

## Team learning and resilience

### *Introduction*

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Over the past years, teamwork has become commonplace in organizations (Mathieu *et al.*, 2008). Work is organized around teams based on the principle of “the whole is more than the sum of its parts”; putting people together to work on collective tasks is thought to facilitate creativity and lead to more effective and efficient work processes. Considering the importance of teamwork in contemporary organizations, it is vital that teams and its members learn to work together effectively (Decuyper *et al.*, 2010). There are several definitions of team learning (Edmondson, 1999), but the common elements involve activities of collective processing of information and reflection to change the behaviour of the team.

In the past few decades, there has been much interest in studying how and when teams learn (Decuyper *et al.*, 2010), and how team learning is associated with, for example, team effectiveness (Savelsbergh *et al.*, 2010) and creativity (Gino *et al.*, 2010). Furthermore, research has found that team learning can spiral down and affect individual learning and creativity (Hirst *et al.*, 2009), as well as spiral up and influence organization-level learning (Berson *et al.*, 2015). Given these studies, it is particularly important to understand the processes through which teams achieve the needed learning in order to become resilient, cope with the fast changing environmental conditions, and deal with adverse events that may hamper team processes and development or even threaten their viability.

The ability to learn and adapt to changing circumstances is often associated with the term resilience (Bhamra *et al.*, 2011). While studies investigating resilience originated from psychology, scholarly interest in resilience in the workplace has increased over the last decades (Smith *et al.*, 2010). Yet, initially the focus of these studies has been on resilience of individuals, e.g. subordinates (Harland *et al.*, 2005) and individuals coping with trauma (Bonanno, 2004). Only later, scholarly awareness arose about team resilience at the workplace (King *et al.*, 2016; West *et al.*, 2009). Team resilience “serves to provide teams with the capacity to bounce back from failure, setbacks, conflicts, or any other threat to well-being that a team may experience” (West *et al.*, 2009, p. 253).

Against this backdrop, *Team Performance Management* announced a special issue that is dedicated to the topic of team learning and resilience. In this introduction to the special issue, we have two goals. First, we aim to introduce the topic of team learning and resilience. By way of illustration, we then report on a preliminary study about team learning climate in a health care setting. Second, we outline the articles in this issue and show how each of them contributes to one or more central themes for further research.

### *Studies on team resilience and team learning*

In line with the study of resilience on the organizational and individual levels, academic literature increasingly pays attention to the factors that enable organizational teams to learn from errors and to become resilient (Chiaburu *et al.*, 2006; Rodríguez-Sánchez and Perea, 2015;



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Meneghel *et al.*, 2016a, 2016b). Recently, some studies explicitly investigate team resilience and its antecedents (Rodríguez-Sánchez and Perea, 2015) and consequences for team performance (Meneghel *et al.*, 2016a). Moreover, Gucciardi and colleagues (Gucciardi *et al.*, in press) developed a multilevel model on the emergence of team resilience, showing that team resilience depends on how different combinations of individual-level human capital are triggered and aligned when the team encounters adversity. Furthermore, studies have found that a team learning climate can promote team learning behaviours such as feedback seeking, experimenting and discussing errors or unexpected outcomes of actions (Naveh *et al.*, 2015), and is positively related to the acquisition of competencies and well-being in the workplace (Van Der Heijden *et al.*, 2009).

As such, team learning is an important condition for team resilience. Team learning can take many forms and can be conceptualized in different ways. In a review study, Decuyper *et al.* (2010) shows that there exist numerous definitions of team learning which are associated with various distinct conceptualizations. In several studies, team learning is conceptualized as a desirable outcome from knowledge sharing processes (Savelsbergh *et al.*, 2009). Other studies consider team learning as an antecedent to various organizational outcomes (van Emmerik *et al.*, 2011). Again other studies focus on team learning as a process in which team members adapt to change and improve their performance as ideas are exchanged and insights are shared (Edmondson, 1999). A closely connected concept is that of team learning climate, a team environment that encourages learning and in which team members engage in learning-related behaviours (Edmondson, 1999). A common element in these conceptualizations is that team learning emerges between individuals, as opposed to within individuals, resulting in team synergy. For example, team members collect information and discuss this information to revise team processes, they seek feedback from each other, and they collectively experiment with new approaches and procedures.

It is important to clearly distinguish different conceptualizations of team learning because different conceptualizations may be linked to different antecedents and organizational outcomes. As an example of one way to operationalize team learning (climate), we present a preliminary study on the relation between job demands and resources and team learning climate, mediated by employee engagement. In this study, we offer insight into how individual-level job demands and resources can associate with individual perceptions of the extent to which the team facilitates learning. This study can serve as a complement to the plethora of team-level research opportunities that are provided by the topic of this special issue.

#### *Team learning climate in health care*

Organizational change is omnipresent in health care, given the turbulent context in which many health-care organizations operate. Hence, learning is more crucial than ever before for health-care organizations (Prugsamatz, 2010). We focus on the concept of team learning climate, which reflects the extent to which employees perceive that their team has leeway to adapt their goals and their way of thinking (i.e. learning). Team learning climate can promote (or preclude) team learning behaviours such as feedback seeking, experimenting and discussing errors or unexpected outcomes of actions (Naveh *et al.*, 2015), and is positively related to the acquisition of competencies in the workplace (Van Der Heijden *et al.*, 2009). Team learning can be seen as a relevant bridge between individual and organizational learning, given that learning flows back and forth between individual, group and organizational level (Crossan and Berdrow, 2003). Given that most health care professionals work as part of a team in providing patient care (Dekker-Van Doorn and Buljac-Samardzic, 2016), we investigate how

team learning climate, as a predictor of team learning outcomes, can be enhanced via a motivational pathway, i.e. via work engagement.

Work engagement reflects a positive, fulfilling, motivational state of work-related well-being (Schaufeli *et al.*, 2002) and is increasingly considered a key priority by managers, as there is evidence that improving engagement correlates with improving performance (MacLeod and Clarke, 2011). Different studies have shown that engagement is positively related to employee behaviour, such as learning behaviour and the willingness to learn new skills (Bakker *et al.*, 2012), and to more positive perceptions about the climate in the direct work environment (Salanova *et al.*, 2005). Given that engagement is likely to foster positive climate perceptions and the willingness to learn new things, we explore whether engagement is positively related to team learning climate. Moreover, following the Job Demands-Resources (JDR) model (Demerouti *et al.*, 2001), we examine how job demands and job resources are related to work engagement, and indirectly (via work engagement) to team learning climate.

*Engagement and team learning climate.* Work engagement reflects a positive, fulfilling, motivational state of work-related well-being, characterized by vigour, dedication and absorption (Schaufeli *et al.*, 2002). *Vigour* refers to high levels of energy and mental resilience while working, the willingness to invest effort in one's work, and persistence even in the face of difficulties. *Dedication* refers to a particularly strong involvement in job related activities and is characterized by a sense of significance, enthusiasm, inspiration, pride and challenge, while *absorption* means that employees are fully concentrated and deeply engrossed in one's work, whereby time passes quickly and employees experience difficulties with detaching oneself from work. Engaged employees have high levels of energy and are enthusiastic about their work (Schaufeli *et al.*, 2002) and, in turn, have a better health and a better overall performance (Christian *et al.*, 2011; Halbesleben, 2010). Moreover, high levels of work engagement help employees to pursue learning goals (Sonnentag, 2003), and work engagement is positively related to learning goal orientation (Chughtai and Buckley, 2011) and active learning behaviour (Bakker *et al.*, 2012). Although these findings imply that work engagement is positively related to learning orientation and learning behaviour of individual employees, it is much less clear whether high levels of engagement may enhance team learning climate as well. Before describing this possible relationship in more detail, we will first describe what we mean by team learning climate.

Different types of learning focused climates can be distinguished in the literature, such as innovation climate, training climate and organizational learning climate (Kuenzi and Schminke, 2009), resulting in many different definitions of learning climate. Zaccaro *et al.* (2008) for example, describe team learning climate as the shared perception that the team's environment is conducive to learning. Eldor and Harpaz (2016) refer to an organizational learning climate as "perceptions of the employees about the organization's beneficial activities in helping them create, acquire and transfer knowledge" (p. 215). In this study, we focus on team learning climate and describe this as the extent to which employees perceive that their team has leeway to adapt their goals and thinking (i.e. learning) and the extent that their team is confident that the organization will act on their recommendations. This definition is in line with the description by Zaccaro *et al.* (2008), as it reflects elements of a team environment that encourages learning. More specifically, if teams have the freedom to adapt their goals and/or their thinking, they have room to explore and learn from prior experience. Finally, when the organization will act on the recommendations of the team, then this can be interpreted as a signal of support and confidence in the team. Teams may perceive a supportive learning climate, as their recommendations are taken seriously by the organization. Focusing on team learning climate, rather than on an organizational climate, is

highly relevant in a healthcare context, where health-care professionals work in teams in providing patient care (Dekker-Van Doorn and Buljac-Samardzic, 2016). Hence, by focusing on team learning climate in the healthcare organization under investigation, we are able to focus on the direct work environment of employees, where most of the interactions and socialization processes take place.

While some studies focus on learning climate as an antecedent of engagement (Eldor *et al.*, 2016; Nikolova *et al.*, 2014), we follow the approach by Salanova *et al.* (2005), and argue that engagement is a relevant antecedent of (team learning) climate. These authors set out in their theoretical framework that how climate is built not only depends on organizational practices such as training or managerial practices but also depends on how employees feel at work and their work motivation (i.e. work engagement). In a similar vein, Xanthopoulos *et al.* (2009) also argue that personal resources, like work engagement, may influence the way people perceive or change their work environment. In other words, one can expect that when employees feel engaged, they may experience more positive perceptions about their work environment in general (Salanova *et al.*, 2005) and their team learning climate in particular. Hence, we expect that:

*H1.* Employee engagement is positively related to team learning climate.

So far, we have argued that work engagement is positively related to team learning climate. Drawing on the JDR model (Demerouti *et al.*, 2001), we expect that job demands are negatively related to work engagement, and job resources are positively related to work engagement. Here, we focus on workload pressure, including time pressure, as a quantitative work demand. Empirical tests of the JDR model have mainly focused on quantitative job demands (Bakker *et al.*, 2007). Although some authors see time pressure and workload pressure as a challenge and therefore as a motivational factor (Kühnel *et al.*, 2012), we consider workload pressure as a demand and therefore as a possible barrier to engagement. Experiencing high workload pressure, for example extreme time pressures and unrealistic expectations for productivity (Amabile *et al.*, 1996), can be seen as a job demand, as it requires sustained physical or mental effort and can therefore be associated with certain physiological and psychological costs (Demerouti *et al.*, 2001, p. 501). When employees feel unable to deal adequately with high levels of demands (e.g. high levels of workload pressure), they become less willing to dedicate their efforts and abilities to the work task (Crawford *et al.*, 2010). Moreover, experiencing continuous feelings of high demands may result in sustained efforts and costs in meeting those demands, which in turn drain employees' energy (Schaufeli and Bakker, 2004). Drawing on this line of reasoning, Van de Voorde *et al.* (2016) found that quantitative job demands were negatively related to work engagement among Dutch healthcare employees.

There is a large body of empirical work that shows that job resources are positively related with work engagement (see for example a meta-analysis by Crawford *et al.*, 2010). In addition, longitudinal studies have shown that job resources influence future engagement (Schaufeli and Taris, 2014). The link between job resources and work engagement is described in the JDR model as a motivational process. Having a sufficient level of job resources stimulates work engagement either through the achievement of work goals or the satisfaction of basic individual needs (Schaufeli and Taris, 2014). Work environments that offer job resources foster the willingness to dedicate one's effort and abilities to the work task, and as a result a motivational process is activated that fosters work engagement (Schaufeli and Bakker, 2004).

Given our expectation that engagement is positively related to team learning climate, and following the assumption of the JDR model, we propose a mediating effect from engagement

on the relationship between job demands and job resources on the one hand and team learning climate on the other hand. We therefore expect that:

*H2.* Employee engagement mediates the relationship between (A) job demands and (B) job resources on the one hand and team learning climate on the other hand.

*Method.* Survey data were collected in a Dutch health-care organization which provides medical care, day care, nursing and assisted living for people with somatic, mental, geriatric and/or psycho geriatric illnesses. In total, 187 respondents (31.2 per cent) working in the primary care process completed an online survey: 98 per cent of these employees were female, and the average age of the participants was years 45.77 years (SD = 10.13); 78.7 per cent of these employees held at least a degree in secondary vocational education. The average number of years working in the current position was 18.8 years (SD = 11.8 years).

Validated scales were used to measure the variables of interest. Responses to all Likert-type scale items ranged from 1 (almost never) to 5 (almost always).

*Resources and demands.* In this study both (access to) resources and demands (i.e. work load pressure) were measured by adopting two scales developed by [Amabile et al. \(1996\)](#). The access to resources scale contains six items, and the work load pressure scale 5 items. These scales are developed to measure perceptions on characteristics of the work environment, in particular characteristics that are stimulants or obstacles to creative ideas and work outcomes ([Amabile, 1997](#); [Yeh-Yun Lin and Liu, 2012](#)). Sample items are: “Generally, I can get the resources I need for my work” and “I have too much work to do in too little time”. Cronbach’s alpha was 0.82 for the resources scale and 0.84 for the demands scale.

*Team learning climate.* Perceptions about team learning climate were measured by a three-item subscale of the short version of the Dimensions of the Learning Organization Questionnaire ([Yang et al., 2004](#)) originally developed by [Marsick and Watkins \(2003\)](#). A sample item is: “In my organization, teams/groups revise their thinking as a result of group discussions or information collected”. Cronbach’s alpha was 0.86.

*Engagement* was measured by the nine-item version of the Utrecht Work Engagement scale (UWES) ([Schaufeli et al., 2006](#)). A sample item is: “At my work, I feel bursting with energy”. Cronbach’s alpha was 0.94.

*Control variables.* In the analyses, we controlled for years in the current position and educational level.

*Results and discussion.* Means, standard deviations for each scale and inter-scale correlations for all variables are presented in [Table I](#). Resources are positively correlated with work engagement ( $r = 0.40$ ) and learning climate ( $r = 0.35$ ), while demands are

**Table I.**  
Means, standard deviations, correlations and reliability coefficients (N = 187)

	M	SD	1	2	3	4	5	6
Educational level	–	–	–					
Years position	18.79	11.84	–0.22**	–				
Team learning climate	3.12	0.91	–0.12	–0.05	(0.86)			
Demands	2.81	0.77	0.21**	–0.09	–0.32**	(0.84)		
Resources	3.56	0.70	–0.12	–0.01	0.35**	–0.38**	(0.82)	
Work engagement	3.94	0.75	–0.11	0.04	0.39**	–0.15*	0.40**	(0.94)

**Notes:** \*\*Correlation is significant at the 0.01 level (two-tailed); \*correlation is significant at the 0.05 level (two-tailed)

negatively correlated with work engagement ( $r = -0.15$ ) and learning climate ( $r = -0.32$ ). Work engagement and learning climate are positively correlated ( $r = 0.39$ ).

Hierarchical linear regressions were conducted to test our hypotheses. *H1* proposed that employee engagement is positively related to team learning climate and is supported by the results reported in Table II (Model 1b) which shows that engagement is positively related to team learning climate ( $\beta = 0.39; p < 0.001$ ).

*H2* predicted that engagement mediates the relationship between (a) job demands and (b) job resources on the one hand and learning climate on the other hand. We used Template 4 of the macro PROCESS for SPSS developed by Hayes (2013) to test for mediation. Table III reports our findings.

Variables	Model 1a $\beta$	Model 1b $\beta$
<i>Control variables</i>		
Educational level	-0.14	-0.10
Years position	-0.08	-0.09
Engagement		0.39***
<i>F</i>	1.90	34.39
Adjusted $R^2$	0.01	0.15
$\Delta F$	1.90	32.49***
$\Delta R^2$	0.01	0.15

**Notes:** \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$  (two-tailed)

**Table II.** Multiple regression analysis for team learning climate ( $N = 187$ )

	Job demands (Model 2a)			Job resources (Model 2b)		
	<i>b</i>	SE	<i>p</i>	<i>b</i>	SE	<i>p</i>
<i>Partial effects towards engagement</i>						
Job demands	0.017	0.082	0.8384			
Job resources				0.430***	0.089	0.0000
<i>Partial effects towards team learning climate</i>						
Job demands	-0.245*	0.097	0.0127			
Job resources				0.189	0.107	0.0794
Engagement	0.366***	0.094	0.0001	0.366***	0.094	0.0001
<i>Total effect model</i>						
Job demands	-0.239*	0.104	0.0222			
Job resources				0.347*	0.104	0.0010
<i>R</i> -squared	0.167			0.167		
<i>F</i>	9,2482			9,2482		
		95% CI			95% CI	
Effect	<i>b</i>	Lower	Upper	<i>b</i>	Lower	Upper
Total	-0.239	-0.444	-0.035	0.347	0.142	0.551
Direct	-0.245	-0.437	-0.053	0.189	-0.022	0.401
Indirect (mediation)	0.006	-0.052	-0.673	0.157	0.070	0.274

**Notes:** \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$  (two-tailed)

**Table III.** Mediation effects of engagement on the relationship between job demands (Model 2a) and job resources (Model 2b) and team learning climate,  $N = 187$

In Model 2a, job demands was entered as the independent variable (X), and team learning climate was entered as the outcome variable (Y). Engagement was entered as the mediator variable (M). We controlled for education level, tenure and job resources. No significant relationship was found between job demands and engagement ( $b = 0.017$ ,  $SE = 0.082$ , ns) (see Table III, Model 2a). Hence, a mediation of engagement in the relationship between job demands and team learning climate was precluded. However, as can be seen from Table III, Model 2a, there was a direct negative relationship between job demands and team learning climate ( $b = -0.239$ ,  $SE = 0.104$ ,  $p = 0.022$ ). The indirect effect was tested using a bootstrap estimation approach with 1,000 samples. These results indicated the indirect coefficient was not significant ( $b = 0.006$ ,  $SE = 0.031$ , 95 per cent CI =  $-0.0517, 0.0729$ ).

In Model 2b, job resources was entered as the independent variable (X), and team learning climate was entered as the outcome variable (Y). Engagement was entered as the mediator variable (M). We controlled for education level, tenure and job demands. When focusing on job resources, all conditions for mediation were met. There was a positive significant relationship between job resources and engagement ( $b = 0.430$ ,  $SE = 0.089$ ,  $p = 0.000$ ; Table III, Model 2b). Engagement was positively related to learning climate ( $b = 0.366$ ,  $SE = 0.094$ ,  $p = 0.000$ ). These results support the mediational hypothesis. When entering engagement in the regression equation (Table III, Model 2b), the relationship between job resources and team learning climate decreases ( $b = 0.347$ ,  $SE = 0.104$ ,  $p = 0.001$ ), but remains significant, indicating partial mediation of engagement. The indirect effect was tested using a bootstrap estimation approach with 1,000 samples. These results indicated the indirect coefficient was significant ( $b = 0.157$ ,  $SE = 0.053$ , 95 per cent CI =  $0.0695, 0.2740$ ).

In line with previous studies (Bakker *et al.*, 2007), the results show that access to resources is associated with higher levels of work engagement. Contrary to our expectations, job demands were not significantly related to work engagement. This finding is in line with previous studies (Schaufeli and Bakker, 2004; Sonnentag, 2003) and implies that high workload pressure is not a hindrance for investing high levels of energy in ones work (Crawford *et al.*, 2010).

Notwithstanding the fact that workload pressure is not related to engagement, and thereby precluding a mediational role of engagement between job demands and team learning climate, a direct and negative relationship was found with team learning climate. This is an interesting result in itself as it shows that high workload pressure can be considered as a barrier to creating a team learning climate. That is, if employees experience a high workload pressure they feel that the work environment is less conducive to learning. This implies that policy makers and managers in health care need to be aware of the possibility of negative effects of increased workload pressure on team learning climate. Specifically, they should try to avoid extreme time pressures and unrealistic expectations for what employees can achieve in the organization (Amabile *et al.*, 1996), as this distracts employees from learning.

Whereas in different studies learning climate is considered an antecedent of engagement, we followed a line of work that postulates reverse effects of engagement on (team learning) climate (Salanova *et al.*, 2005). We hypothesized and found that engagement is positively related to team learning climate. As some authors have argued that a positive learning climate might enhance engagement, it is interesting to further examine how team a positive gain cycle can be created between engagement and learning climate.

Moreover, the results showed that, the relationship between access to resources and team learning was positively mediated by work engagement. Based on the positive relationships between job resources, engagement and team learning climate, it is relevant to provide

*This special issue*

A noteworthy limitation of the study described above is the adoption of an individual-level perspective for testing our hypotheses. Although it is interesting to examine whether individuals experience job demands and sufficient levels of resources in their work environment, and whether they feel engaged and how they perceive the learning climate in their team, it is worthwhile to further examine how individual experiences combine into shared team learning climate perceptions. The papers in this special issue all focus on team learning and team resilience on the team-level, aggregating data from the individual level to the team level.

Our call for papers generated thirteen submissions. After following a double blind review process of several stages this set was reduced to five papers. Thus, 38 per cent of the articles submitted were eventually accepted for publication. Later, we added two papers that fitted the theme of the special issue but were initially not submitted to it. We welcomed articles that addressed different aspects of team learning and resilience or closely related variables. The studies in this issue include papers focusing on antecedents of team learning (Graff and Clark; Meslec and Aggarwal; Curseu *et al.*), on team learning as mediator (Rebello *et al.*) or moderator (Curseu *et al.*), and on team learning as an antecedent to resilient behaviour (Oeij *et al.*). Most studies are based on survey research (Oeij *et al.*; Graff and Clark; Rebello *et al.*) or a combination of survey research with an experimental design (Curseu *et al.*; Meslec and Aggarwal). Analytic approaches include multiple regression analysis with mediation or moderation (Oeij *et al.*; Graff and Clark), structural equation analysis (Rebello *et al.*) and multilevel analysis (Meslec and Aggarwal). One study (Graff and Clark) uses a longitudinal design. The samples used differed widely between contributions, including innovation project teams in Dutch industry (Oeij *et al.*), team members from various international organizations (Curseu *et al.*), team members and teamleaders within Portuguese companies (Rebello *et al.*) and student project teams (Graff and Clark). The chosen experimental settings consisted of university student groups (Meslec and Aggarwal; Curseu *et al.*).

*Themes for further research into team learning and resilience*

While preparing for the call for papers for this special issue on team learning and resilience, we identified several avenues for future research that would broaden the study of team learning and resilience. The articles in this special can be loosely grouped to addressing one of these themes, although most of them have something to offer to several themes.

*Need for team-level resilience research.* When we overview current studies on teams, we find that team level resilience is only scarcely addressed. Resilience is usually considered to be a character trait (fixed attribute) or behaviour (malleable disposition) of an individual. However, the whole is bigger than the sum of its parts, and synergies that are created among team members make that an aggregation of individual effects is not sufficient to account for the effect of a collective, team-level phenomenon. In other words, team resilience needs to be acknowledged as conceptually distinct variable (Meneghel *et al.*, 2016a, 2016b). Team members share experiences and the team as such may have to deal with adversities and setbacks that affect the entire team. Recently, more studies have started to acknowledge team-level resilience by explicitly investigating antecedents of team resilience (Rodríguez-Sánchez and Perea, 2015), its consequences for team performance (Meneghel *et al.*, 2016a, 2016b), and its emergence (Gucciardi *et al.*, 2018). Nevertheless, there is a need for more empirical research that conceptualizes team resilience as a collective phenomenon.



The study of Oeij and colleagues (this issue) explicitly addresses team resilience. Oeij and colleagues (this issue) conceptualize team learning as an organizational level variable labelled as “mindful infrastructure”, which includes how teams learn from mistakes. In a study among 260 team members and team leaders of project teams, “mindful infrastructure” is linked to innovative resilience behaviour and subsequently to project outcomes. Findings indicate that team learning, i.e. mindful infrastructure, is positively associated with innovation resilience behaviour, and that innovation resilience behaviour mediates the relationship between mindful infrastructure and project outcomes.

*Need for impact of group composition on team learning.* Studies suggest that team performance is closely related to the interactional dynamics within the team and core beliefs of team members of for instance self-efficacy (Boon *et al.*, 2013). Interactional dynamics are largely determined by structural elements of the composition of the team. For instance, studies have indicated the impact of team size, although no consensus is yet reached on optimal team size (Decuyper *et al.*, 2010; Sundström *et al.*, 2000). Furthermore, these studies do not investigate the relationship between team size and team learning specifically. Other aspects of team composition that are often discussed in association to team performance are team tenure (Edmondson, 1999; Hirst, 2009) and team diversity (Horwitz and Horwitz, 2007). Yet, there is ample room for studies that investigate the role of these structural components in relation to team learning (Decuyper *et al.*, 2010).

One of the studies in our special issues addresses aspects of team composition and the impact on team learning. Specifically, the study of Meslec and Aggarwal (this issue) investigates how gender composition of the team affects team synergy and thereby team learning. The study is based on experimental data from student groups who are responsible for engaging in a group assignment. Findings show that the percentage of women in the group is positively related to underestimation of group performance and this negatively impacts group learning. The researchers show that group experience helps women to adapt their self-perception and greater accuracy about assessing their own performance.

*Need for further development of a process view on team-learning.* A growing number of studies look into how team performance can be optimized. Yet, we need to further improve insights into team learning as a mechanism through which beneficial organizational outcomes can be achieved (Decuyper *et al.*, 2010). More research is needed on the impact of leaders on team learning, including leadership styles, leader character traits and leader-team interactions.

In this respect, the study of Rebelo *et al.* (this issue) provides a valuable addition to current knowledge about team learning. The study identifies team learning as an intervening mechanism (together with team psychological capital) in the relationship between transformational leadership and team performance. In a study of 82 teams the authors find evidence for a mediating role of team learning, suggesting the importance of team learning as a catalysing variable.

The process aspects of team learning are considered in the contribution of Graff and Clark (this issue). These authors investigate the role of team communication mode in relation to information processing within the team, i.e. team learning. They study the use of analogies in team member interactions and the extent in which this predicts the level of mutual understanding of mental models and information processing within the team. In a three-wave study, they find that the use of analogies within teams is a better predictor for team learning in terms of information processing than interaction frequency among team members.

In addition, the article by Curseu *et al.* (this issue) argues that the interplay between knowledge that is gathered from external (to the team) sources and knowledge that is

embodied in team members (i.e. has an internal source) is essential for team learning and adaptation. The study tests the influence of external information gathering on group cognition complexity, which reflects the degree of team learning. Findings show, among others, the moderating role of absorptive capacity, which can be considered as learning capability, by reflecting the degree in which knowledge is absorbed and assimilated by team members.

### *Conclusion*

Our interest for advancing current knowledge about team learning and team resilience sparked the development of this special issue. The contributions to this special issue show clearly that the concepts of learning and resilience at the team level are captivating and provide ample room for further study. The contributions to this special issue provide valuable insights in each of the identified themes. Furthermore, they show the importance of the topic from a scientific, theoretical point of view, as well as from a managerial perspective. We hope that this special issue will spark further research exploring antecedents and consequences of team learning and resilience.

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