment) in that, as we discuss under Supplemental Analyses section below, we wanted to avoid any confound of the effects of the intervention with those of the training.

Mediators. We assessed qualitative demands at baseline (T_0 ; Week 1) and midterm (T_{1a} ; Week 5) using Triplett, Mullings, and Scarborough’s (1996) five-item (1 = *strongly disagree* to 7 = *strongly agree*) measure of qualitative role overload. Sample items include: “The demands for work quality made upon me are unreasonable” and “My assigned tasks at work are sometimes too difficult and/or complex.” We assessed *control* at baseline and in the midterm assessment on the basis of the 22-item job control scale developed by Dwyer and Ganster (1991). A sample item was “How much control do you have over the variety of methods you use in completing your work?” Responses were along a 5-point scale (1 = *very little*, 5 = *very much*). *Support* was measured at baseline and in the midterm assessment on the basis of the four-item measure on a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*) measure developed by Karasek and Theorell (1990). A sample item was “People I work with are helpful in getting tasks done.”

Moderator. We assessed *team tenure* on the basis of data provided by the company’s human resources department at baseline regarding the number of months each member of each team had been with that particular team. This individual-level data was

then aggregated to the team level by calculating the median team tenure of each team.

Control variables. As team size has been found in previous research to be inversely related to variables similar to or closely linked with the job demands and control (Tims, Bakker, Derks, & van Rhenen, 2013), we included team size as a control variable. Team size ranged from four to ten. Additionally, although we did not predict any specific effects relating to quantitative demands, in testing our model we took this construct into account by controlling for the potential effects of reflexivity on the change in the z-score of hours worked¹ (which was calculated based on the hours the team worked irrespective of the time it took to participate in the SEDs), as well as the effects of any such change on emotional exhaustion, cynicism, and inefficacy.

Analytic Strategy

Creating the latent change scores. In order to examine our hypotheses, we first created latent change scores (LCS) for all the endogenous variables (McArdle & Grimm, 2010) as well as for the z-score of hours worked. One advantage of LCS approach is that it creates a distinct latent construct representing the change in certain variables over time (Selig & Preacher, 2009). Therefore, this approach enables us to investigate the relationships among the changes of variables directly. As an illustration, the latent change score (e.g., job control from T_0 to T_1) is represented as a distinct latent construct (Δ control), which is a function of job control at T_0 . Job control at T_1 is a function of both job control at T_0 and the job control change:

$$\Delta Control = \beta_{T_0} Control_{[T_0]}; Control_{[T_1]} = \Delta Control + Control_{[T_0]}.$$

Based on these two equations, we fixed both the factor loading of job control at T_1 on job control change and the regression coefficient of job control at T_1 on job control at T_0 as 1. We also specified the effect of job control at T_0 on the job control change. In a similar manner, we created all the other latent change scores in our model. Specifically, we created the latent change scores of control, demands, and support from T_0 to T_1 , and the latent change scores of emotional exhaustion, cynicism, and inefficacy from T_1

¹ We operationalized quantitative demands in terms of the z-score of hours worked due to the sensitivity of the enterprise to all inquiries relating to hours worked.

to T_2 . As such, our analysis guaranteed that the mediators precede the dependent variables in time.

Estimating the multilevel model. As we hypothesized that a team level variable (i.e., team reflexivity) impacts individual level mediators (i.e., demands, control, and support) which are, in turn, related to burnout, the proposed model reflects a 2–1–1 multilevel mediation model. Accordingly, following Zhang, Zyphur, and Preacher (2009) and Preacher, Zhang, and Zyphur (2011), we applied unconfounded multilevel modeling techniques to test our hypotheses using Mplus 7.2 (Muthén & Muthén, 2012). Specifically, the variances in our mediators (i.e., control, demands, and support) and outcomes (emotional exhaustion, cynicism, and inefficacy) were partitioned into two components: a between-team component and a within-team component. Given that the independent variable (i.e., team reflexivity intervention) varies strictly between teams, its effects on mediators and outcomes must also be assessed at team level. Therefore, we tested the direct and indirect effects of the team reflexivity intervention on mediators and outcomes at the team level, while controlling for the within-team variance components in mediators and outcomes.

In accordance with the 2–1–1 model estimation in the multilevel modeling framework (Preacher, Zyphur, & Zhang, 2010), we specified latent change scores of all the mediators (demands, control, and support) and outcome variables (emotional exhaustion, cynicism, and inefficacy) at team level. We then specified team reflexivity intervention's effects on all the latent change scores. The effects of the LCSs (from T_0 to T_1) of control, demands, and support on the LCSs (from T_1 to T_2) of emotional exhaustion, cynicism, and inefficacy were also specified. We also defined within-team level LCSs of all the endogenous variables by first group-mean centering the variables. The associations between within-team level LCSs of mediators (i.e., control, demands, and support) and outcomes (i.e., emotional exhaustion, cynicism, and inefficacy) were specified as controls. To investigate the moderation effect of team tenure, we specified the effects of both team tenure and the interaction term (team reflexivity intervention \times team tenure) on the LCSs of control, demands, and support. In addition, we also applied Monte Carlo simulation procedures to test the mediation hypotheses and moderated-mediation effects in the open-source software R (<http://www.quantpsy.org>).

Results

We present the means, standard deviations, reliabilities, and correlations of the experimental variables in Table 3. As we examined the same variables at two points in time, the correlations between the same variable at T_0 and T_1 (or T_1 and T_2) represent test–retest reliabilities. A table showing the mean differences in JDCS and burnout by intervention condition is provided in Appendix B.

Given the high correlation between cynicism and emotional exhaustion, prior to testing our hypotheses, we ran a confirmatory factor analysis to examine the construct validity of our burnout outcomes (i.e., inefficacy, emotional exhaustion, and cynicism). Results showed that the model with six latent factors (i.e., inefficacy, emotional exhaustion, and cynicism at T_1 and T_2 , respectively) fit the data well. $\chi^2(449, N = 452) = 1095.75, p < .01$; CFI = .91; SRMR = .05; RMSEA = .06. The standardized loadings on the six factors range between .60 and .84. We also

estimated an alternative four-factor model with items measuring cynicism and emotional exhaustion loaded on the same latent factor. Results showed that the four-factor model had substantially worse fit than the six-factor model, $\Delta\chi^2(15) = 2848.05, p < .01$, thus indicating support for the construct validity of our outcome measures and that cynicism and emotional exhaustion are indeed two distinct constructs.

Analysis of Direct and Indirect Effects

The coefficients in the hypothesized model are presented in Table 4 and Figure 2. We used Snijders and Bosker's (1999) formulas to calculate *pseudo-R*² ($\sim R^2$) for the effect sizes for predicting outcomes. Predictors included in the model accounted for 13% of the variance in the latent change score (LCS) of job control, 28% in the LCS of colleague support, 3% in the LCS of qualitative role overload, 11% in the LCS of emotional exhaustion, 8% in the LCS of cynicism, and 23% in the LCS of inefficacy.

As is shown in Table 4, the team reflexivity intervention had positive effects on the LCS of colleague support ($\gamma = .25, p < .01$) and the LCS of job control ($\gamma = .10, p < .05$), but did not have significant effect on the LCS of qualitative role overload ($\gamma = -.06, p > .05$). Accordingly, Hypotheses 2 (on control) and 3 (regarding support) were supported.

In addition, the LCS of colleague support was negatively related to the LCS of emotional exhaustion ($\gamma = -.63, p < .01$) and the LCS of cynicism ($\gamma = -.50, p < .01$), suggesting that the more colleague support is enhanced as a function of the team reflexivity intervention, the greater the decrease in emotional exhaustion and cynicism. Similarly, the LCS of job control was found to be negatively related to the LCS of inefficacy ($\gamma = -.56, p < .05$).

We also examined the direct and indirect effects of the team reflexivity intervention on the burnout outcomes. The indirect effect of team reflexivity intervention on the LCS of emotional exhaustion via the LCS of colleague support was $-.16$, with a 95% CI $[-.270, -.069]$. The indirect effect of team reflexivity intervention on the LCS of cynicism via the LCS of colleague support was $-.13$, with a 95% CI $[-.218, -.050]$. In addition, the indirect effect of team reflexivity intervention on the LCS of reduced inefficacy through the LCS of job control was $-.06$, with a 95% CI $[-.150, -.001]$. Given that none of the CIs contain zero, the results suggest partial support for Hypotheses 4a, 4b, and 4c. Moreover, given that (as shown in Table 4) the direct effects of team reflexivity on the LCS's of exhaustion ($\gamma = .15, p > .05$), cynicism ($\gamma = .22, p > .05$), and reduced inefficacy ($\gamma = .24, p > .05$) were all nonsignificant, the combination of indirect effects noted above suggest the possibility of full mediation.

Moderation Analysis

As for the moderation effect of team tenure, we found that team tenure moderated the effects of team reflexivity intervention on the LCS of colleague support ($\gamma = .07, p < .01$) and the LCS of job control ($\gamma = .11, p < .01$) but not on the LCS of job demands. Following Cohen, Cohen, West, and Aiken's (2003) procedure, we plotted the effects of team reflexivity intervention on the LCS of colleague support and the LCS of job control at conditional values of team tenure (1 *SD* above or below the mean) in Figure 3 and Figure 4. As is indicated in Figure 3, the effect of team reflexivity

Table 3
Means, Standard Deviations, Reliabilities, and Correlations Among Focal Variables

Variables	Means	Within		Between																		
		SD	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Team reflexivity intervention	.49	—	.50	—	.05	—	.09	.23	-.36**	.02	-.20	-.32**	-.13	-.18	-.03	.12	-.13	.11	.10	-.28**	.08	.10
2. Qualitative role overload (T ₀)	3.30	.90	.49	—	(.78)	.61**	-.06	-.18	-.07	-.07	-.08	.24*	.13	.07	.09	.09	-.09	-.17	-.06	-.07	.08	.15
3. Qualitative role overload (T ₁)	3.32	.87	.54	—	.41**	(.82)	-.16	-.27*	-.13	-.21	.63**	.55**	.44**	.37**	.16	.12	.09	.11	-.13	-.08	-.01	.13
4. Job control (T ₀)	2.72	.48	.25	—	.00	.05	(.75)	.59**	.10	.15	-.09	-.20	-.14	-.14	-.42**	-.16	.06	.15	.03	.09	.26*	-.11
5. Job control (T ₁)	2.65	.50	.28	—	.00	.07	.60**	(.75)	.17	.29*	-.20	-.20	-.21	-.20	-.20	-.20	.06	.27*	.13	-.04	.21*	-.07
6. Colleague support (T ₀)	3.85	.47	.29	—	-.07	-.01	.23**	.22**	(.89)	.39**	-.35**	-.11	-.44**	-.25*	-.22	-.34**	.22	.03	-.07	-.00	-.06	.12
7. Colleague support (T ₁)	3.87	.47	.21	—	-.08	-.14**	.18**	.26**	(.89)	.52**	-.24*	-.22	-.33**	-.22	-.19	-.33**	.05	-.01	.26**	-.16**	.04	-.24*
8. Exhaustion (T ₁)	2.25	1.15	.66	—	.14**	.26**	-.16**	-.15**	-.10*	-.15**	(.93)	.68**	.84**	.59**	.12	.15	.06	.11	-.13	.11*	.08	.07
9. Exhaustion (T ₂)	1.85	1.06	.23	—	.14**	.24**	-.08	-.13**	-.03	-.06	.59**	(.92)	.60**	.83**	.19	-.07	.10	.11	-.19	.15**	.01	.00
10. Cynicism (T ₁)	1.83	1.09	.63	—	.10*	.24**	-.11*	-.12*	-.15**	-.20**	.79**	.53**	(.91)	.64**	.09	.24*	.04	.08	-.12	.15**	.03	.14
11. Cynicism (T ₂)	1.60	1.01	.51	—	.16**	.18**	-.04	-.10*	-.06	-.09	.50**	.78**	.60**	(.90)	.08	-.06	.06	.12	-.17	.11*	.03	-.02
12. Inefficacy (T ₁)	2.82	1.14	.57	—	.09	.10*	-.09	-.19**	-.16**	-.19**	-.29**	-.14**	-.23**	-.11*	(.91)	.61**	-.21	-.24*	-.11	.04	-.47**	.13
13. Inefficacy (T ₂)	3.02	1.26	.56	—	.12*	.14**	-.10*	-.13**	-.23**	-.19**	-.04	-.29**	-.06	-.26**	(.92)	.55**	-.22	-.24*	-.27*	.08	-.35*	.14
14. Performance (T ₁)	8.75	.62	.63	—	-.04	-.02	-.05	-.02	.03	.05	-.08	-.08	-.10	-.09	.09	.02	-.22	.73**	-.19	.03	.16	-.07
15. Performance (T ₂)	8.68	.66	.63	—	.01	-.02	.12*	.06	.10	.08	-.07	-.05	-.10	-.06	.04	-.04	.46**	—	.02	-.03	.24*	-.08
16. Median team tenure	1.85	—	1.71	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-.33**	.19**	-.04
17. Z-score of HW (T ₀)	.00	.91	.42	—	-.00	-.01	-.01	-.03	-.02	-.02	.03	-.02	.00	.05	.01	-.03	.12*	.07	—	—	.24**	-.08
18. Z-score of HW (T ₁)	.00	.92	.40	—	-.03	.04	.04	.05	.03	.07	.18*	.15**	.14**	.14**	-.23**	-.18**	.13*	.13*	—	—	.19**	-.13
19. Team size	6.42	1.39	1.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Note. Between-person correlations are above the diagonal (N = 73) and within-person correlations are below the diagonal (N = 469). The average Cronbach alpha coefficients are in parentheses along the diagonal. HW = hours worked.

* p < .05. ** p < .01.

Table 4
Unstandardized Coefficients Estimates and Standard Errors in the Model

Variables	LCS of colleague support		LCS of job control		LCS of QRO		LCS of EE		LCS of inefficacy		LCS of cynicism	
	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
Level-2 (Team level)												
Team size	-.07**	.02	.01	.02	-.02	.04	-.07*	.03	-.03	.04	-.09**	.03
Team reflexivity intervention	.26**	.05	.10*	.05	-.04	.11	.12	.12	.37	.24	.23	.13
Median team tenure	-.01	.02	-.05	.03	.05	.04	-.06	.04	.01	.04	-.10*	.04
Team Reflexivity Intervention × Median Team Tenure	.07**	.02	.11**	.04	-.05	.06	.07	.06	-.15*	.07	.15**	.06
LCS of colleague support							-.63**	.15	-.06	.18	-.50**	.13
LCS of job control							.13	.22	-.59*	.24	-.20	.21
LCS of QRO							-.02	.11	.06	.15	.02	.11
LCS of z-score of HW							-.04	.10	-.21	.13	-.05	.11
Residual	.05**	.01	.05**	.01	.20**	.04	.15**	.03	.18**	.04	.17**	.03
Level-1 (Individual level)												
LCS of colleague support							.05	.11	.09	.13	.03	.09
LCS of job control							-.09	.11	-.01	.13	-.09	.11
LCS of QRO							.02	.05	-.01	.06	.02	.05
Residual	.16**	.02	.15**	.02	.63**	.06	.72**	.07	1.06**	.11	.64**	.07
Pseudo-R ²	28%		13%		3%		11%		23%		8%	

Note. N = 469; HW = hours worked; QRO = qualitative role overload; EE = emotional exhaustion.
* p < .05. ** p < .01.

intervention on the LCS of colleague support was stronger when the team tenure was high ($\gamma = .37, p < .01$), compared to when the team tenure was low ($\gamma = .14, p < .05$). Similarly, as is shown in Figure 4, the effect of team reflexivity intervention on the LCS of job control was not significant when the team tenure was low ($\gamma = -.08, p > .05$), but was positive and significant when the

team tenure was high ($\gamma = .28, p < .01$). Therefore, Hypothesis 5 was partially supported.

We also examined the moderated mediation effects implied in our model. Results indicated that the interaction effect of team reflexivity intervention and team tenure had a negative and significant indirect effect on the LCS of inefficacy via the LCS of job

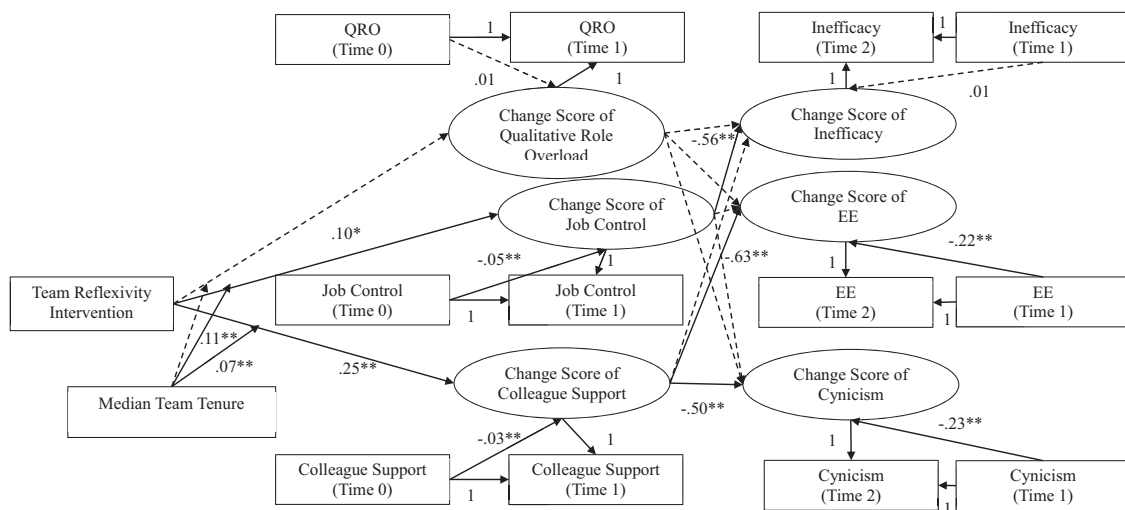


Figure 2. Unstandardized parameter estimates of hypothesized model. Note: All variables and estimates shown are at the team level. In the interests of parsimony, individual level parameter estimates (detailed in Table 4) are not displayed here. Nor are the effects of team reflexivity intervention on latent change scores of inefficacy, emotional exhaustion, cynicism, and the covariances among within-team level latent change scores of all the endogenous variables (all of which were also estimated). The effects of control variables (i.e., team size and latent change score of z-score of hours worked) are also estimated but not displayed here. QRO = qualitative role overload; EE = emotional exhaustion.

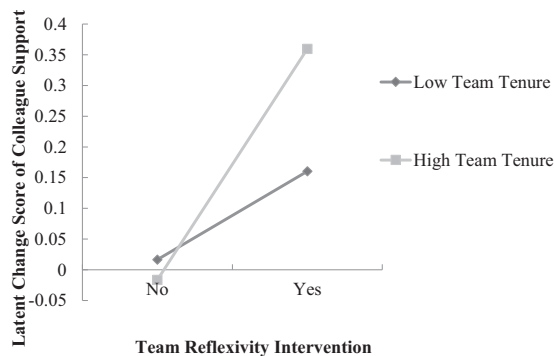


Figure 3. Conditional effects of the team reflexivity intervention on colleague support.

control (moderated mediation effect = $-.059$, 95% CI $[-.141, -.006]$). Specifically, the indirect effect of the team reflexivity intervention on the LCS of inefficacy via the LCS of job control was not significant when team tenure was low (indirect effect = $.043$, 95% CI $[-.053, .149]$), but was negative and significant when team tenure was high (indirect effect = $-.160$, 95% CI $[-.368, -.018]$). The effect difference between the two conditions (high vs. low) was $-.203$, 95% CI $[-.409, -.019]$. In addition, the interaction effect of team reflexivity intervention and team tenure had a negative and significant indirect effect on the LCS of emotional exhaustion via the LCS of colleague support (moderated mediation effect = $-.044$, 95% CI $[-.090, -.011]$). Specifically, the indirect effect of team reflexivity intervention on the LCS of emotional exhaustion via the LCS of colleague support was stronger when team tenure was high (indirect effect = $-.231$, 95% CI $[-.406, -.093]$), compared with when team tenure was low (indirect effect = $-.081$, 95% CI $[-.162, -.016]$). The difference between the two conditions (high vs. low) was $-.150$, 95% CI $[-.305, -.038]$. In a similar vein, the interaction effect of team reflexivity intervention and team tenure had a negative and significant indirect effect on the LCS of cynicism via the LCS of colleague support (moderated mediation effect = $-.035$, 95% CI $[-.073, -.008]$). Specifically, the indirect effect of team reflexivity intervention on the LCS of cynicism via the LCS of colleague support was stronger when team tenure was high (indirect effect = $-.184$, 95% CI $[-.330, -.070]$), compared with when team tenure was low (indirect effect = $-.064$, 95% CI $[-.129, -.012]$). The difference between the two conditions (high vs. low) was $-.120$, 95% CI $[-.251, -.027]$.

Beyond these hypothesized moderating effects of team tenure on the impact of team reflexivity on demands, control, and support, we also tested the degree to which team tenure moderated the direct effect of reflexivity on the three burnout dimensions. As shown in Table 4, the results indicated that team tenure significantly moderated the direct effects of reflexivity on the LCS of both inefficacy ($\gamma = -.15$; $p < .05$) and cynicism ($\gamma = .14$; $p < .01$). Interestingly, these conditioning effects were opposite from one another. Simple slopes analysis indicated that in the case of LCS of inefficacy, reflexivity had a significant amplification effect when team tenure was low ($\gamma = .48$, $p < .01$), but no significant effect when it was high ($\gamma = -.01$, $p > .05$). In contrast, the effect of team reflexivity on the LCS of cynicism was positive and

significant when team tenure was high ($\gamma = .48$, $p < .01$), but was not significant when team tenure was low ($\gamma = -.03$, $p > .05$). Also notable, however, is that this more specified model (i.e., including the moderation of the direct effects of reflexivity on all three burnout outcomes) did not significantly fit the data better than a more parsimonious model including only the hypothesized effects via JDCS ($\Delta\chi^2 = 2.75$, $\Delta df = 6$, $p > .05$), and that the exclusion of these moderated direct paths from reflexivity to the three burnout outcomes from the model did not appreciably change the hypothesized effects reported above.

Supplementary Analysis

We ran several supplementary analyses in order to rule out a number of possible alternative explanations, as well as to examine the degree to which, in addition to these beneficial effects on employee well-being, team reflexivity may influence team performance.

Role of gender and quantitative demands. First, in order to rule out the possibility that our results may have been driven by the gender composition (i.e., percent female) of the teams, we reran our models controlling for this variable. As the parameter estimates for the theoretical variables were virtually the same with and without the inclusion of the gender composition variable, we conclude that our findings are robust to gender composition effects. We also tested the sensitivity of our findings to the exclusion of the quantitative demands variable (i.e., z-score of hours worked), again finding no meaningful difference in the resulting parameter estimates or their statistical significance.

Operationalization of team tenure. While we operationalized team longevity in terms of median team tenure, it is possible that membership flux or in other words the within-team variability in team membership tenure (operationalized in terms of the standard deviation of membership tenure within the team) reflects an alternative aspect of team longevity with different moderating effects than that of mean or median team tenure. Replacing the latter with the former, we found such within-team variability to have no significant moderating effects on the impact of structured reflexivity on any of the three mediating terms.

Independence of observations. Because teams in the intervention condition were trained by one of eight different SED trainers, it is possible that such nesting of teams within trainers may have introduced systematic variance. In order to rule out any

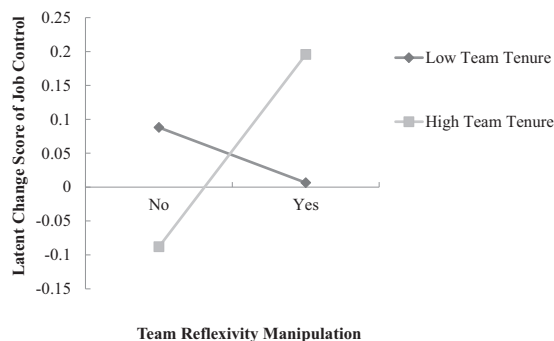


Figure 4. Conditional effects of the team reflexivity intervention on job control.

such confound, we reran the analysis using the sandwich estimator to compute standard errors of the model (Liu, Wang, Chang, Shi, Zhou, & Shao, 2015; Muthén & Muthén, 2012). We found no meaningful difference in the results after taking into account the potential nonindependence of observations due to the SED trainer-level clustering.

Role of training. In order to test the possibility that the observed effects were driven more by training than by the subsequent execution of structured reflexivity, we modified and then retested the model shown in Figure 2 by respecifying the latent changes in the three burnout-related outcomes from T_1 to T_2 (as shown in the figure) to T_0 to T_1 (paralleling the period from baseline to the conclusion of the training). In contrast to the results shown in Figure 2, training in reflexivity (T_0 – T_1) was associated with two control-mediated outcomes, namely reduced emotional exhaustion via heightened job control ($\gamma_{\text{exhaustion on control}} = -.51, p < .05$), and a *heightened* sense of inefficacy ($\gamma_{\text{inefficacy on control}} = .78, p < .01$). As the former of these parameter estimates was not significant in the posttraining period (i.e., from T_1 to T_2), and the latter was significant but negative, the results suggest that the impact of reflexivity training may be very different from that associated with the posttraining application of the skills learned.

Direct and moderated effects on performance. Finally, while—as noted earlier—previous research has consistently demonstrated the beneficial effects of team reflexivity on team performance, nearly all of this research has assumed team task contexts characterized by a high degree of uncertainty and means-ends variability (West, 1996). After all, it is precisely in such contexts (manifested, e.g., in the work of pilots, firefighters and medical professionals) in which learning—the core process underlying reflective practice—is likely to offer its greatest utility (e.g., DeRue et al., 2012; Ellis & Davidi, 2005; Kinni, 2003; Morrison & Meliza, 1999; Vashdi, Bamberger, & Erez, 2013). In contexts where tasks are more routinized and means-ends relations less variable such as in manufacturing, team reflexivity may have very different consequences. Accordingly, we supplemented to the model shown in Figure 2, two additional paths capturing the direct and team-tenure-moderated direct effect of the reflexivity intervention on the latent change in supervisor-rated individual performance (aggregated to the team level) from T_0 to T_2 . While the findings regarding the moderated and mediated effects of the intervention on the three burnout dimensions remained essentially unchanged, the results of this expanded model (available upon request from the authors) indicated that the team reflexivity intervention had a significant, positive effect on the LCS of team-aggregated individual performance ($\gamma = .34, p < .01$). However, team tenure did not significantly moderate this direct effect of the intervention on team-aggregated, individual performance ($\gamma = -.07, p > .05$).

Discussion

Drawing from prior research on team reflexivity (e.g., Schippers et al., 2007; Vashdi et al., 2013; West, 1996, 2000), we hypothesized that aside from the widely documented performance-related benefits that reflexivity often has for teams engaged in tasks characterized by a high degree of uncertainty, it may also have important health-related implications for members of teams engaged in more conventional, routine work such as manufacturing.

More specifically, building on the JDCS model, (Johnson & Hall, 1988; Karasek & Theorell, 1990) we suggested that over time, team reflexivity may help reduce members' emotional exhaustion, cynicism, and sense of inefficacy—the three primary dimensions of burnout (Maslach & Leiter, 1997)—by boosting social support and control, and reducing task demands. Moreover, we argued that team tenure moderates this relationship with the effects of team reflexivity on the change in demand, control, and support being amplified as a function of team tenure.

The findings generally support our hypothesis that team reflexivity has an important protective effect, enhancing members' sense of control and support, and thus reducing member burnout. More specifically, relative to members of teams assigned to an active control condition (i.e., periodic engagement in team-building exercises), those assigned to the team reflexivity condition manifested a significantly larger decrease in *emotional exhaustion* and *cynicism*, with this difference at least partially explained by heightened support. Members of teams assigned to the reflexivity condition also manifested a significantly larger change in the *inefficacy* dimension of burnout with this difference partially explained by heightened control. Finally, consistent with research indicating that team tenure is critical for teams to be able to integrate knowledge and adapt to change (Liang et al., 1995; Schippers et al., 2003), we anticipated and found that the beneficial impact of team reflexivity (relative to a control intervention) on the change in control and support is stronger among teams characterized by higher levels of team tenure.

As suggested above, we found support for two out of the three mediating mechanisms that we hypothesized, namely those relating to support and control but not to job demands. More specifically, our results suggest that support is an important mediator of the relationship between team reflexivity and change in emotional exhaustion and cynicism (but not change in inefficacy). These findings are consistent with prior research indicating that team reflexivity enhances collaborative processes such as workload sharing central to the development of supportive relationships (Vashdi et al., 2013). However, beyond boosting support-related, collaborative processes, reflexivity may have enhanced member support perceptions by facilitating more personal and open exchanges than those allowed during work time (Schippers et al., 2003). Additionally, by structuring debriefings so as to create a sense of psychological safety, reflexivity may have enhanced members' sense of trust in their teammates, thus allowing them to seek and provide support from/to one another more freely (Edmondson, 1999). Furthermore, while the enhanced team support had the beneficial effects on emotional exhaustion expected on the basis of prior findings (Halbesleben & Buckley, 2004; Pei et al., 2009; Walters & Raybould, 2007), it also had robust, attenuating effects on member cynicism. One way this may have occurred is that the enhanced team support generated by means of engagement in team reflexivity protected members from the cynicism-related emotions and cognition (e.g., frustration, disillusionment, and generalized distrust) that might otherwise emerge and spread in such an employment context. Alternatively, the enhanced support may have shifted team members' frame of reference such that with the team playing a more central role in members' work lives, any cynicism generated by the organization or the work itself became less salient.

Similarly, we found robust support for the role of job control as a mediator linking team reflexivity to diminished perceptions of inefficacy, the cognitive aspect of burnout (but not to diminished perceptions of emotional exhaustion and cynicism). This finding is important for a number of reasons. First, it suggests that engagement in team reflexivity has the potential to boost members' sense of efficacy, or, in other words, their belief in their ability to identify and successfully address a problem (Bandura, 1997), or produce a given level of attainment on a specific task (Gibson, 2003). Research suggests that a heightened sense of efficacy is positively associated with a variety of group and team performance indicators (Katz-Navon & Erez, 2005). Second, it also suggests that as team members engage in cycles of action and reflection, they not only learn from errors and successes, but also become more aware of opportunities for change. To the extent that reflexivity facilitates the initiation and execution of such change, it may provide an important basis for job crafting, a construct reflecting control over the design, social relations, and cognitive perception of a job (Berg, Dutton, & Wrzesniewski, 2013; McClelland, Leach, Clegg, & McGowan, 2014). Recent research finds that job crafting has robust beneficial effects on both engagement and performance among members of teams performing highly repetitive and mundane jobs (McClelland et al., 2014). Finally, the indirect effect of reflexivity (via control) on perceptions of inefficacy suggests that this intervention, by implicitly empowering workers to take greater control over the work process, may begin to address some of the most psychologically alienating aspects of mundane and highly repetitive work (Blauner, 1964; Braverman, 1998). More specifically, by engaging unskilled production workers in processes of reflection, pattern identification and analysis, and solution development (even if only for several minutes per day), team reflexivity may significantly enhance workers' sense of job meaningfulness and responsibility (Hackman & Oldham, 1980), as well as give workers the sense that they are honing valuable new competencies.

Our findings also indicated that, as suggested by research on team longevity and stability (Edmondson et al., 2001), these support- and control-mediated effects were amplified as a function of team tenure, with the benefits of reflexivity essentially neutralized in teams characterized by low team tenure. In this regard, they reinforce the notion that team reflexivity is not only a team transition process, but also facilitates supportive interpersonal processes. To the degree that team tenure enables the development of common perspectives which facilitate sharing of knowledge and expertise among team members, we proposed and found team reflexivity—as a team transition process—to have an enhanced effect on control as a function of team tenure. Similarly, to the degree that supportive relations emerge and strengthen as a function of members' implicit trust-building experiences in reflexivity over time, we proposed and found team reflexivity—as a team supportive process—to have an enhanced effect on support as a function of team tenure. However, to the extent that we found no conditioning effect of team tenure on the reflexivity-demands relationship, our findings raise questions regarding team reflexivity (at least as implemented in the current study) as encompassing robust team action phase processes. Finally, while not hypothesized, we also found evidence of a *direct*, adverse effect of team reflexivity on the LCS of inefficacy under conditions of low tenure, and on the LCS of cynicism under conditions of high team

tenure. In the case of inefficacy, it may be that when teams with low tenure engage in reflexivity, team members are more sensitive and less adaptive to time-related costs compared to teams that have worked together for longer time. In the case of cynicism, it may be that, based on their experience (and perhaps disappointment) with other management interventions as well as their intention to keep the status quo working routines, more veteran teams view such interventions with heightened suspicion. Still, as noted above, a Satorra-Bentler Scaled chi-square difference test indicated that this more specified (and hence, less parsimonious) model was not accompanied by any significant improvement in overall model fit to the data. Accordingly, taken as a whole, our findings indicate that reflexivity interventions have generally less beneficial wellness-related consequences in teams characterized by lower member team tenure.

Interestingly, we found no direct or moderated relationship between team reflexivity and the change in qualitative role overload (i.e., qualitative demands). On the one hand, this was surprising in light of previous findings that team reflexivity benefits processes associated with task demands such as coordination (Vashdi et al., 2013), information processing (Schippers et al., 2014), and operational efficiency (Gurtner, Tschann, Semmer, & Nägele, 2007). On the other hand, given the largely routine nature of the tasks performed by the manufacturing teams, qualitative demands may be relatively invariant and relatively insensitive to the processes affected by team reflexivity. In fact, in a post hoc analysis, we found that as in the control condition (where the mean level of qualitative role overload at T_0 was 3.29 and at T_{1a} was 3.25), perceived qualitative demands did not change significantly over time for members of teams in the experimental condition (i.e., mean level qualitative role overload at T_0 was 3.35 and at T_{1a} was 3.34). Moreover, we found no significant effects of reflexivity on quantitative demands (i.e., normed hours worked; included in our model as a control variable), further suggesting that the relatively routine nature and standardized pacing of work in the organization studied may have limited the potential effect of reflexivity on job demands.

Aside from the path-specific contributions noted above, our findings offer a number of important enhancements to the growing literature on team reflexivity. First, they offer a direct response to Schippers et al.'s (2008) call for extending research on the outcomes of reflexivity. While nearly all of the extant research on reflexivity has focused on performance-related team outcomes, the current study extends our understanding of team reflexivity and its potential consequences by demonstrating how and when such team processes can affect the psychological well-being of team members. More specifically, above and beyond the beneficial consequences of reflexivity on the performance of the teams studied, we found structured team reflexivity to reduce team members' vulnerability to burnout, a key indicator of employee psychological well-being, and a condition tightly linked to a variety of costly psychological (e.g., depression) and physiological (metabolic syndrome) conditions (Goh, Pfeffer, Zenios, & Rajpal, 2015; Toker & Biron, 2012). In this sense, our findings challenge conventional team reflexivity research by demonstrating that structured reflexivity may have important effects on outcomes beyond those associated with team performance, and identifying one set of mechanisms potentially underlying such effects.

Second, our findings extend theories of team reflexivity by demonstrating that such practices may have meaningful implications in work contexts very different from those studied to date. Not only did we find that team reflexivity has robust beneficial implications on employee well-being in a work context in which tasks were more simple, routinized and preprogrammed than those typically studied by team reflexivity researchers, we also found the intervention to have beneficial effects on aggregated levels of supervisor-rated individual performance. While questions may be raised as to the internal validity of these performance measures, these findings suggest that beyond the wellness-related implications of team reflexivity in routine team task contexts such as in manufacturing, reflexivity may also generate noticeable differences in the way in which team members do their work and the outputs they produce. Further research is needed in this regard to determine how the mechanisms underlying these performance-related effects are similar or different from those documented in studies of reflexivity's performance-related effects in teams with more variable task contexts.

We further contribute to the literature on team reflexivity by demonstrating the potential utility of an alternative, temporally based form of team reflexivity. In contrast to most of the studies on team reflexivity which focus on afterevent reviews (Tannenbaum & Cerasoli, 2013), we tested the effects of daily and periodic postshift debriefings. Our findings indicate that, at least from an employee wellness perspective, team reflexivity processes may have beneficial effects even if they do not necessarily follow and focus on a particular event, project or discrete unit of work, but rather occur as a regular, end of shift practice. This is important in that in many organizations, the work process is more continuous in nature with few clearly defined events or end points, making it difficult at best to identify discrete events around which to regularly debrief.

Finally, our findings contribute to the literature on psychological well-being by offering evidence from a randomized, field-based trial that an increasingly prevalent team performance intervention, namely team reflexivity, may also have potential as a stress-management intervention. This is important for theoretical, empirical, and practical reasons. Theoretically, the evidence presented above suggests a potentially important link between the team processes discussed by Marks et al. (2001) and at least two of three key occupational stress determinants, namely control and support at work. Although our theorizing was grounded on a number of possible links between team transition and interpersonal processes on the one hand, and control and support on the other, just how team processes affect members' stress-related perceptions and emotional states remains largely unknown. Nevertheless, our findings provide an empirical foundation upon which to ground further theoretical and empirical inquiry. From an empirical perspective, this evidence is important in that such randomized, stress-related intervention studies continue to be quite rare, with Richardson and Rothstein's (2008) meta-analysis indicating that between 1977 and 2006, only 1.3 such studies were published on average each year. Finally, from a practical/practitioner perspective, our findings are important in that they suggest that for individuals working in a team context, stress prevention and mitigation efforts need not be limited to conventional job redesign or individual, stress coping interventions. Rather, team reflexivity-based efforts such as team

debriefings and afterevent reviews, adopted primarily to boost team performance, may be leveraged to also enhance member well-being.

Accompanying these contributions are a number of limitations, some of which may provide avenues for future research. One limitation stems from the fact that the experiment was conducted in China potentially limiting our ability to generalize to Western employment contexts. While the company we studied rigorously complied with and in many cases exceeded Chinese labor standards, several aspects of the employment context (e.g., young, migrant workforce living in on-site company dorms; limited break times; high rate of employee turnover) may have generated conditions amplifying the effects of debriefing on wellbeing in a manner that might not be replicable in the West. We encourage scholars to replicate our experiment in manufacturing facilities in other contexts to better understand factors potentially constraining the external validity of our findings.

Additionally, as noted above, we excluded from our analysis participants who were new to the company at T_0 , thus restricting the range of our moderator (team tenure) and potentially limiting the generalizability of our findings. Indeed, a sensitivity analysis (using the full sample) indicated that while the main effects reported above replicated, the moderation effects did not. However, these findings are not very surprising considering that the inclusion of newly hired employees likely generated confounding effects. Specifically, although the inclusion of new employees may extend the range of team membership tenure, given that these team newcomers were also new to the company, it may also have introduced several important confounds. Organizational newcomers often experience high levels of stress during their first few weeks on the job as a function of the uncertainties associated with onboarding and, in this particular case, due to the pressures associated with being on probation (Ashforth & Saks, 1996; Morrison, 1993). While we hypothesized that the effects of the reflexivity intervention would be attenuated in teams with low team tenure, when teams with low tenure are bolstered by newcomers who, as a result of heightened stress, may be more sensitive to the intervention, the theorized attenuation effect is likely to be diminished. Accordingly, one explanation for the nonsignificance of the hypothesized attenuation effect is that the inclusion of newcomers—individuals likely to be more sensitive to the intervention—may have countered any attenuation effect of lower team tenure. An additional explanation may stem from the fact that 53% of the newcomers in our data were no longer employed by T_1 , resulting in a large amount of missing data. Accordingly, although we used maximum likelihood estimation to make the most of the information available (Schafer & Graham, 2002), the nonsignificant findings may also stem from the resulting loss of statistical power.

We should also note that our analysis focused only on the direct effects of demands, control, and support and did not examine the potential multiplicative and buffering effects of the model components. While we encourage scholars to investigate these potential effects in further research, we caution that particularly in the context of an experimental, multilevel design, any test of buffering is likely to suffer from low power. Furthermore, while we tracked the effects of reflexivity over time, our analysis was still based on only nine weeks of data. Accordingly, we know little about the sustainability of the effects we captured or about the longer-term health-related consequences that might have emerged after 6 months or a year. Additionally, we collected no data on actual team processes at work over this 9-week period. Those studying the implications of reflexivity on team

members' well-being may want to collect such data in the future in order to answer questions such as "when during team performance and reflexivity activities are team members more or less susceptible to burnout?" and "whether, how and why might burnout trajectories change over time as team members engage in more reflexive activities?" Answering such questions is important in that reflexivity may have contradicting effects on burnout-related outcomes at different times. Monitoring and understanding the trajectories of such effects over time might provide managers with greater insight as to how the consequences of reflexivity may shift over time.

An additional limitation relates to the nature of the activities in which the members of the control condition teams engaged which may have resulted in the underestimation of the true effect size of structured team reflexivity. More specifically, the control groups' team building activities in theory could have contributed to enhanced trust and rapport among control condition team members, as well as enhanced team coordination competencies. Any such effects may have led members of these teams to perceive fewer demands and to experience more control and support relative to teams in a true control condition (i.e., receiving no special treatment). Thus, our results may underrepresent the true effect of the reflexivity intervention.

Finally, while our aim was to show that team reflexivity may have beneficial effects in nonservice-based contexts characterized by limited task uncertainty and employee discretion, we tested our model in a cell-based manufacturing context and on semiautonomous work teams. Thus, while our findings indicate that the beneficial effects of team reflexivity may apply in work environments very different from than those typically studied by reflexivity scholars, further research is required to determine the degree to which our conclusions are generalizable to workplaces in which teams have no control or autonomy over their work such as in a traditional assembly line context.

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(Appendices follow)

Appendix A

SED Session Report Form

Team identifying number: _____

Date: _____

Start time: _____ End time: _____

1. Who lead today's SED? _____ (Please write down the name of the leader)

2. How many team members:

• Attended? ____

• Participated in discussion? ____

3. Please indicate whether the following were addressed today:

• Review objectives (the goals that were set for the day, week, or month) Yes No

• What went well? What facilitated meeting the objectives? Yes No

• What didn't go well? Why were some objectives not met? Yes No

• What can be improved for next time?

– Who needs to do what when to generate improvement? Yes No

– How will we know if improvement is generated? Yes No

• Summary of the lessons learnt. Yes No

4. Major issues discussed:

• Were follow up tasks allocated to various team members to handle? Yes No

• Were issues discussed at earlier meetings followed up in this meeting? Yes No

If yes, please record the issues.

Appendix B

Comparison of JDCS and Burnout Levels at Various Times by Condition

Variable	Control group (<i>N</i> = 233)		Intervention group (<i>N</i> = 230)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Exhaustion T1	2.38	.62	2.17	1.29
Exhaustion T2	2.02	.50	1.70	1.17
Cynicism T1	1.93	.62	1.81	1.24
Cynicism T2	1.70	.50	1.53	1.15
Inefficacy	2.85	.50	2.83	1.26
Inefficacy T2	2.97	.53	3.12	1.47
Demand (Qualitative overload) T0	3.28	.50	3.36	.47
Demand (Qualitative overload) T1	3.35	.52	3.34	.53
Job control T0	2.68	.22	2.72	.22
Job control T1	2.57	.28	2.69	.23
Support T0	3.96	.21	3.75	.30
Support T1	3.85	.20	3.85	.20

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