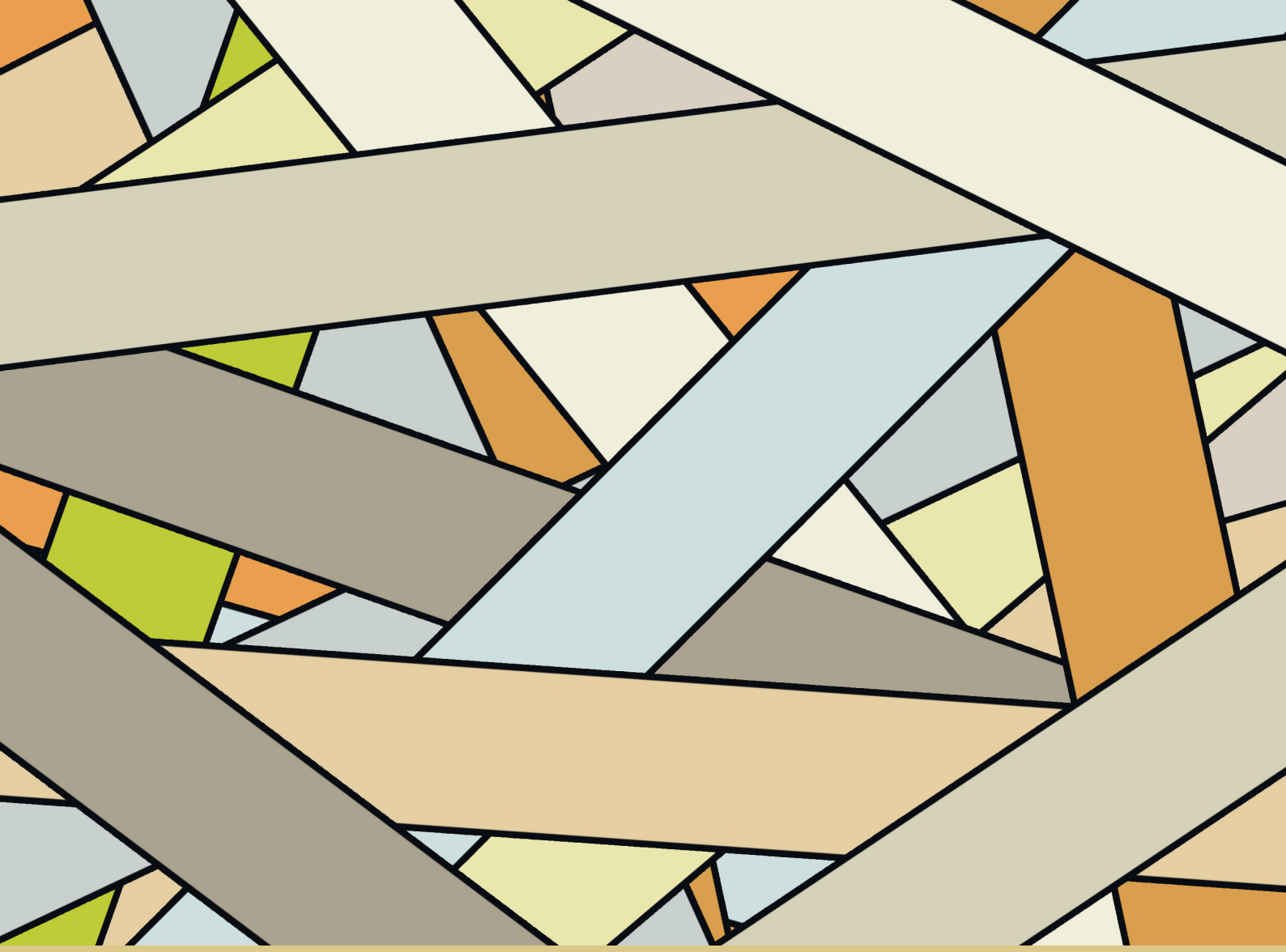

Carlos Manuel Ferreira Peralta

PROCESSOS, ESTADOS EMERGENTES E EFICÁCIA DAS EQUIPAS

Tese de Doutoramento em Psicologia, na especialidade de Psicologia das Organizações, do Trabalho e dos Recursos Humanos, orientada pelo Professor Doutor Paulo Renato Lourenço e pelo Professor Doutor Paulo Lopes e apresentada à Faculdade de Psicologia e de Ciências da Educação da Universidade de Coimbra.

Setembro de 2015

· U C ·

UNIVERSIDADE DE COIMBRA

Processos, estados emergentes e eficácia das equipas

Carlos Manuel Ferreira Peralta

Processos, estados emergentes e eficácia das equipas

Tese de Doutoramento em Psicologia, na especialidade de Psicologia das Organizações, do Trabalho e dos Recursos Humanos, orientada pelo Professor Doutor Paulo Renato Lourenço e pelo Professor Doutor Paulo Lopes e apresentada à Faculdade de Psicologia e de Ciências da Educação da Universidade de Coimbra.

Setembro de 2015

UNIVERSIDADE DE COIMBRA

Ficha técnica

Título: Processos, estados emergentes e eficácia das equipas

Autor: Carlos Manuel Ferreira Peralta

Data: Setembro de 2015

Orientação científica: Professor Doutor Paulo Renato Lourenço (Faculdade de Psicologia e de Ciências da Educação da Universidade de Coimbra) e Professor Doutor Paulo Lopes (Católica-Lisbon School of Business and Economics da Universidade Católica Portuguesa)

Domínio científico: Psicologia – Psicologia das Organizações, do Trabalho e dos Recursos Humanos

Instituição científica: Faculdade de Psicologia e de Ciências da Educação da Universidade de Coimbra

Financiamento: Investigação apoiada pela Fundação para a Ciência e a Tecnologia (bolsa de doutoramento SFRH/BD/76704/2011) e Programa Operacional Potencial Humano/Fundo Social Europeu.

Imagem da capa: Carlos Manuel Ferreira Peralta

Resumo

A presente dissertação avalia quando e como os processos e os estados emergentes das equipas se relacionam entre si e com a eficácia grupal. Com base numa variedade de perspetivas teóricas e de amostras, debruçamo-nos sobre um conjunto de questões de investigação específicas (e.g., como medir os processos e estados emergentes das equipas a partir de uma perspetiva desenvolvimental, em quantos estádios e dimensões ocorre o desenvolvimento grupal), contribuímos para uma melhor compreensão das condições que influenciam a relação entre diferentes processos grupais (e.g., efeito da coragem do líder para ir além dos requisitos obrigatórios) e questionamos assunções (e.g., os processos de inovação aumentam sempre os níveis de eficácia das equipas).

Para avaliar as relações entre processos, estados emergentes e eficácia das equipas conduzimos três estudos independentes, mas complementares. No primeiro estudo (Capítulo 2), olhamos para processos, estados emergentes e eficácia das equipas a partir de uma perspetiva desenvolvimental. Com base numa abordagem integrada de desenvolvimento grupal por estádios, descrevemos o desenvolvimento dedutivo e a validação de uma medida de desenvolvimento grupal. Resultados de três amostras, incluindo dados de múltiplas fontes e recolhidos em dois momentos temporais, suportaram a multidimensionalidade teórica da escala. A validade convergente e a validade discriminante foram estabelecidas; e a validade de critério foi avaliada através da relação entre a escala e três facetas de eficácia grupal: viabilidade, desempenho extra papel e reputação. Concluímos que a medida de 29 itens é válida e fiável para medir desenvolvimento grupal. Em termos teóricos, clarificamos a dimensionalidade do desenvolvimento grupal e ampliamos a sua rede nomológica. Em termos de intervenção,

discutimos formas de aumentar os níveis de eficácia das equipas via desenvolvimento grupal.

No segundo estudo (Capítulo 3), partindo da perspetiva interacionista dos processos de inovação e considerando as características das empresas de *call center*, avaliamos o papel moderador da coragem do líder para ir além dos requisitos obrigatórios nas relações entre as dimensões superordenadas dos processos de equipa (processos de transição, de ação e interpessoais), criatividade e implementação de inovações. Análises de dados provenientes de múltiplas fontes e pertencentes a 152 equipas de *call center* indicaram que os processos de equipa se relacionam positivamente com a implementação de inovações nas equipas via criatividade grupal, mas somente quando os líderes revelam coragem para ir além dos requisitos obrigatórios. Quando essa coragem falta aos líderes, as equipas têm dificuldade em desenvolver ideias criativas e em implementar inovações. Concluímos que, pelo menos no contexto de *call centers*, a capacidade dos líderes para ir além dos requisitos obrigatórios tem um papel central na estimulação da inovação em equipas.

Enquanto nos estudos 1 e 2 olhamos para processos e estados emergentes das equipas a partir de um nível de abstração elevado (desenvolvimental e superordenado), no estudo 3 contribuímos para uma compreensão mais detalhada da instrumentalidade dos processos e estados emergentes das equipas para a eficácia grupal. Recorrendo a duas amostras, o Capítulo 4 contribui para uma melhor compreensão da relação entre processos de inovação em equipas e eficácia (medida como desempenho e reputação). Em adição, analisamos o papel moderador de dois estados emergentes das equipas: clareza e comprometimento com objetivos e tonalidade afetiva. Verificámos que a relação entre processos de inovação e desempenho é moderada pela clareza e

comprometimento com objetivos, sendo a relação mais fortemente positiva quando a clareza e comprometimento com objetivos é elevada. Por sua vez, os processos de inovação relacionam-se mais positivamente com a reputação quando as equipas apresentam níveis baixos de tonalidade afetiva negativa. As implicações para a investigação e intervenção ao nível dos processos de inovação, dos estados emergentes e da eficácia das equipas são discutidas.

Além de avaliarmos processos e estados emergentes grupais, tanto a um nível de abstração elevado como reduzido, e as suas relações com a eficácia grupal, na presente dissertação incluímos também uma discussão geral focada nas implicações chave dos estudos, bem como na apresentação de futuras vias de investigação.

Palavras-chave: processos grupais; estados emergentes grupais; eficácia grupal; desenvolvimento grupal; processos de inovação grupais.

Abstract

This dissertation examines relationships between team processes, emergent states and effectiveness. Drawing upon a variety of theoretical perspectives and samples, we shed light on specific research issues (e.g., how to measure team processes and emergent states from a developmental perspective, the stages and dimensions of team development), contribute to a better understanding of the conditions that influence the relationship between different team processes (e.g., the effect of leaders' courage to go beyond compliance), and challenge assumptions (e.g., whether team innovation processes always enhance team effectiveness).

To evaluate the relationships between team processes, emergent states and team effectiveness, three separate but interrelated studies were conducted. In the first study

(Chapter 2), we looked at team processes, emergent states and effectiveness from a developmental perspective. Based on an integrated stage approach to team development we reported the development and validation of a theory-based measure of team development. Drawing on three independent samples, including multisource and two-wave data, we found support for the scale's theoretical multidimensionality. Convergent and discriminant validity was established, and criterion-related validity was determined through the scale's relation with three facets of team effectiveness: viability, extra-role performance and reputation. We concluded that the 29-item measure is valid and reliable for the assessment of team development. Theoretically, we shed light on the dimensionality of team development and extended its nomological network. Practical implications for enhancing team effectiveness via team development were discussed.

In the second study (Chapter 3), drawing on the interactionist perspective of team innovation processes and considering the characteristics of the call center business, we examined the moderating role of leaders' courage to go beyond compliance in the relationships between the superordinate dimensions of team processes (transition, action, and interpersonal processes), team creativity and team innovation implementation. Analyses of multisource data from 152 call center teams indicated that team processes are positively related to team innovation implementation via team creativity, but only when team leaders reveal courage to go beyond compliance. When leaders lack such courage, teams struggle to develop creative ideas and to convert those ideas into implemented innovations. We concluded that, at least in call centers, the leaders' capacity to go beyond compliance plays a key role in stimulating innovation in teams.

Whereas in studies 1 and 2 we look at team processes and emergent states at high levels of abstraction (developmental and superordinate), in study 3 we contribute to a more fine-grained understanding of how different processes and emergent states are instrumental to team effectiveness. Using two distinct samples, Chapter 4 unpacks the relationships between team innovation processes and effectiveness (measured as performance and reputation). Furthermore, we examined the moderating role of two team emergent states: goal clarity and commitment, and affective tone. We found that the relationship between innovation processes and performance is moderated by goal clarity and commitment, such that the relationship is more strongly positive when goal clarity and commitment are high. Conversely, innovation processes are more positively related to reputation when teams report lower levels of negative affective tone. Implications for research on innovation processes, emergent states, and effectiveness were discussed along with implications for practice.

In addition to evaluating team processes and emergent states, both at high and low levels of abstraction, and their relationships to team effectiveness, the dissertation also includes a general discussion highlighting key implications and avenues for future research.

Keywords: team processes; team emergent states; team effectiveness; team development; team innovation processes.

Agradecimentos

O meu sincero agradecimento:

- aos orientadores científicos, Professor Doutor Paulo Renato Lourenço e Professor Doutor Paulo Lopes, pelo apoio prestado ao longo dos últimos quatro anos;
- aos coautores dos trabalhos incluídos nesta dissertação, Professora Doutora Lucy Gilson, Professora Doutora Leonor Pais e Mestre Cátia Batista, pela colaboração científica;
- aos Investigadores/Professores, Professor Doutor David Patient, Professora Doutora Irina Cojuharenco, Professora Doutora Isabel Dimas, Mestre Maria Francisca Saldanha, Mestre Cristina Souza de Castro, Professor Doutor Markus Baer, Professor Doutor Francesco Sguera, Professor Doutor Nuno Rodrigues, Mestre Nuno Silva e Professora Doutora Juliane Strack, pelos contributos, sugestões e partilha de conhecimento em revisões científicas amigáveis e em reuniões de investigação;
- aos revisores anónimos e editores das revistas científicas a que submetemos e/ou onde publicámos os trabalhos incluídos nesta dissertação, pelas sugestões de melhoria apresentadas;
- a todos os Professores que ao longo do meu percurso académico contribuíram para o meu crescimento pessoal e profissional;
- a todas as pessoas, equipas e organizações que participaram nestes estudos;
- à Dra. Teresa Urbano e à Dra. Alice Oliveira, da Faculdade de Psicologia e de Ciências de Educação da Universidade de Coimbra (FPCE-UC), bem como à Dra. Leonor Machado e à Dra. Débora Porém, da Católica-Lisbon School of

Business and Economics da Universidade Católica Portuguesa (CLSBE-UCP), pelos apoios e esclarecimentos prestados durante o processo de doutoramento;

- à FPCE-UC por me aceitar enquanto aluno de doutoramento; e às unidades de investigação, Instituto de Psicologia Cognitiva, Desenvolvimento Vocacional e Social da FPCE-UC e Católica-Lisbon Research Unit in Business and Economics (CUBE) da CLSBE-UCP, por me acolherem enquanto aluno de doutoramento;
- à Fundação para a Ciência e Tecnologia pela atribuição da bolsa de doutoramento.

Índice

CAPÍTULO 1

Introdução geral

Uma equipa de trabalho pode ser definida como um grupo de duas ou mais pessoas interdependentes que trabalha interativamente em função de alvos comuns (Cohen & Bailey, 1997; Kozlowski & Bell, 2003; Lourenço, 2002; Sundstrom, De Meuse, & Futrell, 1990). Por serem vistas como uma fonte de vantagem competitiva sustentável para as organizações, cada vez mais as equipas são consideradas os constituintes básicos das organizações modernas, independentemente do setor de atividade (Cohen & Bailey, 1997; Devine, Clayton, Philips, Dunford, & Melner, 1999; Mathieu, Maynard, Rapp, & Gilson, 2008; Sundstrom, McIntyre, Halfhill, & Richards, 2000). A tendência para estruturar o trabalho organizacional em equipas foi acompanhada por uma crescente popularidade, junto da comunidade científica, do estudo do funcionamento grupal (LePine, Piccolo, Jackson, Mathieu, & Saul, 2008).

A maioria dos estudos focados no funcionamento grupal assenta, de forma explícita ou implícita, no modelo *Input-Processo-Output* (I-P-O) ou numa variante sua (Cohen & Bailey, 1997; Ilgen, Hollenbeck, Johnson, & Jundt, 2005; Mathieu & Gilson, 2012; Mathieu et al., 2008). De acordo com os modelos I-P-O de base (Gladstein, 1984; Hackman, 1987, Hackman & Morris, 1975; McGrath, 1964, 1984), os *inputs* representam os fatores antecedentes que podem facilitar ou condicionar tanto o trabalho em equipa como a eficácia grupal e que se encontram distribuídos pelos níveis de análise individual (e.g., personalidade dos membros da equipa), grupal (e.g., estruturação do trabalho) e organizacional (e.g., recursos disponibilizados pela organização). Os processos representam as interações entre os membros e o que as equipas fazem com vista à execução da/s tarefa/s em mãos. Por fim, os *outputs* refletem

os resultados (diretos e secundários) do trabalho em equipa que são valorizados por pelo menos uma parte interessada (Mathieu, Heffner, Goodwin, Salas, & Cannon-Bowers, 2000).

Com vista a acomodar a complexidade cada vez mais evidente dos fenómenos grupais e a integrar nova evidência teórica e empírica, os modelos I-P-O de base foram alvo de várias revisões e extensões (e.g., Cohen & Bailey, 1997; Ilgen et al., 2005; Mathieu et al., 2008; McGrath, Arrow, & Berdahl, 2000; Sundstrom et al., 1990). Estas tentativas de melhorar os modelos de funcionamento grupal e de eficácia assentaram em aspetos como: 1) a necessidade de melhor compreender as variáveis críticas que afetam os *inputs*, os processos grupais e as diferentes facetas de eficácia das equipas; 2) a importância de clarificar conceptualmente e de categorizar os constructos designados por "processos grupais" nos modelos I-P-O de base; 3) o valor de atentar nas relações entre constructos a diferentes níveis de abstração e de especificidade; 4) a necessidade de ampliar continuamente os modelos, incluindo constructos e relações entre constructos ainda não consideradas; 5) a importância do tempo; e, ainda, 6) a necessidade de uma conceptualização multidimensional da eficácia grupal (Cohen & Bailey, 1997; Cropanzano, Li, & Benson, 2011; Ilgen et al., 2005; LePine et al., 2008; Mathieu & Gilson, 2012; Mathieu et al., 2008). Nas secções seguintes detalhamos cada um dos principais contributos para a melhoria dos modelos I-P-O de funcionamento e de eficácia grupal.

Variáveis críticas que afetam os inputs, os processos grupais e as diferentes facetas de eficácia das equipas

Vários contributos teóricos e empíricos permitiram uma melhor compreensão das variáveis críticas que afetam diferentes *inputs*, processos e dimensões de eficácia

grupais. Cohen e Bailey (1997) atentaram no efeito que o contexto onde a organização opera (e.g., competitividade do setor de atividade) pode ter nos *inputs*, nos processos e nas facetas de eficácia das equipas. De acordo com a abordagem dos autores, a equipa influencia e é influenciada não só pelos seus membros e pela organização, mas também pelo ambiente que circunda a organização. Neste sistema hierárquico de diferentes níveis de análise, os efeitos dominantes tendem a ocorrer na direção contexto da organização – organização – equipa – indivíduo, embora efeitos na direção contrária também sejam evidentes (Mathieu et al., 2008). Na mesma linha, a abordagem componencial dos processos criativos em equipa (Amabile, 1997; Amabile & Conti, 1999) sugere que tanto variáveis individuais (e.g., conhecimento especializado, capacidade de raciocínio criativo, motivação intrínseca) como variáveis contextuais (e.g., motivação organizacional para inovar, recursos, práticas de gestão) contribuem para a emergência dos processos criativos nas equipas. Por sua vez, as perspetivas interacionistas (e.g., Schneider, 1983; Woodman, Sawyer, & Griffin, 1993) sugerem que os processos grupais são influenciados também pela interação complexa entre as equipas e os ambientes onde as mesmas operam.

Ilgen et al. (2005) atentam ainda na noção de ciclos causais de feedback e destacam que um *ouptut* da equipa também pode funcionar como um novo *input* no funcionamento grupal. Desta forma, a eficácia passada das equipas pode funcionar como novo *input* grupal que influencia, a par e conjuntamente com outras variáveis, processos, estados emergentes e *outputs* futuros. Assim, de acordo com esta perspetiva, as ligações entre as diferentes partes dos modelos de funcionamento e de eficácia grupal tendem a ser bidirecionais, não lineares e condicionais.

Clarificação conceptual dos constructos designados por "processos grupais" nos modelos I-P-O de base

A diferenciação entre processos e estados emergentes (também chamados de traços psicológicos das equipas; Cohen & Bailey, 1997) permitiu uma melhor compreensão das múltiplas variáveis que medeiam a relação entre *inputs* e *outputs*. Os processos grupais referem-se aos "atos interdependentes entre os membros da equipa que convertem os *inputs* em resultados através de atividades cognitivas, verbais e comportamentais, dirigidas para a organização do trabalho a realizar, no sentido de atingir o objetivo coletivo" (Marks, Mathieu, & Zaccaro, 2001, p. 357). Por sua vez, os estados emergentes grupais descrevem os estados cognitivos, motivacionais e afetivos das equipas. Assim, enquanto os processos estão centrados nas ações e interações dos membros das equipas, os estados emergentes refletem condições relativamente estáveis que se desenvolveram com base em fatores como, por exemplo, a experiência passada da equipa. Os processos e os estados emergentes das equipas estão em constante interação, apresentando efeitos aditivos e multiplicativos não só entre si mas também nas várias facetas de eficácia (Bradley, Postlethwaite, Klotz, Hamdani, & Brown, 2012; Marks et al., 2001; Mathieu, Gilson, & Ruddy, 2006; Mathieu et al., 2008; Zhou & Wang, 2010).

Para acomodar este desenvolvimento conceptual, Ilgen et al. (2005) apresentaram o modelo *Input*-Mediador-*Output*-*Input* (IMOI). Com este modelo, os autores retiraram o foco da descrição das variáveis que podem mediar a relação entre *inputs* e *outputs*, presente nos modelos I-P-O, e direcionaram-no para o mecanismo (mediação), que pode assentar em processos, estados emergentes ou na interação entre processos e estados

emergentes. Adicionalmente, os *outputs* anteriores da equipa podem ainda funcionar como novos mediadores na relação entre *inputs* e *outputs* (Mathieu et al., 2008).

Relações entre constructos a diferentes níveis de abstração e de especificidade

Num nível de especificidade elevado, há uma multiplicidade de investigação que avalia relações entre *inputs*, processos, estados emergentes e *outputs* específicos (LePine et al., 2008). Por exemplo, Bradley et al. (2012) verificaram que o estado emergente de segurança psicológica das equipas, definido como a crença partilhada de que o clima da equipa é seguro para apresentar ideias e correr riscos, modera a relação entre o processo de conflito de tarefa e a dimensão de eficácia grupal de desempenho de tarefa. A atenção dada a processos e estados emergentes específicos contribuiu tanto para o conhecimento detalhado da rede nomológica de cada processo e estado emergente, como para a fragmentação do conhecimento em equipas e para a incapacidade de se apresentarem recomendações claras a líderes e membros de equipas (LePine et al., 2008). Nesse sentido, é também importante atentar nos níveis de abstração mais elevados. O estudo da estrutura dimensional e hierárquica dos processos grupais permite balançar uma análise fina das relações entre *inputs*, processos, estados emergentes e *outputs* específicos, com uma análise global das relações entre as várias componentes do funcionamento grupal.

A um nível intermédio de abstração e de acordo com a taxonomia dos processos grupais (LePine et al., 2008; Marks et al., 2001; Mathieu et al., 2006), as diferentes ações que as equipas executam agrupam-se em dez processos específicos, que se agregam para formar três processos intermédios (i.e., processos de transição, de ação e interpessoais), que por sua vez se agregam para formar um processo global da equipa. A análise da missão grupal, a especificação de objetivos e a formulação de uma estratégia

e de um plano de ação dão forma aos processos intermédios de transição. Estes processos de transição assentam tanto na reflexão e interpretação de atividades passadas como na preparação de atividades futuras. Os processos intermédios de ação refletem as atividades que ocorrem enquanto a equipa trabalha para atingir os seus objetivos. A monitorização do progresso feito em direção aos objetivos estabelecidos, a monitorização do sistema grupal e organizacional para garantir que a equipa tem o que precisa para trabalhar com vista a cumprir os seus objetivos, a monitorização de comportamentos de entreajuda e de cooperação, bem como a coordenação entre os diferentes membros da equipa constituem os processos específicos que dão forma aos processos intermédios de ação. Por fim, os processos interpessoais refletem as atividades de gestão das relações interpessoais. A gestão do conflito e das emoções que ocorre no contexto grupal e as atividades conducentes ao desenvolvimento e manutenção da motivação e da confiança na equipa relativamente ao alcance das suas metas e objetivos são os constituintes básicos dos processos interpessoais.

Embora alguns estudos sugiram que existe alguma variância única em cada processo grupal intermédio, que reflete as diferenças na capacidade de gerir, por exemplo, objetivos, trabalho cooperativo e relações (Mathieu et al., 2006); cada processo intermédio tende a refletir sobretudo a qualidade global das interações entre os membros de uma equipa (LePine et al., 2008). Por este motivo, os processos grupais de transição, de ação e interpessoais tendem a estar correlacionados fortemente, agrupando-se num fator global de qualidade dos processos grupais. Tanto estudos primários (e.g., Mathieu et al., 2006; Mathieu & Taylor, 2007) como estudos meta-analíticos (e.g., LePine et al., 2008) convergem na sustentação empírica desta estrutura hierárquica dos processos grupais.

A um nível de abstração superior, os processos e estados emergentes das equipas podem ser descritos por estádios desenvolvimentais discretos (Chang, Duck, & Bordia, 2006; Garfield & Dennis, 2013; Oliveira, Miguez, & Lourenço, 2005; Smith, 2001; Wheelan, 2005). Estes estádios representam configurações complexas de processos e estados emergentes que mudam ao longo do tempo. Embora existam centenas de modelos de desenvolvimento grupal (Kozlowski, 2015; ver capítulo 2), existe um reduzido número de investigações empíricas que validem a estrutura dimensional dos processos e estados emergentes a este nível de abstração (Ito & Brotheridge, 2008; Wheelan & Hochberger, 1996), bem como um reduzido número de estudos focados na relação entre estádios desenvolvimentais e eficácia grupal (Ericksen & Dyer, 2004; Mannix & Jehn, 2004).

O desenvolvimento contínuo dos modelos através da inclusão de novos constructos e de relações entre constructos ainda não consideradas

A taxonomia dos processos grupais (LePine et al., 2008; Marks et al., 2001; Mathieu et al., 2006) não engloba todos os processos de uma equipa. Um exemplo de um processo de nível intermédio que não se ajusta nos três processos já existentes (i.e., de transição, de ação e interpessoais) é a inovação (Mathieu et al., 2008). Os processos de inovação assentam numa estrutura hierárquica similar aos processos já incluídos na taxonomia de Marks et al. (2001). A criatividade e a implementação de inovações são os constituintes básicos dos processos de inovação (Somech & Drach-Zahavy, 2011; West, 2002). Durante os processos criativos as equipas geram ideias e soluções, que são novas e úteis (West, 2002; West, Hirst, Richter, & Shipton, 2004), "trabalhando em conjunto de forma a ligar ideias de múltiplas fontes, a mergulhar em áreas desconhecidas para encontrar soluções melhores ou únicas para um problema, ou a procurar novas formas

de executar uma tarefa" (Gilson & Shalley, 2004, p. 454). Durante os processos de implementação de inovações as equipas implementam as ideias criativas para tentarem atingir os seus objetivos (Klein & Knight, 2005; Klein & Sorra, 1996). Durante os processos de implementação os membros das equipas tornam-se "crescentemente competentes, consistentes e comprometidos com a utilização de uma inovação" (Klein & Sorra, 1996, p. 1057).

A compreensão dos processos de inovação das equipas carece de vários desenvolvimentos. Primeiro, embora os processos de inovação tenham sido teoricamente relacionados com a eficácia (Gilson, Mathieu, Shalley, & Ruddy, 2005; Janssen, Van De Vliert, & West, 2004) a sustentação empírica desta proposição é inconclusiva. Estudos empíricos que analisaram diretamente a relação entre inovação e eficácia encontraram somente relações reduzidas (e.g., Sarin & McDermott, 2003; Sung & Choi, 2012), enquanto estudos empíricos que analisaram indiretamente a relação encontraram resultados inconsistentes (Bain, Mann, & Pirola-Merlo, 2001; De Dreu, 2006; Somech, 2006). Segundo, embora a criatividade e a implementação de inovações tendam a estar correlacionadas, dando forma aos processos intermédios de inovação (Axtell et al., 2000; Somech & Drach-Zahavy, 2011), também apresentam, em alguns estudos, relações nulas ou negativas (Baer, 2012; Somech & Drach-Zahavy, 2011) e preditores específicos (Clegg, Unsworth, Epitropaki, & Parker, 2002; Farr, Sin, & Tesluk, 2003). Terceiro, embora seja comummente aceite que as equipas capazes de gerir eficazmente as suas transições entre tarefas, as suas ações e as relações entre os seus membros sejam mais capazes de iniciar processos de inovação (e.g., Drach-Zahavy & Somech, 2001; Gilson & Shalley, 2004; MacCurtain, Flood, Ramamoorthy, West, & Dawson, 2010; Marks et al., 2001; Tjosvold, Tang, & West, 2004), pouco se sabe

acerca do efeito de outras variáveis (e.g., liderança, estados emergentes grupais, competência individual para inovar) nesta relação.

A dimensão temporal nos modelos de funcionamento e de eficácia grupal

O tempo é globalmente aceite como um fator crítico para a compreensão do funcionamento grupal (Marks et al., 2001; McGrath, 1991; Roe, Gockel, & Meyer, 2012; Wheelan, 2005). A dimensão temporal tem sido incorporada no estudo do funcionamento das equipas maioritariamente através de duas abordagens: a abordagem desenvolvimental e a abordagem episódica (Mathieu & Gilson, 2012; Mathieu & Rapp, 2009). A abordagem desenvolvimental foca-se nas mudanças que ocorrem ao longo do tempo nos processos e estados emergentes das equipas e que podem ser descritas por estádios desenvolvimentais discretos (Chang et al., 2006; Garfield & Dennis, 2013; Smith, 2001; Wheelan, 2005). Investigadores que compararam os modelos de desenvolvimento grupal existentes verificaram que existe uma clara sobreposição conceptual entre modelos no que concerne ao número de estádios, às dimensões que cada estádio comporta e ao padrão relacional esperado entre os estádios desenvolvimentais e a eficácia grupal (e.g., Ito & Brotheridge, 2008; Kozlowski & Ilgen, 2006; Kuipers & Stoker, 2009; Miller, 2003; Smith, 2001; Wheelan, 2005). Contudo, a investigação empírica não tem acompanhado os desenvolvimentos teóricos, existindo reduzida investigação focada na validação dos modelos de desenvolvimento grupal e nas relações entre desenvolvimento grupal e eficácia de equipas (Kozlowski, 2015; Mannix & Jehn, 2004).

Por sua vez, a abordagem episódica sugere que as equipas executam processos diferentes em momentos diferentes, de forma cíclica e dependendo das exigências da tarefa (Marks et al., 2001). Cada episódio consiste na alternância entre fases focadas em

processos de transição, onde a equipa especifica os objetivos para a tarefa e produz um plano de trabalho, e fases focadas em processos de ação, onde a equipa trabalha cooperativamente, gere recursos e coordena o trabalho de cada membro. De acordo com a abordagem episódica, a gestão das relações interpessoais está presente em todas as fases de cada episódio.

A conceptualização multidimensional da eficácia grupal

De acordo com a conceptualização multidimensional da eficácia grupal (Beaudin & Savoie, 1995; Cohen, Ledford, & Spreitzer, 1996; Cropanzano et al., 2011; Lourenço, 2002; Mathieu & Gilson, 2012; Mathieu et al., 2008; Savoie & Beaudin, 1995; Sundstrom et al., 2000), são várias as facetas que podem caracterizar a eficácia das equipas. Por exemplo, Sundstrom et al. (2000) listaram mais de 20 facetas de eficácia grupal que foram estudadas nas décadas de 1980 e 1990. Vários autores (e.g., Cohen & Bailey, 1997; Gladstein, 1984; Hackman, 1987; Mathieu & Gilson, 2012; Savoie & Beaudin, 1995; Sundstrom et al., 1990) procuraram apresentar sistematizações, elaboradas a diferentes níveis de abstração, para organizar a multiplicidade de critérios de eficácia listada na literatura.

Cohen e Bailey (1997) categorizam a eficácia grupal como desempenho de tarefa (e.g., qualidade e quantidade de *outputs*, tempo de resposta, satisfação dos clientes), atitudes dos membros das equipas (e.g., satisfação dos membros das equipas, comprometimento com as tarefas) e comportamentos dos membros grupais (e.g., absenteísmo, *turnover*). Gladstein (1984) apresenta duas categorias de eficácia grupal: desempenho (e.g., rendimento das vendas) e satisfação (e.g., com a equipa, com o trabalho). Similarmente, Sundstrom et al. (1990) organizam a eficácia das equipas em dois critérios: desempenho de tarefa (e.g., qualidade do trabalho) e viabilidade (e.g.,

satisfação dos membros e vontade de continuarem a trabalhar em equipa). Hackman (1987), por sua vez, organiza a eficácia grupal em critérios de resultados de produção (dependentes do padrão de qualidade adotado pelo examinador do *output*), sociais (e.g., capacidade de membros trabalharem coletivamente no futuro) e pessoais (e.g., necessidades dos membros satisfeitas). Mathieu e Gilson (2012) apresentam duas formas globais de eficácia grupal: *outputs* tangíveis (e.g., produtividade, eficiência, qualidade do trabalho) e reações dos membros da equipa (e.g., estados emergentes das equipas, e atitudes, reações e comportamentos dos membros). Finalmente, Savoie e Beaudin (1995; ver também Savoie, Larivière, & Brunet, 2006) integram as diferentes facetas de eficácia grupal em cinco dimensões: social (e.g., satisfação, apoio no trabalho, desenvolvimento profissional), económica (e.g., eficiência, produtividade, cumprimento de objetivos), política (e.g., reputação da equipa, legitimidade da ação dos membros da equipa), perenidade (e.g., capacidade da equipa se adaptar a mudanças internas e externas) e inovação (e.g., número de inovações implementadas eficazmente).

Estas categorizações refletem diferentes formas de identificar, descrever, explicar e medir a eficácia grupal (Lourenço, Miguez, Gomes, & Freire, 2000). Primeiro, embora existam várias medidas extensamente validadas de *inputs*, processos e estados emergentes, que podem ser utilizadas com equipas pertencentes a diferentes contextos, as medidas de eficácia grupal tendem a ser específicas a um determinado contexto organizacional e idiossincráticas (Mathieu et al., 2008). Esta especificidade das medidas de eficácia reflete a tendência para considerar a eficácia de uma equipa como fortemente dependente do contexto e da atribuição de sentido feita por um avaliador aos resultados grupais. Segundo, tal como nos processos e estados emergentes, a conceptualização de eficácia pode beneficiar de análises a diferentes níveis de

abstração. Ao estruturarmos hierarquicamente as diferentes facetas de eficácia acedemos a diferente informação. Num nível reduzido de abstração, acedemos a informação específica relativamente a relações entre facetas e a redes nomológicas de cada faceta. Por exemplo, as várias dimensões específicas de eficácia tendem a apresentar as suas próprias propriedades e uma rede nomológica específica (Cohen et al., 1996; Cropanzano et al., 2011; Oetzel & Bolton-Oetzel, 1997; Priesemuth, Schminke, Ambrose, & Folger, 2014; Tyran & Gibson, 2008). Num nível elevado de abstração, ganhamos clarividência acerca da interdependência que existe entre as diferentes facetas de eficácia grupal (LePine et al., 2008). Terceiro, embora existam várias propostas de estruturação hierárquica das diferentes facetas de eficácia grupal, desconhecemos a existência de investigação empírica e meta-analítica que analise de que forma as mais de 20 facetas de eficácia se estruturam hierarquicamente.

Por fim, importa distinguir comportamentos de eficácia e resultados de eficácia (Beal, Cohen, Burke, & McLendon, 2003; Mathieu & Gilson, 2012). Os comportamentos refletem as ações que são relevantes para que se atinja determinado objetivo, enquanto os resultados refletem as consequências dos comportamentos de eficácia. Por exemplo, se olhamos para inovação enquanto um comportamento de eficácia grupal, centramo-nos nas ações que a equipa adota para criar e implementar ideias novas e úteis; se olhamos para inovação enquanto um resultado de eficácia centramo-nos no número de inovações implementadas eficazmente na equipa. Os comportamentos de eficácia acabam por refletir sobretudo processos grupais, não sendo por isso resultados de eficácia *per se* (Mathieu & Gilson, 2012). Contudo, medir comportamentos de eficácia permite atenuar as influências dos vários impedimentos de eficácia que não são controláveis pela equipa (e.g., condições económicas de um país) e

centrar a eficácia no ato de trabalhar (Beal et al., 2003). Por estes motivos, os processos e estados emergentes das equipas tentem a relacionarem-se mais fortemente com os comportamentos de eficácia grupal que com os resultados de eficácia (Beal et al., 2003; Gajendran & Joshi, 2012).

Abordagem integrada de funcionamento e eficácia grupal

Na Figura 1, baseando-nos sobretudo nos modelos de Ilgen et al. (2005) e de Mathieu et al. (2008), apresentamos um modelo de funcionamento e eficácia grupal que contempla os principais desenvolvimentos conceptuais efetuados aos modelos I-P-O de base. A Figura 1 assenta numa estrutura IMOI (*Input*, Mediador, *Output*, *Input*) que considera os desenvolvimentos conceptuais detalhados anteriormente. Primeiro, contempla as múltiplas variáveis críticas, a diferentes níveis de análise e considerando o seu papel interativo, que influenciam o funcionamento e a eficácia grupal. Segundo, os mediadores contemplam uma multiplicidade de variáveis que potencialmente explicam variância na eficácia das equipas, incluindo processos, estados emergentes e eficácias anteriores da equipa. Terceiro, o modelo inclui os diferentes níveis de abstração a que os constructos grupais podem ser analisados. Quarto, o modelo considera o tempo partindo tanto de uma perspetiva de ciclos episódicos (Marks et al., 2001) e de desenvolvimento grupal (Wheelan, 2005), como de uma perspetiva que considera *outputs* anteriores como novos *inputs* do funcionamento grupal (Ilgen et al., 2005). Quinto, o modelo assenta numa conceptualização multidimensional de eficácia que reconhece, uma vez mais, o valor de olhar para a eficácia grupal considerando as suas múltiplas identidades e níveis de abstração. Por fim, é um modelo aberto à inclusão de novos constructos (e.g., processos de inovação) e categorizações (e.g., diferentes categorizações para as múltiplas facetas de eficácia grupal).

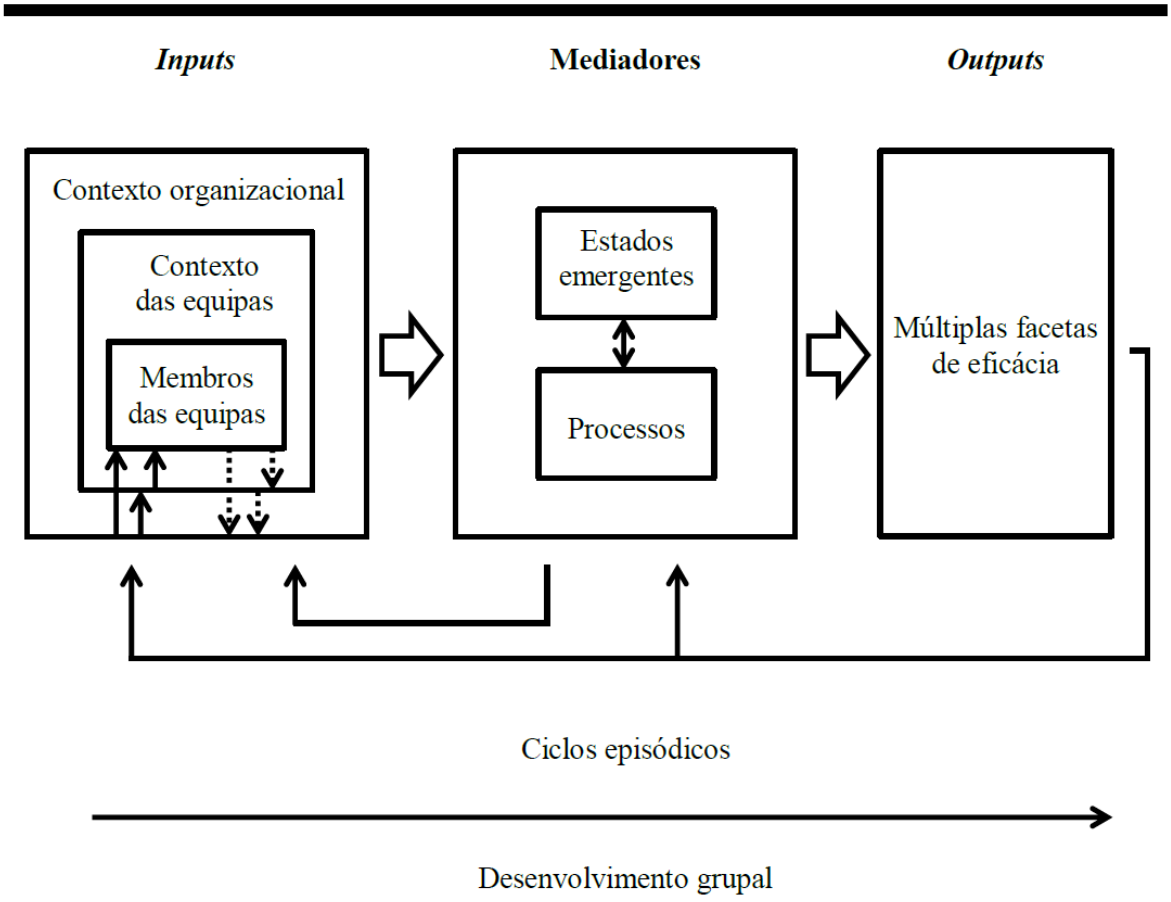

Figura 1. Abordagem IMOI (*Input*, Mediador, *Output*, *Input*) de funcionamento e eficácia grupal (adaptado de Ilgen et al., 2005 e de Mathieu et al., 2008).

A presente dissertação

Nesta dissertação procuramos contribuir para a literatura sobre processos e estados emergentes das equipas, bem como sobre eficácia grupal, olhando para diferentes níveis de abstração e especificidade. Nesse sentido, centramos os nossos estudos empíricos sobretudo nos mediadores (processos e estados emergentes das equipas), nos *outputs* e nas relações entre mediadores e *outputs* dos modelos IMOI (Ilgen et al., 2005; Mathieu et al., 2008). A questão de investigação que é transversal a todos os estudos apresentados é:

Como e quando é que os processos e os estados emergentes das equipas se relacionam entre si e com a eficácia grupal?

Os resultados da investigação desenvolvida no âmbito destes estudos de doutoramento encontram-se descritos nos capítulos 2, 3 e 4 desta dissertação. Nesses capítulos são apresentados três estudos independentes mas complementares, pelo que podem ser lidos tanto sequencialmente como isoladamente. Em cada capítulo focamo-nos em questões de investigação específicas, que foram elaboradas a partir do nosso propósito maior de melhor perceber as contingências e os mecanismos nas relações entre processos, estados emergentes e eficácia das equipas. Tratando-se de trabalhos científicos que envolveram esforços conjugados de vários autores, na presente dissertação, o pronome "nós/we" refere-se aos coautores específicos de cada capítulo e a mim próprio como um coletivo.

Capítulo 2: Development and validation of the Team Development Questionnaire. Neste capítulo, partindo de um nível de abstração elevado e tendo em consideração o fator tempo dos modelos de funcionamento e eficácia grupal, avaliamos configurações desenvolvimentais de processos e estados emergentes das equipas. Ao definirmos desenvolvimento grupal como as mudanças que ocorrem ao longo do tempo nos processos e estados emergentes das equipas e que podem ser descritas por estádios desenvolvimentais discretos (Chang et al., 2006; Garfield & Dennis, 2013; Smith, 2001; Wheelan, 2005), conceptualizamos e analisamos os processos e estados emergentes das equipas num dos níveis mais elevados de abstração ou amplitude possíveis. Com base nesta conceptualização, desenvolvemos dedutivamente e validámos uma medida de desenvolvimento grupal. Um conjunto alargado de testes indicou que a medida apresenta qualidades psicométricas apropriadas; que os estádios se relacionam, na

direção e magnitude esperadas, com um conjunto de processos e estados emergentes das equipas; e que os estádios explicam variância significativa em três facetas de eficácia grupal (viabilidade, desempenho extra papel e reputação).

Capítulo 3: Team processes and team innovation in call centers: The role of leaders' courage to go beyond compliance. Neste capítulo, partindo de um nível de abstração intermédio e considerando a necessidade de avaliar as relações entre os processos grupais já categorizados por Marks et al. (2001) e os processos de inovação (Mathieu et al., 2008), avaliamos quando e como processos grupais superordenados se relacionam com a implementação de inovações. Propomos que a criatividade grupal é um mecanismo relevante na relação entre processos de equipa e a implementação de inovações, mas só quando determinadas circunstâncias estão presentes. Com base na perspetiva interacionista dos processos de inovação (Woodman et al., 1993; Zhou & Hoever, 2014) e tendo em conta as características específicas dos *call centers* (Batt & Moynihan, 2002; Greenberg, 2010; Holman, 2003; Mulholland, 2002; Robinson & Morley, 2007; van den Broek, Barnes, & Townsend, 2008), teorizámos e encontrámos evidência empírica para o efeito moderador da coragem dos líderes para ir além dos requisitos obrigatórios nas relações entre processos grupais, criatividade e implementação de inovações. Quando os líderes vão além dos requisitos obrigatórios, as suas equipas tendem a ser capazes de ultrapassar a tensão entre a estandardização e a necessidade de inovar, existente nos *call centers*, recorrendo aos seus processos grupais para gerarem e implementarem ideias novas e úteis.

Capítulo 4: Innovation processes and team effectiveness: The role of goal clarity and commitment, and team affective tone. Nos capítulos 2 e 3 olhamos para processos e estados emergentes das equipas a partir de níveis de abstração elevados. Embora esta

abordagem nos permita retirar conclusões globais acerca das relações entre processos, estados emergentes e eficácia das equipas, também tende a mascarar relações específicas que podem existir entre alguns processos, estados emergentes e facetas de eficácia. Com o intuito de responder ao alerta de LePine et al. (2008), para a necessidade de avaliar as relações entre processos, estados emergentes e eficácia das equipas a diferentes níveis de abstração e especificidade, no capítulo 4 procuramos captar informação detalhada acerca do funcionamento interativo de processos e estados emergentes específicos. Assim, no quarto capítulo, partindo de um nível de abstração reduzido, ou de uma elevada especificidade, avaliamos em que medida dois estados emergentes das equipas (clareza e comprometimento com objetivos e tonalidade afetiva) moderam a relação entre processos de inovação e duas facetas de eficácia grupal (desempenho e reputação).

Capítulo 5: Discussão geral. Em cada capítulo apresentamos as contribuições teóricas, as limitações e as implicações práticas e de investigação relativas ao nível de abstração em que nos focámos, tendo em consideração as literaturas específicas que sustentaram as nossas hipóteses. Encerramos a dissertação com uma integração dos estudos, a qual tem em consideração o propósito maior de avaliar as relações entre processos, estados emergentes e facetas de eficácia a diferentes níveis de abstração e de especificidade, bem como o propósito de contribuir para o desenvolvimento conceptual dos modelos de funcionamento e eficácia grupal.

Referências bibliográficas

Amabile, T. M. (1997). Motivating creativity in organizations: On doing what you love and loving what you do. *California Management Review, 40*, 39-58.

Amabile, T. M., & Conti, R. (1999). Changes in the work environment for creativity during downsizing. *Academy of Management Journal, 42*, 630-640.

Axtell, C. M., Holman, D. J., Unsworth, K. L., Wall, T. D., Waterson, P. E., & Harrington, E. (2000). Shopfloor innovation: Facilitating the suggestion and implementation of ideas. *Journal of Occupational and Organizational Psychology, 73*, 265-285.

Baer, M. (2012). Putting creativity to work: The implementation of creative ideas in organizations. *Academy of Management Journal, 55*, 1102-1119.

Bain, P. G., Mann, L., & Pirola-Merlo, A. (2001). The innovation imperative: The relationships between team climate, innovation, and performance in research and development teams. *Small Group Research, 32*, 55-73.

Batt, R., & Moynihan, L. M. (2002). The viability of alternative call centre production models. *Human Resource Management Journal, 12*, 14-34.

Beal, D. J., Cohen, R. R., Burke, M. J., & McLendon, C. L. (2003). Cohesion and performance in groups: A meta-analytic clarification of construct relations. *Journal of Applied Psychology, 88*, 989-1004.

Beaudin, G., & Savoie, A. (1995). L'efficacité des equipes de travail: définition, composantes et mesures. *Revue Québequoise de Psychologie, 16*, 185-201.

Bradley, B. H., Postlethwaite, B. E., Klotz, A. C., Hamdani, M. R., & Brown, K. G. (2012). Reaping the benefits of task conflict in teams: The critical role of team psychological safety climate. *Journal of Applied Psychology, 97*, 151-158.

Chang, A., Duck, J., & Bordia, P. (2006). Understanding the multidimensionality of group development. *Small Group Research, 37*, 327-350.

Clegg, C., Unsworth, K., Epitropaki, O., & Parker, G. (2002). Implicating trust in the innovation process. *Journal of Occupational and Organizational Psychology, 75*, 409-422.

Cohen, S. G., & Bailey, D. E. (1997). What makes teams work: Group effectiveness research from the shop floor to the executive suite. *Journal of Management, 23*, 239-290.

Cohen, S. G., Ledford, G. E., & Spreitzer, G. M. (1996). A predictive model of self-managing work team effectiveness. *Human Relations, 49*, 643-676.

Cropanzano, R., Li, A., & Benson, L. (2011). Peer justice and teamwork process. *Group & Organization Management, 36*, 567-596.

De Dreu, C. K. W. (2006). When too little or too much hurts: Evidence for a curvilinear relationship between task conflict and innovation in teams. *Journal of Management, 32*, 83-107.

Devine, D. J., Clayton, L. D., Philips, J. L., Dunford, B. B., & Melner, S. B. (1999). Teams in organizations: Prevalence, characteristics, and effectiveness. *Small Group Research, 30*, 678-711.

Drach-Zahavy, A., & Somech, A. (2001). Understanding team innovation: The role of team processes and structures. *Group Dynamics: Theory, Research, and Practice, 5*, 111-123.

Ericksen, J., & Dyer, L. (2004). Right from the start: Exploring the effects of early team events on subsequent project team development and performance. *Administrative Science Quarterly, 49*, 438-471.

Farr, J. L., Sin, H.-P., & Tesluk, P. E. (2003). Knowledge management processes and work group innovation. In L. V. Shavinina (Ed.), *The international handbook on innovation* (pp. 574-586). New York: Elsevier Science.

Gajendran, R. S., & Joshi, A. (2012). Innovation in globally distributed teams: The role of LMX, communication frequency, and member influence on team decisions. *Journal of Applied Psychology, 97*, 1252-1261.

Garfield, M. J., & Dennis, A. R. (2013). Toward an integrated model of group development: Disruption of routines by technology-induced change. *Journal of Management Information Systems, 29*, 43-86.

Gilson, L. L., Mathieu, J. E., Shalley, C. E., & Ruddy, T. M. (2005). Creativity and standardization: Complementary or conflicting drivers of team effectiveness? *Academy of Management Journal, 48*, 521-531.

Gilson, L. L., & Shalley, C. E. (2004). A little creativity goes a long way: An examination of teams' engagement in creative processes. *Journal of Management, 30*, 453-470.

Gladstein, D. L. (1984). Groups in context: A model of task group effectiveness. *Administrative Science Quarterly, 29*, 499-517.

Greenberg, P. (2010). *Customer relationship management*. New York: McGraw-Hill.

Hackman, J. R. (1987). The design of work teams. In J. W. Lorsch (Ed.), *Handbook of organizational behavior* (pp. 315-342). Englewood Cliffs, NJ: Prentice-Hall.

Hackman, J. R., & Morris, C. G. (1975). Group tasks, group interaction processes, and group performance effectiveness: A review and proposed integration. *Advances in Experimental Social Psychology, 8*, 45-99.

Holman, D. (2003). Call centres. In D. Holman, T. D. Wall, C. W. Clegg, P. Sparrow, & A. Howard (Eds.), *The new workplace: A guide to the human impact of modern working practices* (pp. 115-134). Sussex: John Wiley & Sons.

Ilgen, D. R., Hollenbeck, J. R., Johnson, M., & Jundt, D. (2005). Teams in organizations: From Input-Process-Output models to IMOI models. *Annual Review of Psychology, 56*, 517-543.

Ito, J. K., & Brotheridge, C. M. (2008). Do teams grow up one stage at a time? Exploring the complexity of group development models. *Team Performance Management, 14*, 214-232.

Janssen, O., Van De Vliert, E., & West, M. (2004). The bright and dark sides of individual and group innovation: A special issue introduction. *Journal of Organizational Behavior, 25*, 129-145.

Klein, K. J., & Knight, A. P. (2005). Innovation implementation: Overcoming the challenge. *Current Directions in Psychological Science, 14*, 243-246.

Klein, K. J., & Sorra, J. S. (1996). The challenge of innovation implementation. *Academy of Management Review, 21*, 1055-1080.

Kozlowski, S. W. J. (2015). Advancing research on team process dynamics: Theoretical, methodological, and measurement considerations. *Organizational Psychology Review*. Advance online publication.

Kozlowski, S. W. J., & Bell, B. S. (2003). Work groups and teams in organizations. In W. C. Borman, D. R. Ilgen, & R. J. Klimoski (Eds.), *Handbook of psychology: Vol. 12. Industrial and organizational psychology* (pp. 333-376). Hoboken, NJ: Wiley.

Kozlowski, S. W. J., & Ilgen, D. R. (2006). Enhancing the effectiveness of work groups and teams. *Psychological Science in the Public Interest, 7*, 77-124.

Kuipers, B. S., & Stoker, J. I. (2009). Development and performance of self-managing work teams: A theoretical and empirical examination. *The International Journal of Human Resource Management, 20*, 399-419.

LePine, J. A., Piccolo, R. F., Jackson, C. L., Mathieu, J. E., & Saul, J. R. (2008). A meta-analysis of teamwork processes: Tests of a multidimensional model and relationships with team effectiveness criteria. *Personnel Psychology, 61*, 273-307.

Lourenço, P. R. (2002). *Conceções e dimensões da eficácia grupal: desempenho e níveis de desenvolvimento* (Dissertação de Doutoramento não publicada). Faculdade de Psicologia e de Ciências da Educação da Universidade de Coimbra, Coimbra, Portugal.

Lourenço, P. R., Miguez, J., Gomes, A. D., & Freire, P. (2000). Equipas de trabalho: eficácia ou eficácias. In A. D. Gomes, A. Caetano, J. Keating, & M. P. Cunha (Eds.), *Organizações em transição: contributos da Psicologia do Trabalho e das Organizações* (pp. 77-86). Coimbra: Imprensa da Universidade de Coimbra.

MacCurtain, S., Flood, P. C., Ramamoorthy, N., West, M. A., & Dawson, J. F. (2010). The top management team, reflexivity, knowledge sharing and new product performance: A study of the Irish software industry. *Creativity and Innovation Management, 19*, 219-232.

Mannix, E., & Jehn, K. A. (2004). Let's norm and storm, but not right now: Integrating models of group development and performance. In E. Mannix, M. Neale, & S. Blount (Eds.), *Research on managing groups and teams: Temporal issues* (Vol. 6, pp. 11-37). New York: Elsevier.

Marks, M. A., Mathieu, J. E., & Zaccaro, S. J. (2001). A temporally based framework and taxonomy of team processes. *Academy of Management Review, 26*, 356-376.

Mathieu, J. E., & Gilson, L. (2012). Criteria issues and team effectiveness. In S. W. J. Kozlowski (Ed.), *Oxford handbook of industrial and organizational psychology* (pp. 910-930). London: Oxford Press.

Mathieu, J. E., Gilson, L. L., & Ruddy, T. M. (2006). Empowerment and team effectiveness: An empirical test of an integrated model. *Journal of Applied Psychology, 91*, 97-108.

Mathieu, J. E., Heffner, T. S., Goodwin, G. F., Salas, E., & Cannon-Bowers, J. A. (2000). The influence of shared mental models on team process and performance. *Journal of Applied Psychology, 85*, 273-283.

Mathieu, J. E., Maynard, M. T., Rapp, T., & Gilson, L. (2008). Team effectiveness 1997-2007: A review of recent advancements and a glimpse into the future. *Journal of Management, 34*, 410-476.

Mathieu, J. E., & Rapp, T. L. (2009). Laying the foundation for successful team performance trajectories: The roles of team charters and performance strategies. *Journal of Applied Psychology, 94*, 90-103.

Mathieu, J. E., & Taylor, S. R. (2007). A framework for testing meso-mediational relationships in organizational behavior. *Journal of Organizational Behavior, 28*, 141-172.

McGrath, J. E. (1964). *Social psychology: A brief introduction*. New York: Holt.

McGrath, J. E. (1984). *Groups: Interaction and performance*. Englewood Cliffs, NJ: Prentice-Hall.

McGrath, J. E. (1991). Time, interaction, and performance (TIP): A theory of groups. *Small Group Research, 22*, 147-174.

McGrath, J. E., Arrow, H., & Berdahl, J. L. (2000). The study of groups: Past, present, and future. *Personality and Social Psychology Review, 4*, 95-105.

Miller, D. L. (2003). The stages of group development: A retrospective study of dynamic team processes. *Canadian Journal of Administrative Sciences, 20*, 121-134.

Mulholland, K. (2002). Gender, emotional labour and teamworking in a call centre. *Personnel Review, 31*, 283-303.

Oetzel, J. G., & Bolton-Oetzel, K. (1997). Exploring the relationship between self-construal and dimensions of group effectiveness. *Management Communication Quarterly, 10*, 289-315.

Oliveira, J. C., Miguez, J., & Lourenço, P. R. (2005). O desenvolvimento dos grupos: A questão da sequencialidade. *Boletim SPEF, 30/31*, 121-131.

Priesemuth, M., Schminke, M., Ambrose, M. L., & Folger, R. (2014). Abusive supervision climate: A multiple-mediation model of its impact on group outcomes. *Academy of Management Journal, 57*, 1513-1534.

Robinson, G., & Morley, C. (2007). Running the electronic sweatshop: Call centre managers' views on call centres. *Journal of Management & Organization, 13*, 249-263.

Roe, R. A., Gockel, C., & Meyer, B. (2012). Time and change in teams: Where we are and where we are moving. *European Journal of Work and Organizational Psychology, 21*, 629-656.

Sarin, S., & McDermott, C. (2003). The effect of team leader characteristics on learning, knowledge application, and performance of cross-functional new product development teams. *Decision Sciences, 34*, 707-739.

Savoie, A., & Beaudin, G. (1995). Les équipes de travail: que faut-il en connaitre? *Psychologie du travail et des organizations, 1*, 116-137.

Savoie, A., Larivière, C., & Brunet, L. (2006). Équipes de travail en milieu de santé et efficacité. *Objectif Prévention, 29*, 20-21.

Schneider, B. (1987). The people make the place. *Personnel Psychology, 40*, 437-453.

Smith, G. (2001). Group development: A review of the literature and a commentary on future research directions. *Group Facilitation, 3*, 14-45.

Somech, A. (2006). The effects of leadership style and team process on performance and innovation in functionally heterogeneous teams. *Journal of Management, 32*, 132-157.

Somech, A., & Drach-Zahavy, A. (2011). Translating team creativity to innovation implementation: The role of team composition and climate for innovation. *Journal of Management, 39*, 684-708.

Sundstrom, E., De Meuse, K. P., & Futrell, D. (1990). Work teams: Applications and effectiveness. *American Psychologist, 45*, 120-133.

Sundstrom, E., McIntyre, M., Halfhill, T., & Richards, H. (2000). Work groups: From the Hawthorne studies to work teams of the 1990s and beyond. *Group Dynamics: Theory, Research, and Practice, 4*, 44-67.

Sung, S. Y., & Choi, J. N. (2012). Effects ofteam knowledge management on the creativity and financial performance of organizational teams. *Organizational Behavior and Human Decision Processes, 118*, 4-13.

Tjosvold, D., Tang, M. M. L., & West, M. A. (2004). Reflexivity for team innovation in China: The contribution of goal interdependence. *Group & Organization Management, 29*, 540-559.

Tyran, K. L., & Gibson, C. B. (2008). Is what you see, what you get?: The relationship among surface- and deep-level heterogeneity characteristics, group efficacy, and team reputation. *Group & Organization Management, 33*, 46-76.

van den Broek, D., Barnes, A., & Townsend, K. (2008). 'Teaming up': Teams and team sharing in call centres. *Journal of Industrial Relations, 50*, 257-269.

West, M. A. (2002). Sparkling fountains or stagnant ponds: An integrative model of creativity and innovation implementation in work groups. *Applied Psychology: An International Review, 51*, 355-424.

West, M. A., Hirst, G., Richter, A., & Shipton, H. (2004). Twelve steps to heaven: Successfully managing change through developing innovative teams. *European Journal of Work and Organizational Psychology, 13*, 269-299.

Wheelan, S. A. (2005). *Group processes: A developmental perspective* (2nd ed.). Boston: Allyn & Bacon.

Wheelan, S. A., & Hochberger, J. M. (1996). Validation studies of the Group Development Questionnaire. *Small Group Research, 27*, 143-170.

Woodman, R. W., Sawyer, J. E., & Griffin, R. W. (1993). Toward a theory of organizational creativity. *Academy of Management Review*, 18, 293-321.

Zhou, J., & Hoever, I. J. (2014). Research on workplace creativity: A review and redirection. *Annual Review of Organizational Psychology and Organizational Behavior, 1*, 333-359.

Zhou, Y., & Wang, E. (2010). Shared mental models as moderators of team process-performance relationships. *Social Behavior and Personality: An International Journal, 38*, 433-444.

CAPÍTULO 2

Development and validation of the Team Development Questionnaire[1]

Abstract

This article describes the development and validation of a theory-based measure of team development. Drawing on three independent samples, including multisource and two-wave data, we found support for the scale's theoretical multidimensionality. Convergent and discriminant validity was established, and criterion-related validity was determined through the scale's relation with three facets of team effectiveness: viability, extra-role performance and reputation. We conclude that the 29-item measure is valid and reliable for the assessment of team development. Theoretically, we shed light on the dimensionality of team development and extend its nomological network. Practical implications for enhancing team effectiveness via team development are discussed.

Keywords: team development; measurement; team effectiveness; team processes; team emergent states

Introduction

The idea that teams are dynamic entities developing over time is well documented and empirically supported (Chang, Bordia, & Duck, 2003; Cissna, 1984; Garfield & Dennis, 2013; Mathieu & Rapp, 2009; Miller, 2003; Morgan, Salas, & Glickman, 1993; Oliveira, Miguez, & Lourenço, 2005; Smith, 2001; Tuckman & Jensen, 1977; Wheelan, Davidson, & Tilin, 2003). During team development, team processes, emergent states

[1] This chapter is based on: Peralta, C. F., Lourenço, P. R., Lopes, P. N., Baptista, C., & Pais, L. Development and validation of the Team Development Questionnaire. First Revise & Resubmit at *European Journal of Work and Organizational Psychology*. The chapter follows the author's guidelines of the journal.

and even characteristics such as knowledge sharing and cohesion change (Chang, Duck, & Bordia, 2006; Kuipers & Stoker, 2009). These changes can be described by fairly distinct stages of team development (Chang et al., 2006; Miller, 2003; Wheelan, 2005). Teams at a given development stage tend to reveal a common pattern of actions and behaviors related to tasks and relationships, and a similar level of effectiveness (Agazarian & Gantt, 2003; Garfield & Dennis, 2013; Smith, 2001; Wheelan, 2005). Teams functioning at the higher stages of development tend to be more productive and to have healthier and more satisfied members (Jacobsson, Rydbo, & Börresen, 2014; Kuipers & Stoker, 2009; Wheelan & Hochberger, 1996).

Although researchers generally agree that teams develop over time and that team development is important for effectiveness, several conceptual and methodological challenges remain. First, there are hundreds of team development models and still no consensus regarding the definition and measurement of team development (Chang et al., 2006; Kozlowski, 2015). Definitions vary in terms of context specificity, population generalizability and normativity of development patterns (Chang et al., 2006), limiting the consistency of the team development construct across studies. Second, because research on team development has been mainly focused on the development process in itself, only scant research has looked at issues of effectiveness and relationships between team development and related constructs (Ericksen & Dyer, 2004; Mannix & Jehn, 2004). As such, there is still limited knowledge on the nomological network of team development. Third, existing measures of team development, such as the Group Development Questionnaire (Wheelan & Hochberger, 1996) and the Group Development Assessment (Jones & Bearley, 2001), have several shortcomings, such as low reliabilities (below .60), inconsistent empirical support for the expected number of

development stages, difficulties in disentangling task and interpersonal dimensions of each team development stage, and little evidence of construct validity (Ito & Brotheridge, 2008; Wheelan & Hochberger, 1996). Establishing a comprehensive nomological network for team development requires better measures of team development.

The purpose of this article is to define this construct so as to guide future research and thereby also to develop a valid and reliable measure of team development. Drawing on current integrative approaches to team development, we define team development as the changes in team processes and emergent states that occur over time and can be described by discrete developmental stages (Chang et al., 2006; Garfield & Dennis, 2013; Smith, 2001; Wheelan, 2005). Second, we develop a theory-based multidimensional measure of team development consisting of 29 items, which can be administered to teams, team leaders and single team members. Following the recommendations of the literature on scale development (e.g., DeVellis, 2003; Ferris, Brown, Berry, & Lian, 2008; Furr, 2011; Hinkin, 1995, 1998), we perform an extensive array of tests to validate this measure. Finally, we conclude with implications for the use of this measure in research on team development.

This article contributes to the literature on teams in several ways. First, in keeping with an integrated approach to team development, it establishes a definition of team development that considers not only the developmental stages but also the task and interpersonal dimensions of each stage. It is theoretically accepted that separating task and interpersonal dimensions of team development, processes and emergent states is important, and that each dimension explains unique variance in different facets of team effectiveness (Carless & De Paola, 2000; Marks, Mathieu, & Zaccaro, 2001; Smith,

2001). Nonetheless, to the best of our knowledge, there is no team development measure that captures this distinction validly and reliably. Second, using data from three major samples and two countries, we answer calls for empirical research addressing the description of team development stages. As argued by Kozlowski (2015, p. 16), "there are many theories of team development. However, good, large sample, diverse team descriptive research is lacking." Moreover, a reliable and valid tool for use in empirical research is lacking. In this article we aim to provide such a tool. Third, considering the limited nomological network of team development (Ericksen & Dyer, 2004; Mannix & Jehn, 2004), we extend available knowledge on relationships with other constructs. In the section of convergent and discriminant validity, we examine relationships with team processes and emergent states that are expected to define each developmental stage. In criterion-related validity analyses, we look at issues of team effectiveness.

Team Development

Teams are dynamic entities of two or more interdependent individuals who work together toward common goals (Cohen & Bailey, 1997; Kozlowski & Bell, 2003). Although several development models are available to explain the changes that occur over time in teams, most of them can be subsumed under two main approaches (Chang et al., 2003; Garfield & Dennis, 2013; Seers & Woodruff, 1997): the integrated stage approach and the punctuated equilibrium approach. The integrated stage approach by and large focuses on the temporal changes in team processes and emergent states that occur along both task and interpersonal-related dimensions, whereas the punctuated equilibrium approach tends to look at more macro issues such as time awareness, and pacing and task activities (Bonebright, 2010; Chang et al., 2003). In addition, the integrated stage approach describes the development of all types of teams, whereas the

punctuated equilibrium approach is particularly focused on project teams with a limited time span (Chang et al., 2003, 2006). Because we are interested in developing a measure that captures changes in team processes and emergent states, and that can be used with any type of team, we draw upon the integrated stage approach.

Based on this approach, we define team development as the changes in team processes and emergent states that occur over time in a team. These can be usefully described as shifts between well-defined developmental stages (Chang et al., 2006; Garfield & Dennis, 2013; Smith, 2001; Wheelan, 2005). Over time, teams go through a series of stages as members seek to change their interaction and action patterns (team processes) and their cognitive, motivational and affective states (emergent states; Marks et al., 2001; Mathieu & Rapp, 2009). Each stage of team development encompasses both task and interpersonal dimensions (Jones & Bearley, 2001; Morgan et al., 1993; Smith, 2001; Tuckman, 1965; Wheelan, 2005). Whereas the task dimension reflects the processes and emergent states that occur as team members work together toward common goals, the interpersonal dimension reflects the processes and emergent states focused on the management of interpersonal relationships (Marks et al., 2001; Morgan et al., 1993). Although teams tend to reveal a dominant stage at any time point, they may also reveal characteristics of other stages to some extent (Agazarian, 1999; Agazarian & Gantt, 2003; Ito & Brotheridge, 2008; Smith, 2001). Although teams tend to reveal task and interpersonal dimensions characteristic of a single stage, they may also reveal dimensions characteristic of different stages at any one point in time (Ito & Brotheridge, 2008; Jones & Bearley, 2001).

The integrated approach builds on several team development models to explain how development stages are inter-related. For example, consistent with the linear

models (e.g., Tuckman, 1965; Tuckman & Jensen, 1977) teams may follow a sequential pattern between stages, moving from one stage to another when certain issues are satisfactorily solved. However, in line with cyclical models (e.g., Hare, 1973; Karriker, 2005) teams may also revisit past stages to readapt to changes or may even jump stages if issues associated with a stage are already solved. Although there are different accounts of transitions and relationships between stages, researchers who compared different stage models found striking underlying conceptual similarities regarding the number of stages, the dimensions that each stage encompasses, and the relationships of each stage with outcomes (e.g., Ito & Brotheridge, 2008; Kozlowski & Ilgen, 2006; Kuipers & Stoker, 2009; Miller, 2003; Smith, 2001; Wheelan, 2005). Stages of development can therefore be viewed as configurations of team processes and emergent states that occur frequently and represent "attractors" in complex dynamics of change over time. From this perspective, the term "development" does not necessarily imply improvement over time, although many teams do evolve towards more efficient processes as they mature.

Most stage models suggest that ongoing teams move through four stages, that each stage encompasses both task and interpersonal-related dimensions, and that developed teams are more likely to be effective than teams in early stages of development (Kozlowski & Ilgen, 2006; Miller, 2003; Smith, 2001; Tuckman, 1965; Tuckman & Jensen, 1977; Wheelan, 2005; Wheelan & Hochberger, 1996). Disentangling task and interpersonal dimensions of each stage is of key importance for theoretical and applied purposes. Previous research found that task and interpersonal dimensions of the same construct frequently have different relationships with criteria, are subject to different contextual influences and require different forms of interventions

(Beal, Cohen, Burke, & McLendon, 2003; Buzaglo & Wheelan, 1999; Ito & Brotheridge, 2008; Jehn, Greer, Levine, & Szulanski, 2008). As such, it is important to evaluate not only the team's development stage, but also the task and interpersonal dimensions of each stage.

Based on the integrative stage approach (e.g., Bonebright, 2010; Garfield & Dennis, 2013; Kozlowski & Ilgen, 2006; Oliveira et al., 2005; Smith, 2001; Wheelan, 2005), the stages of team development (1 to 4) can be labeled as: dependency, counterdependency, work restructuring and performing with regard to the task dimension; and inclusion, fight, interpersonal restructuring and functional interaction with regard to the interpersonal dimension (see Figure 1). In the following paragraphs we describe the prototypical characteristics of each stage and dimension of team development.

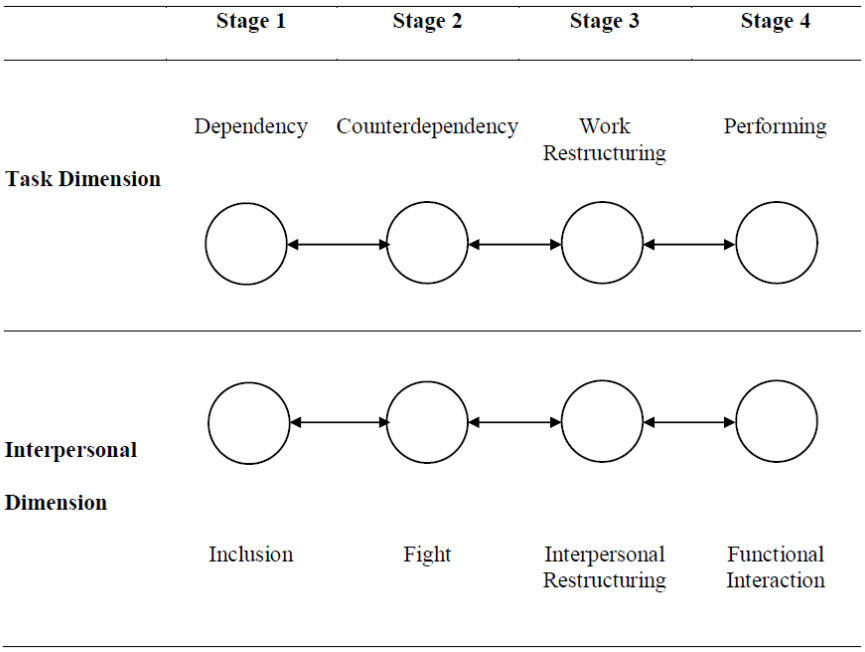

Figure 1. An overarching model of team development. According to the integrated approach to team development, all dimensions and stages may be interrelated. For the sake of clarity, we depict only relationships between proximal stages.

Starting with the task dimension of stage 1, team members try to understand the boundaries of the task and their role in the team and expected contribution to task accomplishment. Because members feel insecure about their role in the team, they tend to rely on leaders' instructions and to passively accept their decisions regarding work. With regard to the interpersonal dimension of the first stage, team members try to get to know each other, experiencing a mix of anxiety and excitement. However, their interactions tend to be cautious and superficial because they do not know exactly what to expect from others and are still learning what they can and cannot express.

Turning to the task dimension of stage 2, team members question and challenge the leader's competence and the distribution of work. Attempts to define rules and goals cause tension and task conflict between team members and between members and the leader. At the interpersonal level, team members affirm and fight for their individuality by accentuating individual differences and establishing alliances with members perceived as similar. A hostile climate emerges, with team members often clashing with one another and experiencing negative emotions.

In stage 3, teams begin to communicate more openly, to renegotiate roles and resolve differences constructively, to establish collectively norms for the team, and to discuss and find more efficient ways to achieve objectives. Regarding the task dimension, teams direct more energy and effort toward the assigned work, by establishing a structure to support team goals, discussing different perspectives about the task and integrating the contributions of each member. At the interpersonal level, team members begin to accept others' idiosyncrasies, collectively establish norms clarifying which behaviors are acceptable and unacceptable, and build interactions based on trust.

At the task dimension of stage 4, members' efforts and energy are truly channeled into the task. Team members search for new ways of solving work problems and use the competencies of each member to enhance the effectiveness of the team. They reflect on their decisions and on previously established rules and roles and adjust these if needed in order to improve. At the interpersonal level, there is a friendly environment of trust, openness and interdependence that benefits the team and all its members.

Lastly, for temporary teams, there is a termination stage, when the team disbands. Following others' recommendations (e.g., Wheelan & Hochberger, 1996), we did not measure this stage to keep the instrument focused only on ongoing teams.

The Present Study

To create a reliable and valid measure of team development, we followed the recommended steps for scale development and validation (DeVellis, 2003; Furr, 2011; Hinkin, 1995, 1998) and subjected the scale to an extensive array of tests. In Phase 1, we generated an initial pool of potential items, and then reduced and refined these to end up with a 29-item scale capturing the eight theoretical dimensions of team development. In Phase 2, we evaluated psychometric properties of the measure: (a) dimensionality, by means of confirmatory factor analyses; (b) reliabilities; (c) measurement invariance across language, sample type and time; (d) temporal stability; and (e) aggregation to the team level. In Phase 3 we examined convergent and discriminant validity with regard to a total of 18 variables. Finally, in Phase 4, we assessed criterion validity with regard to three facets of team effectiveness: viability, extra-role performance, and reputation. To ensure generalizability, we replicated and cross-validated the results reported in Phases 2 through 4 using three complementary samples (single team members, team leaders and aggregated data from multiple team

members) from the USA and Portugal, including a variety of occupations and organizations.

Because team development is a time-dependent phenomenon, we validated our measure using two complementary approaches: the differential approach and the temporal approach (Roe, Gockel, & Meyer, 2012). According to the differential approach, teams differ with regard to their developmental stages, processes and emergent states. Using this variance-driven approach, we undertook three types of analyses. First, we evaluated how items group together to form dimensions and how different developmental dimensions are interrelated (see the psychometric properties section). Second, we evaluated how each dimension of team development relates to similar and dissimilar constructs (see the convergent and discriminant validity section). Third, we evaluated the extent to which each developmental dimension explains variance in team effectiveness (see the criterion validity section).

In contrast, the temporal approach is focused on how team development unfolds over time and on how these changes relate to other variables. Using this approach, we investigated whether changes in team development over one month, influence related constructs (convergent and discriminant validity) and team effectiveness (criterion validity). In keeping with the suggestions of Li and Roe (2012), analyses based on the differential approach were performed using data from all the samples, whereas analyses based on the temporal approach relied on data from a two-wave sample.

We collected data from three independent samples. In samples 1 and 2, using the key informant methodology (Kumar, Stern, & Anderson, 1993), either a single team member (in Sample 1) or the team leader (Sample 2) completed the questionnaire. In

Sample 3, at least two members of each team completed the questionnaire and data were aggregated to the team level.

These three samples complement each other in several ways. First, the use of two diverse samples (Samples 1 and 3) supports the generalization of findings to different organizations and occupations in Portugal and the USA. Second, the use of a homogeneous sample (call center team leaders; Sample 2) helps to validate the TDQ in a specific work context. Third, sampling diverse teams encompassing different stages of development ensures adequate variance between groups, required to conduct validation analyses based on the differential approach. Also, the use of a two-wave design (Sample 1) allowed validation analyses using the temporal approach. Fourth, collecting data from single team members (Sample 1), team leaders (Sample 2) and at least two team members (aggregated, Sample 3) helps to evaluate the TDQ in different research designs (in contrast to previous research, which generally relied only on key informants or data aggregated across multiple team members). Team leaders are able to evaluate their teams' development, processes and emergent states because they have ample opportunities to observe members interacting and working together, and have privileged access to information about the team as a whole (e.g., Gilson & Shalley, 2004; Jehn et al., 2008). Team members are expected to share homogeneous perceptions of team development, processes and emergent states because they interact with each other and work together on a regular basis (e.g., Aubé & Rousseau, 2005; Zhang, Waldman, & Wang, 2012). There is also ample evidence for the accurateness of single member assessments (e.g., Kumar et al., 1993; Wheelan & Hochberger, 1996) of team development, processes and emergent states. Note that for all three samples, additional

data were collected from the same participants for separate studies addressing different research questions and using a different set of variables.

Phase 1: Item Generation and Reduction

Existing theoretical models provide a solid foundation for identifying and mapping dimensions of team development. In fact, most theoretical models of the stage approach posit similar dimensions of team development (Arrow, Poole, Henry, Wheelan, & Moreland, 2004; Kozlowski & Ilgen, 2006; Kuipers & Stoker, 2009; Miller, 2003; Oliveira et al., 2005; Smith, 2001; Wheelan & Hochberger, 1996). Therefore we followed a deductive approach to item generation (Hinkin, 1995, 1998). Scales developed using this approach tend to be more generalizable across cultures, have more stable factorial structures and reveal greater content validity (Hinkin, 1998; Riordan & Vandenberg, 1994). As such, the use of the deductive approach is fully aligned with our goal of developing a theory-driven, valid and reliable measure of team development.

Based on a review of the literatures on team development, team processes and team emergent states, we identified the defining aspects of the task and interpersonal dimensions of each stage of team development. Then we generated 40 items to map those aspects (4 stages x 2 dimensions x 5 items). These items were then screened by a panel of experts, composed of three of the authors and two external team development experts (Costa & Anderson, 2011; DeVellis, 2003; Furr, 2011; Hinkin, 1998). Screening criteria included: 1) applicability and relevance to the team context; 2) content validity, or the extent to which the items reflected and fully represented each team development stage and dimension; 3) singularity and identification, or the extent to which each item measured only the corresponding aspect of team development; 4) non-redundancy of

item content; and 5) comprehensibility, clarity and wording of the items. Experts independently read all the items and identified those they deemed problematic, justifying their choices. Items were retained only when experts approved them unanimously, in keeping with the extant literature (e.g., Costa & Anderson, 2011; Miller, 2003) and the goal of preventing problems in subsequent phases of scale development and validation (DeVellis, 2003). During this process, 11 items were eliminated because they were flagged by at least one expert as not meeting one or more criteria. Therefore the first version of the measure was composed of 29 items.

To further ensure content validity, we then confirmed that the retained items still captured the defining aspects of each team development dimension fully. To further ensure face validity and clarity, these items were presented to a group of four team members and to a group of two team leaders in a pilot study. These checks did not suggest additional revisions. The scale items and the main theoretical sources from which they derive are presented in the Appendix.

We used the expression "group/team" in some items for three reasons. First, a team is a goal-oriented group that shares processes, emergent states and characteristics with groups (Ancona & Caldwell, 1992; Karriker, 2005). As such, both terms can be used interchangeably. Second, the exclusive use of the term "group" or "team" could bias responses on items focused on development stages, because people may perceive and attribute different characteristics to teams and groups (Fisher, Hunter, & Macrosson, 1997). Third, the exclusive use of one term could bias responses in some settings, because the attributions may vary across occupations. For example, these terms may have somewhat different connotations in sports and work settings.

In sum, the careful procedure used for generating and selecting items ensured the content and face validity of the TDQ.

Phase 2: Psychometric Properties of the Scale

In phase 2 we evaluated: 1) the dimensionality of the scale; 2) the reliability of each dimension; 3) measurement invariance across language, sample type and time; 4) the stability of scale scores over time; and 5) within-team consensus and between-team discriminant power for each dimension.

In line with previous work (e.g., Ito & Brotheridge, 2008; Miller, 2003; Wheelan & Hochberger, 1996), we measured all stages and dimensions at the same time: all stages may be evident at any point in time, although they manifest themselves to different extents. In other words, although teams reveal a dominant stage at any one time, they may also reveal some characteristics of other stages (Agazarian, 1999; Agazarian & Gantt, 2003; Ito & Brotheridge, 2008; Smith, 2001). Also, the differential approach used in this phase assumes that teams differ with regard to their developmental stages, processes and emergent states (Roe et al., 2012). Within samples, teams varied with regard to occupation (Samples 1 and 3) and length of existence (Sample 2) and were therefore expected to be in different developmental stages. Accordingly, we had a priori evidence of between-groups variance – a requisite for evaluating the psychometric properties of the scale.

Method

Participants and Procedure

Sample 1. US-based employees working full time, under direct supervision and in a team were recruited online, via Amazon's Mechanical Turk, to participate in a two-wave study. At time 1, 473 employees answered the Team Development Questionnaire.

The average age of team members was 34.68 years (*SD* = 11.35) and the average tenure in their current team was 3.86 years (*SD* = 3.72). Most participants completed high school (47.3%) or college (51.6%). A variety of occupations was represented, including sales (12.7%), healthcare (9.9%), education, training and library (9.7%), office and administration support (9.5%), computer and mathematical (7.4%), food preparation and related services (7.4%), business and financial operations (6.6%), and management (5.7%). At Time 2, one month later, 209 participants completed the questionnaire again. The one month time span is appropriate to validate the Team Development Questionnaire because it is wide enough to control for common source variance (Podsakoff, MacKenzie, & Podsakoff, 2012) and short enough to prevent major changes in team development (Wheelan et al., 2003).

Sample 2. Participants were 152 team leaders from a Portuguese call center organization. Team leaders were on average 30 years old (*SD* = 5.57) and had been leading the same team for an average of 1.67 years (*SD* = 1.23); 60.5% were women; 55% had a high school degree and 39% a bachelor's degree. Their teams had all the characteristics of real work teams (Cohen & Bailey, 1997): team members were interdependent and interacted frequently; they had common goals and incentives; team membership was stable; and the boundaries of each team were clearly defined. Previous research supports the notion that call center teams can be considered real teams (e.g., McClelland, Leach, Clegg, & McGowan, 2014; Robinson & Morley, 2007; Zhang et al., 2012).

Sample 3. Participants were 576 members of 109 teams from a wide range of sports and organizational contexts in Portugal: sports (29.4%), management (18.3%), architecture and engineering (12.8%), computer and mathematical (5.5%),

transportation (5.5%), and sales (5.5%). All were Portuguese and belonged to professional teams. On average, each team was composed of 5.28 members (ranging from 2 to 12; *SD* = 2.75), with an average tenure in the team of 4.50 years (*SD* = 3.66). To guarantee accurate and anonymous responses, we did not request demographic information. Data from at least 2 team members were aggregated to the team level, as explained below.

Measures

Team development questionnaire. We used the 29-item scale developed in Phase 1. Participants were asked to evaluate the extent to which each item applied to their teams at the current moment, using a 5-point Likert scale (1 = *Practically does not apply* to 5 = *Applies almost totally*). The items were originally developed in Portuguese. The questionnaire was also administered in this language to samples 2 and 3 (in Portugal). Sample 1 completed an English-language questionnaire. Items were translated from Portuguese to English and back-translated to guarantee equivalence of meaning and accuracy (Brislin, 1980).

Results

Reliability and Confirmatory Factor Analyses

The reliability of each dimension was assessed using Cronbach's alpha and corrected item-total correlations. Table 1 shows that, out of 32 alpha coefficients (eight subscales in four samples/time periods), only three were slightly below the standard of .70 (Nunnally, 1978), but still clearly above the minimum threshold of .60 (DeVellis, 2003). A few modest reliabilities were to be expected given the relatively broad configuration of team processes and emergent states that defines each dimension of team development (Van de Ven & Ferry, 1980). Reliabilities fluctuate across samples

(Duhachek & Iacobucci, 2004) and therefore the average across samples is a better estimate of reliability. Averaging the reliabilities of each subscale across samples and time periods yielded values ranging from .70 to .93, with the majority above .80. Corrected item-total correlations ranged from .35 to .94 (average = .72), above the minimum threshold of .30 (Nurosis, 1993). Thus, all subscales revealed satisfactory internal reliability.

We tested the theoretical eight-factor structure using confirmatory factor analyses, attending to the following indicators of model fit: the comparative fit index (CFI), Tucker-Lewis index (TLI), standardized root-mean-square residual (SRMR), and root mean square error of approximation (RMSEA). According to Hu and Bentler's (1999) cutoff criteria, the following values indicate good fit: CFI and TLI $\geq .95$, SRMR $\leq .08$, and RMSEA $\leq .06$. Marsh, Hau, and Wen (2004) proposed less conservative cutoff criteria for acceptable model fit: CFI and TLI $\geq .90$, SRMR $\leq .10$, and RMSEA $\leq .08$. According to these criteria, the eight-factor solution revealed good or acceptable fit to the data in all samples and time periods. For Sample 1, Time 1: χ^2 (349 *df*) = 851.02, $p < .01$; CFI = .94; TLI = .93; SRMR = .08; RMSEA = .06. For Sample 1, Time 2: χ^2 (349 *df*) = 631.27, $p < .01$; CFI = .93; TLI = .92; SRMR = .08; RMSEA = .06. For Sample 2: χ^2 (349 *df*) = 489.16, $p < .01$; CFI = .95; TLI = .94; SRMR = .06; RMSEA = .05. Finally, for Sample 3: χ^2 (349 *df*) = 605.43, $p < .01$; CFI = .91; TLI = .90; SRMR = .08; RMSEA = .08. All items loaded significantly on the corresponding latent variable (all *p*'s < .01). Across samples and time periods, average item loadings ranged from .51 to .93. The hypothesized model always fit better than the one-factor solution ($1377.75 \leq \Delta\chi^2 \leq 4259.19$, *df* = 28, $p < .01$); or than any possible seven-factor model where items

from one subscale loaded on one of the other seven subscales ($32.19 \leq \Delta\chi^2 \leq 1702.25$, $df = 7$, $p < .01$).

To further evaluate whether the eight theoretical factors are distinguishable, we checked if the average variance extracted (AVE) was higher than the squared correlations between factors (Fornell & Larcker, 1981). This indicates that the latent variables are more strongly related to their respective items than to the other latent variables in the model. Out of 112 comparisons, all but five supported discrimination, and these were not related to the same latent variables in all samples. Average AVEs (.64) were clearly above the average squared correlations (.19).

Considered together, confirmatory factor analyses, $\Delta\chi^2$ tests and comparisons of AVEs and squared correlations indicate that the eight theoretical factors are empirically distinguishable and fit the data adequately. They further suggest that team development has four stages, each one having distinguishable task and interpersonal dimensions.

Measurement Invariance across Language, Sample Type and Time

Measurement invariance was tested by multi-group confirmatory factor analysis, following a three-step procedure of nested constraints placed on parameters across samples (Brown, 2006). We undertook the three key tests of configural, metric and covariance invariance (Garcia & Kandemir, 2006). Configural invariance indicates that the number of factors and the items that define each factor are stable across samples – i.e., respondents from different samples perceive team development similarly. Metric invariance indicates that each item has a comparable relationship with the correspondent subscale. Covariance invariance suggests that the relationships between the eight latent variables are similar across samples. When comparing the unconstrained models with

the constrained models, a CFI oscillation lower than .01 suggests invariance (Cheung & Rensvold, 2002).

Results suggested that the factor structure and the strength of the relationships between each item and the correspondent latent variable were similar across language, sample type and time (configural invariance χ^2 (1396 *df*) = 2579.56, CFI = .93, TLI = .92, SRMR = .08, RMSEA = .03; metric invariance ΔCFI = -.005). As often happens in applied research, we did not find full covariance invariance (ΔCFI = -.015). In keeping with good practice (Byrne, Shavelson, & Muthén, 1989), we proceeded to test partial invariance by relaxing covariances on theoretical grounds. Previous research indicates that the relationship between task and interpersonal dimensions of the same construct often vary across samples (e.g., de Wit, Greer, & Jehn, 2012; Simons & Peterson, 2000). Freeing the four covariances between task and interpersonal dimensions of the same stage, partial invariance was achieved (ΔCFI = -.010; Cheung & Rensvold, 2002). Additional partial invariance tests indicated that this parameter relaxation was appropriate and that dimensions of the same stage may covary differently across samples (in three tests, freeing four randomly selected covariances each time, ΔCFI ranged from .014 to .015).

Table 1

Descriptive Statistics, Reliabilities and Correlations between the Subscales of TDQ

	M	*SD*	T-Stg1	T-Stg2	T-Stg3	T-Stg4	I-Stg1	I-Stg2	I-Stg3	I-Stg4
T-Stg1	3.21 (3.20)	0.89 (0.88)	**.66 (.73)**	-.17*	-.16*	.12^{+}	.04	-.11	-.03	.16*
T-Stg2	2.46 (2.24)	1.10 (0.97)	-.14**	**.83 (.80)**	-.04	-.41**	.40**	.74**	.07	-.47**
T-Stg3	3.16 (3.20)	1.03 (1.02)	.08^{+}	-.08^{+}	**.89 (.89)**	.46**	.10	-.14*	.55**	.50**
T-Stg4	3.78 (3.90)	0.84 (0.83)	.23**	-.44**	.38**	**.86 (.88)**	-.17*	-.51**	.24**	.74**
I-Stg1	2.70 (2.54)	0.89 (0.85)	.21**	.35**	.11*	-.17**	**.70 (.69)**	.42**	.28**	-.18**
I-Stg2	2.17 (1.92)	1.08 (0.93)	-.08^{+}	.73**	-.14**	-.55**	.41**	**.90 (.89)**	-.05	-.56**
I-Stg3	2.92 (2.90)	1.09 (1.07)	.09*	.03	.64**	.28**	.29**	.04	**.92 (.93)**	.36**
I-Stg4	3.59 (3.70)	0.94 (0.90)	.17**	-.43**	.42**	.72**	-.10*	-.52**	.38**	**.85 (.87)**
T-Stg1	3.16 (2.73)	0.82 (0.63)	**.65 (.77)**	.43**	-.11	-.27**	.42**	.44**	.14	-.19^{+}
T-Stg2	1.47 (1.80)	0.68 (0.61)	.10	**.78 (.89)**	-.35**	-.40**	.64**	.74**	.10	-.43**
T-Stg3	3.79 (3.57)	0.81 (0.63)	.15^{+}	-.07	**.88 (.95)**	.60**	-.20*	-.35**	.44**	.57**
T-Stg4	4.15 (3.77)	0.57 (0.51)	.10	-.38**	.39**	**.77 (.88)**	-.40**	-.56**	.22*	.65**

I-Stg1	1.98 (2.12)	0.95 (0.58)	.26**	.52**	.01	-.28**	**.82 (.84)**	.73**	.27**	-.45**
I-Stg2	1.31 (1.69)	0.62 (0.61)	.04	.64**	-.10	-.42**	.45**	**.93 (.93)**	.08	-.69**
I-Stg3	2.75 (3.00)	1.25 (0.67)	.07	.22**	.35**	-.01	.24**	.25**	**.94 (.94)**	.24*
I-Stg4	4.30 (3.81)	0.63 (0.56)	.01	-.51**	.12	.51**	-.36**	-.56**	-.16*	**.86 (.91)**

Note. Sample 1, Time 1: n = 473 team members; correlations are reported below the diagonal in the top half of the table; alphas are on the diagonal in bold. Sample 1, Time 2: n = 209 team members; correlations are reported above the diagonal in the top half of the table; alphas are on the diagonal in parentheses; means and standard deviations are in parentheses. Sample 2: n = 152 team leaders; correlations are reported below the diagonal in the bottom half of the table; alphas are on the diagonal in bold. Sample 3: n = 109 teams; correlations are reported above the diagonal in the bottom half of the table; alphas are on the diagonal in parentheses; means and standard deviations are in parentheses. T-Stg x = Task dimension of stage x; I-Stg x = Interpersonal dimension of stage x.

$^{+}$ $p < .10$. * $p < .05$. ** $p < .01$.

Temporal Stability

The stability of TDQ scores was assessed with the 209 participants of Sample 1 who completed the questionnaire at two time points, one month apart. We chose a relatively short time frame because teams are expected to develop over time (Wheelan et al., 2003). Correlations between Time 1 and Time 2 scores were positive, significant ($p < .01$) and strong (Cohen, 1988) for all subscales, ranging from .51 to .65. Split-half reliability coefficients (estimated as the correlation between Time 1 and Time 2 scores adjusted by the Spearman–Brown formula) ranged from .68 to .79 (above the .60 threshold proposed by Dobrow & Tosti-Kharas, 2011). These results suggest appropriate test-retest reliability and measurement stability over time.

Consensual and Discriminant Power of Each Subscale

When researchers collect data from multiple team members on team processes, emergent states and development stages, aggregation to the team level is frequently required (Kozlowski & Klein, 2000). To justify aggregation to the team level and, simultaneously, provide evidence of the consensual and discriminant power of each subscale, we used several tests: the average deviation index (ADI; Burke & Dunlap, 2002), η^2, *F* ratios and intraclass correlations (ICC1 and ICC2; Bliese, 2000). In Sample 3, ADI values (ranging from .42 to .67, well below the upper threshold of .83 for 5-item scales; Burke & Dunlap, 2002), indicated that team members agreed on their ratings for all subscales. ICC1 values (ranging from .18 to .37, above the median of .12 found across other studies; Bliese, 2000), indicated a medium to large team effect and substantial variance between groups. This suggests that individual assessments on each subscale are reliable (LeBreton & Senter, 2008). ICC2 values (ranged from .53 to .76) fell within the range of acceptable values for group mean reliabilities (Bliese, 2000;

Klein & Kozlowski, 2000). One-way ANOVAS between teams revealed significant *F* ratios ($2.14 \leq F \leq 4.18$, *p*'s < .01) and sufficiently high eta squared statistics ($.33 \leq \eta^2 \leq .49$) to further support the discriminant power of the subscales. Taken together, these results indicate that each subscale has adequate consensual and discriminant power, and that team members' ratings can be aggregated with confidence to the team level.

Phase 3: Convergent and Discriminant Validity

When a construct is meaningfully related to and does not overlap excessively with established measures of similar constructs, and is unrelated to dissimilar measures, there is evidence of convergent and discriminant validity (Campbell & Fiske, 1959; Hinkin, 1998; Nunnally, 1978). To evaluate convergent validity we examined correlations with constructs that prior theory and research indicate are related to team development, including: proximal team processes (relationship conflict, creative processes, tacit knowledge sharing, knowledge utilization and helping behaviors); team emergent states (trust, potency, goal clarity and commitment, task and social cohesion, learning and vitality); and team characteristics (participation in decision making and task interdependence). Divergent validity analyses examined four theoretically and conceptually unrelated variables (i.e., team members' and leaders' tenure in team and sex).

Relationship conflict reflects an exacerbation of interpersonal differences and antagonism between team members (Jehn, 1995). It is one of the defining processes of the second stage of team development (Jones & Bearley, 2001; Wheelan et al., 2003). In mature teams, members tend to manage interpersonal differences effectively and experience less conflict (Mohammed & Angell, 2004; Wheelan & Hochberger, 1996).

Team creative processes are defined as team members "working together in such a manner that they link ideas from multiple sources, delve into unknown areas to find better or unique approaches to a problem, or seek out novel ways of performing a task" (Gilson & Shalley, 2004, p. 454). Effective team processes, such as information exchange and team reflexivity, foster creativity (Anderson, Potočnik, & Zhou, 2014). Mature teams can be more creative if they coordinate efforts and manage relationships successfully. Members of teams in early stages of development may feel reluctant to participate in creative processes because they are still feeling their way in (first stage) or because they are unable to manage task and interpersonal dimensions fruitfully (second stage).

Team tacit knowledge sharing is a process that involves team members' sharing "subjective knowledge that is difficult to formalize, articulate, and communicate to others, such as personal experiences, professional insights, and know-how" (Huang, Hsieh, & He, 2014, p. 817). *Team knowledge utilization* is another process that reflects the actual use of the knowledge available in teams (Sung & Choi, 2012). Mature teams and teams with effective team processes interact informally to share tacit knowledge and use that knowledge to increase team effectiveness (Drach-Zahavy & Somech, 2001; Faraj & Sproull, 2000; Furst, Reeves, Rosen, & Blackburn, 2004).

Helping behaviors represent another team process that is related to performance over and above other processes and emergent states (Ehrhart, Bliese, & Thomas, 2006; Nielsen, Hrivnak, & Shaw, 2009). Although helping is an organizational citizenship behavior that can be viewed as a facet of team effectiveness, it reflects a team process (see LePine, Piccolo, Jackson, Mathieu, & Saul, 2008). When team members help one another, the quality of interactions and focus on team goals tend to increase, while the

need for close supervision decreases (Anderson & Williams, 1996; Ehrhart et al., 2006). Accordingly, helping behaviors are most common in mature teams and also support teams' development (Wheelan & Hochberger, 1996).

Trust is a team emergent state (de Jong & Elfring, 2010) that reflects the shared "intention to accept vulnerability to a trustee based on positive expectations of his or her actions" (Colquitt, Scott, & LePine, 2007, p. 909). In mature teams, members trust one other (LePine et al., 2008; Wheelan et al., 2003). Trust facilitates cooperation as well as the acceptance of others' ideas and team decisions (Costa & Anderson, 2011; Porter & Lilly, 1996). Lack of trust fosters negative interpretations of others' behaviors and contributes to ineffective team processes (Simons & Peterson, 2000).

Team potency is a dimension of team empowerment (Kirkman & Rosen, 1999) reflecting the shared belief that the team can be effective across tasks and situations (Guzzo, Yost, Campbell, & Shea, 1993). It has been found to develop over time (Goncalo, Polman, & Maslach, 2010; Klein et al., 2009), to relate to effective team processes (LePine et al., 2008) and to enhance team performance (Campion, Medsker, & Higgs, 1993; Collins & Parker, 2010). Mature teams tend to have higher potency than those in early stages of development.

Team goal clarity and commitment, defined as "how clearly defined, shared, attainable, and valued are the team's objectives and vision" (Anderson & West, 1996, p. 59), is a foundation of effective teamwork most evident in the fourth stage of team development (Jacobsson et al., 2014). Mature teams tend to have clearer goals and work more collaboratively and effectively to achieve them (Gersick, 1988; Kozlowski & Ilgen, 2006).

Team cohesion is a multidimensional emergent state (Marks et al., 2001) encompassing task and social cohesion (Beal et al., 2003). Task cohesion refers to the shared commitment to tasks, whereas social cohesion refers to interpersonal attachment (Carless & De Paola, 2000). Teams should experience lower cohesion in the second stage of group development, which is characterized by tension and conflict (Kozlowski & Ilgen, 2006). In the third stage, they develop task and social cohesion, which tend to be well established in the fourth stage (Smith, 2001).

Thriving at work is defined as a "psychological state in which individuals experience both a sense of vitality and a sense of learning at work" (Spreitzer, Sutcliffe, Dutton, Sonenshein, & Grant, 2005, p. 538). At the team level, it is defined as the team members' shared experience of vitality and learning. In early stages of development, teams may experience clashes between subgroups, undermining learning and vitality (Jacobsson et al., 2014; Wheelan & Hochberger, 1996). In contrast, mature teams may use subgroups to enhance learning (Gibson & Vermeulen, 2003), and nurture fruitful relationships and psychological safety, which fosters learning and vitality (Atwater & Carmeli, 2009; Kark & Carmeli, 2009).

Participation in decision making is a characteristic of mature teams (Wheelan & Hochberger, 1996) and a job characteristic associated with effective team processes and outcomes (Campion et al., 1993; De Dreu & West, 2001). Opportunities to participate in decision making may exist in all stages, but actual participation is likely to be influenced by the team's maturity.

Task interdependence, defined as a general sense that team members "depend on one another to accomplish the work" (Campion et al., 1993, p. 827), is a structural characteristic of teams, particularly mature ones (Janz, Colquitt, & Noe, 1997). It is

associated with quality of team processes (Wageman, 1995), and increases motivation, information sharing and helping (Campion et al., 1993; Janz et al., 1997).

Considering the literature on team development and the evidence above (e.g., Smith, 2001; Wheelan & Hochberger, 1996), we expect the following global pattern of relationships between stages of team development and measures of positive proximal team processes, emergent states and characteristics. In the first stage, members are dependent on the leader and concerned with their inclusion. As such, we expect only weak correlations between the two dimensions of stage 1 and other variables. In the second stage, team members experience tension and conflict as they struggle with clashing perspectives and vie for influence in the team. Therefore we expect the second stage to be strongly and positively associated with relationship conflict and moderately, and negatively associated with other variables. During the third stage, team members develop more effective processes. They restructure their work, revise strategies and redefine interpersonal norms to set a common course of action and achieve their goals, contributing to more positive emergent states and characteristics. Accordingly, we expect weak to moderate associations in stage 3. Finally, in the fourth stage, efficient processes are in place, enhancing performance. Accordingly, we expect medium to strong positive correlations (and a negative correlation with relationship conflict).

With regard to discriminant validity, we considered that TDQ scores should be only weakly related to the length of time that teams have been in existence, as indexed by team members' and leaders' tenure in teams. Although common conceptions of biological or psychological development typically reflect increasing maturation over time, evidence suggests that teams do not mature or evolve towards more efficient processes linearly over time. In fact, teams can jump stages, change through time in

non-linear ways, become blocked in a stage or even regress to less mature stages depending on both internal and external factors (Arrow et al., 2004). Given that TDQ captures configurations of team processes, emergent states and characteristics, scores should also be unrelated to team members' or leaders' sex. Absence of excessive overlap with conceptually related team processes, emergent states and characteristics, and a pattern of weak or null relationships with tenure and sex variables can therefore be viewed as evidence of discriminant validity.

Both the differential approach and the temporal approach (Roe et al., 2012) were used in Phase 3 analyses. We used the differential approach in all three samples to evaluate the pattern of relationships with proximal and unrelated constructs. For sample 1 (two-wave data), we also used the temporal approach to evaluate whether changes in TDQ scores over one month predicted team processes, emergent states and characteristics at Time 2.

Method

Participants and Procedure

We used data from the three samples described above. In sample 1 we controlled for common method bias, as suggested by Podsakoff et al. (2012): TDQ scores at Time 1 were correlated with other measures collected at Time 2; and TDQ scores at Time 2 were correlated with other measures collected at Time 1. In sample 3, convergent and discriminant validity tests were performed for a subset of 77 teams only, because we could not collect additional variables for sports teams. The measures used in each sample and time period are displayed in Table 2, which also reports descriptive statistics, reliabilities and correlations.

Measures

Team development was measured with the 29-item scale developed in Phase 1.

Relationship conflict. Team members completed the three-item scale developed by Jehn and Mannix (2001; e.g., "How much relationship tension is there in your work team?") using a 5-point response scale ranging from 1 (None) to 5 (A lot).

Team creative processes were evaluated with the three-item scale developed by Gilson, Mathieu, Shalley, and Ruddy (2005). Response options ranged from 1 (Strongly disagree) to 5 (Strongly agree). A sample item reads "Team members, as a whole, encourage each other to try new things, even though they might not work."

Team tacit knowledge sharing was measured using the three-item scale adapted from Bock, Zmud, Kim, and Lee (2005). Items were adapted to obtain the level of tacit knowledge sharing in teams instead of in organizations (e.g., I share my know-where or know-whom knowledge with my coworkers). A 7-point response scale ranging from 1 (Very infrequently) to 7 (Very frequently) was used.

Team knowledge utilization was measured using a three-item scale by Sung and Choi (2012), with a 1 (Strongly disagree) to 5 (Strongly agree) response format. Sample item: "Team members' task-related expertise and skills are fully utilized in our team's activities."

Helping behaviors in the team were measured with four items developed by Podsakoff, Ahearne and MacKenzie (1997) – e.g., "Members of my team help each other out if someone falls behind in his/her work." The response scale ranged from 1 (Never) to 7 (Frequently).

Trust between team members was measured with the three-item scale developed by Jehn and Mannix (2001) – e.g., "How much do you trust your fellow team members?" A 5-point response scale ranging from 1 (Not at all) to 5 (A lot) was used.

Team potency was measured with the three-item scale by Campion et al. (1993). Sample item: "My team can take on nearly any task and complete it." A 5-point response scale ranging from 1 (Strongly disagree) to 5 (Strongly agree) was used.

Team goal clarity and commitment was measured using a four-item scale taken from Kivimaki and Elovainio (1999), with a 5-point response format ranging from 1 (Not at all) to 5 (Completely). A sample item is "How far are you in agreement with your team objectives?"

Task cohesion and social cohesion were measured with eight items developed by Carless and De Paola (2000). Four items measured task cohesion (e.g., "Our team is united in trying to reach its goals for performance"), and four items social cohesion (e.g., "Members of our team do not stick together outside of work time" – reverse coded). The response scale ranged from 1 (Strongly disagree) to 5 (Strongly agree).

Thriving was measured with the ten-item scale by Porath, Spreitzer, Gibson, and Garnett (2012), which encompasses learning in the team (5 items; e.g., "I find myself learning often"), and vitality itself (5 items; e.g., "I feel alive and vital"). The response scale ranged from 1 (Strongly disagree) to 7 (Strongly agree).

Participation in decision making was measured using the three-item scale from Campion et al. (1993), with a 1 (Strongly disagree) to 5 (Strongly agree) response format. A sample item is "Most members of my team get a chance to participate in decision making."

Task interdependence was measured using a three-item scale by Campion et al. (1993), with a 1 (Strongly disagree) to 5 (Strongly agree) response format. A sample item is "Within my team, jobs performed by team members are related to one another."

Results

Preliminary correlational analyses between convergent and discriminant variables in each sample indicated that the measures included represent distinct constructs – as expected, considering that we relied on well-validated measures. All intercorrelations were below the standard threshold of .75 (except one, of .77), allaying concerns about multicollinearity.

In line with previous work (e.g., Dobrow & Tosti-Kharas, 2011; Ferris et al., 2008), we evaluated convergent and discriminant validity based on the differential approach in three ways. First, we examined the significance and magnitude of correlations between TDQ scores and other constructs, and evaluated whether these relationships were consistent with theory. Second, we used confirmatory factor analyses to evaluate whether the eight TDQ factors were empirically distinguishable from the other constructs. Specifically, we evaluated whether nine-factor models (8 TDQ factors plus each additional construct) fit the data better than eight-factor models (where items from the additional construct were forced to load on each of the eight TDQ subscales; Anderson & Gerbing, 1988). Additionally, we examined whether the average variance extracted (AVE) was higher than the squared intercorrelations between factors (Fornell & Larcker, 1981).

Following Cohen's (1988) classification, each correlation was categorized as small ($r \leq .29$), medium ($.30 \leq r \leq .49$) or large ($r \geq .50$). Table 2 shows that all but one correlation between the dimensions of stage 1 and convergent validity variables were

small (absolute average r = .14). Dimensions of stage 2 were negatively related to team processes, emergent states and characteristics, and positively associated with relationship conflict. On average, dimensions of stage 2 had a medium correlation with convergent validity variables ($|r|$ = .31). Overall, dimensions of stage 3 were positively related to proximal constructs, with effects sizes ranging from small to medium ($|r|$ = .24). Dimensions of stage 4 were generally positively related to proximal constructs, and negatively related to relationship conflict, and most associations were of medium to large magnitude (average $|r|$ = .44). With regard to discriminant validity, we found only weak and non-significant relationships (average $|r|$ = .07) between TDQ scores and both team leaders' and members' sex and tenure in the team. These results are consistent with the theory-based expectations outlined above, both in terms of magnitude and direction.

Confirmatory factor analyses allayed concerns about excessive overlap between TDQ scores and team processes, emergent states and characteristics. Nine-factor models (8 TDQ factors plus each additional construct) always fit the data better than eight-factor models (where items from the additional construct were forced to load on one of the eight TDQ subscales; $65.70 \leq \Delta\chi^2 \leq 587.59$, $df = 8$, $p < .01$). Furthermore, AVEs for TDQ subscales and convergent validity variables were always higher than the squared correlations between TDQ subscales and convergent validity variables (average AVE = .66, average r^2= .14).

Table 2

Convergent and Discriminant Validity, and Criterion Validity Analyses: Correlation Results for All Samples (Differential Approach)

	M	*SD*	α	T-Stg1	T-Stg2	T-Stg3	T-Stg4	I-Stg1	I-Stg2	I-Stg3	I-Stg4
Convergent Validity Analyses											
Relationship Conflict (S1T1)	2.24	1.04	.91	-.13^{+}	.55**	-.11	-.38**	.29**	.60**	.01	-.44**
Team Creative Processes (S1T2)	3.23	0.99	.88	.10	-.19**	.36**	.41**	.02	-.22**	.34**	.49**
Team Tacit Knowledge Sharing (S3)	6.09	0.82	.97	-.14	-.14	.17	.47**	-.35**	-.40**	.14	.50**
Team Knowledge Utilization (S1T2)	3.64	1.00	.92	.13^{+}	-.35**	.31**	.56**	-.15*	-.37**	.22**	.55**
Helping Behaviors in the Team (S2)	6.24	0.78	.87	.08	-.26**	.02	.44**	-.29**	-.30**	-.11	.51**
Trust Between Team Members (S1T1)	3.86	0.94	.90	.15*	-.40**	.31**	.58**	-.15*	-.50**	.16*	.55**
Team Potency (S1T1)	3.78	0.99	.90	.20**	-.36**	.34**	.55**	-.07	-.42**	.21**	.52**
Team Goal Clarity and Commitment (S1T2)	4.07	0.76	.84	.12^{+}	-.28**	.29**	.59**	-.26**	-.39**	.19**	.50**
Task Cohesion (S1T2)	3.86	0.88	.78	.03	-.40**	.17*	.47**	-.29**	-.51**	.10	.41**
Social Cohesion (S1T2)	2.69	1.16	.91	-.02	-.16*	.30**	.28**	.03	-.19**	.34**	.35**
Team Members' Learning in the Team (S3)	5.78	0.63	.89	-.10	-.22^{+}	.46**	.39**	-.11	-.25*	.37**	.42**

(*continued overleaf*)

Table 2 (*Continued*)

	M	*SD*	α	T-Stg1	T-Stg2	T-Stg3	T-Stg4	I-Stg1	I-Stg2	I-Stg3	I-Stg4
Team Members' Level of Vitality (S3)	5.57	0.68	.91	-.16	-.35**	.44**	.42**	-.25*	-.35**	.22^{+}	.43**
Participation in Decision Making (S1T2)	3.49	1.11	.90	-.04	-.16*	.39**	.42**	-.11	-.22**	.28**	.37**
Task Interdependence (S1T2)	3.53	0.84	.65	.11	-.14*	.19**	.17*	-.01	-.05	.15*	.21**
Discriminant Validity Analyses											
Team Member Sex (S1T1)	-	-	-	-11	.08	.05	-.01	.03	.04	-.04	.03
Team Member Tenure in Team (S1T1)	4.53	4.17	-	.05	-.08	.01	.13^{+}	-.15*	-.16*	-06	.09
Team Leader Sex (S2)	-	-	-	.01	.06	.11	.12	-.08	-.02	.15^{+}	.09
Team Leader Tenure in Team (S2)	1.67	1.23	-	.09	-.04	.05	.04	.03	-.01	.08	.01
Criterion Validity Analyses											
Team Viability (S1T2)	3.82	0.82	.82	.09	-.34**	.18**	.53**	-.25**	-.40**	.14*	.52**
Team Extra-Role Performance (S2)	5.72	0.88	.87	.05	-.30**	.09	.46**	-.23**	-.27**	-.18*	.54**
Team Reputation (S3)	5.35	1.08	.80	-.26*	-.39**	.17	.40**	-.12	-.31**	.13	.29*

Note. Sample 1, Time 1 (S1T1): n = 209 team members; correlations between TDQ at Time 2 (T2) and other variables at Time 1 (T1). Sample 1, Time 2 (S1T2): n = 209 team members; TDQ at Time 1 and other variables at Time 2. Sample 2 (S2): n = 152 team leaders. Sample 3 (S3): n = 77 teams because we could not collect data for other measures in sports teams. T-Stg x = Task dimension of stage x; I-Stg x = Interpersonal dimension of stage x. Sex: 0 = Male; 1 = Female. $^{+}$ $p < .10$. * $p < .05$. ** $p < .01$.

Based on the temporal approach, convergent and discriminant validity were evaluated using the inter-team methodology because in the process of scale validation we are interested in conclusions regarding aggregated change at the sample level (cf. Li & Roe, 2012; van der Haar, Li, Segers, Jehn, & Van den Bossche, 2015). In line with previous research (e.g., van der Haar et al., 2015), we first computed percentage change ratios from Time 1 to Time 2 for each team development dimension, and then used hierarchical multiple regression to examine the effects of these relative change ratios on other variables at Time 2, controlling for all eight dimensions of team development at Time 1. The results are shown in Table 3. Overall, changes in stage 1 dimensions had weak effects (average $|\beta|$ = .10). Changes in dimensions of stage 2 tended to be negatively related to other variables (average $|\beta|$ = .17). Changes in dimensions of stage 3 had weak to moderate positive effects (average $|\beta|$ = .14). Finally, changes in dimensions of stage 4 had medium to large positive effects (average $|\beta|$ = .34). These results indicate that the TDQ can detect the relatively small changes in team development that occur during one month (Wheelan, 2005), and that these changes reveal the expected pattern of relationships with team processes, emergent states and characteristics.

In sum, these results indicate that TDQ scores are meaningfully related to, yet separable from, team processes, emergent states and characteristics, and unrelated to indicators of team tenure and sex, thus providing evidence of convergent and discriminant validity.

Table 3

Convergent and Discriminant Validity, and Criterion Validity Analyses: Multiple Regression Results for Sample 1(Temporal Approach)

	Team Creative Processes		Team Knowledge Utilization		Team Goal Clarity and Commitment		Task Cohesion		Social Cohesion		Participation in Decision Making		Task Interdependence		Team Viability	
Predictors	Step 2: *βs*	ΔR^2	Step 2: *βs*	ΔR^2	Step 2: *βs*	ΔR^2	Step 2: *βs*	ΔR^2	Step 2: *βs*	ΔR^2	Step 2: *βs*	ΔR^2	Step 2: *βs*	ΔR^2	Step 2: *βs*	ΔR^2
T-Stg1 change	.10	.01	.10	.01	.18**	.02**	.22**	.03**	.12	.01	-.05	.01	.02	.01	.22**	.03**
T-Stg2 change	-.05	.01	-.18**	.02**	-.17*	.02*	-.30**	.06**	-.12	.01	-.21**	.03**	-.09	.01	-.20**	.03**
T-Stg3 change	.36**	.08**	.29**	.05**	.14*	.01*	.11	.01	.20*	.02*	.35**	.07**	.13	.01	.24**	.03**
T-Stg4 change	.38**	.10**	.45**	.14**	.41**	.12**	.25**	.04**	.13^{+}	.01^{+}	.39**	.10**	.25**	.04**	.47**	.15**
I-Stg1 change	.05	.01	.10	.01	-.08	.01	-.16*	.02*	-.10	.01	.06	.01	.04	.01	-.05	.01
I-Stg2 change	-.10	.01	-.17**	.02**	-.24**	.04	-.45**	.15**	.03	.01	-.15*	.02*	-.08	.01	-.33**	.08**
I-Stg3 change	.11	.01	.07	.01	.05	.01	.07	.01	-.01	.01	.06	.01	.02	.01	.16*	.02*
I-Stg4 change	.45**	.14**	.42**	.12**	.44**	.13**	.43**	.13**	.11	.01	.51**	.17**	.07	.01	.49**	.16**

Note. N = 209. Criterion data were collected at Time 2. In step 1 we controlled for the eight dimensions of team development measured at Time 1. T-Stg x = Task dimension of stage x; I-Stg x = Interpersonal dimension of stage x. $^{+}$ $p < .10$. * $p < .05$. ** $p < .01$.

Phase 4: Criterion Validity

In this phase we examined whether the TDQ scores and change in team development over one month predict three facets of team effectiveness: team viability, extra-role performance and reputation. This way, we sought to expand the nomological network of team development and provide further evidence of the construct validity of the TDQ (Cronbach & Meehl, 1955; Hinkin, 1998). Using the differential approach, three steps were followed. First, we examined theoretically meaningful correlations between TDQ scores and team effectiveness. Second, we evaluated the extent to which each dimension of team development explains criteria above and beyond related constructs. Third, we evaluated whether task and interpersonal dimensions of each stage explain unique variance in criteria. Using the temporal approach, we evaluated whether changes in TDQ scales over one month explain team viability at Time 2.

Drawing on the multidimensional conceptualization of team effectiveness (Mathieu & Gilson, 2012; Sundstrom, McIntyre, Halfhill, & Richards, 2000), we examined three facets of team effectiveness (viability, extra-role performance and reputation) for the following reasons. First, they are theoretically distinguishable and complement each other (Mathieu & Gilson, 2012). Team viability is "the team's capacity to adapt to internal and external changes as well as the probability that team members will continue to work together in the future" (Aubé & Rousseau, 2005, p. 192). Team extra-role performance focuses on spontaneous actions that go beyond formal requirements and contribute to performance (Bakker, Demerouti, & Verbeke, 2004; Eisenberger et al., 2010; Tjosvold, Hui, & Yu, 2003). Team reputation reflects third parties' subjective opinions about a team (Tyran & Gibson, 2008). Competitive and effective teams sustain success over time (viability), go the extra mile to increase

their performance (extra-role performance), and are credible to external observers (reputation). Second, previous research found that these facets of team effectiveness are related but distinguishable, and have their distinct correlates and predictors (e.g., Bakker et al., 2004; Cropanzano, Li, & Benson, 2011; Tyran & Gibson, 2008). Finally, these facets are particularly relevant for our purpose because previous research has found that they are influenced by team processes, emergent states, characteristics and developmental stages (e.g., Behfar, Peterson, Mannix, & Trochim, 2008; Cropanzano et al., 2011; Jacobsson et al., 2014; LePine et al., 2008; Tjosvold et al., 2003; Tyran & Gibson, 2008).

Team effectiveness is expected to vary across stages of team development. At each stage, however, task and interpersonal dimensions of team development are expected to reveal similar relationships with different facets of team effectiveness because these dimensions reflect broad configurations of team processes and emergent states (Smith, 2001; Wheelan, 2005). This notion is consistent with theory (Marks et al., 2001; Wheelan, 2005) as well as with research using other broad measures of team development and team processes (e.g., Jacobsson et al., 2014; Lepine et al., 2008; Wheelan & Hochberger, 1996).

Viable teams are able to adapt to changes in their internal and external environment, and have satisfied team members eager to continue working in the team (Aubé & Rousseau, 2005; Behfar et al., 2008; Hackman, 1987). In stage 1, teams have not yet developed a series of processes and emergent states to sustain success over time (Smith, 2001). In stage 2, tension, conflict and negative emotions tend to undermine perceived team viability (Jacobsson et al., 2014; Jehn et al., 2008). In stage 3, members restructure norms and relationships, and develop more positive processes and emergent

states that enhance team viability. By stage 4, teams are mature, having adopted effective processes and nurtured positive emergent states (Janz et al., 1997), further enhancing team viability (Aubé & Rousseau, 2005; Jehn et al., 2008). Therefore, we hypothesize:

Hypothesis 1. Team viability has a) a small negative relationship with stage 1; b) a moderate negative relationship with stage 2; c) a small positive relationship with stage 3; and d) a medium-to-large positive relationship with stage 4.

Team extra-role performance depends on the team members' inclination to make constructive suggestions, to use their knowledge for the benefit of the team, and to protect the team from potential threats (Eisenberger et al., 2010; Tjosvold et al., 2003; Tjosvold & Yu, 2004). In stage 1, team members are highly dependent on the leader. They are trying to learn and comply with the existing norms. They may be unclear about their goals and feel insecure about their roles. Accordingly, they may refrain from making suggestions or going out on a limb to benefit the team. In stage 2, conflict and tension may exacerbate concerns about power and influence and undermine team members' inclination to go over and above the call of duty to support their peers and the team. In stage 3, teams restructure processes, norms and patterns of interaction to be more effective. For this purpose, members are likely to help the team to learn and improve. By stage 4, team members have established clear goals, have effective interpersonal processes, feel secure about their roles, and are focused on task accomplishment (Janz et al., 1997; Porter & Lilly, 1996; Smith, 2001; Tuckman & Jensen, 1977; Wheelan & Hochberger, 1996). They are therefore even more willing to go the extra mile, to make helpful suggestions and to share useful knowledge. Therefore, we hypothesize:

Hypothesis 2. Team extra-role performance has a) a small negative relationship with stage 1; b) a medium negative relationship with stage 2; c) a small positive relationship with stage 3; and d) a medium-to-large positive relationship with stage 4.

Team reputation refers to third parties' "future expectations for the team's performance, social interaction, and other behaviors" (Tyran & Gibson, 2008, p. 49). Clients, suppliers, and members of other teams may form such subjective opinions based on their interactions or other information about a team (Laird, Zboja, & Ferris, 2012; Tyran & Gibson, 2008). The team processes, emergent states and characteristics that configure development stages can be observed by third parties (Wheelan et al., 2003; Wheelan & Williams, 2003). Therefore, we expect team development to influence the reputation of a team. In stage 1, dependency and lack of sound processes and norms may elicit perceptions of low competence and effectiveness. In stage 2, conflict, tension and negative emotions, compounding the lack of sound processes, may amplify perceptions that the team is dysfunctional (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001). In stage 3, teams start to establish a set of effective processes and a positive emotional atmosphere likely to enhance their reputation. However, reputation attributions require consistency in observed behaviors (Zinko, Ferris, Humphrey, Meyer, & Aime, 2012), which may be lacking during team restructuring. In stage 4, teams reveal effective processes and a positive atmosphere. Also, they are motivated to develop fruitful relationships with clients, suppliers and other teams (Kuipers & Stoker, 2009). Accordingly, we hypothesize:

Hypothesis 3. Team reputation has a) a small negative relationship with stage 1; b) a medium negative relationship with stage 2; c) a small positive relationship with stage 3; and d) a medium-to-large positive relationship with stage 4.

Method

Participants and Procedure

We used all three samples for these analyses. We controlled for common method bias (Podsakoff et al., 2012) using two-wave data (Sample 1) and multisource data (Sample 3). In sample 1, the TDQ subscales were collected at Time 1 and Time 2, and the criterion variable (team viability) at Time 2, one month later. In sample 2, team leaders completed the TDQ and criterion measure (team extra-role performance) at the same time. In sample 3, members of 77 teams completed the TDQ and their supervisors rated the reputation of the team. Most supervisors were men (74%) and had university degrees (83.2%). They averaged 43 years of age (*SD* = 8.50) and 8 years of tenure as supervisors of their current team (*SD* = 6.01).

Measures

Team development was measured with the 29-item scale developed in Phase 1.

Team viability was measured with the four-item scale developed by Aubé and Rousseau (2005). A 5-point scale ranging from 1 (Not true at all) to 5 (Totally true) was used. A sample item is "The members of this team could work together for a long time."

Team extra-role performance was evaluated with five items adapted from Eisenberger et al. (2010). Items were adapted such that the referent was the team instead of a single employee (e.g., "My employees looked for ways to make our team more successful"). The response scale ranged from 1 (Strongly disagree) to 7 (Strongly agree).

Team reputation was assessed with three items developed by Hochwarter, Ferris, Zinko, Arnell, and James (2007), adapted to the team level. An example item is "In this organization my team has the reputation for producing the highest quality performance." The response scale ranged from 1 (Strongly disagree) to 7 (Strongly agree).

Results

Table 2 presents the correlations between TDQ subscales and the three facets of team effectiveness. For stage 1, these relationships were weak and negative or non-significant, providing partial support for our hypotheses. Consistent with our predictions, teams in stage 2 were found to be less viable, to display less extra-role performance efforts and to be less reputable. Stage 3 dimensions were positively related to team viability, as expected, but negatively related to extra-role performance and unrelated to reputation, contrary to our expectations. Stage 4 dimensions revealed substantial positive relationships will all three facets of effectiveness, in line with our hypotheses.

We tested whether the relationships reported above held controlling for the effects of related team processes and emergent states. In Sample 1, we controlled for trust, team potency and relationship conflict. These variables and the TDQ were measured at Time 1, and team viability at Time 2, minimizing common method variance (Podsakoff et al., 2012). In sample 2, we controlled for helping behaviors. In sample 3, we controlled for learning, vitality and tacit knowledge sharing. Hierarchical multiple regression analyses were used, entering control variables in step 1 and TDQ scores in step 2. Most (78%) of the relationships reported above remained significant or marginally significant. These results suggest that TDQ subscales explain significant variance in team effectiveness

and capture a configuration of team processes and emergent states, rather than a single aspect of team development.

Next, we evaluated whether task and interpersonal dimensions at each stage explained unique variance in criteria. As can be seen in Table 4, task and interpersonal dimensions often revealed unique effects. In some cases, they even related to criteria in opposite directions. For example, in stage 1 the task dimension relates positively, whereas the interpersonal dimension relates negatively, to team viability. This implies that merging dimensions of the same stage would mask the individual relationships of each dimension with criteria, resulting in an overall non-significant relationship. Finally, the effects of the two dimensions of each stage varied across facets of team effectiveness. For example, the task dimension of stage 1 was positively related to viability and negatively related to reputation, whereas the interpersonal dimension of stage 1 was negatively related to viability and unrelated to reputation. If we merged the two dimensions of each stage, we would erroneously conclude that stage one was unrelated to both team viability and team reputation. These results further support the separation of task and interpersonal dimensions.

Criterion-related validity using the temporal approach was assessed with the same methodology reported in the convergent and discriminant validity phase (Li & Roe, 2012; van der Haar et al., 2015). Table 3 shows that relative changes in each dimension of team development over one month predicted team viability at Time 2. Overall, the pattern of relationships was aligned with Hypothesis 1 (except that the task dimension of stage 1 was positively, albeit weakly, related to team viability). These results provide further evidence of criterion validity.

Table 4

Criterion Validity Analyses: Task and Interpersonal Dimensions of Each Stage Entered Together (Multiple Regression - Differential Approach)

	Team Viability (S1T2)		Team Extra-Role Performance (S2)		Team Reputation (S3)	
Predictors	Step 1: βs	ΔR^2	Step 1: βs	ΔR^2	Step 1: βs	ΔR^2
1st Model:		.08**		.07**		.07+
T-Stg1	.14*		.12		-.25*	
I-Stg1	-.27**		-.26**		-.06	
2nd model		.17**		.10**		.16**
T-Stg2	-.12		-.22**		-.34*	
I-Stg2	-.32**		-.13		-.07	
3rd model		.04*		.06*		.03
T-Stg3	.16+		.17*		.14	
I-Stg3	.07		-.24**		.06	
4th model		.31**		.33**		.16**
T-Stg4	.32**		.24**		.39**	
I-Stg4	.27**		.41**		.01	

Note. S1T2: Sample 1; n = 209 team members; Team Development Questionnaire was collected at Time 1 and team viability at Time 2. S2: Sample 2; n = 152 team leaders. S3: Sample 3; n = 77. T-Stg x = Task dimension of stage x; I-Stg x = Interpersonal dimension of stage x. The four regression models are independent.

+ $p < .10$. * $p < .05$. ** $p < .01$.

Discussion

Most stage models of team development shift across four stages that can be described along two dimensions: task and interpersonal. However, previous empirical research has been unable to consistently capture the four stages of team development and to disentangle the task and interpersonal dimensions of each stage. Therefore we sought to create a valid and reliable measure of team development that captures its eight theoretical factors (two dimensions per stage), based on a definition of team development informed by an integrated stage approach. Overall, the present findings provide evidence that the TDQ is a valid measure of team development. This conclusion is robust insofar as our results were generally consistent across research designs and samples: using one key informant per team and aggregated data from multiple team members; using cross-sectional, multisource and two-wave data from three samples and two countries; using both a differential approach and a temporal approach to data analyses; and using evaluations of 1278 team members and leaders from several occupations.

The psychometric properties of the TDQ were sound. An array of tests support this assertion: 1) confirmatory factor analyses showed that the eight factor model fit the data appropriately; 2) internal consistencies for each factor ranged from acceptable to very good; 3) measurement invariance analyses, across raters (single team member, team leader and the combined ratings of at least two team members), language (Portuguese and English) and time, showed consistency in the structure and meaning of the instrument; 4) temporal stability tests indicated that ratings were relatively stable over a one-month period; 5) construct distinctiveness analyses ($\Delta\chi^2$ of nested models and AVEs *vs*. squared correlations) suggested that, for ongoing teams, development

occurs along four stages, each having distinguishable task and interpersonal dimensions; and 6) consensual and discriminant power analyses indicated that each factor can be aggregated with confidence to the team level and can be measured accurately with both a key respondent per team (leader or member) or multiple respondents. In addition, we demonstrated convergent and discriminant validity between each team development factor and team processes (relationship conflict, creative processes, tacit knowledge sharing, knowledge utilization and helping behaviors), team emergent states (potency, goal clarity and commitment, task and social cohesion, and thriving), team characteristics (participation in decision making and task interdependence) and leader and member demographics (sex and tenure in team). Lastly, we established the criterion validity of TDQ factors by showing that they explain variance in team viability, extra-role performance and reputation. Furthermore, we found that most of these relationships remained significant after controlling for (one to three) relevant team processes and emergent states, and the task and interpersonal dimensions of each stage had unique effects on criteria.

To complement the above results, based on the differential approach, we also conducted analyses based on the temporal approach (Li & Roe, 2012). Using an inter-team methodology, we further established convergent validity and criterion-related validity. In particular, we showed that, for each stage of team development, relative changes in task and interpersonal dimensions over one month related, in the expected direction and magnitude, to relevant constructs as well as to team viability. Considering stability tests and the effects of changes in team development dimensions together suggests that the TDQ balances two requirements for measuring dynamic constructs. On the one hand, the measure reveals temporal reliability – as expected, considering that

most teams do not change abruptly over a short time period. On the other hand, the measure is able to detect the changes that do occur even in a relatively short time period.

The development and validation of this theory-driven measure makes three theoretical contributions. First, because previous measures have been unable to consistently disentangle task and interpersonal dimensions, and capture the four theoretical stages of development in ongoing teams, some have questioned the four-stage perspective of team development (Ito & Brotheridge, 2008; Wheelan & Hochberger, 1996). Our results support the widely held and integrative view that ongoing teams transition across four stages, and along two dimensions: task and interpersonal.

Second, consistent with the notion that team development reflects changes in configurations of team processes, emergent states and characteristics (Chang et al., 2006; Garfield & Dennis, 2013; Smith, 2001; Wheelan, 2005), we found that each developmental dimension and stage was related to, yet distinguishable from, a range of related constructs including team processes, emergent states and characteristics. Meaningful but not excessive correlations between each dimension of team development and these related constructs suggest that the nomological network of the TDQ is consistent with theory and with the definition of team development on which it was based. Although different stages of development share similar processes and emergent states, they also reveal different patterns of relationships with these constructs. For example, the fourth stage (reflecting higher team maturity) revealed moderate to strong relationships with adaptive team processes and positive emergent states, whereas

the preceding stage (when teams begin to establish sound processes to enhance effectiveness) revealed only weak to moderate relationships.

Third, this study extended the nomological network of team development by examining three facets of team effectiveness. Researchers often assume that developed teams are more effective than teams in early stages of development because their established processes and emergent states promote effectiveness (e.g., Kuipers & Stoker, 2009; Wheelan, 2005). However, scant research has examined relationships between stages of team development and team effectiveness. Our results suggest that mature teams are more viable and reputable, and foster higher extra-role performance. We are among the first to show that task and interpersonal dimensions of each stage have unique, and sometimes opposite, effects on effectiveness. These findings highlight the importance of considering not only a team's developmental stage but also task and interpersonal dimensions to fully understand team effectiveness.

Limitations and Future Directions

This study has some limitations. First, our goal was to develop a measure of team development that could be administered to key team informants (single team member and team leader) as well as to several team members. At present, we cannot guarantee that this measure will also be valid and reliable if administered to external observers. Second, this measure assumes the existence of a team leader. Further research is required to adapt and evaluate the validity of TDQ with self-managed teams.

Third, we cannot claim that the relationships observed between stages of team development and team effectiveness reflect causal effects. We used two-wave and multisource data, performed analyses based on both the differential and temporal approaches, and found solid evidence of criterion validity (Dobrow & Tosti-Kharas,

2011; Ferris et al., 2008). Nonetheless, some conceptual overlap between stages of team development and effectiveness criteria is unavoidable. The taxonomy upon which the present work is based reflects team processes, emergent states, and team characteristics, overlapping to some extent with team effectiveness. By design, the fourth stage of team development reflects mature and efficient team functioning. This conceptualization may be viewed as an advantage for researchers and practitioners interested in a broad level of analysis, and as a disadvantage by those seeking to distinguish team processes, emergent states, and effectiveness.

Fourth, only three facets of effectiveness were evaluated: viability, extra-role performance and reputation. Future research should examine relationships between team development and other facets of effectiveness, such as task performance, absenteeism, and turnover intentions (Mathieu & Gilson, 2012). Fifth, we only evaluated the validity of this measure in Portugal and in the USA. Translation and back-translation procedures (Brislin, 1980) in conjunction with measurement invariance tests (Cheung & Rensvold, 2002) provided strong evidence for lexical and meaning equivalence of the items for Portuguese and English languages. Future research should extend these procedures to other languages.

Lay views and common definitions of development emphasize growth or increasing maturity over time. Our claim that teams do not necessarily shift to more mature stages of development linearly over time goes against this assumption. We have argued that the stages of development measured by the TDQ reflect common configurations of team processes, emergent states and characteristics that act as "attractors" in complex change dynamics. Teams can shift to more mature processes and positive states over time, becoming more efficient. However, they can also shift to less

efficient processes or to more dysfunctional behavior, depending on factors internal and external to the team. Future research should investigate these transitions between dimensions and stages of team development, and what triggers them. In particular, different leadership styles or behaviors (Morgeson, DeRue, & Karam, 2010) and external forces (Garfield & Dennis, 2013) may promote or hinder team development, depending on the current stage of the team. For example, a leader who systematically establishes expectations and goals for the team may unintentionally keep the team at the task dimension of the first stage of development. Understanding which factors promote the development of the interpersonal dimension and which promote the development of the task dimension may also be a great avenue for future research.

The goal of this paper was to develop and validate a measure assessing the extent to which teams fit different stages, as identified by an important body of theory on team development. In light of the empirical evidence presented here, we believe this goal was met. Nonetheless, it is important to recognize that the work of validation does not end here. Although prior theory and research suggest that these modes of team functioning are relevant across cultures, further evidence of cross-cultural validity for our scale is also needed before we can confidently recommend that it be used in different cultural contexts.

Moreover, the ultimate value of the TDQ depends on the soundness of the theoretical models from which it was derived. Further research is needed to evaluate whether the stages of team development identified by this theoretical literature provide the most useful and comprehensive taxonomy, or whether this taxonomy needs further elaboration or revision. We believe that our measure and the taxonomy upon which it is based are useful for evaluating modes of team functioning at a fairly broad level of

analysis. For example, practitioners may use it to identify salient stages of team development, foster awareness of strengths and weaknesses in a team, and start a reflective discussion of steps to be taken to further develop the team. Practitioners seeking a more fine grained analysis of team functioning may wish to examine specific team processes and emergent states relevant to previously identified stages of team development.

Practical Implications

This study has at least three practical implications. First, the team development questionnaire can be used as a diagnostic tool for instructors, team leaders and organizations. An instructor who understands the developmental stage that best characterizes a team's functioning can develop more tailored and effective team-building programs. A team leader can use this instrument to facilitate a discussion with team members about what can be done to promote or to sustain sound processes and a healthy team atmosphere. From an organizational perspective, the instrument could be useful for signaling training needs that are transversal to several teams in the organization.

Second, disentangling task and interpersonal dimensions of team development stages facilitates effective interventions. When asked, team members tend to frame team problems as interpersonal problems (Buzaglo & Wheelan, 1999). The use of the TDQ makes targeted interventions on task and/or interpersonal dimensions possible. Finally, our results suggest that team leaders and organizations interested in fostering team effectiveness should invest in the development of their teams. Teams at the fourth stage of development, our results indicate, tend to be more viable, to go the extra mile, and to be more reputable.

Conclusion

Team development has been conceptualized from a variety of theoretical perspectives and different models have been proposed to explain the changes that occur in teams over time. Integrative approaches have sought to combine valuable contributions from various models and perspectives into an overall description of each stage and dimension of team development. However, until now, these efforts at integration were not used to improve the measurement of team development. With the TDQ, researchers can now capture the overarching stages and dimensions of team development, as proposed by the integrative approach, and accumulate and communicate empirical findings on team development using a standard and reliable classification. Although analyzing specificities of team development remains crucial for theory development, now we also have a measure that allows researchers to study stages and dimensions of team development comprehensively, at a broad level of analysis.

References

Agazarian, Y. (1999). Phases of development in the systems-centered psychotherapy group. *Small Group Research, 30,* 82-107.

Agazarian, Y., & Gantt, S. (2003). Phases of group development: Systems-centered hypotheses and their implications for research and practice. *Group Dynamics: Theory, Research, and Practice, 7*, 238-252.

Ancona, D. G., & Caldwell, D. F. (1992). Bridging the boundary: External activity and performance in organizational teams. *Administrative Science Quarterly, 37*, 634-665.

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin, 103*, 411-423.

Anderson, N., Potočnik, K., & Zhou, J. (2014). Innovation and creativity in organizations: A state-of-the-science review, prospective commentary, and guiding framework. *Journal of Management*. Advance online publication.

Anderson, N., & West, M. A. (1996). The Team Climate Inventory: Development of the TCI and its applications in teambuilding for innovativeness. *European Journal of Work and Organizational Psychology, 5*, 53-66.

Anderson, S. E., & Williams, L. J. (1996). Interpersonal, job, and individual factors related to helping processes at work. *Journal of Applied Psychology, 81,* 282-296.

Arrow, H., Poole, M. S., Henry, K. B., Wheelan, S. A., & Moreland, R. (2004). Time, change, and development: The temporal perspective on groups. *Small Group Research, 35*, 73-105.

Atwater, L., & Carmeli, A. (2009). Leader–member exchange, feelings of energy, and involvement in creative work. *The Leadership Quarterly, 20*, 264-275.

Aubé, C., & Rousseau, V. (2005). Team goal commitment and team effectiveness: The role of task interdependence and supportive behaviors. *Group Dynamics: Theory, Research, and Practice, 9*, 189-204.

Bakker, A. B., Demerouti, E., & Verbeke, W. (2004). Using the job demands-resources model to predict burnout and performance. *Human Resource Management*, *43*, 83-104.

Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review of General Psychology, 5*, 323-370.

Beal, D. J., Cohen, R. R., Burke, M. J., & McLendon, C. L. (2003). Cohesion and performance in groups: A meta-analytic clarification of construct relations. *Journal of Applied Psychology, 88*, 989-1004.

Behfar, K. J., Peterson, R. S., Mannix, E. A., & Trochim, W. M. K. (2008). The critical role of conflict resolution in teams: A close look at the links between conflict type, conflict management strategies, and team outcomes. *Journal of Applied Psychology, 93*, 170-188.

Bliese, P. D. (2000). Within-group agreement, non-independence, and reliability: Implications for data aggregation and analyses. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions* (pp. 349–381). San Francisco: Jossey-Bass.

Bock, G. W., Zmud, R. W., Kim, Y., & Lee, J. (2005). Behavioral intention formation in knowledge sharing: Examining the roles of extrinsic motivators, social-psychological forces, and organizational climate. *MIS Quarterly, 29*, 87-111.

Bonebright, D. A. (2010). 40 years of storming: A historical review of Tuckman's model of small group development. *Human Resource Development International, 13*, 111-120.

Brislin, R. W. (1980). Translation and content analysis of oral and written materials. In H. C. Triandis & W. W. Lambert (Eds.), *Handbook of cross-cultural psychology* (Vol. 2, pp. 349-444). Boston, MA: Allyn & Bacon.

Brown, T. (2006). *Confirmatory factor analysis for applied research*. New York: The Guilford Press.

Burke, M. J., & Dunlap, W. P. (2002). Estimating interrater agreement with the average deviation index: A user's guide. *Organizational Research Methods, 5*, 159-172.

Buzaglo, G., & Wheelan, S. A. (1999). Facilitating work team effectiveness: Case studies from central America. *Small Group Research, 30*, 108-129.

Byrne, B. M., Shavelson, R. J., & Muthén, B. (1989). Testing for the equivalence of factor covariance and mean structures: The issue of partial measurement invariance. *Psychological Bulletin, 105*, 456-466.

Campbell, D., & Fiske, D. (1959). Convergent and discriminant validation by the multitrait–multimethod matrix. *Psychological Bulletin, 56*, 81-105.

Campion, M. A., Medsker, G. J., & Higgs, A. C. (1993). Relations between work group characteristics and effectiveness: Implications for designing effective work groups. *Personnel Psychology, 46*, 823-850.

Carless, S. A., & De Paola, C. (2000). The measurement of cohesion in work teams. *Small Group Research, 31*, 71-88.

Chang, A., Bordia, P., & Duck, J. (2003). Punctuated equilibrium and linear progression: Toward a new understanding of group development. *Academy of Management Journal, 48*, 106-117.

Chang, A., Duck, J., & Bordia, P. (2006). Understanding the multidimensionality of group development. *Small Group Research, 37*, 327-350.

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling, 9*, 233-255.

Cissna, K. N. (1984). Phases in group development: The negative evidence. *Small Group Research, 15*, 3-32.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Cohen, S. G., & Bailey, D. E. (1997). What makes teams work: Group effectiveness research from the shop floor to the executive suite. *Journal of Management, 23*, 239-290.

Collins, C. G., & Parker, S. K. (2010). Team capability beliefs over time: Distinguishing between team potency, team outcome efficacy, and team process efficacy. *Journal of Occupational and Organizational Psychology, 83*, 1003-1023.

Colquitt, J. A., Scott, B. A., & LePine, J. A. (2007). Trust, trustworthiness, and trust propensity: a meta-analytic test of their unique relationships with risk taking and job performance. *Journal of Applied Psychology, 92*, 909-927.

Costa, A. C., & Anderson, N. (2011). Measuring trust in teams: Development and validation of a multifaceted measure of formative and reflective indicators of team trust. *European Journal of Work and Organizational Psychology, 20*, 119-154.

Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin, 52*, 281-302.

Cropanzano, R., Li, A., & Benson, L. (2011). Peer justice and teamwork process. *Group & Organization Management, 36*, 567-596.

De Dreu, C. K. W., & West, M. A. (2001). Minority dissent and team innovation: The importance of participation in decision making. *Journal of Applied Psychology, 86*, 1191-1201.

de Jong, B. A., & Elfring, T. (2010). How does trust affect the performance of ongoing teams? The mediating role of reflexivity, monitoring, and effort. *Academy of Management Journal, 53*, 535-549.

de Wit, F. R. C., Greer, L. L., & Jehn, K. A. (2012). The paradox of intragroup conflict: A meta-analysis. *Journal of Applied Psychology, 97*, 360-390.

DeVellis, R. F. (2003). *Scale development: Theory and applications*. London: SAGE Publications.

Dobrow, S. R., & Tosti-Kharas, J. (2011). Calling: The development of a scale measure. *Personnel Psychology, 64*, 1001-1049.

Drach-Zahavy, A., & Somech, A. (2001). Understanding team innovation: The role of team processes and structures. *Group Dynamics: Theory, Research, and Practice, 5*, 111-123.

Duhachek, A., & Iacobucci, D. (2004). Alpha's standard error (ASE): An accurate and precise confidence interval estimate. *Journal of Applied Psychology, 89*, 792-808.

Ehrhart, M. G., Bliese, P. D., & Thomas, J. L. (2006). Unit-level OCB and unit effectiveness: Examining the incremental effect of helping behavior. *Human Performance, 19*, 159-173.

Eisenberger, R., Karagonlar, G., Stinglhamber, F., Neves, P., Becker, T. E., Gonzalez-Morales, M. G., & Steiger-Mueller, M. (2010). Leader–member exchange and affective organizational commitment: The contribution of supervisor's organizational embodiment. *Journal of Applied Psychology, 95*, 1085-1103.

Ericksen, J., & Dyer, L. (2004). Right from the start: Exploring the effects of early team events on subsequent project team development and performance. *Administrative Science Quarterly, 49*, 438-471.

Faraj, S., & Sproull, L. (2000). Coordinating expertise in software development teams. *Management Science, 46*, 1554-1568.

Ferris, D. L., Brown, D. J., Berry, J. W., & Lian, H. (2008). The development and validation of the workplace ostracism scale. *Journal of Applied Psychology, 93*, 1348-1366.

Fisher, S. G., Hunter, T. A., & Macrosson, W. D. K. (1997). Team or group? Managers' perceptions of the differences. *Journal of Managerial Psychology, 12*, 232-242.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*, 39-50.

Furr, R. M. (2011). *Scale construction and psychometrics for social and personality psychology*. London: SAGE Publications.

Furst, S. A., Reeves, M., Rosen, B., & Blackburn, R. S. (2004). Managing the life cycle of virtual teams. *Academy of Management Executive, 18*, 6-20.

Garcia, R., & Kandemir, D. (2006). An illustration of modeling moderating variables in cross-national studies. *International Marketing Review, 23*, 371-389.

Garfield, M. J., & Dennis, A. R. (2013). Toward an integrated model of group development: Disruption of routines by technology-induced change. *Journal of Management Information Systems, 29*, 43-86.

Gersick, C. J. G. (1988). Time and transition in work teams: Toward a new model of group development. *Academy of Management Journal, 31*, 9-41.

Gibson, C. B., & Vermeulen, F. (2003). A healthy divide: Subgroups as a stimulus for team learning behavior. *Administrative Science Quarterly, 48*, 202-239.

Gilson, L. L., Mathieu, J. E., Shalley, C. E., & Ruddy, T. M. (2005). Creativity and standardization: Complementary or conflicting drivers of team effectiveness? *Academy of Management Journal, 48*, 521-531.

Gilson, L. L., & Shalley, C. E. (2004). A little creativity goes a long way: An examination of teams' engagement in creative processes. *Journal of Management, 30*, 453-470.

Goncalo, J. A., Polman, E., & Maslach, C. (2010). Can confidence come too soon? Collective efficacy, conflict and group performance over time. *Organizational Behavior and Human Decision Processes, 113*, 13-24.

Guzzo, R. A., Yost, P. R., Campbell, R. J., & Shea, G. P. (1993). Potency in groups: Articulating a construct. *British Journal of Social Psychology, 32*, 87-106.

Hackman, J. R. (1987). The design of work teams. In J. W. Lorsch (Ed.), *Handbook of organizational behavior* (pp. 315-342). Englewood Cliffs, NJ: Prentice-Hall.

Hare, A. P. (1973). Theories of group development and categories for interaction analysis. *Small Group Research, 4*, 259-304.

Hinkin, T. R. (1995). A review of scale development practices in the study of organizations. *Journal of Management, 21*, 967-988.

Hinkin, T. R. (1998). A brief tutorial on the development of measures for use in survey questionnaires. *Organizational Research Methods, 1*, 104-121.

Hochwarter, W. A., Ferris, G. R., Zinko, R., Arnell, B., & James, M. (2007). Reputation as a moderator of political behavior-work outcomes relationships: A two-study investigation with convergent results. *Journal of Applied Psychology, 92*, 567-576.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1-55.

Huang, X., Hsieh, J. J. P., & He, W. (2014). Expertise dissimilarity and creativity: The contingent roles of tacit and explicit knowledge sharing. *Journal of Applied Psychology, 99*, 816-830.

Ito, J. K., & Brotheridge, C. M. (2008). Do teams grow up one stage at a time? Exploring the complexity of group development models. *Team Performance Management, 14*, 214-232.

Jacobsson, C., Rydbo, N., & Börresen, J. E. (2014). The links between group development and health in manufacturing industry. *Small Group Research, 45*, 400-415.

Janz, B. D., Colquitt, J. A., & Noe, R. A. (1997). Knowledge worker team effectiveness: The role of autonomy, interdependence, team development, and contextual support variables. *Personnel Psychology, 50*, 877-904.

Jehn, K. A. (1995). A multimethod examination of the benefits and detriments of intragroup conflict. *Administrative Science Quarterly, 40*, 256-282.

Jehn, K. A., Greer, L., Levine, S., & Szulanski, G. (2008). The effects of conflict types, dimensions, and emergent states on group outcomes. *Group Decision and Negotiation, 17*, 465-495.

Jehn, K. A., & Mannix, E. A. (2001). The dynamic nature of conflict: A longitudinal study of intragroup conflict and group performance. *Academy of Management Journal, 44*, 238-251.

Jones, J. E., & Bearley, W. L. (2001). Facilitating team development: A view from the field. *Group Facilitation, 3,* 56-65.

Kark, R., & Carmeli, A. (2009). Alive and creating: The mediating role of vitality and aliveness in the relationship between psychological safety and creative work involvement. *Journal of Organizational Behavior, 30*, 785-804.

Karriker, J. H. (2005). Cyclical group development and interaction-based leadership emergence in autonomous teams: An integrated model. *Journal of Leadership & Organizational Studies, 11*, 54-64.

Kirkman, B. L., & Rosen, B. (1999). Beyond self-management: Antecedents and consequences of team empowerment. *Academy of Management Journal, 42*, 58-74.

Kivimaki, M., & Elovainio, M. (1999). A short version of the Team Climate Inventory: Development and psychometric properties. *Journal of Occupational and Organizational Psychology, 72*, 241-246.

Klein, C., DiazGranados, D., Salas, E., Le, H., Burke, C. S., Lyons, R., & Goodwin, G. F. (2009). Does team building work? *Small Group Research, 40*, 181-222.

Klein, K. J., & Kozlowski, S. W. J. (2000). From micro to meso: Critical steps in conceptualizing and conducting multilevel research. *Organizational Research Methods, 3*, 211-236.

Kozlowski, S. W. J. (2015). Advancing research on team process dynamics: Theoretical, methodological, and measurement considerations. *Organizational Psychology Review.* Advance online publication.

Kozlowski, S. W. J., & Bell, B. S. (2003). Work groups and teams in organizations. In W. C. Borman, D. R. Ilgen, & R. J. Klimoski (Eds.), *Handbook of psychology: Vol. 12. Industrial and organizational psychology* (pp. 333-376). Hoboken, NJ: Wiley.

Kozlowski, S. W. J., & Ilgen, D. R. (2006). Enhancing the effectiveness of work groups and teams. *Psychological Science in the Public Interest, 7*, 77-124.

Kozlowski, S. W. J., & Klein, K. J. (2000). A multilevel approach to theory and research in organizations: Contextual, temporal, and emergent processes. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research and methods in organizations: Foundations, extensions, and new directions* (pp. 3-90). San Francisco, CA: Jossey-Bass.

Kuipers, B. S., & Stoker, J. I. (2009). Development and performance of self-managing work teams: A theoretical and empirical examination. *The International Journal of Human Resource Management, 20*, 399-419.

Kumar, N., Stern, L. W., & Anderson, J. C. (1993). Conducting interorganizational research using key informants. *Academy of Management Journal, 36*, 133-1651.

Laird, M. D., Zboja, J. J., & Ferris, G. R. (2012). Partial mediation of the political skill-reputation relationship. *Career Development International, 17*, 557-582.

LeBreton, J. M., & Senter, J. L. (2008). Answers to 20 questions about interrater reliability and interrater agreement. *Organizational Research Methods, 11*, 815-852.

LePine, J. A., Piccolo, R. F., Jackson, C. L., Mathieu, J. E., & Saul, J. R. (2008). A meta-analysis of teamwork processes: Tests of a multidimensional model and relationships with team effectiveness criteria. *Personnel Psychology, 61*, 273-307.

Li, J., & Roe, R. A. (2012). Introducing an intrateam longitudinal approach to the study of team process dynamics. *European Journal of Work and Organizational Psychology, 21*, 718-748.

Mannix, E., & Jehn, K. A. (2004). Let's norm and storm, but not right now: Integrating models of group development and performance. In E. Mannix, M. Neale & S. Blount (Eds.), *Research on managing groups and teams: Temporal issues* (Vol. 6, pp. 11-37). New York: Elsevier.

Marks, M. A., Mathieu, J. E., & Zaccaro, S. J. (2001). A temporally based framework and taxonomy of team processes. *Academy of Management Review, 26*, 356-376.

Marsh, H. W., Hau, K. T., & Wen, Z. (2004). In search of golden rules: Comment on hypothesis-testing approaches to setting cutoff values for fit indexes and dangers in overgeneralizing Hu and Bentler's (1999) findings. *Structural Equation Modeling, 11*, 320-341.

Mathieu, J. E., & Gilson, L. (2012). Criteria issues and team effectiveness. In S. W. J. Kozlowski (Ed.), *Oxford handbook of industrial and organizational psychology* (pp. 910-930). London: Oxford Press.

Mathieu, J. E., & Rapp, T. L. (2009). Laying the foundation for successful team performance trajectories: The roles of team charters and performance strategies. *Journal of Applied Psychology, 94,* 90-103.

McClelland, G. P., Leach, D. J., Clegg, C. W., & McGowan, I. (2014). Collaborative crafting in call centre teams. *Journal of Occupational and Organizational Psychology, 87,* 464-486.

Miller, D. L. (2003). The stages of group development: A retrospective study of dynamic team processes. *Canadian Journal of Administrative Sciences, 20,* 121-134.

Mohammed, S., & Angell, L. C. (2004). Surface- and deep-level diversity in workgroups: examining the moderating effects of team orientation and team process on relationship conflict. *Journal of Organizational Behavior, 25,* 1015-1039.

Morgan, B. B., Salas, E., & Glickman, A. S. (1993). An analysis of team evolution and maturation. *The Journal of General Psychology, 120,* 277-291.

Morgeson, F. P., DeRue, D. S., & Karam, E. P. (2010). Leadership in teams: A functional approach to understanding leadership structures and processes. *Journal of Management, 36,* 5-39.

Nielsen, T. M., Hrivnak, G. A., & Shaw, M. (2009). Organizational citizenship behavior and performance: A meta-analysis of group-level research. *Small Group Research, 40,* 555-577.

Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). New York: McGraw-Hill.

Nurosis, M. J. (1993). *SPSS statistical data analysis, SPSS Inc.* Chicago: IL.

Oliveira, J. C., Miguez, J., & Lourenço, P. R. (2005). O desenvolvimento dos grupos: A questão da sequencialidade (Group development: The issue of sequentiality). *Boletim SPEF, 30/31*, 121-131.

Podsakoff, P. M., Ahearne, M., & MacKenzie, S. B. (1997). Organizational citizenship behavior and the quantity and quality of work group performance. *Journal of Applied Psychology, 82*, 262-270.

Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology, 63*, 539-569.

Porath, C., Spreitzer, G., Gibson, C., & Garnett, F. G. (2012). Thriving at work: Toward its measurement, construct validation, and theoretical refinement. *Journal of Organizational Behavior, 33*, 250-275.

Porter, T. W., & Lilly, B. S. (1996). The effects of conflict, trust, and task commitment on project team performance. *International Journal of Conflict Management, 7*, 361-376.

Riordan, C. M., & Vandenberg, R. J. (1994). A central question in cross-cultural research: Do employees of different cultures interpret work-related measures in an equivalent manner? *Journal of Management, 20*, 643-671.

Robinson, G., & Morley, C. (2007). Running the electronic sweatshop: Call centre managers' views on call centres. *Journal of Management & Organization, 13*, 249-263.

Roe, R. A., Gockel, C., & Meyer, B. (2012). Time and change in teams: Where we are and where we are moving. *European Journal of Work and Organizational Psychology, 21*, 629-656.

Seers, A., & Woodruff, S. (1997). Temporal pacing in task forces: Group development or deadline pressure? *Journal of Management, 23*, 169-187.

Simons, T. L., & Peterson, R. S. (2000). Task conflict and relationship conflict in top management teams: The pivotal role of intragroup trust. *Journal of Applied Psychology, 85*, 102-111.

Smith, G. (2001). Group development: A review of the literature and a commentary on future research directions. *Group Facilitation, 3*, 14-45.

Spreitzer, G., Sutcliffe, K., Dutton, J., Sonenshein, S., & Grant, A. M. (2005). A socially embedded model of thriving at work. *Organization Science, 16*, 537-549.

Sundstrom, E., McIntyre, M., Halfhill, T., & Richards, H. (2000). Work groups: From the Hawthorne studies to work teams of the 1990s and beyond. *Group Dynamics: Theory, Research, and Practice, 4*, 44-67.

Sung, S. Y., & Choi, J. N. (2012). Effects of team knowledge management on the creativity and financial performance of organizational teams. *Organizational Behavior and Human Decision Processes, 118*, 4-13.

Tjosvold, D., Hui, C., & Yu, Z. (2003). Conflict management and task reflexivity for team in-role and extra-role performance in China. *The International Journal of Conflict Management, 14*, 141-163.

Tjosvold, D., & Yu, Z. (2004). Goal interdependence and applying abilities for team in-role and extra-role performance in China. *Group Dynamics: Theory, Research, and Practice, 8*, 98-111.

Tuckman, B. W. (1965). Developmental sequence in small groups. *Psychological Bulletin, 63*, 384-399.

Tuckman, B. W., & Jensen, M. A. C. (1977). Stages of small-group development revisited. *Group & Organization Management, 2*, 419-427.

Tyran, K. L., & Gibson, C. B. (2008). Is what you see, what you get?: The relationship among surface- and deep-level heterogeneity characteristics, group efficacy, and team reputation. *Group & Organization Management, 33*, 46-76.

Van de Ven, A., & Ferry, D. (1980). *Measuring and assessing organizations*. NY: Wiley.

van der Haar, S., Li, J., Segers, M., Jehn, K. A., & Van den Bossche, P. (2015). Evolving team cognition: The impact of team situation models on team effectiveness. *European Journal of Work and Organizational Psychology, 24*, 596-610.

Wageman, R. (1995). Interdependence and group effectiveness. *Administrative Science Quarterly, 40*, 145-180.

Wheelan, S. A. (2005). *Group processes: A developmental perspective* (2nd ed.). Boston: Allyn & Bacon.

Wheelan, S. A., Davidson, B., & Tilin, F. (2003). Group development across time: Reality or illusion? *Small Group Research, 34*, 223-245.

Wheelan, S. A., & Hochberger, J. M. (1996). Validation studies of the Group Development Questionnaire. *Small Group Research, 27*, 143-170.

Wheelan, S. A., & Williams, T. (2003). Mapping dynamic interaction patterns in work groups. *Small Group Research, 34*, 443-467.

Zhang, Z., Waldman, D. A., & Wang, Z. (2012). A multilevel investigation of leader–member exchange, informal leader emergence, and individual and team performance. *Personnel Psychology, 65*, 49-78.

Zinko, R., Ferris, G. R., Humphrey, S. E., Meyer, C. J., & Aime, F. (2012). Personal reputation in organizations: Two-study constructive replication and extension of antecedents and consequences. *Journal of Occupational and Organizational Psychology, 85*, 156-180.

APPENDIX

Team Development Questionnaire

Items and Dimensions	Sample Authors
Task Dimension of Stage 1	
Members always accept the rules the supervisor sets because they believe s/he is the one who knows how the work must be done	Bennis & Shepard (1956); Jones & Bearly (2001); Morgan Salas, & Glickman (1993); Wheelan (2005).
The supervisor makes decisions at work, and group/team members rarely express or reveal their expectations	Sheard & Kakabadse (2002); Srivatsva, Obert, & Neilsen (1977); Tuckman (1965); Tuckman & Jensen (1977); Wheelan (2005).
Members follow the work rules and norms that the supervisor sets without questioning, even when it seems that they do not agree with them	Agazarian (1999); Agazarian & Gantt (2000); Bennis & Shepard (1956) (1956); Srivatsva et al. (1977); Wheelan (2005).
Task Dimension of Stage 2	
The setting of work rules and objectives causes tension and conflict	Jones & Bearly (2001); Muchielli (1984); Tuckman (1965); Tuckman & Jensen (1977); Wheelan (2005).
Some members dispute the tasks they are assigned because they seem to doubt the supervisor's competence	Jones & Bearly (2001); Muchielli (1984); Tuckman (1965); Tuckman & Jensen (1977); Wheelan (2005).
Most of the supervisor's interventions regarding work are challenged	Agazarian (1999); Agazarian & Gantt (2000); Bennis & Shepard (1956); Brower (1996); Lacoursiere (1980); Mills (1964); Muchielli (1984); Wheelan (2005).
Task Dimension of Stage 3	
We are restructuring work, accepting and tolerating different ideas	Hare (1973); Smith (2001); Tuckman (1965); Tuckman & Jensen (1977).
We are searching for and discussing harmoniously a structure that will allow us to achieve our objectives	Agazarian (1999); Agazarian & Gantt (2000); Bennis & Shepard (1956); Furst, Reeves, Rose & Blackburn (2004); Garfield & Dennis (2013); Hare (1973); Smith (2001); Srivatsva et al. (1970); Tuckman (1965); Tuckman & Jensen (1977).
We are reorganizing the group/team, sharing calmly the information we need to do our work	Brower (1996); Furst et al. (2004); Heinen & Jacobson (1976); Jones & Bearly (2001); Smith (2001); Tuckman (1965); Tuckman & Jensen (1977).
We are reorganizing the group/team, talking peacefully about problematic work issues	Bonebright (2010); Hare (1973); Jones & Bearly (2001); Smith (2001).
Task Dimension of Stage 4	
Group/Team members are focused on work and often find innovative solutions to problems	Bennis & Shepard (1956); Heinen & Jacobson (1976); Smith (2001); Tuckman (1965); Tuckman & Jensen (1977); Wheelan (2005).
Members are productive, whether working alone or together	Brower (1996); Jones & Bearly (2001); Lacoursiere (1980); Morgan et al. (1993); Muchielli (1984); Smith (2001); Srivatsva et al. (1970); Tuckman (1965); Tuckman & Jensen (1977); Wheelan (2005).
We work together well, making the most of what each one does best	Tuckman (1965); Tuckman & Jensen (1977); Wheelan (2005).
We make decisions, identify what we can improve and solve problems effectively	Muchielli (1984); Tuckman (1965); Tuckman & Jensen (1977); Wheelan (2005)

Items and Dimensions	Sample Authors
Interpersonal Dimension of Stage 1	
Members are "feeling their way" as they seek to know each other	Furst et al. (2004); Heinen & Jacobson (1976); Morgan et al. (1993); Tuckman (1965); Tuckman & Jensen (1977).
Members act with prudence and caution because they are not sure how to interact with other members	Agazarian (1999); Agazarian & Gantt (2000); Srivatsva et al. (1977).
Members feel both a little anxiety and excitement, but they do not share their emotions because they are not sure how to do it in the group/team	Bennis & Shepard (1956); Bion (1961); Furst et al. (2004); Lacoursiere (1980); Maples (1988); Morgan et al. (1993); Smith (2001); Tuckman (1965); Tuckman & Jensen (1977); Wheelan (2005).
Interpersonal Dimension of Stage 2	
The climate is tense, unpleasant and confrontational and members have no desire to be together	Agazarian (1999); Agazarian & Gantt (2000); Hare (1973); Smith (2001); Srivatsva et al. (1977); Wheelan (2005).
Personal differences lead to conflicts with which the group/team deals poorly	Furst et al. (2004); Muchielli (1984); Tuckman (1965); Tuckman & Jensen (1977); Wheelan (2005).
Members who share similar ideas form subgroups that clash with other subgroups and with the supervisor	Agazarian (1999); Agazarian & Gantt (2000); Bennis & Shepard (1956); Muchielli (1984); Smith (2001); Srivatsva et al. (1977); Wheelan (2005).
There is an emotional response to conflicts that leads to discontent and disappointment/frustration towards the supervisor and other group/team members	Hare (1973); Morgan et al. (1993); Tuckman (1965); Tuckman & Jensen (1977).
Interpersonal Dimension of Stage 3	
We are changing the way we behave to be more accepting and appreciative of personal differences	Hare (1973); Lacoursiere (1980); Smith (2001); Tuckman (1965); Tuckman & Jensen (1977).
We are changing our relationships at work in order to collaborate and support each other better	Agazarian (1999); Agazarian & Gantt (2000); Bennis & Shepard (1965); Hare (1973); Tuckman (1965); Tuckman & Jensen (1977); Wheelan (2005).
We are changing our rules and patterns of interaction, with no misunderstandings	Brower (1996); Furst et al. (2004); Hare (1973); Kuipers & Stoker (2009); Smith (2001).
We are changing our behavior to strengthen mutual trust and support	Bennis & Shepard (1965); Brower (1996); Jones & Bearly (2001); Furst et al. (2004); Hare (1973); Lacoursiere (1980); Tuckman (1965); Tuckman & Jensen (1977); Wheelan (2005).
Interpersonal Dimension of Stage 4	
There is an open climate in the group/team, allowing everyone to participate actively	Brown (1996); Heinen & Jacobson (1976); Sheard & Kakabadse (2002); Tuckman (1965); Tuckman & Jensen (1977); Wheelan (2005).
Members feel that they are interdependent and united	Jones & Bearly (2001); Sheard & Kakabadse (2002); Srivatsva et al. (1977); Tuckman (1965); Tuckman & Jensen (1977).
Each member's personal characteristics enriches the group/team and therefore the group/team also enriches each member	Tuckman (1965); Tuckman & Jensen (1977); Wheelan (2005).
Any personal matter is discussed in a friendly, frontal and honest way	Jones & Bearly (2001); Lacoursiere (1980); Sheard & Kakabadse (2002); Srivatsva et al. (1970); Tuckman (1965); Tuckman & Jensen (1977); Wheelan (2005).

References

Agazarian, Y. (1999). Phases of development in the systems-centered psychotherapy group. *Small Group Research, 30,* 82-107.

Agazarian, Y., & Gantt, S. (2003). Phases of group development: Systems-centered hypotheses and their implications for research and practice. *Group Dynamics-Theory Research and Practice, 7,* 238-252.

Bennis, W., & Shepard, H. (1956). A theory of group development. *Human Relations, 9,* 415-437.

Bion, W. (1961). *Experiences in groups and other papers*. New York: Basic Books.

Bonebright, D. A. (2010). 40 years of storming: A historical review of Tuckman's model of small group development. *Human Resource Development International, 13,* 111-120.

Brower, A. (1996). Group development as constructed social reality revisited: The constructivism of small groups. *Families in Society,* 77, 336-345.

Furst, S. A., Reeves, M., Rosen, B., & Blackburn, R. S. (2004). Managing the life cycle of virtual teams. *Academy of Management Executive, 18,* 6-20.

Garfield, M. J., & Dennis, A. R. (2013). Toward an integrated model of group development: Disruption of routines by technology-induced change. *Journal of Management Information Systems, 29,* 43-86.

Hare, A. P. (1973). Theories of group development and categories for interaction analysis. *Small Group Behavior, 4,* 259-304.

Heinen, J. S. & Jacobson, E. (1976). A model of task group development in complex organizations and a strategy of implementation. *Academy of Management Review, 1,* 98-111.

Jones, J. E., & Bearley, W. L. (2001). Facilitating team development: A view from the field. *Group Facilitation, 3,* 56-65.

Kuipers, B. S., & Stoker, J. I. (2009). Development and performance of self-managing work teams: A theoretical and empirical examination. *The International Journal of Human Resource Management, 20,* 399-419.

Lacoursiere, R. (1974). A group method facilitate learning during the stages of a psychiatric affiliation. *International Journal of Group Psychotherapy*, 24, 342-351.

Maples, M. F. (1988). Group development: Extending Tuckman's theory. *Journal for Specialists in Group Work, 13*, 17-23.

Mills, T. (1964). *Group transformations: An analysis of a learning group*. Englewood Cliffs, NJ: Prentice-Hall.

Morgan, B. B., Salas, E., & Glickman, A. S. (1993). An analysis of team evolution and maturation. *The Journal of General Psychology, 120*, 277-291.

Muchielli, R. (1984). *Le travail en equipe.* Thiron: Editions ESF, Librairies Techniques.

Sheard, A. G., & Kakabadse, A. P. (2002). From loose groups to effective teams: The nine key factors of the team landscape. *Journal of Management Development*, 21, 133-151.

Smith, G. (2001). Group development: A review of the literature and a commentary on future research directions. *Group Facilitation, 3,* 14-45.

Srivastva, S., Obert, S. L. & Neilsen, E. H. (1977). Organizational analysis through group processes: A theoretical perspective for organizational development. In C. Cooper (Ed.), *Organizational development in the UK and the USA: A joint evaluation* (pp. 83-111). London: Macmillan.

Tuckman, B. W. (1965). Developmental sequence in small groups. *Psychological Bulletin, 63,* 384-399.

Tuckman, B. W., & Jensen, M. A. C. (1977). Stages of small-group development revisited. *Group & Organization Management, 2*, 419-427.

Wheelan, S. A. (2005). *Group processes: A developmental perspective* (2nd ed.). Boston: Allyn & Bacon.

CAPÍTULO 3

Team processes and team innovation in call centers: The role of leaders' courage to go beyond compliance[2]

Abstract

Considering the broader characteristics of the call center business, the present study examines the moderating role of leaders' courage to go beyond compliance in the relationships between team processes, team creativity and team innovation implementation. Analyses of multisource data from 152 call center teams indicated that team processes were positively related to team innovation implementation via team creativity, but only when team leaders revealed courage to go beyond compliance. When leaders lacked such courage, teams struggled to develop creative ideas and to convert those ideas into implemented innovations. We conclude that, at least in call centers, the leaders' capacity to go beyond compliance plays a key role in stimulating innovation in teams.

Keywords: courage to go beyond compliance; team processes; team creativity; team innovation; leadership

Introduction

Considering that team innovation is crucial for organizational effectiveness in an increasingly complex, dynamic and uncertain business environment (West & Anderson, 1996; Pearce & Ensley, 2004; Sung & Choi, 2012), academics and practitioners have sought to identify what factors foster innovation in teams. Previous research has

[2] This chapter is based on: Peralta, C. F., Lopes, P. N., Lourenço, P. R., & Pais, L. Team processes and team innovation in call centers: The role of leaders' courage to go beyond compliance. Under Review at *Creativity and Innovation Management*. The chapter follows the author's guidelines of the journal.

detailed several antecedents of team innovation, including factors related to team leadership, and team processes and structures (see Anderson, Potočnik & Zhou, 2014 for a review). For example, team processes, which involve "members' interacting with other members and their task environment (…) to utilize various resources, such as expertise, equipment, and money, to yield meaningful outcomes" (Marks, Mathieu & Zaccaro, 2001, p. 357), have been found to relate positively to team innovation (e.g., West & Anderson, 1996; Drach-Zahavy & Somech, 2001; West et al., 2003; Tjosvold, Tang & West, 2004; Hülsheger, Anderson & Salgado, 2009; MacCurtain et al., 2010). More recently, research has analyzed the interplay between different antecedents of team innovation. For example, Sung and Choi (2012) found that the relationship between the process of using team knowledge and team innovation was positive if environmental uncertainty was high, and non-significant otherwise. Such research suggests that main effects on team innovation are hard to replicate because they depend on the work context (Johns, 2006; George, 2007; Shalley, Zhou & Oldham, 2004; Zhou & Hoever, 2014). The present study contributes to a more comprehensive understanding of contextual factors influencing the relationship between team processes and team innovation in call centers, focusing on the moderating role of an important leadership characteristic.

Our conceptual model draws on both the interactionist perspective of team innovation (Woodman, Sawyer & Griffin, 1993; Zhou & Hoever, 2014) and the two-dimensional conceptualization of team innovation (Axtell et al., 2000; West, 2002; Somech & Drach-Zahavy, 2011; Baer, 2012). According to the interactionist perspective (Woodman et al., 1993; Zhou & Hoever, 2014), team innovation is a function of the interplay between an actor (individual or team) and contextual factors.

Previous research on teams has shown that leadership is an important contextual factor (Shin & Zhou, 2007; Castro, Gomes & Sousa, 2010; Sung & Choi, 2012; Nijstad, Berger-Selman & De Dreu, 2014) that may influence the relationship between team processes and team innovation (Anderson et al., 2014; Zhou & Hoever, 2014). For example, minority dissent, a team process, can enhance team innovation by stimulating consideration of different perspectives (De Dreu & West, 2001), but only if team leaders are transformational (Nijstad et al., 2014).

The two-dimensional conceptualization of team innovation suggests that teams innovate in two stages: creativity and innovation implementation (West, 2002; Somech & Drach-Zahavy, 2011). During the creative stage, teams generate new and useful ideas and solutions (West, 2002; West et al., 2004). During innovation implementation, teams implement creative ideas to attain their goals and drive results (Klein & Sorra, 1996; Klein & Knight, 2005). Previous research has shown that creativity and innovation implementation correlate positively at both the individual and team levels (Axtell et al., 2000; Somech & Drach-Zahavy, 2011). However, creativity and innovation implementation have different predictors (Clegg et al., 2002; Farr, Sin & Tesluk, 2003). Moreover, in some contexts these constructs are unrelated or even negatively related (Somech & Drach-Zahavy, 2011; Baer, 2012). Thus, more research is needed to map the factors that influence the relationship between team creativity and team innovation implementation (Somech & Drach-Zahavy, 2011).

In this study, we examine the moderating role of leaders' courage to go beyond compliance on the relationships between team processes, team creativity and team innovation implementation (see Figure 1). We focused on this leadership characteristic because it has not been studied in relation to team creativity and innovation

implementation, and also because it may be particularly important in call center teams, as argued below. This study contributes to the team innovation and leadership literatures in several ways. First, following the interactionist approach of team innovation, we answer calls for research to further clarify the role of leadership in innovation processes (Shalley et al., 2004; Anderson et al., 2014; Zhou & Hoever, 2014), and in particular the role of the leader's courage to go beyond compliance (Arnaud & Sekerka, 2010; Sekerka, Comer & Godwin, 2014). Second, by distinguishing the creative and implementation stages of innovation, we add to the scant research base examining the role of leadership characteristics in the conversion of creative ideas into actual innovations in teams. Finally, by studying call center teams, we generate results that may be particularly relevant for team leaders working in sectors or contexts where the tension between the need to increase efficiency through the standardization of work procedures and the need to improve quality through innovation is particularly acute (Baucus et al., 2008; Hannah, Avolio & May, 2011a; Sekerka et al., 2014).

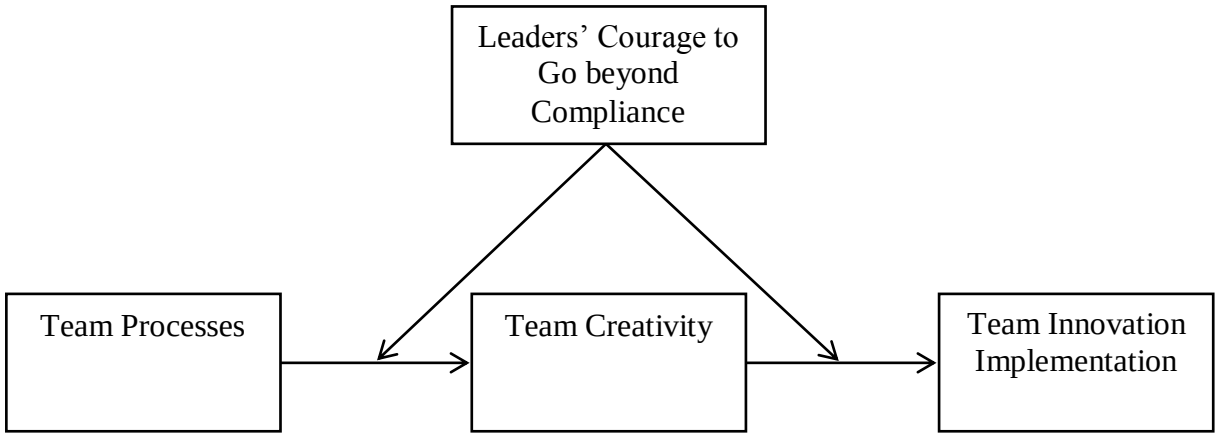

Figure 1. Conceptual model.

Theoretical Background and Hypotheses

Innovation in Call Center Teams

Call centers, defined as work environments in which the customer–employee interaction is supported by computer and telephone-based technologies (Holman, 2003; Zapf et al., 2003), are increasingly in demand. They allow organizations to improve customer service and reduce costs by increasing efficiency, to generate new sales by exploring customer databases, and to enhance product or service improvements by collecting feedback from current customers (Holman, 2003; Budhwar et al., 2006). Automated systems now enable customers to obtain basic information and solve common problems without waiting for a human assistant (e.g., interactive voice recognition and voice recognition unit technologies). Accordingly, customer assistants typically address nonstandard problems and concerns (Pentland, 1995; Shah & Bandi, 2003; Holman, Batt & Holtgrewe, 2007).

Structuring work around teams improves performance in call centers (Batt, 2002; Batt, Colvin & Keefe, 2002; Zhang, Waldman & Wang, 2012; Tjosvold et al., 2014). Competitive pressure and the need to address nonstandard issues has led to increasing reliance on teamwork, and the majority of call center organizations are currently team-based (Robinson & Morley, 2007; van den Broek, Barnes & Townsend, 2008; Wech, Kennedy & Deeter-Schmelz, 2009). Teams facilitate the resolution of complex and poorly specified problems in call centers because they foster the exchange of knowledge, information, best practices and ideas, enhancing peer support for problem solving. This contributes to the development of innovative solutions (Batt, 2002; Batt & Moynihan, 2002; Shah & Bandi, 2003; Hsu, 2006; Liu & Batt, 2010; Zhang et al., 2012; Tjosvold et al., 2014). To encourage teamwork, several call center organizations

balance individual performance indicators (such as time taken to answer calls, time taken to solve client issues, number of abandoned calls, percentage of issues solved on the first call), with broader performance criteria, such as teamwork, peer support and development, and participation in problem-solving discussions (Batt & Moynihan, 2002; Holman, 2003; Greenberg, 2010). Group-level incentives, daily team meetings and regular peer feedback are also commonly used to foster teamwork and team innovation (Liu & Batt, 2010; Zhang et al., 2012).

Although call center organizations tend to encourage creative problem solving and innovation in teams to address complex issues, deal with difficult clients and improve quality of service, they also keep teams under pressure to enhance efficiency. For example, these organizations generally monitor calls to ensure that employees follow standard scripts, processes and procedures, whenever these are applicable. The simultaneous drive for innovation and efficiency creates conflicting demands (Batt & Moynihan, 2002; Mulholland, 2002; Holman, 2003; Robinson & Morley, 2007; van den Broek et al., 2008; Greenberg, 2010).

Considering the conflicting demands experienced by call center teams, and drawing on the interactionist perspective of innovation (Woodman et al., 1993; Zhou & Hoever, 2014), we propose that the relationship between team processes and team innovation depends to a large extent on other factors, and particularly on team leaders' courage to go beyond compliance.

The Moderating Role of Leaders' Courage to Go beyond Compliance

Moral courage to go beyond compliance reflects the capacity to "not only consider the rules, but also reflect upon their purpose, going beyond compliance-based measures to consider what is right, just, and appropriate" (Sekerka, Bagozzi &

Charnigo, 2009, p. 570). Whereas compliance reflects minimal adherence to rules and is often motivated by self-protection or a desire to avoid sanctions, going beyond compliance (as defined here) reflects virtuous moral action motivated by a desire to do what is best for a collective, transcending self-interest. Thus, leaders' moral courage to go beyond compliance is assumed to reflect a promotional and empowering orientation, and to foster virtuous behavior in others (Sekerka et al., 2014). It can be viewed as a competence influenced by temperamental dispositions, values, and acquired skills (Bagozzi et al., 2013). It guides everyday decisions and behavior, and not just decisions regarding major ethical issues (Sekerka et al., 2009). Accordingly, it is expected to influence important organizational outcomes. The broader construct of moral courage has been linked to ethical and prosocial behavior (Kayser et al., 2010), altruism (Kinnunen & Windmann, 2013) and responsible investing (Pivo, 2008). Prior research found that leaders who reveal moral courage tend to have followers who trust them (Moorman, Darnold & Priesemuth, 2013), are satisfied with their jobs, perform well (Walumbwa et al., 2008), and are team players (Hannah, Walumbwa & Fry, 2011b).

Leaders' courage to go beyond compliance may determine how call center teams respond to the conflicting demands they experienced (to innovate in order to improve customer service, versus to follow routine procedures in order to ensure efficiency), for the following reasons. First, team leaders who go beyond compliance are likely to constantly evaluate, and encourage supervisees to evaluate, whether documented processes and procedures regulating teamwork serve their multiple and sometimes conflicting goals (Arnaud & Sekerka, 2010). Beyond achieving the more salient normative goals established for the team, or objective performance indicators monitored by surveillance systems, leaders who go beyond compliance also strive to serve

customers well, even if that decision entails more work or additional burden for themselves and for their team (Solomon, 1998; Sekerka et al., 2009; Osswald, Frey & Streicher, 2012). If following routine procedures or processes does not solve a customer's problem, a leader who goes beyond compliance will encourage his or her team to find different ways to solve the problem, thereby stimulating creativity. Second, leaders who go beyond compliance are likely to encourage and empower their teams to act proactively to identify and create opportunities to improve customer service and add value to the organization (Arnaud & Sekerka, 2010; Sekerka et al., 2014). Furthermore, they may infuse a sense of mission and moral responsibility in this quest to improve customer service and contribute to the organization through creative problem-solving and innovation (Baucus et al., 2008).

By itself, however, leaders' courage to go beyond compliance may not be enough to promote team creativity. Effective team processes are needed to generate truly novel and useful ideas (Gilson & Shalley, 2004). If leaders display courage to go beyond compliance but team processes are ineffective, team members may fail to generate creative ideas because they lose sight of their goals and priorities, find it difficult to collaborate and exchange knowledge fruitfully, and waste time and energy with interpersonal conflict. In contrast, if leaders go beyond compliance and team processes are effective, team members will be more likely to generate creative ideas because they can plan and prioritize work (transition processes); coordinate team efforts, monitor progress toward goals, and foster collaboration and the exchange of knowledge (action processes); and manage relationships (interpersonal processes) effectively (Marks et al., 2001; Mathieu, Gilson & Ruddy, 2006; LePine et al., 2008; MacCurtain et al., 2010). Accordingly, we expect leaders' courage to go beyond compliance to enhance the effect

of team processes on team creativity, by directing effective team processes towards the generation of novel and useful ideas. Furthermore, because supervisees tend to trust leaders who reveal courage to go beyond compliance (Moorman et al., 2013), team members may feel that, despite organizational pressure to follow standard procedures, it is safe to discuss and explore new ideas and solutions. Therefore, we hypothesize:

Hypothesis 1. Leaders' courage to go beyond compliance moderates the relationship between team processes and team creativity: The relationship is more positive when courage to go beyond compliance is high.

Leaders' courage to go beyond compliance may also support the conversion of creative ideas into implemented innovations for two reasons. First, implementing creative ideas usually requires at least some experimentation by team members, involving trial and error and adjustments (Klein & Sorra, 1996; Repenning, 2002; Klein & Knight, 2005). Because leaders who reveal courage to go beyond compliance strive to do what is right (Sekerka et al., 2014), serving customers and contributing to their organization, they are likely to support team members in their attempts to implement novel ideas, helping them surmount difficulties, adjust poor solutions and fine-tune processes. They are also likely to instill in their teams a spirit of initiative and empowerment that further enhances the effective implementation of ideas. Second, the implementation of novel ideas and changes in procedures often generate resistance in an organization (Kanter, 1988; Janssen, Van De Vliert & West, 2004; Baer, 2012). Moral courage is needed to muster the inner motivation needed to overcome resistance to change for the greater good of the team, of the customers and of the organization. Therefore, we hypothesize:

Hypothesis 2. Leaders' courage to go beyond compliance moderates the relationship between team creativity and team innovation implementation: The relationship is more positive when going beyond compliance is high.

Moderated Mediation

Building upon Hypotheses 1 and 2, we test an integrated moderated mediation model in which team creativity mediates the relationship between team processes and team innovation implementation, conditional upon team leaders revealing courage to go beyond compliance (Figure 1). If leaders' courage to go beyond compliance enhances the relationship between team processes and team creativity, as well as the relationship between team creativity and innovation implementation, it is also likely to influence the indirect effect of team processes on innovation implementation. Therefore we hypothesize:

Hypothesis 3. Leaders' courage to go beyond compliance moderates the indirect effect of team processes on team innovation implementation, via team creativity: This effect is more positive when going beyond compliance is high.

Method

Participants and Procedure

Data were collected from 152 teams (1396 team members, 152 team leaders; response rate = 73%) in one call center company in Portugal. Team leaders reported a mean age of 30 years (*SD* = 5.57) and had been supervising the same team for an average of 1.67 years (*SD* = 1.23); 60.5% were women; 55% completed high school and 39% had a college degree.

Previous research has shown that the level of interdependence in call center teams is similar to that found in other work contexts (Zhang et al., 2012; Tjosvold et al.,

2014). In the company where we collected data, customer service teams fit the description of real work teams (Cohen & Bailey, 1997). Teamwork, interdependence and joint learning were encouraged through team goals, incentives, meetings and training. There were regular inter-team tournaments and team-building activities. Team members interacted frequently during the work day to share insights and discuss difficult issues. Team membership was stable and team boundaries were clearly defined.

Measures

To reduce common method variance (Podsakoff et al., 2003), we collected data from both team members and team leaders. Team leaders rated team processes (the predictor), team innovation implementation (the outcome or criterion), their own moral courage to go beyond compliance (the moderator), and control variables. Team members rated team creativity (the mediator). Additional data were collected from the same participants for separate studies addressing different research questions and using a completely different set of variables.

All surveys were administered in Portuguese. Measures were translated from English to Portuguese and back-translated to ensure accuracy. To justify aggregating team members' ratings of team creativity, we calculated the Average Deviation Index (ADI; Burke & Dunlap, 2002), η^2 and intraclass correlations (ICC1 and ICC2; Bliese, 2000; LeBreton & Senter, 2008). ADI evaluates the intragroup consensus, η^2 the intergroup variability, ICC1 the effect of group membership on members ratings, and ICC2 the reliability of team means.

Team processes were rated by team leaders, who have numerous opportunities to watch team members interact during the work day. Supervisors' assessments of team processes have been found to be reliable and accurate, and have been used extensively

in previous research (e.g., Lester, Meglino & Korsgaard, 2002; Raver & Gelfand, 2005; Rousseau & Aubé, 2010). The nine-item measure developed by Mathieu et al. (2006) was used to capture Marks et al.'s (2001) three super-ordinate categories: transition processes (3 items; e.g., "Members of my team discuss our performance vision"); action processes (3 items; e.g., "Members of my team actively learn from one another"), and interpersonal processes (3 items; e.g., "Members of my team create an environment of openness and trust"). Response options ranged from 1 (*Never*) to 7 (*Extremely often or always*). According to previous research, transition, action, and interpersonal processes are strongly correlated and interdependent (LePine et al., 2008). Therefore, a composite measure of the three super-ordinate categories has generally been used to capture the overall quality of team processes (e.g., Mathieu et al., 2006; Mathieu & Taylor, 2007). The results of a confirmatory factor analysis supported the hypothesized higher-order structure, with three latent variables subsumed by a second-order factor representing the overall quality of team processes ($\chi^2_{(21\ df)} = 39.92$, $p < .05$; CFI = .98; RMSEA = .08). Cronbach's alpha ranged from .81 to .91 for the three factors and was .92 for the full scale.

Team creativity was rated by team members, using four items developed by Gilson and Shalley (2004). The response scale ranged from 1 (*Strongly disagree*) to 7 (*Strongly agree*). Sample item: "Our team links ideas that originate from multiple sources". Individual responses were aggregated to the team level (ADI = .76; $\eta^2 = .18$; ICC1 = .09, $F = 1.86$, $p < .01$; ICC2 = .46). ADI was well below the cut-off value of 1.17 for a 7-point scale, suggesting team consensus (Burke and Dunlap 2002); eta squared indicated substantial variability across groups and was sufficiently high to warrant aggregation to the team level (Bliese, 2000); ICC1 was clearly above the critical

minimum value for a group effect (.05), representing a moderate effect (LeBreton & Senter, 2008). Although the ICC2 value was somewhat low, suggesting modest group mean reliability, it was still acceptable and similar to values found in previous research on customer service and sales teams (e.g., Liu & Batt, 2010).

Idea implementation was rated by team leaders using five items developed by Axtell et al. (2000), reflecting the extent to which team creative ideas had been implemented, and using a 7-point response scale (1 = *No new ideas were implemented*, to 7 = *Many new ideas were implemented*). Sample item: "To what extent team creative ideas regarding new methods to achieve work targets were implemented".

Leaders' courage to go beyond compliance was measured with the three-item scale developed by Sekerka et al. (2009). Leaders were asked to indicate to what extent each item pertained to them at work (e.g., "When I go about my daily tasks I make sure to comply with the rules, but also look to understand their intent, to ensure that this is being accomplished as well"). A 7-point response scale was used (1 = *Never true*, to 7 = *Always true*).

Control variables. We controlled statistically for several potential confounds. Leaders' sex, age and team tenure were controlled because these characteristics have been found to be related to our focal outcome (e.g., Zhang et al., 2010). We also controlled for leaders' intrinsic motivation and its interaction with our key predictor (team processes) to rule out the possibility that the effects observed could be explained by the fact that leaders who internalize values associated with moral courage are simply more motivated. *Leaders' intrinsic motivation* was measured with the 3-item scale developed by Gagné et al. (2010), using a 7-point response scale (1 = *Not at all* to 7 = *Exactly*). An example item is "Because I enjoy this work very much".

Results

Descriptive statistics, reliabilities and correlations are reported in Table 1.

Preliminary Analyses

Confirmatory factor analyses were used to evaluate whether our measurement model fit the data and the key constructs of interest (team processes, team creativity, team innovation implementation and leaders' courage to go beyond compliance) could be distinguished empirically. The theoretical four-factor model was compared to a one-factor model and to all possible three-factor solutions (items representing one of the four scales loaded on each of the other three possible latent variables). In these analyses, transition, action and interpersonal team processes were modeled as observed (parcel) indicators of a latent construct representing the broader construct of team processes (Bandalos, 2002). Team members' ratings of creativity were aggregated to the team level. According to Hu and Bentler's (1999) criteria, the four-factor solution yielded acceptable fit ($\chi^2_{(82\ df)} = 124.28$, $p < .01$; CFI = .96; RMSEA = .06). All items/parcels loaded significantly and above .50 on their respective latent variables (*p's* < .01). Chi-squared differences revealed that our hypothesized model fit the data better than the one factor model ($\Delta\chi^2 = 592.66$, $df = 6$, $p < .01$) or any possible three-factor solution ($70.01 \leq \Delta\chi^2 \leq 340.89$, $df = 3$, $p < .01$). These results indicate that our key variables are empirically distinguishable.

Table 1

Descriptive Statistics, Reliabilities and Correlations

Variable	*M*	*SD*	1	2	3	4	5	6	7	8
1. Leaders' Sex	-	-	-							
2. Leaders' Age	30	5.57	-.05	-						
3. Leaders' Tenure in Team	1.67	1.23	-.03	.02	-					
4. Leaders' Intrinsic Motivation	5.72	1.06	.02	-.05	.01	**.92**				
5. Leaders' Courage to Go Beyond Compliance	5.77	0.86	-.17*	.03	-.04	.28**	**.72**			
6. Team Processes	5.78	0.81	-.16*	-.07	-.04	.41**	.42**	**.92**		
7. Team Creativity	5.49	0.59	.06	.01	.03	-.04	.01	.11	**.88**	
8. Team Innovation Implementation	4.75	1.28	-.06	.03	.13	.15^{+}	.16*	.34**	.08	**.86**

Notes. N = 152. Sex: 0 = Female; 1 = Male. Reliabilities (Cronbach alpha) are reported in bold along the diagonal.

$^{+}$ $p < .10$. * $p < .05$. ** $p < .01$.

Moderation Analyses

Moderation hypotheses were tested using multiple regression, adding blocks of variables in steps after mean centering all continuous variables (Aiken & West, 1991). Results for Hypothesis 1 (leaders' courage to go beyond compliance moderates the relationship between team processes and team creativity) are reported in Table 2. In step 1, we entered control variables. In step 2, we added team processes and leaders' courage. The relationship between team processes and team creativity was positive and marginally significant (β = .17, p < .10). In step 3, we controlled for the interaction between team processes and leaders' intrinsic motivation (which was not significant). In step 4, we added the interaction between team processes and leaders' courage to go beyond compliance, which was positive and significant, as expected (β = .21, p < .05). Simple slopes analyses, conducted for moderator values 1 *SD* above and below the mean (Figure 2), revealed that the relationship between team processes and team creativity was positive only for teams led by individuals reporting high courage to go beyond compliance (β = .37, p < .01; for low moral courage, β = .01, p > .05). These results support Hypothesis 1.

Table 2

Results of Moderation Analysis Predicting Team Creativity

	Step 1: *βs*	Step 2: *βs*	Step 3: *βs*	Step 4: *βs*
Leaders' Sex	.06	.08	.08	.07
Leaders' Age	.01	.02	.02	.04
Leaders' Tenure in Team	.03	.04	.04	.02
Leaders' Intrinsic Motivation (IM)	-.04	-.11	-.11	-.14
Team Processes (TP)		.17^{+}	.17^{+}	.19*
Leaders' Courage to Go Beyond Compliance (GBC)		-.02	-.02	-.02
TP * IM			.01	-.05
TP * GBC				.21*
R^2	.01	.03	.03	.07
R^2 change	.01	.02	.00	.04*

Notes. N = 152. Sex: 0 = Female; 1 = Male. $^{+}$ $p < .10$. * $p < .05$. ** $p < .01$.

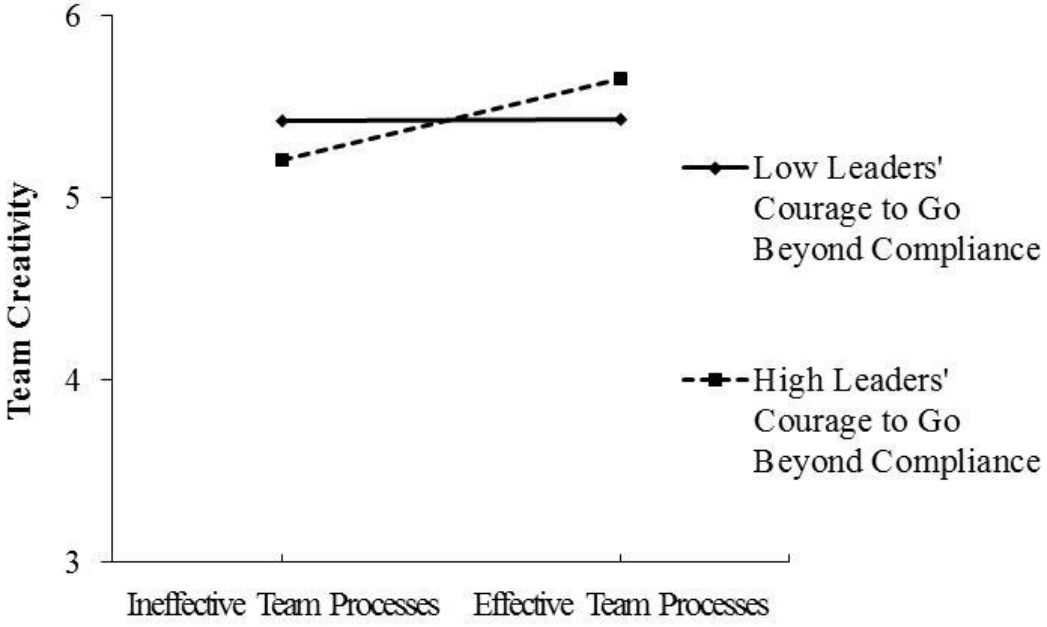

Figure 2. Interaction of team processes and leaders' courage to go beyond compliance, predicting team creativity. The results shown represent predictor and moderator values 1 *SD* above and below the mean.

Results for Hypothesis 2 (leaders' courage to go beyond compliance moderates the relationship between team creativity and team innovation implementation) are presented in Table 3, following a similar analytical strategy. In step 1, we entered control variables and our distal predictor (team processes), predicting team innovation implementation. In step 2, we added team creativity and leaders' courage to go beyond compliance. The relationship between team creativity and team innovation implementation was not significant (β = .04, p > .05). In step 3, we controlled for interactions between team creativity and leaders' intrinsic motivation, and between team creativity and team processes (the distal predictor) – neither of which was statistically significant. In step 4, we added the interaction between team creativity and leaders' courage to go beyond compliance. This effect was positive and significant, as expected

(β = .19, p < .05). Simple slopes analyses (Figure 3) revealed that the relationship between team creativity and team innovation implementation was positive only for teams led by individuals reporting high moral courage to go beyond compliance (β = .24, p = .05; for low moral courage to go beyond compliance, β = -.14, p > .05). These results support Hypothesis 2. We repeated the analyses for Hypotheses 1 and 2 without control variables and found similar results.

Table 3

Results of Moderation Analysis Predicting Team Innovation Implementation

	Step 1: *βs*	Step 2: *βs*	Step 3: *βs*	Step 4: *βs*
Leaders' Sex	.01	.01	.01	.01
Leaders' Age	.05	.05	.05	.03
Leaders' Tenure in Team	.14^{+}	.14^{+}	.15^{+}	.11
Leaders' Intrinsic Motivation (IM)	.01	.01	.01	-.01
Team Processes (TP)	.35**	.33**	.34**	.28**
Team Creativity (TC)		.04	.03	.05
Leaders' Courage to Go Beyond Compliance (GBC)		.03	.03	.08
TC * TP			-.02	-.06
TC * IM			-.03	-.05
TC * GBC				.19*
R^2	.14	.14	.14	.17
R^2 change	.14**	.00	.00	.03*

Notes. N = 152. Sex: 0 = Female; 1 = Male.$^{+}$ p < .10. * p < .05. ** p < .01.

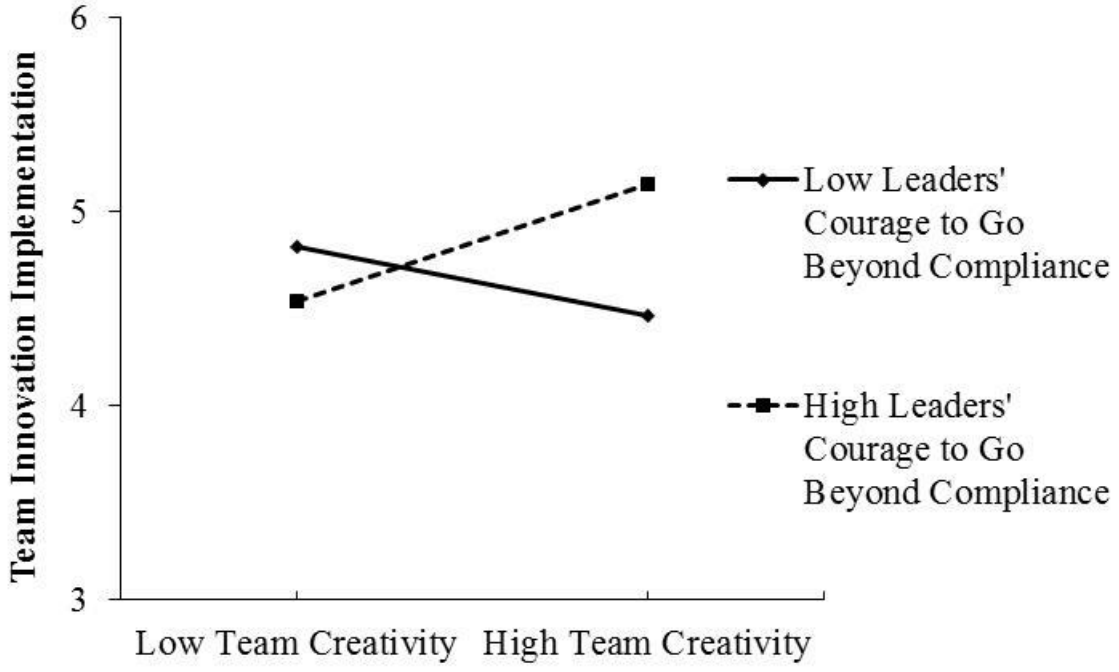

Figure 3. Interaction of team creativity and leaders' courage to go beyond compliance, predicting team innovation implementation. The results shown represent predictor and moderator values 1 *SD* above and below the mean.

Moderated Mediation Analysis

We used Preacher, Rucker and Hayes' (2007) method for evaluating the conditional indirect effect of team processes on team innovation implementation via team creativity. Following recommendations from previous simulation studies (e.g., MacKinnon, Lockwood & Williams, 2004; Preacher & Hayes, 2004), we also estimated the 95% confidence interval ($CI_{95\%}$) for the indirect effect using bias-corrected and accelerated bootstrapping (BC_a) with 1000 samples. This indirect effect is considered statistically significant if the confidence interval excludes zero (Preacher et al., 2007). In this moderated mediation analysis, we controlled for the same variables and interaction terms used in the simple moderation analyses reported above. Here we found

that when the leaders' courage to go beyond compliance was high (+1 *SD*), the indirect effect of team processes on team innovation implementation was positive and statistically significant (conditional indirect effect = .12, $p < .05$, $.01 \leq BC_a\ CI_{95\%} \leq .36$). In contrast, this effect was not significant for leaders reporting low courage (at -1 *SD*, the conditional indirect effect was -.01, $p > .05$, $-.09 \leq BC_a\ CI_{95\%} \leq .06$). These results, supporting Hypothesis 3, were also replicated without control variables.

Discussion

This study contributes to a broader understanding of the influence of leadership on team innovation in call centers. Specifically, we investigated the moderating role of leaders' courage to go beyond compliance in the relationships between team processes, team creativity and team innovation implementation. In line with our hypotheses, we found positive relationships between team processes and team creativity, as well as between team creativity and innovation implementation, but only when leaders revealed courage to go beyond compliance. Similarly, the indirect effect of team processes on team innovation implementation, via team creativity, was significant only for leaders who went beyond compliance, as expected. These effects were significant even after controlling for potential confounds, including leaders' sex, age, team tenure, and intrinsic motivation.

Prior research suggests that the drivers of team innovation depend to a large extent on the work context in which the team operates (Johns, 2006; George, 2007; Somech & Drach-Zahavy, 2011; Zhou & Hoever, 2014). By identifying a leadership characteristic that enhances team innovation, we contribute to the literatures on team processes, innovation and leadership. Moreover, call centers are a particularly interesting context for the study of innovation because call center workers face strong

competing demands to follow standardized procedures as well as to develop innovative solutions to support customers.

Team processes researchers (e.g., Drach-Zahavy & Somech, 2001; Marks et al., 2001; Gilson & Shalley, 2004; Tjosvold et al., 2004; MacCurtain et al., 2010) often assume that teams with effective processes are more capable of innovating because they can manage transition, action and interpersonal processes so as to generate and implement new and useful ideas. However, leadership characteristics and competencies have been found to influence teams' innovative potential (Castro et al., 2012; Sung & Choi, 2012; Nijstad et al., 2014). Our results suggest that, at least in call centers, effective processes are not enough for teams to generate and implement novel solutions. For this purpose, teams also need leaders who reveal courage to go beyond compliance. These findings support the interactionist perspective of innovation (Woodman et al., 1993; Zhou & Hoever, 2014) and a contingent view of team processes – one that takes into consideration not only simple main effects but also interactive effects. Interestingly, we found that the effect of team processes on team innovation implementation was partially rather than fully mediated by team creativity. This suggests that effective team processes contribute directly both to the generation and implementation of novel ideas.

Our findings also contribute to the literatures on team innovation and leadership. In particular, they highlight the importance of considering the generation and implementation of creative ideas as distinct, although conceptually related, stages of innovation. Most prior research focused on only one of these two stages (e.g., Gilson & Shalley, 2004; Sung & Choi, 2012) or assumed that creativity and implementation reflect the same construct (e.g., De Dreu & West, 2001; Tjosvold et al., 2004). Few studies have examined creativity and implementation simultaneously (e.g., Somech &

Drach-Zahavy, 2011; Baer, 2012). Our results indicate that generating ideas does not ensure their implementation. The relationship between team creativity and team innovation implementation was positive only if team leaders also revealed courage to go beyond compliance. To our knowledge, ours is the first study to examine the role of leadership characteristics in the relationship between team creativity and team innovation implementation. Indeed, although leadership is considered critical for innovation, research on leader characteristics and competencies that foster team creativity and innovation implementation is still in its early stage and needs to be expanded (Mumford & Licuanan, 2004; Tierney, 2008; Anderson et al., 2014). Moral courage to go beyond compliance has been theorized to influence innovation (Arnaud & Sekerka, 2010). Our results suggest that, in call centers, leaders' courage to go beyond compliance plays an important role in facilitating innovation both at an early stage, orienting effective team processes toward the generation of creative ideas and solutions, and at a later stage, by facilitating the implementation of these ideas and solutions.

Limitations and Future Directions

This study has some limitations that should be addressed through further research. First, we collected data from one call center organization. Although we expect our findings to be applicable to contexts where workers experience similar tension between following procedures and innovating (Hannah et al., 2011a), they may not generalize to all contexts. Second, we cannot infer causality from cross-sectional data. However, our conclusions are based on compelling theory and research indicating that team processes are an antecedent of team innovation, and that team creativity is the first stage of team innovation.

There are other promising avenues for further research. For example, it would be interesting to know whether the effects observed in this study apply to both incremental and radical creativity and innovation. It would also be important to study other leadership characteristic that might influence the relationship between team processes, team creativity and team innovation implementation – in particular, characteristics that might attenuate rather than enhance those relationships, such as close monitoring (Zhou & Hoever, 2014). Finally, the nomological network of moral courage to go beyond compliance needs to be explored further because this construct was developed recently (Sekerka et al., 2009). We should note that our finding of a significant relationship with intrinsic motivation is a small contribution to this effort.

Practical Implications

Our findings have important practical implications for fostering creativity and innovation in work environments that encourage continuous improvement but also require close adherence to standardized procedures. Team leaders may enhance team creativity and the implementation of novel ideas and solutions by developing or revealing greater courage to go beyond compliance. Prior research indicates that moral courage can be trained via experiential and reflective learning activities such as "balanced experiential inquiry" (see Sekerka, Godwin & Charnigo, 2012 for details). However, leaders' moral courage in itself will not enhance creativity and innovation if teams lack effective processes. Interventions to enhance team creativity and innovation should therefore focus on the simultaneous development of effective team processes and leaders' courage to go beyond compliance. Finally, our results suggest that call center organizations interested in fostering innovation should consider courage to go beyond compliance as a relevant criterion for the selection, training and development of team

leaders. Those who reveal courage to go beyond compliance may be more suited to help their teams innovate.

References

Aiken, L.S. and West, S.G. (1991) *Multiple Regression: Testing and Interpreting Interactions*, Sage Publications Inc, London, United Kingdom.

Anderson, N., Potočnik, K. and Zhou, J. (2014) Innovation and Creativity in Organizations: A State-of-the-Science Review, Prospective Commentary, and Guiding Framework. *Journal of Management*. Advance online publication.

Arnaud, A. and Sekerka, L.E. (2010) Positively Ethical: The Establishment of Innovation in Support of Sustainability. *International Journal of Sustainable Strategic Management*, 2, 121-37.

Axtell, C.M., Holman, D.J., Unsworth, K.L., Wall, T.D., Waterson, P.E. and Harrington, E. (2000) Shopfloor Innovation: Facilitating the Suggestion and Implementation of Ideas. *Journal of Occupational and Organizational Psychology*, 73, 265-85.

Baer, M. (2012) Putting Creativity to Work: The Implementation of Creative Ideas in Organizations. *Academy of Management Journal*, 55, 1102-19.

Bagozzi, R.P., Sekerka, L.E., Hill, V. and Sguera, F. (2013) The Role of Moral Values in Instigating Morally Responsible Decisions. *The Journal of Applied Behavioral Science*, 49, 69-94.

Bandalos, D.L. (2002) The Effects of Item Parceling on Goodness-of-fit and Parameter Estimate Bias in Structural Equation Modeling. *Structural Equation Modeling*, 9, 78-102.

Batt, R. (2002) Managing Custumer Services: Human Resources Practices, Quit Rates and Sales Growth. *Academy of Management Journal*, 45, 587-97.

Batt, R., Colvin, A.J.S. and Keefe, J. (2002) Employee Voice, Human Resource Practices, and Quit Rates: Evidence from the Telecommunications Industry. *Industrial and Labor Relations Review*, 55, 573-94.

Batt, R. and Moynihan, L.M. (2002) The Viability of Alternative Call Centre Production Models. *Human Resource Management Journal*, 12, 14-34.

Baucus, M.S., Norton, W.I., Baucus, D.A. and Human, S.E. (2008) Fostering Creativity and Innovation Without Encouraging Unethical Behavior. *Journal of Business Ethics*, 81, 97-115.

Bliese, P.D. (2000) Within-group Agreement, Non-independence, and Reliability: Implications for Data Aggregation and Analyses. In Klein, K.J. and Kozlowski, S.W.J. (eds.), *Multilevel Theory, Research, and Methods in Organizations: Foundations, Extensions, and New Directions*. Jossey-Bass, San Francisco, pp. 349-81.

Budhwar, P.S., Varma, A., Singh, V. and Dhar, R. (2006) HRM Systems of Indian Call Centres: An Exploratory Study. *The International Journal of Human Resource Management*, 17, 881-97.

Burke, M.J. and Dunlap, W.P. (2002) Estimating Interrater Agreement With the Average Deviation Index: A User's Guide. *Organizational Research Methods*, 5, 159-72.

Castro, F., Gomes, J. and Sousa, F.S. (2012) Do Intelligent Leaders Make a Difference? The Effect of a Leader's Emotional Intelligence on Followers' Creativity. *Creativity and Innovation Management*, 21, 171-82.

Clegg, C., Unsworth, K., Epitropaki, O. and Parker, G. (2002) Implicating Trust in the Innovation Process. *Journal of Occupational and Organizational Psychology*, 75, 409-22.

Cohen, S.G. and Bailey, D.E. (1997) What Makes Teams Work: Group Effectiveness Research from the Shop Floor to the Executive Suite. *Journal of Management*, 23, 239-90.

De Dreu, C.K.W. and West, M.A. (2001) Minority Dissent and Team Innovation: The Importance of Participation in Decision Making. *Journal of Applied Psychology*, 86, 1191-201.

Drach-Zahavy, A. and Somech, A. (2001) Understanding Team Innovation: The Role of Team Processes and Structures. *Group Dynamics: Theory, Research, and Practice*, 5, 111-23.

Farr, J.L., Sin, H.-P. and Tesluk, P.E. (2003) Knowledge Management Processes and Work Group Innovation. In Shavinina, L.V. (ed.), *The International Handbook on Innovation*. Elsevier Science, New York, pp. 574-86.

Gagné, M., Forest, J., Gilbert, M.H., Aubé, C., Morin, E. and Malorni, A. (2010) The Motivation at Work Scale: Validation Evidence in Two Languages. *Educational and Psychological Measurement*, 70, 628-46.

George, J.M. (2007) Creativity in Organizations. *The Academy of Management Annals*, 1, 439-77.

Gilson, L.L. and Shalley, C.E. (2004) A Little Creativity Goes a Long Way: An Examination of Teams' Engagement in Creative Processes. *Journal of Management*, 30, 453-70.

Greenberg, P. (2010) *Customer Relationship Management*, McGraw-Hill, New York.

Hannah, S.T., Avolio, B.J. and May, D.R. (2011a) Moral Maturation and Moral Conation: A Capacity Approach to Explaining Moral Thought and Action. *Academy of Management Review*, 36, 663-85.

Hannah, S.T., Walumbwa, F.O. and Fry, L.W. (2011b) Leadership in Action Teams: Team Leader and Members' Authenticity, Authenticity Strength, and Team Outcomes. *Personnel Psychology*, 64, 771-802.

Holman, D. (2003) Call Centres. In Holman, D., Wall, T.D., Clegg, C.W., Sparrow, P. and Howard, A. (eds.), *The New Workplace: A Guide to the Human Impact of Modern Working Practices*. John Wiley & Sons, Sussex, pp. 115-34.

Holman, D., Batt, R. and Holtgrewe, U. (2007) *The Global Call Centre Report: International Perspectives on Management and Employment*, Global Call Centre Research Network, United Kingdom.

Hsu, F.M. (2006) Knowledge Contribution and Computer Supported Cooperative Work of Knowledge Sharing System: The Case of Call Centers in Telecommunications Industry. *Journal of Global Business Management*, 2, 1-13.

Hu, L. and Bentler, P.M. (1999) Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria Versus New Alternatives. *Structural Equation Modeling*, 6, 1-55.

Hülsheger, U.R., Anderson, N. and Salgado, J.F. (2009) Team-level Predictors of Innovation at Work: A Comprehensive Meta-analysis Spanning Three Decades of Research. *Journal of Applied Psychology*, 94, 1128-45.

Janssen, O., Van De Vliert, E. and West, M.A. (2004) The Bright and Dark Sides of Individual and Group Innovation: A Special Issue Introduction. *Journal of Organizational Behavior*, 25, 129-45.

Johns, G. (2006) The Essential Impact of Context on Organizational Behavior. *Academy of Management Review*, 31, 386-408.

Kanter, R.M. (1988) When a Thousand Flowers Bloom: Structural, Collective, and Social Conditions for Innovation in Organizations. In Staw, B.M. and Cummings, L.L. (eds.), *Research in Organizational Behavior*. JAI Press, Greenwich, CT, pp. 169-211.

Kayser, D.N., Greitemeyer, T., Fischer, P. and Frey, D. (2010) Why Mood Affects Help Giving, But Not Moral Courage: Comparing Two Types of Prosocial Behaviour. *European Journal of Social Psychology*, 40, 1136-57.

Kinnunen, S.P. and Windmann, S. (2013) Dual-processing Altruism. *Frontiers in Psychology*, 4, 1-8.

Klein, K.J. and Knight, A.P. (2005) Innovation Implementation: Overcoming the Challenge. *Current Directions in Psychological Science*, 14, 243-46.

Klein, K.J. and Sorra, J.S. (1996) The Challenge of Innovation Implementation. *Academy of Management Review*, 21, 1055-80.

LeBreton, J.M. and Senter, J.L. (2008) Answers to 20 Questions about Interrater Reliability and Interrater Agreement. *Organizational Research Methods*, 11, 815-52.

LePine, J.A., Piccolo, R.F., Jackson, C.L., Mathieu, J.E. and Saul, J.R. (2008) A Meta-analysis of Teamwork Processes: Tests of a Multidimensional Model and Relationships with Team Effectiveness Criteria. *Personnel Psychology*, 61, 273-307.

Lester, S.W., Meglino, B.M. and Korsgaard, M.A. (2002) The Antecedents and Consequents of Group Potency: A Longitudinal Investigation of Newly Formed Work Groups. *Academy of Management Journal*, 45, 352-68.

Liu, X. and Batt, R. (2010) How Supervisors Influence Performance: A Multilevel Study of Coaching and Group Management in Technology-mediated Services. *Personnel Psychology*, 63, 265-98.

MacCurtain, S., Flood, P.C., Ramamoorthy, N., West, M.A. and Dawson, J.F. (2010) The Top Management Team, Reflexivity, Knowledge Sharing and New Product Performance: A Study of the Irish Software Industry. *Creativity and Innovation Management*, 19, 219-32.

MacKinnon, D.P., Lockwood, C.M. and Williams, J. (2004) Confidence Limits for the Indirect Effect: Distribution of the Product and Resampling Methods. *Multivariate Behavioral Research*, 39, 99-128.

Marks, M.A., Mathieu, J.E. and Zaccaro, S.J. (2001) A Temporally based Framework and Taxonomy of Team Processes. *Academy of Management Review*, 26, 356-76.

Mathieu, J.E., Gilson, L.L. and Ruddy, T.M. (2006) Empowerment and Team Effectiveness: An Empirical Test of an Integrated Model. *Journal of Applied Psychology*, 91, 97-108.

Mathieu, J.E. and Taylor, S.R. (2007) A Framework for Testing Meso-mediational Relationships in Organizational Behavior. *Journal of Organizational Behavior*, 28, 141-72.

Moorman, R.H., Darnold, T.C. and Priesemuth, M. (2013) Perceived Leader Integrity: Supporting the Construct Validity and Utility of a Multi-dimensional Measure in Two Samples. *The Leadership Quarterly*, 24, 427-44.

Mulholland, K. (2002) Gender, Emotional Labour and Teamworking in a Call Centre. *Personnel Review*, 31, 283-303.

Mumford, M.D. and Licuanan, B. (2004) Leading for Innovation: Conclusions, Issues, and Directions. *The Leadership Quarterly*, 15, 163-71.

Nijstad, B.A., Berger-Selman, F. and De Dreu, C.K.W. (2014) Innovation in Top Management Teams: Minority Dissent, Transformational Leadership, and Radical Innovations. *European Journal of Work and Organizational Psychology*, 23, 310-22.

Osswald, S., Frey, D. and Streicher, B. (2012) Moral Courage. In Kals, E. and Maes, J. (eds.), *Justice and Conflict*. Springer, Berlin, pp. 391-405.

Pearce, C.L. and Ensley, M.D. (2004) A Reciprocal and Longitudinal Investigation of the Innovation Process: The Central Role of Shared Vision in Product and Process Innovation Teams (PPITs). *Journal of Organizational Behavior*, 25, 259-78.

Pentland, B.T. (1995) Read Me What It Says on Your Screen: The Interpretative Problem in Technical Service Work. *Technology Studies*, 2, 50-79.

Pivo, G. (2008) Exploring Responsible Property Investing: A Survey of American Executives. *Corporate Social Responsibility and Environmental Management*, 15, 235-48.

Podsakoff, P.M., MacKenzie, S.B., Lee, J.-Y. and Podsakoff, N.P. (2003) Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *Journal of Applied Psychology*, 88, 879-903.

Preacher, K.J. and Hayes, A.F. (2004) SPSS and SAS Procedures for Estimating Indirect Effects in Simple Mediation Models. *Behavior Research Methods, Instruments, & Computers*, 36, 717-31.

Preacher, K.J., Rucker, D.D. and Hayes, A.F. (2007) Addressing Moderated Mediation Hypotheses: Theory, Methods, and Prescriptions. *Multivariate Behavioral Research*, 42, 185-227.

Raver, J.L. and Gelfand, M.J. (2005) Beyong the Individual Victim: Linking Sexual Harassment, Team Processes, and Team Performance. *Academy of Management Journal*, 48, 387-400.

Repenning, N.P. (2002) A Simulation-based Approach to Understanding the Dynamics of Innovation Implementation. *Organization Science*, 13, 109-27.

Robinson, G. and Morley, C. (2007) Running the Electronic Sweatshop: Call Centre Managers' Views on Call Centres. *Journal of Management & Organization*, 13, 249-63.

Rousseau, V. and Aubé, C. (2010) Team Self-managing Behaviors and Team Effectiveness: The Moderating Effect of Task Routineness. *Group & Organization Management*, 35, 751-81.

Sekerka, L.E., Bagozzi, R.P. and Charnigo, R. (2009) Facing Ethical Challenges in the Workplace: Conceptualizing and Measuring Professional Moral Courage. *Journal of Business Ethics*, 89, 565-79.

Sekerka, L.E., Comer, D.R. and Godwin, L.N. (2014) Positive Organizational Ethics: Cultivating and Sustaining Moral Performance. *Journal of Business Ethics*, 119, 435-44.

Sekerka, L.E., Godwin, L.N. and Charnigo, R. (2012) Use of Balanced Experiential Inquiry to Build Ethical Strength in the Workplace. *Journal of Management Development*, 31, 275-86.

Shah, V. and Bandi, R.K. (2003) Capability Development in Knowledge Intensive IT Enabled Services. *European Journal of Work and Organizational Psychology*, 12, 418-27.

Shalley, C.E., Zhou, J. and Oldham, G.R. (2004) The Effects of Personal and Contextual Characteristics on Creativity: Where Should We Go from Here?. *Journal of Management*, 30, 933-58.

Shin, S.J. and Zhou, J. (2007) When Is Educational Specialization Heterogeneity Related to Creativity in Research and Development Teams? Transformational Leadership as a Moderator. *Journal of Applied Psychology*, 92, 1709-21.

Solomon, R.C. (1998) The Moral Psychology of Business: Care and Compassion in the Corporation. *Business Ethics Quarterly*, 8, 515-33.

Somech, A. and Drach-Zahavy, A. (2011) Translating Team Creativity to Innovation Implementation: The Role of Team Composition and Climate for Innovation. *Journal of Management*, 39, 684-708.

Sung, S.Y. and Choi, J.N. (2012) Effects of Team Knowledge Management on the Creativity and Financial Performance of Organizational Teams. *Organizational Behavior and Human Decision Processes*, 118, 4-13.

Tierney, P. (2008) Leadership and Employee Creativity. In Zhou, J. and Shalley, C.E. (eds.), *Handbook of Organizational Creativity*. Erlbaum, New York, pp. 125-47.

Tjosvold, D., Chen, N.Y., Huang, X. and Xu, D. (2014) Developing Cooperative Teams to Support Individual Performance and Well-being in a Call Center in China. *Group Decision and Negotiation*, 23, 325-48.

Tjosvold, D., Tang, M.M.L. and West, M.A. (2004) Reflexivity for Team Innovation in China: The Contribution of Goal Interdependence. *Group & Organization Management*, 29, 540-59.

van den Broek, D., Barnes, A. and Townsend, K. (2008) 'Teaming Up': Teams and Team Sharing in Call Centres. *Journal of Industrial Relations*, 50, 257-69.

Walumbwa, F.O., Avolio, B.J., Gardner, W.L., Wernsing, T.S. and Peterson, S.J. (2008) Authentic Leadership: Development and Validation of a Theory-based Measure. *Journal of Management*, 34, 89-126.

Wech, B.A., Kennedy, K.N. and Deeter-Schmelz, D.R. (2009) A Multi-level Analysis of Customer Contact Teams. *Journal of Services Marketing*, 23, 436-48.

West, M.A. (2002) Sparkling Fountains or Stagnant Ponds: An Integrative Model of Creativity and Innovation Implementation in Work Groups. *Applied Psychology: An International Review*, 51, 355-424.

West, M.A. and Anderson, N. (1996) Innovation in Top Management Teams. *Journal of Applied Psychology*, 81, 680-93.

West, M.A., Borrill, C.S., Dawson, J.F., Brodbeck, F., Shapiro, D.A. and Haward, B. (2003) Leadership Clarity and Team Innovation in Health Care. *The Leadership Quarterly*, 14, 393-410.

West, M.A., Hirst, G., Richter, A. and Shipton, H. (2004) Twelve Steps to Heaven: Successfully Managing Change Through Developing Innovative Teams. *European Journal of Work and Organizational Psychology*, 13, 269-99.

Woodman, R.W., Sawyer, J.E. and Griffin, R.W. (1993) Toward a Theory of Organizational Creativity. *Academy of Management Review*, 18, 293-321.

Zapf, D., Isic, A., Bechtoldt, M. and Blau, P. (2003) What Is Typical for Call Centre Jobs? Job Characteristics, and Service Interactions in Different Call Centres. *European Journal of Work and Organizational Psychology*, 12, 311-40.

Zhang, Z., Waldman, D.A. and Wang, Z. (2012) A Multilevel Investigation of Leader–Member Exchange, Informal Leader Emergence, and Individual and Team Performance. *Personnel Psychology*, 65, 49-78.

Zhou, J. and Hoever, I.J. (2014) Research on Workplace Creativity: A Review and Redirection. *Annual Review of Organizational Psychology and Organizational Behavior*, 1, 333-59.

CAPÍTULO 4

Innovation processes and team effectiveness: The role of goal clarity and commitment, and team affective tone[3]

Abstract

Using two distinct samples, this research unpacks the relationships between team innovation processes and effectiveness (measured as performance and reputation). Furthermore, we examine the moderating role of two team emergent states: goal clarity and commitment, and affective tone. We find that the relationship between innovation processes and performance is moderated by goal clarity and commitment, such that the relationship is more strongly positive when goal clarity and commitment is high. Conversely, innovation processes are more positively related to reputation when teams have lower levels of negative affective tone. Implications for research on innovation processes, emergent states, and effectiveness are discussed along with implications for practice.

Keywords: team innovation processes; team performance; team reputation; goal clarity and commitment; affective tone

Introduction

Team innovation processes are generally assumed to be the *sine qua non* for team and organizational effectiveness in challenging and uncertain environments (Pearce & Ensley, 2004; West & Anderson, 1996). The assumption that innovation processes have

[3] This chapter is based on: Peralta, C. F., Lopes, P. N., Gilson, L. L., Lourenço, P. R., & Pais, L. (2015). Innovation processes and team effectiveness: The role of goal clarity and commitment, and team affective tone. *Journal of Occupational and Organizational Psychology, 88*, 80-107. The chapter follows the author's guidelines of the journal.

positive consequences has led numerous researchers to treat the construct as a criterion variable, analyzing how and when different antecedents either facilitate or hinder team innovation processes (Anderson, De Dreu, & Nijstad, 2004; George, 2007; Hülsheger, Anderson, & Salgado, 2009). Recently, however, researchers have questioned these positively biased assumptions (Anderson & Gasteiger, 2007; Janssen, Van De Vliert, & West, 2004) and uncovered some negative and mixed findings with regard to the relationship between innovation processes and various outcomes (e.g., Janssen, 2003).

Teams that engage in innovation processes actively seek, try, and implement novel and useful ways of doing their work (Cohen, Ledford, & Spreitzer, 1996; West, 2002), and these processes have been theoretically linked to team effectiveness (Gilson, Mathieu, Shalley, & Ruddy, 2005; Janssen et al., 2004). However, studies that have examined the relationships between team innovation processes and team effectiveness have found only weak associations (e.g., Sarin & McDermott, 2003; Sung & Choi, 2012). Interestingly, studies that were not focused on this specific association, but measured both constructs, have demonstrated positive (e.g., De Dreu, 2002; Somech, 2006), nonsignificant (e.g., Bain, Mann, & Pirola-Merlo, 2001), and even slightly negative effects (e.g., De Dreu, 2006). What these findings suggest is that, given the importance placed on innovation, there is a need to theoretically unpack the relationship between innovation processes and team effectiveness, and to identify the critical factors that might further influence this association.

In this research we examine the relationship between team innovation processes and effectiveness by drawing on prior theorizing on team processes and emergent states (Marks, Mathieu, & Zaccaro, 2001), and on the multidimensional conceptualization of team effectiveness (Mathieu, Maynard, Rapp, & Gilson, 2008; Mathieu & Gilson, 2012;

Sundstrom, McIntyre, Halfhill, & Richards, 2000). In doing so, we posit that the effect of innovation processes on team effectiveness will be contingent on emergent states. According to Marks et al. (2001), emergent states are "cognitive, motivational, and affective states of teams, as opposed to the nature of their member interaction" (p. 357). Accordingly, emergent states are relatively stable conditions that constantly interact with team processes (Ilgen, Hollenbeck, Johnson, & Jundt, 2005; LePine, Piccolo, Jackson, Mathieu, & Saul, 2008) and that can alter the processes-effectiveness relationship (Bradley, Postlethwaite, Klotz, Hamdani, & Brown, 2012). In this work we examine two emergent sates: team goal clarity and commitment and team affective tone.

Team effectiveness is a multidimensional construct that encompasses performance, reputation, and organizational citizenship behaviors, among other facets. Given that the various dimensions have been found to have their own properties and predictors (e.g., Cohen et al., 1996; Cropanzano, Li, & Benson, 2011; Oetzel & Bolton-Oetzel, 1997; Tyran & Gibson, 2008), the effects of processes, emergent states, and their subsequent interactions may differ depending on which facet of effectiveness is being considered. In the present work, we examine both team performance and reputation because they are crucial and ecologically valid criteria of team effectiveness and prior research has been able to empirically distinguish these two facets of effectiveness (see Tyran & Gibson, 2008 for a review). Furthermore, performance is a context-transversal criterion (Mathieu & Gilson, 2012), whereas reputation contributes to team and organizational image (Tyran & Gibson, 2008). Within the research on teams, performance is the facet of effectiveness that is most commonly examined and the ultimate goal of most innovation initiatives (Cohen et al., 1996). In contrast, reputation is one of the least studied facets of effectiveness, and has been highlighted as

needing more in-depth consideration (Laird, Zboja, & Ferris, 2012; Tyran & Gibson, 2008). Team reputation provides a rich theoretical counterpoint to performance because, whereas performance is often viewed as an objective indicator of effectiveness (e.g., parts sold, calls answered, mistakes made), reputation relies on subjective external evaluations (third party opinions). However, teams need to balance internal (performance) and external (reputation) indicators of effectiveness to remain competitive. For instance, a team that fails to meet its goals may be dissolved due to poor performance and a team that disregards its reputation may lose credibility, good will, and critical support from external stakeholders (including others parties within an organization). Work by Dixon, Freeman and Toman (2010) found that 48% of people who had bad experiences with the service provided by a call center service shared their negative opinions with 10 or more other individuals. Lastly, performance and reputation are of theoretical and practical relevance for the present studies because it has been proposed that both can be influenced by innovation processes (Mathieu & Gilson, 2012; Tyran & Gibson, 2008).

The goal of this research is to extend our understanding of the team innovation process-effectiveness relationship by examining the moderating role of team emergent states. In doing so, we question the prevalent view that emphasizes the main effects of innovation processes, and argue that important moderators need to be considered (Anderson et al., 2004; Janssen et al., 2004). To help ensure the generalizability of our findings, we test our hypotheses using two very different samples (call center and roller hockey teams).

Theoretical Background and Hypotheses

Team Innovation Processes and Effectiveness

Work teams, defined as groups of interdependent people who interact and share responsibility for achieving common goals (Cohen & Bailey, 1997), frequently engage in innovation processes to increase or sustain their competitive advantage (Eisenbeiss, van Knippenberg, & Boerner, 2008). Innovation processes facilitate adaptation and change (West, Hirst, Richter, & Shipton, 2004). When engaging in innovation processes, team members exchange knowledge and discuss different perspectives (Lovelace, Shapiro, & Weingart, 2001; Taggar, 2002). Through innovation processes, teams search for new solutions to ill-defined problems, readjust previous ways of doing things, and try to discover new and more effective means to complete tasks (Cohen et al., 1996; Pirola-Merlo, 2010).

Theory and research suggest that team innovation can be viewed both as an outcome and as a process. As a process, team innovation entails members actively generating and exchanging ideas, critically considering and discussing possible solutions, and ultimately implementing the selected ideas (Somech & Drach-Zahavy, 2011). All of these steps involve action, intention and interaction. Accordingly, they fit the definition of a team process provided by Marks et al. (2001, p. 357): "team process involves members' interacting with other members and their task environment (…) to utilize various resources, such as expertise, equipment, and money, to yield meaningful outcomes".

Innovation processes encompass two sub-processes: creativity and innovation (Cohen et al., 1996; George, 2007; Scott & Bruce, 1994; Somech & Drach-Zahavy, 2011; West, 2002). Whereas creativity entails the generation of new and useful ideas

and solutions (West, 2002; West et al., 2004), innovation involves the implementation of ideas and solutions (Klein & Knight, 2005; Klein & Sorra, 1996). Some researchers distinguish between the creative and implementation sub-processes (e.g., Baer, 2012) arguing that they occur at different stages and have different predictors (Axtell et al., 2000). However, the two sub-processes need not occur sequentially and teams often iterate between idea generation, evaluation, and implementation (Harvey & Kou 2013; Rietzschel, 2011). Consequently, the sub-processes tend to be highly correlated (Janssen, 2001, 2003). Because our research focuses on the relationships between team innovation processes and different facets of effectiveness, and we are theorizing contingencies of these relationships, we operationalized innovation processes as a single construct (De Dreu & West, 2001; Scott & Bruce, 1994; Taggar, 2002) comprised of both creativity and implementation.

Emergent States as Moderators

Team theorists have long argued that the process-outcome relationship is moderated by emergent states (Marks et al., 2001; Mathieu et al., 2008). For example, Bradley et al. (2012) found that psychological safety, an emergent state characterized as a shared belief that a team's climate is one where it is safe to speak up and take risks, moderates the relationship between task conflict and team performance. Similarly, Zhou and Wang (2010) found that the relationship between team processes and performance was moderated by shared mental models, an emergent state defined as the knowledge shared by team members. In this work, we posit that the relationship between innovation processes and performance will be moderated by team goal clarity and commitment, whereas the relationship between innovation processes and reputation will be moderated by team affective tone.

Moderating Role of Team Goal Clarity and Commitment

Team performance has been conceptualized as a measure of the extent to which a team accomplishes its tasks, reflecting both output quantity and quality (Mathieu & Gilson, 2012; Tannenbaum, Beard, & Salas, 1992). Through innovation processes, teams intentionally seek and introduce new procedures, processes, or products that they believe will be useful and will, in turn, enhance team or organizational performance (West, 2002). However, innovation processes are grounded in complex social and organizational systems, and can therefore be unpredictable and controversial (Kanter, 1988). Although teams intend to increase performance through innovation efforts, they may unintentionally end up having the opposite effect (Anderson et al., 2004; Janssen et al., 2004). We posit that the teams' clarity and commitment to their objectives is a critical contingency factor that will help ensure a positive impact of innovation processes on performance.

Team goal clarity and commitment has been defined as "how clearly defined, shared, attainable, and valued are the team's objectives and vision" (Anderson & West, 1996, p. 59). As such, it refers to team members' cognitive and motivational states (Farr, Sin, & Tesluk, 2003) regarding team objectives. Team goal clarity and commitment should enhance the effect of innovation processes on performance by fostering team members' motivation to use innovation processes to drive results and by directing team members to develop the strategies that best fit the achievement of desired outcomes (Hoegl & Parboteeah, 2003; Kleingeld, van Mierlo, & Arends, 2011; Weingart & Weldon, 1991). Prior research finds that shared goals help teams engage in creative processes (Gilson & Shalley, 2004). Clarity and commitment to goals should help teams align creative processes with performance objectives and ensure that all

members are pulling in the same direction when implementing innovative solutions (Weingart & Weldon, 1991). In addition, goal clarity and commitment should increase team efficacy (Pearce & Ensley, 2004), which in turn helps foster collaboration and open communication (Gladstein, 1984; Saavedra, Earley, & Van Dyne, 1993) that ultimately drives performance. In contrast, teams where innovation processes are combined with low levels of goal clarity and commitment may perform poorly because members might lose track of or not be clear regarding priorities, they might waste their efforts exploring less promising ideas, or collaborate less effectively since they are not focusing on achieving the same goals. Therefore, we hypothesize:

Hypothesis 1. Goal clarity and commitment moderates the relationship between team innovation processes and performance: The relationship becomes more positive when goal clarity and commitment is high.

Moderating Role of Team Affective Tone

Team reputation captures the opinions that third parties have about a team regarding the quality of present and future work, trustworthiness, atmosphere, interpersonal relationships, and other context-relevant behaviors (Tyran & Gibson, 2008). Clients, supervisors and others ascribe reputational characteristics to a team based on their interactions with its members and on reports from other sources (Laird et al., 2012). However, reputation is fundamentally based on what others are able to observe (Hall, Zinko, Perryman, & Ferris, 2009) and is thus subjective. Given that a team's affective tone (positive and negative) is usually noticeable and difficult to hide, we propose that it will influence the innovation process-team reputation relationship.

Team affective tone has been described as a group property, a "consistency (in affect) within groups" (George, 1990, p. 108). Consequently, team affective tone is an

emergent state that reflects team members' consistent and stable affective experiences, which are influenced by the team's history as well as member characteristics (De Dreu, West, Fischer, & MacCurtain, 2001; George, 1990). Teams develop a positive or negative affective tone through several mechanisms. First, team members may converge on their affect over time via unconscious mood contagion (Barsade, 2002; Bartel & Saavedra, 2000; Neumann & Strack, 2000) or via affective impression management strategies (Kelly & Barsade, 2001). Second, people are attracted to, selected by, and retained in specific teams due to their dispositions (George, 1990). Third, socialization (Kozlowski & Bell, 2003) helps to ensure that all members conform to team and organizational rules on emotional expression (Kelly & Barsade, 2001). Lastly, team members are usually subject to similar affective stimulation and interpersonal interactions (De Dreu et al., 2001; Totterdell, 2000; Weiss & Cropanzano, 1996), resulting in consistency of affective states across members.

Prior research on team and organizational climate finds that employee emotions spillover into their interactions with third parties (Dimitriades, 2007). Therefore, the expression of positive emotions can induce liking, joy, and satisfaction (Söderlund & Rosengren, 2004; Van Kleef, De Dreu, & Manstead, 2004). In contrast, the expression of negative emotions can induce disliking, anger, and retaliatory behaviors (Van Kleef & Côté, 2007). According to the affect-as-information hypothesis, feelings influence judgments because people tend to ask themselves "how do I feel about it?" when making subjective evaluations about a target (Schwarz & Clore, 1983). According to the Affect Infusion Model (Forgas, 1995), people's judgments tend to converge with their affective reactions, especially when they rely on heuristics or construct judgments based on selective information processing. In a social context, the expression of emotion can

influence both affective responses to and cognitive inferences about a target (Van Kleef, 2009). Given that reputation is influenced by subjective evaluations and attitudes towards a team that encompass both cognitive and emotional dimensions, a team's emotional state is likely to influence others' evaluations of team reputation.

A team that engages in innovation processes can induce admiration, pride, joy, and other positive feelings in observers, enhancing subjective evaluations of a team's reputation. For example, a team that comes up with useful creative solutions to help solve client problems might elicit admiration not only from clients, but also from others in the organization. In sports, creative plays can convey mastery and enthuse fans even if their team does not win the game. By conveying congruent or incongruent emotional signals and information, a team's affective tone should weaken or strengthen the effect of innovation processes on team reputation. If team members experience and reveal negative feelings, conveying they are under stress or in disarray, this is likely to undermine the potentially beneficial effect of innovation processes on observers' subjective evaluations of team competence and potential (team reputation). In this case, observers may interpret creative experimentation or trying new things as a sign that team members do not know what they are doing (Gilson et al., 2005). If members experience and express positive feelings, conveying confidence, hope, and enthusiasm this is likely to strengthen the beneficial effect of innovation processes on team reputation. Observers in this situation may view creative experimentation as a sign of mastery and even brilliance.

Team affective tone may therefore influence a team's capacity to convey a desired impression and to manage its reputation through emotional displays and nonverbal behavior (Grandey, 2000). Although people often try to hide negative feelings or fake

positive emotions, others can detect inauthentic emotional expression (Collishaw, Dyer, & Boies, 2008; Grandey, Fisk, Mattila, Jansen, & Sideman, 2005). Accordingly, we expect negative affective tone to limit a teams' capacity to communicate a desired positive image to others and positive affective tone to enhance said capacity. Although negative emotions tend to grab attention and influence cognition more strongly than positive emotions (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001), it is worth examining the moderating effect of both positive and negative team affective tone. Thus, we hypothesize:

Hypothesis 2. Team positive and negative affective tone moderate the relationship between team innovation processes and team reputation: The positive association between processes and reputations is enhanced when positive affective tone is high and team negative affective tone is low.

STUDY 1

To examine our hypotheses we conducted two field studies. Study 1 involves employees working in a call center. The idea of teamwork in call centers may be counter-intuitive because customer assistants answer calls individually and people tend to think they simply follow instructions mechanically. However, this view of call center work has recently been refuted (Bain & Taylor, 2000; Dixon et al., 2010; Robinson & Morley, 2007). Given the increased use of technology in call centers, for highly standardized interactions, automated systems now enable customers to obtain information and solve problems without waiting for a human assistant. Given this, team members typically address nonstandard problems and concerns. In these instances, the employee needs to understand and diagnose the problem, find a solution that satisfies the customer and preempts follow-up calls, and in some cases repair the relationship

between the customer and the company (Dixon et al., 2010; Pentland, 1995; Shah & Bandi, 2003). To provide quality service fast and reliably, employees need to continually work together to acquire new information, learn from other team members, help each other with difficult client requests, and generally work as a team (Batt, 2002; Batt & Moynihan, 2002; Robinson & Morley, 2007) to find innovative solutions for new or unclear problems (Batt & Moynihan, 2002; Liu & Batt, 2010; Shah & Bandi, 2003).

The recognition that team members are more effective when they work together toward a common goal of customer satisfaction has led many call centers to foster teamwork. For example, group-level incentives and daily team meetings allow members to share knowledge and learn from one another (Liu & Batt, 2010). Although not all call-center companies structure work around teams, in the company where we collected our data, teamwork and interdependence were encouraged through tournaments, goals, incentives, and team meetings. Team members interacted frequently during the work day to share insight and discuss difficult issues before presenting a solution to the customer. The company considered team performance critical, because they believed that a team of people working together is more effective than the same individuals working in isolation.

Previous research also has provided strong evidence of teamwork in call centers. For instance, Robinson and Morley (2007) surveyed and interviewed 130 call center team leaders, who "were very much of the view that their call centres were customer oriented, service driven and team based work places" (p. 261). Also, McClelland, Leach, Clegg and McGowan (2014) found that collaborative crafting can occur in narrowly defined jobs, such as those often found in call centers. These findings suggest

that individuals in call centers can work collaboratively to change their work and to improve their team's performance. Moreover, Zhang, Waldman and Wang (2012; see also Tjosvold, Chen, Huang, & Xu, 2014) found that the level of interdependence in call center teams is similar to that found in other work contexts. This further supports the idea that call center teams can be characterized as actual work teams (Cohen & Bailey, 1997). Finally, in support of this line of reasoning, there is substantial research using call center data to examine team performance (e.g., Liden, Erdogan, Wayne, & Sparrowe, 2006; McClelland et al., 2014; Zhang et al., 2012) and other team-level constructs (e.g., Liu & Batt, 2010; Tjosvold et al., 2014; Wech, Kennedy, & Deeter-Schmelz, 2009).

Work in call centers can be described as mass production, mass customization, or professional service (Batt & Moynihan, 2002). Mass production emphasizes cost reduction and work standardization. Mass customization balances cost and quality. Professional service emphasizes quality. Although innovation requirements have been associated mainly with mass customization and professional service (Batt, 1999; Batt & Moynihan, 2002), previous research found that innovation processes are important even in highly standardized work settings (Gilson et al., 2005; Liu & Batt, 2010). For example, in a mass production model, team members need to discuss new ways to deal with customers' negative emotions – a major cause of repeat calls (Dixon et al., 2010).

Finally, both performance and reputation are important for call center teams. Performance is critical because the success of many teams is defined by quantifiable results. However, reputation is also important for several reasons. First, the call center business is highly competitive (Butler, 2004) and a good reputation helps to attract new business through word of mouth, as well as to retain existing clients (Tyran & Gibson,

2008). Second, reputable teams have easier customer interactions, due to perceptions of competence created via previous positive experiences or word of mouth (Dixon et al., 2010). Third, reputation is relevant not only for the team and the call center company, but also for the business clients who hire their services. A team's good or bad reputation may spill over to the image of the company that is hiring the call center service. Finally, a good reputation may ensure critical support from other areas and key decision makers within the call center company.

Method

Participants and Procedure

Two hundred and seven teams from a call center company in Portugal were invited to participate in the study. Data were collected from 152 teams (73% response rate), 1396 team members and 152 supervisors. On average, team members were 31 years old (*SD* = 8.82) and 64% were women. Members had worked in the same team for 1.23 years (*SD* = 1.28). The majority had a high school (49%) or bachelors (37%) degree. On average, each team had nine members (*SD* = 5.38). Supervisors reported similar demographic characteristics: their mean age was 30 (*SD* = 5.57), 60.5% were women, 55% had a high school degree and 39% a bachelor's degree. They had worked with the same team for 1.67 (*SD* = 1.23) years.

Measures

All surveys were distributed in Portuguese and were translated and back-translated into English by different translators to ensure accuracy. To justify aggregation to the team level, we used the Average Deviation Index (ADI; Burke & Dunlap, 2002), η^2 and intraclass correlations (ICC1 and ICC2; Bliese, 2000). ADI evaluates the

intragroup consensus, η^2 and ICC1 the intergroup variability, and ICC2 the reliability of team means.

Team innovation processes were rated by team supervisors using a four-item measure developed by De Dreu and West (2001). Sample items are: "Team members often produce new services, methods, or procedures"; and "Team members often implement new ideas to improve the quality of our products and services." Response options ranged from 1 (*Strongly disagree*) to 7 (*Strongly agree*). This measure has been used in prior research to capture team innovation processes, revealing appropriate construct validity (e.g., Gajendran & Joshi, 2012).

Team goal clarity and commitment was measured with the four-item version of Anderson and West's (1998) scale developed by Kivimaki and Elovainio (1999), using a 7-point response scale (1 = *Not at all*, to 7 = *Completely*). Sample items: "How far are you in agreement with your team objectives?"; and "To what extent do you think your team's objectives are clearly understood by other members of the team?" Individual responses were aggregated to the team level (ADI = .68; η^2 = .21; ICC1 = .11, F = 2.12, $p < .01$; ICC2 = .53).

Team positive and negative affective tone were measured with eight items selected from the Job-Related Affective Well-Being Scale (Van Katwyk, Fox, Spector, & Kelloway, 2000). Four items measured positive affective tone (e.g., "My team made me feel enthusiastic"; "My team made me feel happy") and four items negative affective tone (e.g., "My team made me feel frustrated"; "My team made me feel sad"). According to the circumplex model of affect (Russell, 1980), the selected items ranged from low to high arousal. This item selection procedure has been used in the past, revealing appropriate construct validity (e.g., Choi, Sung, Lee, & Cho, 2011). Team

members were asked to indicate the extent to which they experienced each emotion in the team over the previous 30 days. The response scale ranged from 1 (*Never*) to 7 (*Extremely often or always*). To attenuate statistical overlap between positive and negative affective tone (and possible concerns about multicollinearity), we randomly split the sample in half when calculating affective tone (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Positive affective tone was calculated based on the data provided by half the team members and negative affective tone based on the data provided by the other half. Responses were aggregated to the team level (Team positive affective tone: ADI = .86; η^2 = .37; ICC1 = .19, F = 2.27, p < .01; ICC2 = .55; Team negative affective tone: ADI = .83; η^2 = .31; ICC1 = .12, F = 1.58, p < .01; ICC2 = .37).

Team performance. Welbourne, Johnson, and Erez's (1998) four-item scale was used to measure team performance. The items tap into quality, quantity, accuracy, and service and were adapted such that the referent was team performance instead of individual job performance (e.g., "Team's quantity of work output"). Supervisors were instructed to answer the items considering the team's performance over the previous month. The response scale ranged from 1 (*Needs much improvement*) to 7 (*Excellent*).

Team reputation was evaluated by supervisors using the three-item scale adapted from Tyran and Gibson (2008). Items were adapted to obtain supervisor rather than customer ratings (e.g., "How would you rate this team's friendliness with customers?"). A seven-point response scale ranging from 1 (*Very low*) to 7 (*Very high*) was used. Although an external measure of team reputation might be more accurate, supervisors are well suited to evaluate team reputation given that they have access to exclusive information regarding customers' complaints and have several opportunities to watch team members interact with customers, other teams, and other supervisors. Accordingly,

supervisors' assessments of reputation are considered accurate and comparable to third-parties perceptions (Hochwarter, Ferris, Zinko, Arnell, & James, 2007; Liu et al., 2007).

Control variables. We controlled for team member and supervisor sex, age and tenure, as well as for the type of call center work each team was most engaged in. Top management indicated whether each team's work could best be described as mass production (10%), mass customization (79%), or professional service (11%). Two dummy variables were created to code production model and controlled for in regression analyses. Finally, we also controlled for team required creativity and innovation, using two items from George and Zhou (2002; e.g., "The innovation capacity my employees exhibit on the job has a major impact on their promotions") and three items from Gilson and Shalley (2004; e.g., "My team members are required to come up with novel ways of doing things"). The response scale ranged from 1 (*Strongly disagree*) to 7 (*Strongly agree; M* = 4.24; *SD* = 1.32; α = .81).

Results

Preliminary Analyses

Descriptive statistics and correlations are reported in Table 1. Variables rated by supervisees were aggregated to the team level for the following reasons. First, ICC1 values ranged from .11 to .19. These values represent a medium to large group effect, suggesting that group membership influenced ratings (LeBreton & Senter, 2008). These scores are clearly above the critical minimum value for a group effect (.05) and close to or higher than the median value found across several empirical studies (i.e., .12; Bliese, 2000; LeBreton & Senter, 2008). Second, eta squared statistics indicated substantial variability across groups and were sufficiently high to warrant aggregation to the team level (Bliese, 2000). Third, ADI values were all below 1.17, the maximum acceptable

value for a 7-item scale, indicating high agreement among team members on each variable (Burke & Dunlap, 2002). Fourth, although ICC2 values were substantially lower than the traditional guideline of .70 (LeBreton & Senter, 2008), indicating low reliability, they were similar to values found in studies of customer service and sales teams (e.g., Liu & Batt, 2010), and in research measuring affective tone and reactions at the team level (e.g., Choi et al., 2011; Knight, 2013). Moreover, our low ICC2 values might be due to restriction of range masking stronger agreement among team members (LeBreton, Burgess, Kaiser, Atchley, & James, 2003): although ratings were made on 7-point scales, only four of the scale points were actually used in more than 83% of total responses. Finally, because call-center teams are "real teams" (Cohen & Bailey, 1997), it is conceptually important to examine team-level effects.

Table 1

Study 1 (Call Center Teams): Descriptive Statistics, Reliabilities and Correlations

Variable	*M*	*SD*	1	2	3	4	5	6
1. Team Innovation Processes	5.22	1.14	**.85**					
2. Team Goal Clarity and Commitment	5.80	0.57	.09	**.90**				
3. Team Positive Affective Tone	5.18	1.06	.11	.66**	**.97**			
4. Team Negative Affective Tone	2.49	0.99	-.04	-.31**	-.40**	**.87**		
5. Team Performance	5.56	0.94	.45**	.08	.13	-.08	**.85**	
6. Team Reputation	5.37	1.10	.44**	.23**	.28**	-.30**	.70**	**.93**

Notes. Reliabilities (Cronbach alpha) are reported in bold along the diagonal.
N = 152 teams. $^{+}$ $p < .10$. * $p < .05$. ** $p < .01$.

Confirmatory factor analyses (CFA) were used to evaluate the measurement model. The theoretical six-factor model was compared to a one-factor, two-factor (latent variables were supervisor and team member ratings), and all possible five-factor solutions (items representing one of the six scales loaded on each of the other five possible latent variables). We evaluated model fit with three indices: Chi-square (χ^2), the Comparative Fit Index (CFI) and the Root Mean Square Error of Approximation (RMSEA). According to Hu and Bentler's (1999) criteria, the six-factor solution yielded acceptable fit ($\chi^2_{(215\ df)} = 279.79$, $p < .05$; CFI = .98; RMSEA = .04). All items loaded above .50 on their respective latent variables ($p < .01$). Chi-squared differences revealed that our hypothesized model fit the data better than the one-factor model ($\Delta\chi^2 = 1749.08$, $df = 15$, $p < .01$), the two-factor model ($\Delta\chi^2 = 1003.75$, $df = 14$, $p < .01$), and all possible five-factor solutions ($92.76 \leq \Delta\chi^2 \leq 560.72$, $df = 5$, $p < .01$). These results indicate adequate convergent and discriminant validity.

Moderation Analyses

All analyses were performed controlling for supervisor and team member age, sex and tenure, team production model, and team required creativity/innovation. Moderation hypotheses were tested with multiple regression following the recommendations of Aiken and West (1991). All continuous variables were mean centered before being entered in the analyses. Five steps were followed. First, control variables were entered. Second, we entered innovation processes and the hypothesized moderator(s). Third, we added the interaction(s) between innovation processes and the moderator(s). We also tested, in a fourth step, if the interaction effect between innovation processes and the non-hypothesized moderator was significant, or if it diminished the hypothesized moderation effect. Finally, in a fifth step, we controlled for shared variance between

reputation and performance (Tyran & Gibson, 2008). To do this, we added reputation into the model predicting performance and vice versa. Simple slopes analyses were based on the results of the third step. Interaction effects for values one standard deviation below and above the mean are displayed in Table 2 and Figures 1 and 2.

For team performance, the interaction between innovation processes and team goal clarity and commitment was significant (β = .21, p < .01; step 3). This interaction effect remained significant after controlling for team positive and negative affective tones and their interactions with innovation processes (step 4). It also remained significant after controlling for team reputation (step 5). Also, the relationship between innovation processes and team performance was not moderated by team affective tones. Simple slopes analyses (Figure 1) revealed that the relationship between team innovation processes and performance was only statistically significant and positive for teams reporting high levels of team goal clarity and commitment (for high goal clarity and commitment: β = .64, p < .01; for low goal clarity and commitment: β = .16, p > .05). These results support Hypothesis 1.

Regarding team reputation, we found that positive affective tone did not moderate the relationship between innovation processes and team reputation. However, negative affective tone did (β = -.24, p < .01; step 3). This effect remained statistically significant after controlling for team goal clarity and commitment, and its interaction with team innovation processes (step 4). It also remained significant after controlling for team performance. Although team goal clarity and commitment also moderated the relationship between innovation processes and team reputation in step 4 (β = .21, p < .05), this effect disappeared after removing the overlap with team performance in step 5 (β = .03, p > .05). Simple slopes analyses (Figure 2) revealed that the relationship

between innovation processes and reputation was only statistically significant for teams with a low negative affective tone (high negative affective tone: β = .09, p > .05; low negative affective tone: β = .62, p < .01). These results generally support Hypothesis 2, except that the hypothesized moderation effect of positive affective tone was not observed.

Given that both criteria measures were strongly correlated and evaluated by team leaders, we also calculated simple slopes controlling for the other facet of effectiveness. These results, although more conservative, fully replicated those reported above. The relationship between team innovation processes and performance was positive under high goal clarity and commitment (β = .35, p < .01) and non-significant under low goal clarity and commitment (β = -.02, p > .05). Also, the relationship between team innovation processes and reputation was statistically significant for teams with a low negative affective tone (β = .22, p < .05), but not for those with a high negative affective tone (β = -.05, p > .05).

Table 2

Study 1 (Call Center Teams): Results of Moderation Analyses Predicting Team Performance and Team Reputation

	Criterion: Team Performance				*Criterion: Team Reputation*			
	Step 2: *βs*	Step 3: *βs*	Step 4: *βs*	Step 5: *βs*	Step 2: *βs*	Step 3: *βs*	Step 4: *βs*	Step 5: *βs*
Team Performance								.63**
Team Reputation				.67**				
Team Innovation Processes (TIP)	.43**	.43**	.37**	.16*	.37**	.33**	.32**	.08
Team Goal Clarity and	.01	.02	-.10	-.11			.01	.08
Commitment (TGCC)								
Positive Affective Tone (TPAT)			.14	.08	.15^{+}	.15^{+}	.17^{+}	.09
Negative Aff Tone (TNAT)			-.09	.02	-.23**	-.24**	-.25**	-.19**
TIP x TGCC		.21**	.29**	.15*			.21*	.03
TIP x TPAT			-.15	-.09		.02	-.10	.01
TIP x TNAT			-.13	.02		-.24**	-.21*	-.13*
TPAT x TNAF			-.02	.03		-.05	-.07	-.06
TIP x TPAT x TNAT			-.05	-.02		-.07	-.05	-.02
R^2	.28	.33	.37	.63	.33	.38	.41	.66
R^2 change	.16**	.05**	.04	.27**	.22**	.05*	.03^{+}	.25**

Notes. In step one, we controlled for demographics, call center production model, and required innovation. N = 152 teams. $^{+}$ $p < .10$. * $p < .05$. ** $p < .01$.

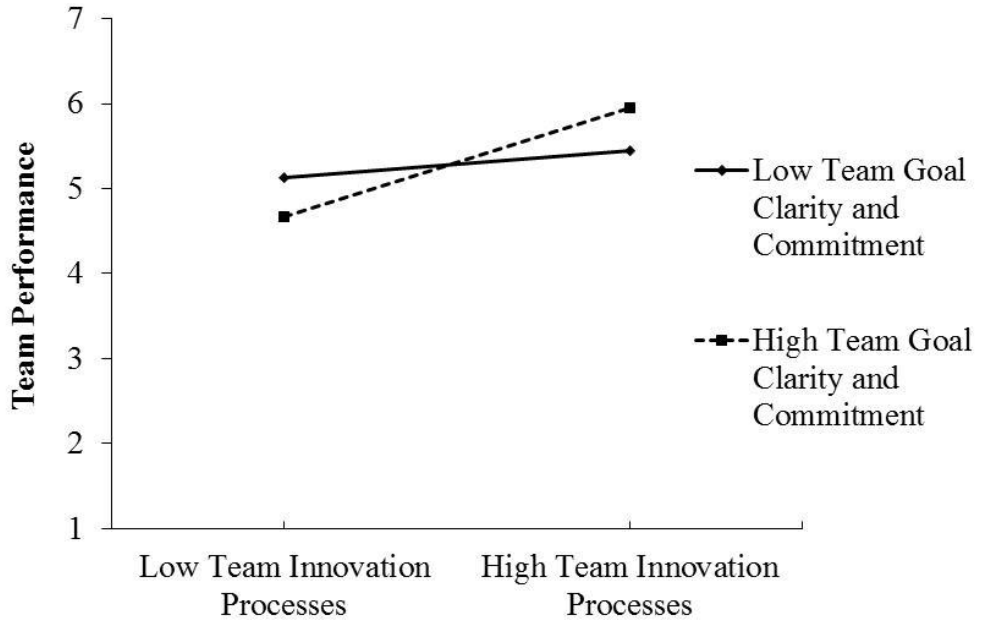

Figure 1. Call Center Teams: Team goal clarity and commitment moderates the effect of team innovation processes on team performance.

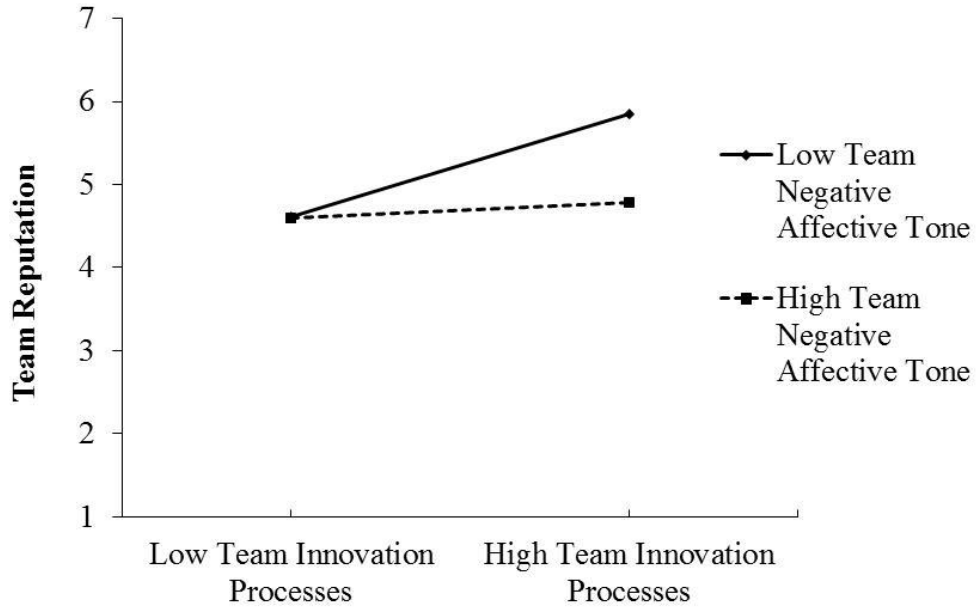

Figure 2. Call Center Teams: Team negative affective tone moderates the relationship between team innovation processes and team reputation.

Discussion

In Study 1, involving call center teams, we found that the relationship between innovation processes and team performance changed as a function of goal clarity and commitment. In addition, the relationship between innovation processes and team reputation varied depending on team negative affective tone. While these interaction effects were criterion specific, they remained statistically significant after we controlled for the non-hypothesized moderation and for the other dimension of effectiveness.

These results suggest that innovation processes are more beneficial for performance when team members have clear goals and are committed to those goals. Interestingly, teams weakly engaged in innovation processes performed poorly even if they had high levels of goal clarity and commitment. This suggests that directed innovation is important for performance. Our results further suggest that only negative affective tone interacts with innovation processes to affect team reputation. This might be due to a pervasive negativity bias in emotional information processing: negative emotions tend to command attention and exert a stronger influence on cognitive processing than positive emotions (Baumeister et al., 2001). According to the Asymmetry Effect Theory (Peeters, 2002) of emotion, negative stimuli elicit more cognitive processing, attention, recall, and prominent responses than positive stimuli (see also Dasborough, 2006; Peeters, 1992; Rozin & Royzman, 2001). Negative emotions often signal problems or danger, and the human brain may be hard wired to attend to potential threats (Csikszentmihalyi, 1993). Negative emotions can be particularly salient to observers and research indicates that angry faces stand out in a crowd (Hansen & Hansen, 1988). Moreover, mixed signals elicit distrust and incongruence can undermine the credibility of a message or speaker (Newcombe &

Ashkanasy, 2002). This theoretical grounding suggests that incongruence between the admiration and positive feelings induced by team innovation processes, on the one hand, and the emotions displayed by teams experiencing high negative affect, on the other, may lead observers to think that something is wrong. Our results suggest that this incongruence effect is much stronger than the effect of congruence between the positive feelings that innovation processes induce in observers and team positive affective tone.

Although we found support for our hypotheses, this study had some limitations. First, supervisor data were used to measure both performance and reputation. Halo effects could exacerbate measurement overlap between these facets of effectiveness, making it more difficult to distinguish true effects for these criteria. However, it makes sense to analyze both criteria separately because: (a) although team reputation and performance are strongly related, these constructs are theoretically and empirically distinguishable (Tyran & Gibson, 2008); (b) the correlation observed between the two criteria was below the threshold of .75, traditionally considered as the cutoff value for concerns about collinearity and discriminant validity, and in line with previous research assessing different facets of effectiveness (e.g., Aubé & Rousseau, 2005; Bhatnagar & Tjosvold, 2012; Tekleab, Quigley, & Tesluk, 2009); and (c) our confirmatory factor analyses demonstrated that the data fit a model considering performance and team reputation as distinct constructs better than a model combining these constructs into a single latent variable. Lastly, given that data collected in a single company can limit the generalizability of findings, we offer study 2 to address these concerns.

STUDY 2

In Study 2, we extended our hypotheses to a different context, examining roller hockey teams. To reduce halo effects on criteria, team performance was evaluated with

an objective measure (the difference between goals scored and conceded) and reputation was evaluated by team coaches. In this Study, we collected data only for team negative affective tone, for the theoretical reasons discussed above and because the moderating effect of team positive affective tone was extremely small (statistically and practically insignificant) in Study 1. Accordingly, in Study 2, we focus on the moderating effect of team negative affective tone on the relationship between innovation processes and team reputation.

To be competitive, hockey players need to frequently engage in innovation processes (Memmert, 2011). For example, they need to create, on the spot and as a team, a novel combination of passes in order to score. Teams must find new solutions to block the transitions that the opposing team might attempt. During training sessions, some teams watch the beginning of a pass combination on video and then explore new ways to continue and implement it. In order to win, teams must not only follow their coach's instructions, but also engage in innovative process.

Method

Participants and Procedure

We collected data from 32 roller hockey teams from the four main leagues of the Portuguese Professional Roller Hockey Championship (11 from the first division, 10 from the second division, 6 from the third division, and 5 from the female professional division). At the time of data collection, the season was well under way, so that team members had been playing together for several months. We collected data from several sources in order to minimize common method variance and eliminate alternative explanations (e.g., implicit theories, social desirability, acquiescence; Podsakoff et al., 2003). The predictor variable (innovation processes) was rated by team coaches whereas

the moderator variables (team negative affective tone and team goal clarity and commitment) were rated by team players. Finally, criteria were evaluated through an objective measure of team performance (goals) and coaches' ratings of team reputation. We contacted 38 teams and obtained full data from 32 (response rate = 84%).

In total, 274 roller-hockey players answered our survey. 84% were men (230 players from 27 male teams) and 16% women (44 players from 5 female teams). On average, participants were 23.81 (*SD* = 5.08) years old, had 13 years of experience (*SD* = 7.09) and had played for their current team for 3 years (*SD* = 3.16). We received complete data from 32 coaches, with an average age of 39 (*SD* = 9.90). They had coached roller hockey teams for 11 years on average (*SD* = 6.24) and had been with the same team for 2.49 years (*SD* = 1.94).

Measures

As in Study 1, measures were translated into Portuguese and back-translated into English.

Team innovation processes were rated by coaches using the same four-item scale by De Dreu and West (2001) as in Study 1.

Team goal clarity and commitment was measured with the same four-item scale as in Study 1. Team members' responses were aggregated to the team level (ADI = .66; η^2 = .40; ICC1 = .33, $F = 4.93$, $p < .01$; ICC2 = .80).

Team negative affective tone was measured with a 15-item scale derived from the Job-Related Affective Well-Being Scale (JAWS; Van Katwyk et al., 2000), using a 1 (*Never*) to 5 (*Extremely often or always*) response scale. Players were asked to indicate the extent to which they had experienced each emotion over the previous 30 days.

Sample item: “My team made me feel frustrated.” Players’ responses were aggregated to the team level (ADI = .30; η^2 = .39; ICC1 = .32, F = 5.05, p < .01; ICC2 = .81).

Team performance was measured using an indicator of goal scoring effectiveness, calculated as the difference between goals scored and conceded during the last three league games, based on official reports. Performance scores ranged from -12 to 18. We calculated the difference between scored and conceded goals, instead of accumulated points (victory = 3 points; draw = 1 point; defeat = 0 points), because the difference score better accounts for performance variations. For example, two teams may have the same 9 points after winning three games, although one scored 14 goals and conceded 10, whereas the other scored 14 and conceded 2. Nonetheless, goal difference score and accumulated points correlate highly (r = .88).

Team reputation was rated by each coach using two items, with a seven-point response scale ranging from 1 (*Very low*) to 7 (*Very high*): “Team reputation among fans, regarding the quality of the game and the players’ effort in training” and “Team reputation among members of the club management team, regarding the quality of the game and the players’ effort in training”. These items were developed based on prior research and four in-depth interviews with coaches and players, focused on the meaning of team reputation in sports. The reputation items were rated by the team coaches. Coaches are able to evaluate their team’s reputation because they have ample opportunities to observe the reactions of fans and club management during training sessions, games, and internal club meetings.

Control variables. We controlled for player and coach years of experience in professional hockey, tenure with current team, and sex. The coaches’ sex was omitted from statistical analyses because all were men.

Results

Preliminary Analyses

Descriptive statistics and correlations are reported in Table 3. Variables rated by team members were aggregated to the team level, as there was evidence of within-unit homogeneity and between-unit heterogeneity; see the ADI, η^2, and ICC indicators described above (Bliese, 2000).

Table 3

Study 2 (Professional Hockey Teams): Descriptive Statistics, Reliabilities and Correlations

Variable	*M*	*SD*	1	2	3	4	5
1. Team Innovation Processes	3.39	0.70	**.80**				
2. Team Goal Clarity and Commitment	5.46	0.71	.18	**.94**			
3. Team Negative Affective Tone	2.30	0.31	-.66**	-.25	**.95**		
5. Team Performance	1.69	6.26	.65**	.39*	-.33^{+}	**.62**	
4. Team Reputation	4.58	0.98	.59**	.13	-.45*	.56**	**.89**

Notes. Reliabilities (Cronbach alpha) are reported in bold along the diagonal.
N = 32 teams. $^{+}$ $p < .10$. * $p < .05$. ** $p < .01$.

We used CFA to check that our measures were not only conceptually but also empirically distinguishable. Previous research found that even with a small sample size (below 50) solutions tend to converge properly (Marsh & Hau, 1999). Due to the modest number of teams, we parceled all scales with four or more items to reduce the number of estimated parameters and Type I error (Bandalos, 2002). We built and tested a one-factor, three-factor (latent variables were supervisor ratings, the objective measure

of goal scoring effectiveness and team member ratings), a four-factor (items representing one of the five scales loaded on each of the other four possible latent variables), and the theoretical five-factor model. According to Hu and Bentler's (1999) criteria, the five-factor solution yielded good fit ($\chi^2_{(34\ df)} = 35.51$, $p > .05$; CFI = .99; RMSEA = .04). All items and parcels loaded above .50 on their respective latent variables (all p's < .01). Our hypothesized model fit the data better than the one-factor ($\Delta\chi^2 = 97.91$, $df = 10$, $p < .01$), three-factor ($\Delta\chi^2 = 81.02$, $df = 7$, $p < .01$), and all possible four-factor solutions ($13.89 \leq \Delta\chi^2 \leq 64.86$, $df = 4$, $p < .05$). These results support adequate convergent and discriminant validity.

Moderation Analyses

All analyses were performed accounting for the control variables. Moderation hypotheses were tested following the procedure adopted in Study 1. Results are detailed in Table 4. Team performance was explained by innovation processes and team goal clarity and commitment. The interaction between team innovation processes and team goal clarity and commitment was significant ($\beta = .30$, $p < .05$; step 3). This interaction effect remained significant controlling for team negative affective tone and its interaction with innovation processes (step 4), and controlling for team reputation (step 5). Simple slopes analysis (Figure 3) revealed that team innovation processes was positively related to team performance when there was high team goal clarity and commitment ($\beta = .74$, $p < .01$). When there was low team goal clarity and commitment, the relationship between team innovation and performance was not significant ($\beta = .03$, $p > .05$). These results support Hypothesis 1.

Regarding team reputation, both innovation processes and negative affective tone were significant predictors (step 2). In step 3, the hypothesized interaction effect was

only marginally significant (β = -.37, p < .10). However, when we controlled for team goal clarity and commitment, as well as for its interaction with innovation processes in step 4, we found that the hypothesized interaction term significantly predicted variance in team reputation (β = -.49, p < .05). The same result was found when we controlled for team performance in step 5. Simple slopes analysis revealed that the relationship between innovation processes and team reputation was not significant for teams reporting high negative affective tone (β = -.17, p > .05). In contrast, this relationship was significant and positive for teams reporting low negative affective tone (β = .79, p < .01; see Figure 4). These results generally support Hypothesis 2 and align with those of Study 1.

Considering that team performance was measured using objective data (goals scored and conceded) whereas team reputation was rated by team leaders, there is no reason to expect contamination across criteria due to a halo effect or common source bias. Nonetheless, as in study 1, we performed additional analyses controlling for the other facet of effectiveness and found that simple slopes were almost identical to those reported above.

Discussion

Study 2 sought to replicate and extend the results of Study 1 in a sample of professional roller hockey teams. Overall, the pattern of results was very similar, suggesting that our results generalize across different contexts, including sports. Consistent with our hypotheses, goal clarity and commitment moderated the relationship between innovation processes and performance, whereas negative affective tone moderated the relationship between innovation processes and team reputation.

Table 4

Study 2 (Professional Hockey Teams): Results of Moderation Analysis Predicting Team Performance and Team Reputation

	Criterion: Team Performance				*Criterion: Team Reputation*			
	Step 2: *βs*	Step 3: *βs*	Step 4: *βs*	Step 5: *βs*	Step 2: *βs*	Step 3: *βs*	Step 4: *βs*	Step 5: *βs*
Team Performance								.38
Team Reputation				.28				
Team Innovation Processes (TIP)	.48**	.39*	.64**	.57*	.56*	.32	.25	.01
Team Goal Clarity and	.24^{+}	.25^{+}	.33*	.37*			-.17	-.29
Commitment (TGCC)								
Negative Affect Tone (TNAT)			.32	.46^{+}	-.03	-.34	-.48	-.61*
TIP x TGCC		.30*	.31*	.34*			-.10	-.22
TIP x TNAT			.14	.28		-.37^{+}	-.49*	-.55*
R^2	.62	.70	.72	.75	.53	.59	.62	.66
R^2 change	.25**	.08*	.02	.03	.26**	.07^{+}	.03	.04

Notes. In step one, we controlled for demographics. N = 32 teams. $^{+}$ $p < .10$. * $p < .05$. ** $p < .01$.

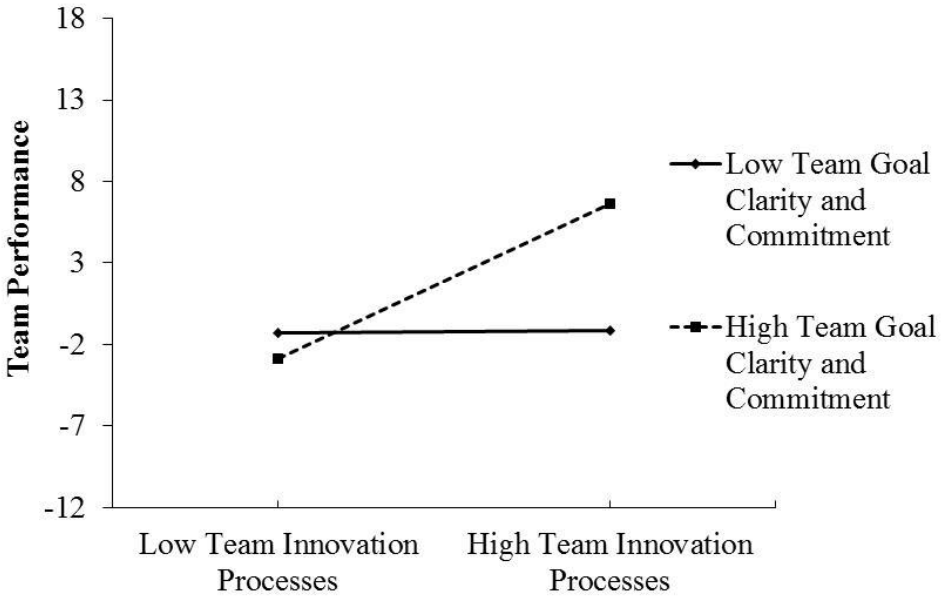

Figure 3. Professional Roller Hockey Teams: Team goal clarity and commitment moderates the effect of team innovation processes on team performance.

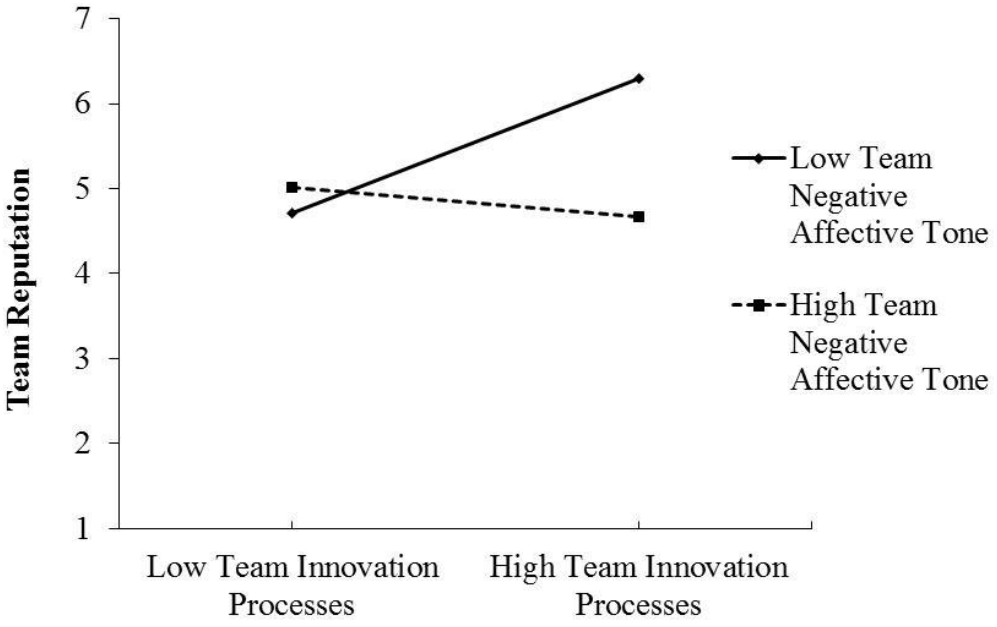

Figure 4. Professional Roller Hockey Teams: Team negative affective tone moderates the relationship between team innovation processes and team reputation.

GENERAL DISCUSSION

In this research we examined the effects of two team emergent states (goal clarity and commitment and team affective tone) on the innovation processes-team effectiveness relationship. Using two very different samples – call center and professional roller hockey teams – we found convergent evidence supporting our hypotheses. Specifically, we found that team goal clarity and commitment moderated the relationship between innovation processes and team performance, whereas team negative affective tone moderated the relationship between innovation processes and team reputation. The interaction patterns were criteria specific. The use of data from different sources (including supervisors and coaches, team members and official reports) and different contexts (call centers and sports) lends strength to these conclusions.

Theoretical Contributions

This research takes a first step toward clarifying the weak and often conflicting findings in the relationship between innovation processes and team effectiveness. Prior studies have focused primarily on the antecedents to innovation processes, assuming that the ensuing outcomes will be positive (Anderson et al., 2004). However, innovation processes can have both positive and negative consequences depending on contextual factors. Our examination of contingencies reveals that emergent states moderate the relationship between innovation processes and team effectiveness. Moreover, we show that the interaction pattern changes according to the facet of effectiveness being predicted – performance versus reputation. These findings contribute to the broader literature on team processes and emergent states by demonstrating that emergent states can influence the way innovation processes affect important team outcomes. They also

contribute to the literature on team effectiveness by moving beyond main effects (e.g., Cropanzano et al., 2011; Oetzel & Bolton-Oetzel, 1997; Tyran & Gibson, 2008), and unpacking what is meant by team effectiveness. These findings help move the conversation forward, toward the development of a contingent view of team innovation processes. While other researchers have examined emergent states as predictors of innovation processes (see Hülsheger et al., 2009), our work both complements and extends these approaches, showing the interactive effects of emergent states and innovative processes on team outcomes.

Prior research has analyzed the effects of affective reactions toward innovation on innovation implementation and adoption (e.g., Choi & Chang, 2009; Choi et al., 2011). We depart from this line of thinking and focus instead on the interaction between innovation processes and team affective tone on third parties' perceptions of the team. Affective tone is not a reaction to an innovation in particular or to innovation in general, but rather a consistent and stable affective state that reflects the team's history, context, and member characteristics (De Dreu et al., 2001; George, 1990). Innovation processes operate in a context colored by team affective tones. Depending on the emotions a team experiences and reveals, innovation processes may enhance team reputation or not. The results of Study 1 suggest that this moderating influence of team affective tone can be attributed to negative rather than positive affect, possibly because team negative emotions command attention and influence the way observers interpret what is going on more strongly than positive emotions.

Limitations and Future Directions

As with all field work, the studies reported here have limitations that need to be addressed. First, we evaluated only two facets of team effectiveness, performance and

reputation. Future research should examine what factors moderate the effects of innovation processes on other facets of team effectiveness, such as team viability or organizational citizenship behaviors. While innovation processes may enhance team performance, they also might increase dysfunctional conflict in teams (Williams & O'Reilly, 1998; Janssen, 2003). A safe psychological climate may attenuate interpersonal conflict and consequently enhance team viability, which reflects team members' satisfaction with the team and their capacity to work together (Sundstrom et al., 2000). Team cohesion, another emergent state, may enhance the relationship between innovation processes and organizational citizenship behavior because members of cohesive teams are more likely to pull together when facing difficulties in their attempts to innovate. Second, we did not evaluate whether teams engaged in incremental or radical innovation. It would be interesting to know whether goal clarity and commitment focuses teams on incremental improvements or radical change.

Future research should investigate other moderators of the relationship between innovation processes and effectiveness, including contextual, organizational, and leadership variables. We focused on two team emergent states, but it is likely that other emergent states, and factors external to the team also influence the effects of team processes (Marks et al., 2001). Finally, and considering that members of call center teams interact one-to-one with customers, examining the relationship between team innovation processes and individual performance would be another promising avenue for future research.

Practical Implications

These findings have several important practical implications for teams and team managers. Managers seeking to enhance team effectiveness through innovation

processes might face disappointing results unless they pay attention to team emergent states (Janicik & Bartel, 2003; Marks et al., 2001). In other words, it behooves managers to help teams create the conditions necessary for innovation processes to be advantageous. For example, management should help team members clarify and prioritize their goals before delving into new innovation efforts. By fostering goal clarity and commitment, innovation processes should yield the desired performance benefits. Team training also could be useful because goal clarity and commitment is a characteristic of mature groups (Wheelan & Hochberger, 1996).

Managers interested in enhancing team reputation via innovation processes should attend to the emotional state of the team. Our results suggest that the experience and expression of negative emotions can not only undermine impression management in general, but also alter the way that team innovation processes are interpreted with regard to reputation. Coaching teams to manage their emotions, develop group emotional intelligence (Druskat & Wolff, 2001), and reinforce non-negative interactions among members (Sy, Côté, & Saavedra, 2005) could be useful. Selecting new team members who are not temperamentally predisposed to experience and express negative emotions, and socializing newcomers to enhance team affective tone and respect emotional display rules (George, 1990) could also be useful.

Conclusion

This study extends our understanding of the importance of emergent states to the relationship between innovation processes and team effectiveness. By presenting a contingent view of the relationship between innovation processes and team effectiveness, our two studies help to make sense of weak and conflicting findings about the effects of innovation processes on team effectiveness. Here we find that the

innovation processes–performance relationship is enhanced by goal clarity and commitment and the innovation processes–reputation relationship is hampered by team negative affective tone. We view this as a first step toward understanding the contingencies in the relationship between innovation processes and team effectiveness and we urge researchers to further explore these complex associations.

References

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. London, United Kingdom: Sage Publications Inc.

Anderson, N., De Dreu, C. K. W., & Nijstad, B. A. (2004). The routinization of innovation research: A constructively critical review of the state-of-the-science. *Journal of Organizational Behavior, 25*, 147-173. doi: 10.l(X)2/job.236

Anderson, N., & Gasteiger, R. M. (2007). Helping creativity and innovation thrive in organizations: Functional and dysfunctional perspectives. In J. Langan-Fox, C. L. Cooper & R. J. Klimoski (Eds.), *Research companion to the dysfunctional workplace: Management challenges and symptoms* (pp. 422–440). Cheltenham: Edward Elgar Publishing.

Anderson, N., & West, M. A. (1996). The Team Climate Inventory: Development of the TCI and its applications in teambuilding for innovativeness. *European Journal of Work and Organizational Psychology, 5*, 53-66. doi: 10.1080/13594329608414840

Anderson, N., & West, M. A. (1998). Measuring climate for work group innovation: Development and validation of the team climate inventory. *Journal of Organizational Behavior, 19*, 235-258. doi: 10.1002/(SICI)1099-1379(199805)19:3<235::AID-JOB837>3.0.CO;2-C

Aubé, C., & Rousseau, V. (2005). Team goal commitment and team effectiveness: The role of task interdependence and supportive behaviors. *Group Dynamics: Theory, Research, and Practice, 9*, 189-204. doi: 10.1037/1089-2699.9.3.189

Axtell, C. M., Holman, D. J., Unsworth, K. L., Wall, T. D., Waterson, P. E., & Harrington, E. (2000). Shopfloor innovation: Facilitating the suggestion and

implementation of ideas. *Journal of Occupational and Organizational Psychology, 73*, 265-285. doi: 10.1348/096317900167029

Baer, M. (2012). Putting creativity to work: The implementation of creative ideas in organizations. *Academy of Management Journal, 55*, 1102-1119. doi: 10.5465/amj.2009.0470

Bain, P. G., Mann, L., & Pirola-Merlo, A. (2001). The innovation imperative: The relationships between team climate, innovation, and performance in research and development teams. *Small Group Research, 32*, 55-73. doi: 10.1177/104649640103200103

Bain, P., & Taylor, P. (2000). Entrapped by the 'electronic panopticon'? Worker resistance in the call centre. *New Technology, Work and Employment, 15*, 2-18. doi: 10.1111/1468-005X.00061

Bandalos, D. L. (2002). The effects of item parceling on goodness-of-fit and parameter estimate bias in structural equation modeling. *Structural Equation Modeling, 9*, 78-102. doi: 10.1207/S15328007SEM0901_5

Barsade, S. G. (2002). The ripple effect: Emotional contagion and its influence on group behavior. *Administrative Science Quarterly, 47*, 644-675. doi: 10.2307/3094912

Bartel, C. A., & Saavedra, R. (2000). The collective construction of work group moods. *Administrative Science Quarterly, 45*, 197-231. doi: 10.2307/2667070

Batt, R. (1999). Work organization, technology, and performance in customer service and sales. *Industrial and Labor Relations Review, 52*, 539-564.

Batt, R. (2002). Managing custumer services: Human resources practices, quit rates and sales growth. *Academy of Management Journal, 45*, 587-597. doi: 10.2307/3069383

Batt, R., & Moynihan, L. M. (2002). The viability of alternative call centre production models. *Human Resource Management Journal, 12*, 14-34. doi: 10.1111/j.1748-8583.2002.tb00075.x

Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review of General Psychology, 5*, 323-370. doi: 10.1037//1089-2680.5.4.323

Bhatnagar, D., & Tjosvold, D. (2012). Leader values for constructive controversy and team effectiveness in India. *The International Journal of Human Resource Management, 23*, 109-125. doi: 10.1080/09585192.2011.610961

Bliese, P. D. (2000). Within-group agreement, non-independence, and reliability: Implications for data aggregation and analyses. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions* (pp. 349–381). San Francisco: Jossey-Bass.

Bradley, B. H., Postlethwaite, B. E., Klotz, A. C., Hamdani, M. R., & Brown, K. G. (2012). Reaping the benefits of task conflict in teams: The critical role of team psychological safety climate. *Journal of Applied Psychology, 97*, 151-158. doi: 10.1037/a0024200

Burke, M. J., & Dunlap, W. P. (2002). Estimating interrater agreement with the average deviation index: A user's guide. *Organizational Research Methods, 5*, 159-172. doi: 10.1177/1094428102005002002

Butler, D. L. (2004). *Bottom-line call center management: Creating a culture of accountability and excellent customer service*. Oxford: Elsevier Butterworth-Heinemann.

Choi, J. N., & Chang, J. Y. (2009). Innovation implementation in the public sector: An integration of institutional and collective dynamics. *Journal of Applied Psychology, 94*, 245-253. doi: 10.1037/a0012994

Choi, J. N., Sung, S. Y., Lee, K., & Cho, D.-S. (2011). Balancing cognition and emotion: Innovation implementation as a function of cognitive appraisal and emotional reactions toward innovation. *Journal of Organizational Behavior, 32*, 107-124. doi: 10.1002/job.684

Cohen, S. G., & Bailey, D. E. (1997). What makes teams work: Group effectiveness research from the shop floor to the executive suite. *Journal of Management, 23*, 239-290. doi: 10.1177/014920639702300303

Cohen, S. G., Ledford, G. E., & Spreitzer, G. M. (1996). A predictive model of self-managing work team effectiveness. *Human Relations, 49*, 643-676. doi: 10.1177/001872679604900506

Collishaw, M. A., Dyer, L., & Boies, K. (2008). The authenticity of positive emotional displays: Client responses to leisure service employees. *Journal of Leisure Research, 40*, 23-46.

Cropanzano, R., Li, A., & Benson, L. (2011). Peer Justice and Teamwork Process. *Group & Organization Management, 36*, 567-596. doi: 10.1177/1059601111414561

Csikszentmihalyi, M. (1993). *The evolving self. A psychology of optimal experience.* New York: Harper Perennial.

Dasborough, M. T. (2006). Cognitive asymmetry in employee emotional reactions to leadership behaviors. *The Leadership Quarterly, 17*, 163-178. doi: 10.1016/j.leaqua.2005.12.004

De Dreu, C. K. W. (2002). Team innovation and team effectiveness: The importance of minority dissent and reflexivity. *European Journal of Work and Organizational Psychology, 11*, 285-298. doi: 10.1080/13594320244000175

De Dreu, C. K. W. (2006). When too little or too much hurts: Evidence for a curvilinear relationship between task conflict and innovation in teams. *Journal of Management, 32*, 83-107. doi: 10.1177/0149206305277795

De Dreu, C. K. W., & West, M. A. (2001). Minority dissent and team innovation: The importance of participation in decision making. *Journal of Applied Psychology, 86*, 1191-1201. doi: 10.1037/0021-9010.86.6.1191

De Dreu, C. K. W., West, M. A., Fischer, A. H., & MacCurtain, S. (2001). Origins and consequences of emotions in organizational teams. In R. L. Payne & C. L. Cooper (Eds.), *Emotions at work: Theory, research and applications in management* (pp. 199-217). New York, NY: John Wiley & Sons Ltd.

Dimitriades, Z. S. (2007). The influence of service climate and job involvement on customer-oriented organizational citizenship behavior in Greek service organizations: a survey. *Employee Relations, 29*, 469-491. doi: 10.1108/01425450710776290

Dixon, M., Freeman, K., & Toman, N. (2010). Stop trying to delight your customers. *Harvard Business Review, 88*, 116-122.

Druskat, V. U., & Wolff, S. B. (2001, March). Building the emotional intelligence of groups. *Harvard Business Review,* 80-90.

Eisenbeiss, S. A., van Knippenberg, D., & Boerner, S. (2008). Transformational leadership and team innovation: Integrating team climate principles. *Journal of Applied Psychology, 93*, 1438-1446. doi: 10.1037/a0012716

Farr, J. L., Sin, H.-P., & Tesluk, P. E. (2003). Knowledge management processes and work group innovation. In L. V. Shavinina (Ed.), *The international handbook on innovation* (pp. 574–586). New York: Elsevier Science.

Forgas, J. P. (1995). Mood and judgment: The affect infusion model (AIM). *Psychological Bulletin, 117*, 39-66. doi: 10.1037/0033-2909.117.1.39

Gajendran, R. S., & Joshi, A. (2012). Innovation in globally distributed teams: The role of LMX, communication frequency, and member influence on team decisions. *Journal of Applied Psychology, 97,* 1252-1261. doi: 10.1037/a0028958

George, J. M. (1990). Personality, affect, and behavior in groups. *Journal of Applied Psychology, 75*, 107-116. doi: 10.1037/0021-9010.75.2.107

George, J. M. (2007). Creativity in organizations. *The Academy of Management Annals, 1*, 439-477. doi: 10.1080/078559814

George, J. M., & Zhou, J. (2002). Understanding when bad moods foster creativity and good ones don't: The role of context and clarity of feelings. *Journal of Applied Psychology, 87*, 687-697. doi: 10.1037//0021-9010.87.4.687

Gilson, L. L., Mathieu, J. E., Shalley, C. E., & Ruddy, T. M. (2005). Creativity and standardization: Complementary or conflicting drivers of team effectiveness? *Academy of Management Journal, 48,* 521-531. doi: 10.5465/AMJ.2005.17407916

Gilson, L. L., & Shalley, C. E. (2004). A little creativity goes a long way: An examination of teams' engagement in creative processes. *Journal of Management, 30*, 453-470. doi: 10.1016/j.jm.2003.07.001

Gladstein, D. L. (1984). Groups in context: A model of task group effectiveness. *Administrative Science Quarterly, 29*, 499-517.

Grandey, A. A. (2000). Emotional regulation in the workplace: A new way to conceptualize emotional labor. *Journal of Occupational Health Psychology, 5*, 95-110. doi: 10.1037//1076-8998.5.1.95

Grandey, A. A., Fisk, G. M., Mattila, A. S., Jansen, K. J., & Sideman, L. A. (2005). Is "service with a smile" enough? Authenticity of positive displays during service encounters. *Organizational Behavior and Human Decision Processes, 96*, 38-55. doi: 10.1016/j.obhdp.2004.08.002

Hall, A. T., Zinko, R., Perryman, A. A., & Ferris, G. R. (2009). Organizational citizenship behavior and reputation: Mediators in the relationships between cccountability and job performance and satisfaction. *Journal of Leadership & Organizational Studies, 15*, 381-392. doi: 10.1177/1548051809331504

Hansen, C. H., & Hansen, R. D. (1988). Finding the face in the crowd: An anger superiority effect. *Journal of Personality and Social Psychology, 54*, 917–924. doi: 10.1037/0022-3514.54.6.917

Harvey, S., & Kou, C. (2013). Collective engagement in creative tasks: The role of evaluation in the creative process in groups. *Administrative Science Quarterly, 58*, 346-386. doi: 10.1177/0001839213498591

Hochwarter, W. A., Ferris, G. R., Zinko, R., Arnell, B., & James, M. (2007). Reputation as a moderator of political behavior-work outcomes relationships: A two-study investigation with convergent results. *Journal of Applied Psychology, 92*, 567-576. doi: 10.1037/0021-9010.92.2.567

Hoegl, M., & Parboteeah, K. P. (2003). Goal setting and team performance in innovative projects: On the moderating role of teamwork quality. *Small Group Research, 34*, 3-19. doi: 10.1177/1046496402239575

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1-55. doi: 10.1080/10705519909540118

Hülsheger, U. R., Anderson, N., & Salgado, J. F. (2009). Team-level predictors of innovation at work: A comprehensive meta-analysis spanning three decades of research. *Journal of Applied Psychology, 94*, 1128-1145. doi: 10.1037/a0015978

Ilgen, D. R., Hollenbeck, J. R., Johnson, M., & Jundt, D. (2005). Teams in organizations: From Input-Process-Output models to IMOI models. *Annual Review of Psychology, 56*, 517-543. doi: 10.1146/annurev.psych.56.091103.070250

Janicik, G. A., & Bartel, C. A. (2003). Talking about time: Effects of temporal planning and time awareness norms on group coordination and performance. *Group Dynamics: Theory, Research, and Practice, 7*, 122-134. doi: 10.1037/1089-2699.7.2.122

Janssen, O. (2001). Fairness perceptions as a moderator in the curvilinear relationships between job demands, and job performance and job satisfaction. *Academy of Management Journal, 44*, 1039-1050. doi: 10.2307/3069447

Janssen, O. (2003). Innovative behaviour and job involvement at the price of conflict and less satisfactory relations with co-workers. *Journal of Occupational and Organizational Psychology, 76*, 347-364. doi: 10.1348/096317903769647210

Janssen, O., Van De Vliert, E., & West, M. (2004). The bright and dark sides of individual and group innovation: A special issue introduction. *Journal of Organizational Behavior, 25*, 129-145. doi: 10.1002/job.242

Kanter, R. M. (1988). When a thousand flowers bloom: Structural, collective, and social conditions for innovation in organizations. In B. M. Staw & L. L. Cummings (Eds.), *Research in Organizational Behavior* (Vol. 10, pp. 169-211). Greenwich. CT: JAI Press.

Kelly, J. R., & Barsade, S. G. (2001). Mood and emotions in small groups and work teams. *Organizational Behavior and Human Decision Processes, 86*, 99-130. doi: 10.1006/obhd.2001.2974

Kivimaki, M., & Elovainio, M. (1999). A short version of the Team Climate Inventory: Development and psychometric properties. *Journal of Occupational and Organizational Psychology, 72*, 241-246. doi: 10.1348/096317999166644

Klein, K. J., & Knight, A. P. (2005). Innovation implementation: Overcoming the challenge. *Current Directions in Psychological Science, 14*, 243-246. doi: 10.1111/j.0963-7214.2005.00373.x

Klein, K. J., & Sorra, J. S. (1996). The challenge of innovation implementation. *Academy of Management Review, 21*, 1055-1080. doi: 10.5465/AMR.1996.9704071863

Kleingeld, A., van Mierlo, H., & Arends, L. (2011). The effect of goal setting on group performance: A meta-analysis. *Journal of Applied Psychology, 96*, 1289-1304. doi: 10.1037/a0024315

Knight, A. P. (2013). Mood at the midpoint: Affect and change in exploratory search over time in teams that face a deadline. *Organization Science*. Advance online publication. doi: 10.1287/orsc.2013.0866

Kozlowski, S. W. J., & Bell, B. S. (2003). Work groups and teams in organizations. In W. C. Borman, D. R. Ilgen & R. J. Klimoski (Eds.), *Handbook of psychology:*

Industrial and organizational psychology (Vol. 12, pp. 333–375). Hoboken, NJ: Wiley.

Laird, M. D., Zboja, J. J., & Ferris, G. R. (2012). Partial mediation of the political skill-reputation relationship. *Career Development International, 17,* 557-582. doi: 10.1108/13620431211280132

Lebreton, J. M., Burgess, J. R. D., Kaiser, R. B., Atchley, E. K., & James, L. R. (2003). The restriction of variance hypothesis and interrater reliability and agreement: Are ratings from multiple sources really dissimilar? *Organizational Research Methods, 6*, 80-128. doi: 10.1177/1094428102239427

LeBreton, J. M., & Senter, J. L. (2008). Answers to 20 questions about interrater reliability and interrater agreement. *Organizational Research Methods, 11*, 815-852. doi: 10.1177/1094428106296642

LePine, J. A., Piccolo, R. F., Jackson, C. L., Mathieu, J. E., & Saul, J. R. (2008). A meta-analysis of teamwork processes: Tests of a multidimensional model and relationships with team effectiveness criteria. *Personnel Psychology, 61*, 273-307. doi: 10.1111/j.1744-6570.2008.00114.x

Liden, R. C., Erdogan, B., Wayne, S. J., & Sparrowe, R. T. (2006). Leader-member exchange, differentiation, and task interdependence: implications for individual and group performance. *Journal of Organizational Behavior, 27,* 723-746. doi: 10.1002/job.409

Liu, X., & Batt, R. (2010). How supervisors influence performance: A multilevel study of coaching and group management in technology-mediated services. *Personnel Psychology, 63*, 265-298. doi: 10.1111/j.1744-6570.2010.01170.x

Liu, Y., Ferris, G. R., Zinko, R., Perrewé, P. L., Weitz, B., & Xu, J. (2007). Dispositional antecedents and outcomes of political skill in organizations: A four-study investigation with convergence. *Journal of Vocational Behavior, 71*, 146-165. doi: 10.1016/j.jvb.2007.04.003

Lovelace, K., Shapiro, D. L., & Weingart, L. R. (2001). Maximizing cross-functional new product teams' innovativeness and constraint adherence: A conflict communications perspective. *Academy of Management Journal, 44*, 779-793. doi: 10.2307/3069415

Marks, M. A., Mathieu, J. E., & Zaccaro, S. J. (2001). A temporally based framework and taxonomy of team processes. *Academy of Management Review, 26*, 356-376. doi: 10.5465/AMR.2001.4845785

Marsh, H. W., & Hau, K. (1999). Confirmatory factor analysis: Strategies for small sample sizes. In R. H. Hoyle (Ed.), *Statistical strategies for small sample research* (pp. 251-284). Thousand Oaks, California: Sage Publications.

Mathieu, J., & Gilson, L. (2012). Criteria issues and team effectiveness. In S. W. J. Kozlowski (Ed.), *Oxford handbook of industrial and organizational psychology* (pp. 910-930). London: Oxford Press.

Mathieu, J., Maynard, M. T., Rapp, T., & Gilson, L. (2008). Team effectiveness 1997-2007: A review of recent advancements and a glimpse into the future. *Journal of Management, 34*, 410-476. doi: 10.1177/0149206308316061

McClelland, G. P., Leach, D. J., Clegg, C. W., & McGowan, I. (2014). Collaborative crafting in call centre teams. *Journal of Occupational and Organizational Psychology*. doi: 10.1111/joop.12058

Memmert, D. (2011). Sports and creativity. In M. A. Runco & S. R. Pritzker (Eds.), *Encyclopedia of creativity* (Vol. 2, pp. 373-378). San Diego: Academic Press.

Neumann, R., & Strack, F. (2000). "Mood contagion": The automatic transfer of mood between persons. *Journal of Personality and Social Psychology, 79*, 211-223. doi: 10.1037//0022-3514.79.2.211

Newcombe, M. J., & Ashkanasy, N. M. (2002). The role of affect and affective congruence in perceptions of leaders: An experimental study. *The Leadership Quarterly, 13,* 601-614. doi: 10.1016/S1048-9843(02)00146-7

Oetzel, J. G., & Bolton-Oetzel, K. (1997). Exploring the relationship between self-construal and dimensions of group effectiveness. *Management Communication Quarterly, 10*, 289-315. doi: 10.1177/0893318997010003002

Pearce, C. L., & Ensley, M. D. (2004). A reciprocal and longitudinal investigation of the innovation process: the central role of shared vision in product and process innovation teams (PPITs). *Journal of Organizational Behavior, 25*, 259-278. doi: 10.1002/job.235

Peeters, G. (1992). Evaluative meanings of adjectives in vitro and in context: Some theoretical implications and practical consequences of positive-negative asymmetry and behavioral-adaptive concepts of evaluation. *Psychologica Belgica, 32*, 211-231.

Peeters, G. (2002). From good and bad to can and must: Subjective necessity of acts associated with positively and negatively valued stimuli. *European Journal of Social Psychology, 32*, 125-136. doi: 10.1002/ejsp.70

Pentland, B. T. (1995). Read me what it says on your screen: The interpretative problem in technical service work. *Technology Studies, 2*, 50-79.

Pirola-Merlo, A. (2010). Agile innovation: The role of team climate in rapid research and development. *Journal of Occupational and Organizational Psychology, 83*, 1075-1084. doi: 10.1348/096317909x480653

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*, 879-903. doi: 10.1037/0021-9010.88.5.879

Rietzschel, E. F. (2011). Collective regulatory focus predicts specific aspects of team innovation. *Group Processes & Intergroup Relations, 14*, 337-345. doi: 10.1177/1368430210392396

Robinson, G., & Morley, C. (2007). Running the electronic sweatshop: Call centre managers' views on call centres. *Journal of Management & Organization, 13*, 249-263.

Rozin, P., & Royzman, E. B. (2001). Negativity bias, negativity dominance, and contagion. *Personality and Social Psychology Review, 5*, 296-320. doi: 10.1207/S15327957PSPR0504_2

Russell, J. A. (1980). A circumplex model of affect. *Journal of Personality and Social Psychology, 39*, 1161-1178. doi: 10.1037/h0077714

Saavedra, R., Earley, P. C., & Van Dyne, L. (1993). Complex interdependence in task-performing groups. *Journal of Applied Psychology, 78*, 61-72. doi: 10.1037/0021-9010.78.1.61

Sarin, S., & McDermott, C. (2003). The effect of team leader characteristics on learning, knowledge application, and performance of cross-functional new

product development teams. *Decision Sciences, 34*, 707-739. doi: 10.1111/j.1540-5414.2003.02350.x

Schwarz, N., & Clore, G. L. (1983). Mood, misattribution, and judgments of well-being: Informative and directive functions of affective states. *Journal of Personality and Social Psychology, 45*, 513-523. doi: 10.1037/0022-3514.45.3.513

Scott, S. G., & Bruce, R. A. (1994). Determinants of innovative behavior: A path model of individual innovation in the workplace. *Academy of Management Journal, 37*, 580-607. doi: 10.2307/256701

Shah, V., & Bandi, R. (2003). Capability development in knowledge intensive IT enabled services. *European Journal of Work and Organizational Psychology, 12*, 418-427. doi: 10.1080/13594320344000174

Söderlund, M., & Rosengren, S. (2004). Dismantling "positive affect" and its effects on customer satisfaction: An empirical examination of customer joy in a service encounter. *Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behavior, 17*, 27-41.

Somech, A. (2006). The effects of leadership style and team process on performance and innovation in functionally heterogeneous teams. *Journal of Management, 32*, 132-157. doi: 10.1177/0149206305277799

Somech, A., & Drach-Zahavy, A. (2011). Translating team creativity to innovation implementation: The role of team composition and climate for innovation. *Journal of Management, 39*, 684-708. doi: 10.1177/0149206310394187

Sundstrom, E., McIntyre, M., Halfhill, T., & Richards, H. (2000). Work groups: From the Hawthorne studies to work teams of the 1990s and beyond. *Group Dynamics: Theory, Research, and Practice, 4*, 44-67. doi: 10.1037//1089-2699.4

Sung, S. Y., & Choi, J. N. (2012). Effects ofteam knowledge management on the creativity and financial performance of organizational teams. *Organizational Behavior and Human Decision Processes, 118*, 4-13. doi: 10.1016/j.obhdp.2012.01.001

Sy, T., Côté, S., & Saavedra, R. (2005). The contagious leader: Impact of the leader's mood on the mood of group members, group affective tone, and group processes. *Journal of Applied Psychology*, *90*, 295-305. doi: 10.1037/0021-9010.90.2.295

Taggar, S. (2002). Individual creativity and group ability to utilize individual creative resources: A multilevel model. *Academy of Management Journal, 45*, 315-330. doi: 10.2307/3069349

Tannenbaum, S. I., Beard, R. L., & Salas, E. (1992). Team Building and its influence on team effectiveness: An examination of conceptual and empirical developments. In K. Kelley (Ed.), *Advances in psychology - Issues theory and research in industrial/organizational psychology* (Vol. 82, pp. 117-153). Amsterdam: Elsevier.

Tekleab, A. G., Quigley, N. R., & Tesluk, P. E. (2009). A longitudinal study of team conflict, conflict management, cohesion, and team effectiveness. *Group & Organization Management, 34*, 170-205. doi: 10.1177/1059601108331218

Tjosvold, D., Chen, N. Y., Huang, X., & Xu, D. (2014). Developing cooperative teams to support individual performance and well-being in a call center in China. *Group Decision and Negotiation, 23*, 325-348. doi: 10.1007/s10726-012-9314-6

Totterdell, P. (2000). Catching moods and hitting runs: Mood linkage and subjective performance in professional sport teams. *Journal of Applied Psychology, 85*, 848-859. doi: 10.1037//0021-9(110.85.6.848

Tyran, K. L., & Gibson, C. B. (2008). Is what you see, what you get?: The relationship among surface- and deep-level heterogeneity characteristics, group efficacy, and team reputation. *Group & Organization Management, 33*, 46-76. doi: 10.1177/1059601106287111

Van Katwyk, P. T., Fox, S., Spector, P. E., & Kelloway, E. K. (2000). Using the Job-Related Affective Well-Being Scale (JAWS) to investigate affective responses to work stressors. *Journal of Occupational Health Psychology, 5*, 219-230. doi: 10.1037111076-8998.5.2.219

Van Kleef, G. A. (2009). How emotions regulate social life: The emotions as social information (EASI) model. *Current Directions in Psychological Science, 18*, 184-188. doi: 10.1111/j.1467-8721.2009.01633.x

Van Kleef, G. A., & Côté, S. (2007). Expressing anger in conflict: When it helps and when it hurts. *Journal of Applied Psychology, 92*, 1557-1569. doi: 10.1037/0021-9010.92.6.1557

Van Kleef, G. A., De Dreu, C. K. W., & Manstead, A. S. R. (2004). The interpersonal effects of anger and happiness in negotiations. *Journal of Personality and Social Psychology, 86*, 57-76. doi: 10.1037/0022-3514.86.1.57

Wech, B. A., Kennedy, K. N., & Deeter-Schmelz, D. R. (2009). A multi-level analysis of customer contact teams. *Journal of Services Marketing, 23*, 436-448. doi: 10.1108/08876040910985898

Weingart, L. R., & Weldon, E. (1991). Processes that mediate the relationship between a group goal and group member performance. *Human Performance, 4*, 33-54. doi: 10.1207/s15327043hup0401_2

Weiss, H. M., & Cropanzano, R. (1996). Affective events theory: A theoretical discussion of the structure, causes and consequences of affective experiences at work. In B. M. Staw & L. L. Cummings (Eds.), *Research in organizational behavior: An annual series of analytical essays and critical reviews* (Vol. 18, pp. 1-74). Greenwich, CT: Elsevier Science/JAI Press.

Welbourne, T. M., Johnson, D. E., & Erez, A. (1998). The role-based performance scale: Validity analysis of a theory-based measure. *Academy of Management Journal, 41,* 540-555. doi: 10.2307/256941

West, M. A. (2002). Sparkling fountains or stagnant ponds: An integrative model of creativity and innovation implementation in work groups. *Applied Psychology: An International Review, 51,* 355-424. doi: 10.1111/1464-0597.00951

West, M. A., & Anderson, N. (1996). Innovation in top management teams. *Journal of Applied Psychology, 81,* 680-693. doi: 10.1037/0021-9010.81.6.680

West, M. A., Hirst, G., Richter, A., & Shipton, H. (2004). Twelve steps to heaven: Successfully managing change through developing innovative teams. *European Journal of Work and Organizational Psychology, 13,* 269-299. doi: 10.1080/13594320444000092

Wheelan, S. A., & Hochberger, J. M. (1996). Validation studies of the group development questionnaire. *Small Group Research, 27,* 143-170. doi: 10.1177/1046496496271007

Williams, K. Y., & O'Reilly, C. A. (1998). Demography and diversity in organizations: A review of 40 years of research. In B. M. Staw & R. I. Sutton (Eds.), *Research in organizational behavior* (Vol. 20, pp. 77–140). Greenwich, CT: JAI Press.

Zhang, Z., Waldman, D. A., & Wang, Z. (2012). A multilevel investigation of leader–member exchange, informal leader emergence, and individual and team performance. *Personnel Psychology*, *65*, 49-78. doi: 10.1111/j.1744-6570.2011.01238.x

Zhou, Y., & Wang, E. (2010). Shared mental models as moderators of team process-performance relationships. *Social Behavior and Personality: An International Journal*, *38*, 433-444. doi: 10.2224/sbp.2010.38.4.433

CAPÍTULO 5

Discussão geral

A presente dissertação procurou contribuir para o desenvolvimento conceptual dos modelos de funcionamento e eficácia grupal, avaliando quando e como os processos e os estados emergentes das equipas se relacionam entre si e com a eficácia grupal. Nas secções seguintes, sintetizamos os principais resultados dos nossos três estudos empíricos e discutimos o contributo de cada estudo para a literatura em funcionamento e eficácia grupal. Completamos a discussão com uma reflexão integradora dos contributos do trabalho que realizámos.

Síntese dos resultados principais

No segundo capítulo, intitulado "*Development and validation of the Team Development Questionnaire*", criámos e validámos empiricamente uma medida de desenvolvimento grupal que, de acordo com os nossos resultados, apresenta boas qualidades psicométricas. Partindo de uma abordagem integrada de desenvolvimento grupal por estádios (Kozlowski & Ilgen, 2006; Kuipers & Stoker, 2009; Miller, 2003; Oliveira, Miguez, & Lourenço, 2005; Smith, 2001; Wheelan & Hochberger, 1996), apresentamos três contributos para a literatura em desenvolvimento de equipas. Primeiro, a medida desenvolvida dedutivamente capta de forma consistente, em diferentes amostras, o número teórico de dimensões e estádios desenvolvimentais. Embora seja amplamente aceite que o desenvolvimento grupal ocorre em quatro estádios, cada um constituído por uma dimensão de tarefa e outra interpessoal (Jones & Bearley, 2001; Morgan, Salas, & Glickman, 1993; Smith, 2001; Wheelan, 2005), a investigação empírica tem sido incapaz de captar de forma consistente esta estrutura teórica (e.g., Ito & Brotheridge, 2008; Wheelan & Hochberger, 1996). Segundo, o nosso

estudo é pioneiro na sustentação empírica da noção de que o desenvolvimento grupal reflete mudanças nas configurações de processos e estados emergentes (Garfield & Dennis, 2013; Smith, 2001; Wheelan, 2005). Através de estudos de validade convergente e discriminante, verificámos que o padrão relacional de diversos processos e estados emergentes específicos com os estádios desenvolvimentais é consistente com a teoria dos modelos integrados de desenvolvimento grupal. Por exemplo, verificámos que o quarto estádio desenvolvimental (equipas maduras) se relacionava de forma moderada ou forte com processos e estados emergentes específicos, enquanto no terceiro estádio (quando as equipas começam a estabelecer processos e estados emergentes funcionais) o padrão relacional assentava em relações fracas ou moderadas. Terceiro, embora se assuma que as equipas maduras tendem a ser mais eficazes (Kuipers & Stoker, 2009; Wheelan, 2005), as relações entre processos, estados emergentes e facetas de eficácia grupal não têm sido examinadas ao nível de abstração dos estádios desenvolvimentais (Ericksen & Dyer, 2004; Mannix & Jehn, 2004). Os nossos resultados sugerem que as equipas mais maduras tendem a ser mais eficazes em múltiplas facetas (i.e., viabilidade, reputação, desempenho extra papel); que as dimensões de tarefa e interpessoais explicam variância única nas diferentes variáveis critério; e que as mudanças que ocorrem ao nível do desenvolvimento grupal em curtos períodos de tempo (i.e., um mês) se refletem na eficácia da equipa.

No terceiro capítulo, intitulado "*Team processes and team innovation in call centers: The role of leader's courage to go beyond compliance*", respondemos ao alerta de Mathieu, Maynard, Rapp e Gilson (2008) para a necessidade de investigar a relação entre os processos grupais já categorizados por Marks, Mathieu e Zaccaro (2001) e os processos de inovação. Os nossos resultados sugerem que a criatividade grupal é um

mecanismo relevante na relação entre os processos de equipa hierarquizados por Marks et al. (2001) e a implementação de inovações, mas só quando o líder revela coragem para ir além dos requisitos obrigatórios; isto é, quando o líder considera não só as regras estabelecidas, mas também o que é certo, justo e apropriado (Sekerka, Bagozzi, & Charnigo, 2009). Quando os líderes vão além dos requisitos obrigatórios, as equipas com processos eficazes tendem a ser capazes de ultrapassar a tensão entre a estandardização e a necessidade de inovar existente nos *call centers*, recorrendo aos seus processos grupais para gerarem e implementarem ideias novas e úteis. Estes resultados contribuem para as literaturas em inovação, processos grupais e liderança. Primeiro, os nossos resultados estão alinhados com a perspetiva interacionista de inovação (Woodman, Sawyer, & Griffin, 1993; Zhou & Hoever, 2014) e com a perspetiva contingencial dos processos de equipa (Ilgen, Hollenbeck, Johnson, & Jundt, 2005). De acordo com estas perspetivas, as relações entre processos de equipa não são só simples mas dependem, também, de interações complexas com outras variáveis como, por exemplo, as características e competências dos líderes. Segundo, este estudo testa o modelo teórico de Arnaud e Sekerka (2010), que sugere que a coragem moral do líder para ir além dos requisitos obrigatórios é crítica para os processos de inovação nas organizações. De acordo com os nossos resultados, esta coragem moral é capaz de direcionar processos grupais eficazes para a produção e implementação de inovações em *call centers*.

No quarto capítulo, intitulado "*Innovation processes and team effectiveness: The role of goal clarity and commitment, and team affective tone*", procurámos clarificar os resultados inconsistentes que os estudos focados na relação entre processos de inovação e eficácia grupal têm apresentado. A nossa abordagem contingencial revelou que os

processos de inovação interagem com os estados emergentes das equipas para predizerem eficácia grupal. Os resultados também sugerem que a relação entre processos de inovação e desempenho de tarefa é moderada sobretudo pelo estado emergente de clareza e comprometimento com os objetivos, enquanto a relação entre processos de inovação e reputação da equipa é moderada principalmente pelo estado emergente denominado tonalidade afetiva negativa da equipa. Com este estudo apresentamos dois contributos principais para as literaturas em processos de inovação e em eficácia. Primeiro, ao questionarmos a assunção de que os processos de inovação em equipas contribuem sempre para a eficácia grupal, desenvolvemos uma abordagem contingencial dos processos de inovação. Enquanto outros investigadores analisaram o efeito preditor de estados emergentes nos processos de inovação (e.g., Hülsheger, Anderson, & Salgado, 2009), o nosso trabalho complementa e amplia essa abordagem, mostrando que os estados emergentes também interagem com os processos de inovação na predição de eficácia grupal. Segundo, ao focarmo-nos nas interações complexas entre processos e estados emergentes contribuímos para mover a discussão dos efeitos simples (e.g., Cropanzano, Li, & Benson, 2011; Priesemuth, Schminke, Ambrose, & Folger, 2014; Tyran & Gibson, 2008) para os efeitos de moderação.

Discussão integrada dos resultados principais

Nesta secção discutimos de forma integrada os principais resultados dos estudos empíricos apresentados nos capítulos 2, 3 e 4. Organizamos esta reflexão apresentando os nossos contributos específicos para os principais tópicos, detalhados no capítulo 1, que sustentaram o desenvolvimento dos modelos integrados de funcionamento e eficácia grupal IMOI (Ilgen et al., 2005; Mathieu et al., 2008).

Variáveis críticas que afetam os inputs, os processos grupais e as diferentes facetas de eficácia das equipas

Ao avaliarmos em que medida a coragem moral dos líderes para ir além dos requisitos obrigatórios influencia as relações entre processos grupais (capítulo 3), contribuímos para uma melhor compreensão do papel do contexto onde a organização opera, bem como do papel das características e das competências dos líderes nos processos grupais. Com base na perspetiva interacionista de inovação (Woodman et al., 1993; Zhou & Hoever, 2014), sugerimos e encontrámos evidência empírica para o efeito moderador da coragem moral do líder nas relações entre os processos grupais categorizados por Marks et al. (2001), criatividade grupal e implementação de ideias. Neste sentido, sugerimos que os *inputs* dos modelos IMOI de funcionamento e eficácia grupal podem funcionar não só como preditores de processos grupais, mas também como moderadores das relações entre processos. Além disso, a teorização do efeito moderador teve em consideração as contingências da organização e do contexto onde a organização opera. A coragem moral para ir além dos requisitos obrigatórios parece ser crítica para as equipas direcionarem os seus processos grupais eficazes para a criação e implementação de ideias novas e úteis em *call centers*. Noutros setores de atividade e noutras organizações as equipas podem beneficiar de líderes com outras características e competências. Por exemplo, em setores onde a tensão entre a estandardização e a necessidade de inovar não exista tão acentuadamente, a coragem moral para ir além dos requisitos obrigatórios pode não ser crítica para as equipas iniciarem processos de inovação.

Clarificação conceptual dos constructos designados por "processos grupais" nos modelos I-P-O de base

Com base na distinção conceptual entre processos e estados emergentes (Ilgen et al., 2005; Marks et al., 2001) avaliámos, no capítulo 4, em que medida processos e estados emergentes específicos interagem para predizer eficácia grupal. As interações entre processos de inovação e estados emergentes específicos sugerem que a experiência passada da equipa muito dificilmente é eliminada pela simples adoção de um conjunto de processos que visa o aumento da eficácia grupal. Embora as equipas possam recorrer a processos de inovação para aumentar a sua eficácia, a presença de estados emergentes "disfuncionais" para determinado *output* ou a ausência de estados emergentes "funcionais" para outro *output* pode minar o resultado do esforço coletivo. Nesse sentido, os resultados da nossa investigação sugerem que as equipas interessadas em aumentar os seus níveis de eficácia através de processos de inovação devem também avaliar os estados que emergiram ao longo do tempo e que podem constituir obstáculo ou potenciar determinada faceta de eficácia. Estes resultados estão alinhados com o modelo IMOI de funcionamento e eficácia grupal (Ilgen et al., 2005) – ao longo do tempo e com base na sua experiência passada, as equipas vão desenvolvendo um conjunto de estados emergentes que passa a ser o pano de fundo e a influenciar a eficácia dos processos presentes.

Relações entre constructos a diferentes níveis de abstração e de especificidade

Com esta dissertação procurámos, também, contribuir para uma melhor compreensão dos processos e estados emergentes a diferentes níveis de abstração e especificidade (LePine, Piccolo, Jackson, Mathieu, & Saul, 2008). No capítulo 2, partindo de um nível de abstração elevado e tendo em consideração o fator tempo dos

modelos de funcionamento e eficácia grupal, verificámos em que medida vários processos e estados emergentes se agrupam para formar estádios desenvolvimentais. No capítulo 3, partindo de um nível de abstração intermédio, avaliámos quando e como processos grupais superordenados (Marks et al., 2001) se relacionam com a implementação de inovações. No quarto capítulo, partimos de um nível de abstração reduzido para avaliar em que medida dois estados emergentes das equipas (clareza e comprometimento com objetivos e tonalidade afetiva) moderam a relação entre processos de inovação e duas facetas de eficácia grupal (desempenho de tarefa e reputação).

Em cada nível de abstração olhamos para informação diferente, embora complementar (LePine et al., 2008; Mathieu, Gilson, & Ruddy, 2006). Num nível de elevada especificidade olhamos para efeitos particulares que não podem ter em consideração a multiplicidade de fatores que potencialmente influenciam o funcionamento e a eficácia das equipas. No entanto, estas análises permitem uma análise fina das relações simples entre variáveis, das contingências que alteram a forma dessas relações e dos mecanismos que medeiam essas relações. Ao subirmos na hierarquia taxionómica perdemos informação específica sobre a complexidade das relações entre, por exemplo, processos e estados emergentes, mas ganhamos uma visão global de um conjunto alargado de fatores que, potencialmente, influencia o funcionamento e a eficácia grupal. Por exemplo, ao olharmos para os processos de inovação das equipas partindo de uma perceção global de inovação conseguimos avaliar a relação que estes processos, como um todo abstrato, têm com a eficácia grupal (capítulo 4). Contudo, esta perceção global não contempla as especificidades relacionais entre processos criativos e processos de implementação da inovação (capítulo 3). Na

mesma linha, ao avaliarmos estádios desenvolvimentais enquanto configurações complexas de processos e estados emergentes (capítulo 2) ignoramos, por exemplo, as interações que podem existir entre processos e estados emergentes na predição de eficácia (capítulo 4). De acordo com LePine et al. (2008) e, também, Mathieu et al. (2008), uma melhor compreensão dos modelos de funcionamento e eficácia grupal pode ser obtida através do cruzamento de informação a diferentes níveis de abstração e especificidade.

O desenvolvimento contínuo dos modelos através da inclusão de novos constructos e de relações entre constructos ainda não consideradas

Ao avaliarmos em que medida os processos grupais categorizados por Marks et al. (2001) se relacionam com processos criativos e de implementação de inovações (capítulo 3), damos um primeiro passo para a inclusão dos processos de inovação na taxonomia de processos grupais (Mathieu et al., 2008). Embora esta inclusão necessite de um conjunto de estudos de validação extensivo que não estava contemplado nos objetivos deste nosso trabalho, as nossas análises indicam que os processos de inovação aparentam constituir processos que se diferenciam estruturalmente dos processos de transição, de ação e interpessoais, vistos como um todo. Os nossos resultados indicam também que os processos criativos e de implementação podem ser afetados pela ação conjunta dos processos de transição, de ação e interpessoais.

A avaliação das relações entre estádios desenvolvimentais e três facetas de eficácia (capítulo 2) contribuiu para uma melhor compreensão da rede nomológica dos estádios de desenvolvimento grupal (Ericksen & Dyer, 2004; Mannix & Jehn, 2004) e alertou para a importância de, mesmo neste nível de abstração, se considerarem separadamente as dimensões de tarefa e interpessoais dos processos e estados

emergentes das equipas (Jones & Bearley, 2001; Morgan et al., 1993; Smith, 2001; Wheelan, 2005).

A dimensão temporal nos modelos de funcionamento e de eficácia grupal

Para contribuirmos para uma melhor compreensão do fator tempo nos modelos de funcionamento e eficácia grupal partimos de uma abordagem integrada de desenvolvimento grupal por estádios (Smith, 2001; Wheelan, 2005). Apresentamos três contributos para a uma melhor compreensão do fator tempo nas equipas. Primeiro, criámos uma medida que capta empiricamente as dimensões do desenvolvimento grupal, identificadas por um corpo teórico alargado. Desta forma, desenvolvemos uma medida fiável e válida para o estudo futuro das relações temporais entre estádios e dimensões do desenvolvimento grupal. Segundo, partindo de uma análise temporal dos estádios desenvolvimentais (Li & Roe, 2012), verificámos que incrementos nos estádios de maior maturidade aparentam ser benéficos para a viabilidade das equipas, enquanto incrementos nos estádios de menor maturidade, particularmente no estádio 2, aparentam ser prejudiciais para a viabilidade das equipas. Estes resultados ilustram que mudanças globais nos processos e nos estados emergentes grupais tendem a refletir-se na eficácia da equipa, mesmo num curto espaço de tempo (no caso do nosso trabalho, um mês). Assim, por medida preventiva, parece ser importante monitorizar consistentemente as alterações nos processos e estados emergentes das equipas e corrigir ou fomentar oscilações que possam emergir. Terceiro, seguindo as recomendações de Li e Roe (2012), fomos pioneiros na utilização conjunta de abordagens diferenciais e temporais, gerando conhecimento tanto ao nível da variância existente entre estádios e dimensões, como ao nível das mudanças nos estádios e dimensões do desenvolvimento grupal.

A conceptualização multidimensional da eficácia grupal

Ao medirmos facetas de eficácia específicas (e.g., desempenho de tarefa, reputação, viabilidade, desempenho extra papel) contribuímos para uma melhor compreensão da eficácia grupal. Porque avaliámos em que medida as relações entre processos de inovação, reputação e desempenho dependem de dois estados emergentes específicos, contribuímos para a literatura que considera que as várias dimensões específicas de eficácia tendem a apresentar propriedades próprias e uma rede nomológica específica (e.g., Cropanzano et al., 2011; Priesemuth et al., 2014; Tyran & Gibson, 2008). Esta manifestação de propriedades próprias parece evidenciar-se não só quando avaliamos processos e estados emergentes específicos, mas também quando avaliamos processos e estados emergentes a um nível de abstração elevado. Por exemplo, a dimensão interpessoal do estádio 4 de desenvolvimento grupal relaciona-se mais fortemente com a viabilidade (r = . 52) que com a reputação (r = .29) e esta diferença é estatisticamente significativa (z = 2.05, p < .05). Estes resultados não impossibilitam, no entanto, que exista um padrão global de relações entre processos e estados emergentes grupais e eficácia das equipas, avaliada a níveis elevados de abstração (e.g., Cohen & Bailey, 1997; Gladstein, 1984; Hackman, 1987; Mathieu & Gilson, 2012; Savoie & Beaudin, 1995; Sundstrom, De Meuse, & Futrell, 1990). Num nível elevado de abstração, acedemos sobretudo a informação relativa à interdependência que existe entre as diferentes facetas de eficácia grupal (LePine et al., 2008). Nos nossos estudos, acedemos sobretudo às características específicas de cada faceta de eficácia avaliada.

Limitações e implicações

As limitações e as implicações para a investigação e a intervenção de cada estudo empírico são reportadas detalhadamente no capítulo correspondente. Há, no entanto, algumas limitações e implicações que são transversais a todos os capítulos e que, por isso, são discutidas nesta secção.

Salientamos duas limitações e implicações para a investigação que são transversais aos três estudos. Primeiro, embora tenhamos testado as nossas hipóteses em várias amostras, com dados de múltiplas fontes, com medidas tanto subjetivas como objetivas, com dados recolhidos em dois momentos temporais e com uma série de cuidados metodológicos (e.g., controlar pela variância da mesma fonte; Podsakoff, MacKenzie, & Podsakoff, 2012), recorremos sempre a *designs* não experimentais ou de campo (estudos correlacionais). Nos nossos estudos medimos variáveis que já existem nos sujeitos e nas equipas, e a pertença dos inquiridos à respetiva equipa determinou o estabelecimento das coletividades investigadas (Coolican, 2009). Como não manipulámos ortogonalmente os fatores de interesse não podemos estabelecer causalidade nos nossos estudos nem podemos garantir que os efeitos reportados não são fruto do efeito de outras variáveis não consideradas (validade interna reduzida). Contudo, a triangulação de análises feitas com várias amostras e com medidas diferentes para captar o mesmo constructo sugere que os nossos resultados tendem a ser generalizáveis (validade externa elevada). Em adição, o facto de termos baseado as nossas hipóteses em modelos teóricos estabelecidos e que, em alguns casos, já foram testados experimentalmente, atenua as preocupações que possam existir no âmbito da validade interna dos nossos estudos.

Segundo, de acordo com Mathieu e Gilson (2012), a maior parte dos estudos empíricos dedica-se ao estudo dos antecedentes da eficácia grupal (*inputs,* processos e estados emergentes), sendo necessária uma compreensão mais detalhada dos *outputs*. Por este motivo, centrámos os nossos estudos sobretudo nos mediadores, nos *outputs* e nas relações entre mediadores e *outputs* dos modelos IMOI (Ilgen et al., 2005). Investigações futuras podem analisar mais detalhadamente o papel dos *inputs,* tendo em consideração os nossos resultados. Por exemplo, investigação futura pode analisar o papel antecedente ou moderador de outras variáveis (e.g., contextuais, organizacionais e de liderança) na relação entre processos de inovação e diferentes facetas de eficácia grupal.

Em termos de implicações para a intervenção, salientamos as seguintes. Primeiro, apresentamos um instrumento de avaliação do desenvolvimento grupal que pode ser usado por formadores, líderes, equipas e organizações. Ao avaliar quatro estádios de desenvolvimento grupal, cada um constituído por uma dimensão de tarefa e outra interpessoal, o instrumento permite a deteção de necessidades de intervenção em aspetos relacionados com a tarefa e/ou com as relações entre os membros de uma equipa. Adicionalmente, durante o desenvolvimento deste instrumento verificámos que mudanças nos estádios de desenvolvimento grupal tendem a refletir-se na eficácia das equipas, mesmo num curto espaço de tempo (e.g., um mês). Estes resultados ilustram a volatilidade e a imprevisibilidade das dinâmicas grupais. Nesse sentido, parece ser importante monitorizar regularmente as alterações que possam ocorrer nos estádios desenvolvimentais das equipas para corrigir ou fomentar as oscilações detetadas.

Segundo, os nossos estudos indicam que as intervenções focadas em fomentar os processos criativos e a implementação de inovações nas equipas podem beneficiar de

um desenvolvimento simultâneo dos processos grupais e dos líderes. Equipas lideradas por alguém com coragem para ir além dos requisitos obrigatórios estão melhor posicionadas para recorrer aos seus processos grupais de transição, de ação e interpessoais para produzir e implementar ideias novas e úteis. A nossa investigação alerta ainda para a necessidade de se considerarem as contingências da organização e do contexto onde a equipa opera, durante a definição do que é esperado de um líder para que a sua equipa inicie processos de inovação. A coragem moral para ir além dos requisitos obrigatórios parece ser fundamental para as equipas direcionarem os seus processos grupais para a criação e implementação de ideias criativas, em contextos que encorajam a inovação mas que também requerem que as equipas cumpram um conjunto de procedimentos estandardizados. Assim, pode ser benéfico que tanto a organização como os próprios líderes avaliem as competências requeridas para liderar uma equipa num determinado contexto e procurem desenvolver essas competências.

Terceiro, os nossos resultados também sugerem que os líderes interessados em aumentar os níveis de eficácia grupal através de processos de inovação devem prestar particular atenção aos estados cognitivos, emocionais e motivacionais que emergiram ao longo do tempo nas equipas. Com base na sua experiência passada, as equipas vão desenvolvendo um conjunto de estados emergentes que influencia a eficácia dos processos de inovação. Por exemplo, ao ajudar a sua equipa a clarificar e a priorizar objetivos, o líder pode contribuir para que o estado emergente de clareza e comprometimento com objetivos se desenvolva, fomentando o desempenho de tarefa a partir de processos grupais de inovação. Adicionalmente, ao monitorizar regularmente a tonalidade afetiva da equipa, o líder pode prevenir a experiência e a expressão de

emoções negativas no contexto grupal, promovendo a reputação da equipa através dos processos de inovação.

Globalmente, os resultados o nosso trabalho reforçam a importância de monitorizar regularmente os processos, os estados emergentes e a eficácia das equipas, a importância que as competências dos líderes têm no funcionamento das equipas, bem como a importância das organizações apoiarem os líderes e as equipas num processo de desenvolvimento profissional contínuo. Adicionalmente, dada a complexidade das dinâmicas de trabalho em equipa realçamos a importância de triangular informação proveniente de diferentes níveis de abstração. Assim, uma visão global de um conjunto alargado de fatores que, potencialmente, influencia o funcionamento e a eficácia grupal, deverá ser complementada com uma análise fina dos efeitos particulares que determinados processos e estados emergentes podem ter na eficácia das equipas.

Considerações finais

O *output* da presente dissertação de doutoramento teve por base a seguinte questão de investigação (tal como mencionado no capítulo 1): *Como e quando é que os processos e os estados emergentes das equipas se relacionam entre si e com a eficácia grupal?* Procurámos responder a esta questão de três formas complementares, partindo de diferentes níveis de abstração e de um vasto leque de literatura específica em processos e estados emergentes grupais. Primeiro, através da criação dedutiva de uma nova medida de desenvolvimento grupal, verificámos que cada estádio e dimensão de desenvolvimento grupal reflete o contributo de diversos processos e estados emergentes, que as equipas maduras tendem a ser mais eficazes e, ainda, que as mudanças que ocorrem ao nível do desenvolvimento grupal em curtos períodos de tempo (i.e., um mês) se refletem na eficácia das equipas. Segundo, apresentámos uma condição

(coragem moral do líder para ir além dos requisitos obrigatórios) e um mecanismo (processos criativos) na relação entre os processos grupais categorizados por Marks et al. (2001) e os processos de implementação de inovações. Verificámos que os processos grupais se relacionam positivamente com a implementação de inovações nas equipas, via criatividade grupal, mas somente quando os líderes revelam coragem para ir além dos requisitos obrigatórios. Por fim, avaliámos o papel moderador de dois estados emergentes nas relações entre processos de inovação e duas facetas de eficácia (desempenho de tarefa e reputação). Verificámos que os processos de inovação interagem com os estados emergentes das equipas para predizerem eficácia grupal. Assim, concluímos que demos resposta, pelo menos parcialmente, à nossa questão de investigação. Esperamos que esta investigação inspire outros investigadores a investirem no estudo e na compreensão do funcionamento grupal.

Referências bibliográficas

Arnaud, A., & Sekerka, L. E. (2010). Positively ethical: The establishment of innovation in support of sustainability. *International Journal of Sustainable Strategic Management, 2*, 121-137.

Cohen, S. G., & Bailey, D. E. (1997). What makes teams work: Group effectiveness research from the shop floor to the executive suite. *Journal of Management, 23*, 239-290.

Coolican, H. (2009). *Research methods and statistics in psychology*. London: Hodder Education.

Cropanzano, R., Li, A., & Benson, L. (2011). Peer justice and teamwork process. *Group & Organization Management, 36*, 567-596.

Ericksen, J., & Dyer, L. (2004). Right from the start: Exploring the effects of early team events on subsequent project team development and performance. *Administrative Science Quarterly, 49*, 438-471.

Garfield, M. J., & Dennis, A. R. (2013). Toward an integrated model of group development: Disruption of routines by technology-induced change. *Journal of Management Information Systems, 29*, 43-86.

Gladstein, D. L. (1984). Groups in context: A model of task group effectiveness. *Administrative Science Quarterly, 29*, 499-517.

Hackman, J. R. (1987). The design of work teams. In J. W. Lorsch (Ed.), *Handbook of organizational behavior* (pp. 315-342). Englewood Cliffs, NJ: Prentice-Hall.

Hülsheger, U. R., Anderson, N., & Salgado, J. F. (2009). Team-level predictors of innovation at work: A comprehensive meta-analysis spanning three decades of research. *Journal of Applied Psychology, 94*, 1128-1145.

Ilgen, D. R., Hollenbeck, J. R., Johnson, M., & Jundt, D. (2005). Teams in organizations: From Input-Process-Output models to IMOI models. *Annual Review of Psychology, 56*, 517-543.

Ito, J. K., & Brotheridge, C. M. (2008). Do teams grow up one stage at a time? Exploring the complexity of group development models. *Team Performance Management, 14*, 214-232.

Jones, J. E., & Bearley, W. L. (2001). Facilitating team development: A view from the field. *Group Facilitation, 3*, 56-65.

Kozlowski, S. W. J., & Ilgen, D. R. (2006). Enhancing the effectiveness of work groups and teams. *Psychological Science in the Public Interest, 7*, 77-124.

Kuipers, B. S., & Stoker, J. I. (2009). Development and performance of self-managing work teams: A theoretical and empirical examination. *The International Journal of Human Resource Management, 20*, 399-419.

LePine, J. A., Piccolo, R. F., Jackson, C. L., Mathieu, J. E., & Saul, J. R. (2008). A meta-analysis of teamwork processes: Tests of a multidimensional model and relationships with team effectiveness criteria. *Personnel Psychology, 61*, 273-307.

Li, J., & Roe, R. A. (2012). Introducing an intrateam longitudinal approach to the study of team process dynamics. *European Journal of Work and Organizational Psychology, 21*, 718-748.

Mannix, E., & Jehn, K. A. (2004). Let's norm and storm, but not right now: Integrating models of group development and performance. In E. Mannix, M. Neale, & S. Blount (Eds.), *Research on managing groups and teams: Temporal issues* (Vol. 6, pp. 11-37). New York: Elsevier.

Marks, M. A., Mathieu, J. E., & Zaccaro, S. J. (2001). A temporally based framework and taxonomy of team processes. *Academy of Management Review, 26*, 356-376.

Mathieu, J. E., & Gilson, L. (2012). Criteria issues and team effectiveness. In S. W. J. Kozlowski (Ed.), *Oxford handbook of industrial and organizational psychology* (pp. 910-930). London: Oxford Press.

Mathieu, J. E., Gilson, L. L., & Ruddy, T. M. (2006). Empowerment and team effectiveness: An empirical test of an integrated model. *Journal of Applied Psychology, 91*, 97-108.

Mathieu, J. E., Maynard, M. T., Rapp, T., & Gilson, L. (2008). Team effectiveness 1997-2007: A review of recent advancements and a glimpse into the future. *Journal of Management, 34*, 410-476.

Miller, D. L. (2003). The stages of group development: A retrospective study of dynamic team processes. *Canadian Journal of Administrative Sciences, 20*, 121-134.

Morgan, B. B., Salas, E., & Glickman, A. S. (1993). An analysis of team evolution and maturation. *The Journal of General Psychology, 120*, 277-291.

Oliveira, J. C., Miguez, J., & Lourenço, P. R. (2005). O desenvolvimento dos grupos: A questão da sequencialidade. *Boletim SPEF, 30/31*, 121-131.

Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology, 63*, 539-569.

Priesemuth, M., Schminke, M., Ambrose, M. L., & Folger, R. (2014). Abusive supervision climate: A multiple-mediation model of its impact on group outcomes. *Academy of Management Journal, 57*, 1513-1534.

Savoie, A., & Beaudin, G. (1995). Les équipes de travail: que faut-il en connaitre? *Psychologie du travail et des organizations, 1,* 116-137.

Sekerka, L. E., Bagozzi, R. P., & Charnigo, R. (2009). Facing ethical challenges in the workplace: Conceptualizing and measuring professional moral courage. *Journal of Business Ethics, 89,* 565-579.

Smith, G. (2001). Group development: A review of the literature and a commentary on future research directions. *Group Facilitation, 3,* 14-45.

Sundstrom, E., De Meuse, K. P., & Futrell, D. (1990). Work teams: Applications and effectiveness. *American Psychologist, 45,* 120-133.

Tyran, K. L., & Gibson, C. B. (2008). Is what you see, what you get?: The relationship among surface- and deep-level heterogeneity characteristics, group efficacy, and team reputation. *Group & Organization Management, 33,* 46-76.

Wheelan, S. A. (2005). *Group processes: A developmental perspective* (2nd ed.). Boston: Allyn & Bacon.

Wheelan, S. A., & Hochberger, J. M. (1996). Validation studies of the Group Development Questionnaire. *Small Group Research, 27,* 143-170.

Woodman, R. W., Sawyer, J. E., & Griffin, R. W. (1993). Toward a theory of organizational creativity. *Academy of Management Review,* 18, 293-321.

Zhou, J., & Hoever, I. J. (2014). Research on workplace creativity: A review and redirection. *Annual Review of Organizational Psychology and Organizational Behavior, 1,* 333-359.