The Impact of Group Efficacy Beliefs and Transformational Leadership on

Followers' Self-efficacy: A Multilevel-Longitudinal Study

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Abstract

Using Social Cognitive Theory as our theoretical framework, we analyse how beliefs about group efficacy among team members, together with transformational leadership are two group-level constructs (aggregated members' shared beliefs), which predicts individual members self-efficacy over time. We conducted a three-wave longitudinal study with 456 participants that were randomly distributed in 112 groups working in three simulated creative collective tasks. We computed random coefficient models in a lagged-effects design. Findings were as expected and group efficacy beliefs and group-level transformational leadership were relevant cross-level predictors of individual self-efficacy over time (even after controlling for baseline levels of individual self-efficacy). Results suggested that these group-level factors are relevant cross-level constructs that explain how individual self-efficacy among group members is developed over time.

Key words: Group efficacy beliefs, transformational leadership, individual self-efficacy, multilevel analysis, longitudinal design.

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For decades, psychological research showed about the positive benefits of self-efficacy on performance (Lisbona et al., 2018; Peterson et al., 2011; Schneider & Preckel, 2017; Stajkovic, Lee, & Nyberg, 2009; Talsma, Schüz, & Norris, 2019) and well-being (Buric & Macuka, 2018; Guarnaccia, et al., 2018; Nielsen & Munir, 2009; Salanova, Llorens, & Schaufeli, 2011), to name just a few. Research is clear that self-efficacy helps people (employees, students, etc.) to manage their task/job demands and motivates them to be more engaged in their jobs, leading to better performance and feelings of positive subjective well-being.

However, most of this self-efficacy literature has focused almost exclusively on one level of analysis, i.e. self-efficacy or collective efficacy beliefs and their consequences (i.e., performance and/or well-being). Less is known about multilevel drivers of self-efficacy. For example, is there a contagion effect such that when the group feels efficacious, the individual members can feel self-efficacious as well? Or does a transformational leader make us believe in our ability to successfully manage specific challenges in our activity?

Given that groups have become the basic unit of work organization and work accomplishment (Hirschfeld & Bernerth, 2008), the answer to these questions is necessary in order to know how to build future self-efficacy by means of group features such as collective efficacy and leadership. Thus, in the current study, we will test whether group collective efficacy beliefs and transformational leadership (two group-based psychosocial constructs) can explain future levels of self-efficacy, above and beyond previous levels of group members' self-efficacy. We intend to increase the

understanding of the processes involved in the complex (i.e., group, multilevel) predictors of individual self-efficacy over time. Moreover, we investigate how group-level shared perceptions of transformational leadership can be cross-level antecedents of individual self-efficacy over time. Therefore, we perform a multilevel and longitudinal study in order to understand the cross-level dynamics of these psychological experiences over time.

Group efficacy beliefs and self-efficacy

According to Bandura (1997), collective efficacy beliefs are "shared beliefs in group capacities to organize and execute the courses of action required to produce given attainments" (p. 447). Research carried out in organizations demonstrates that when individuals cooperate, they may share convictions and attitudes thus showing comparable persuasive and personal conduct standards (George, 1990, 1996) furthermore, encountering a common group emotional tone (Barsade, 2002; Bartel & Saavedra, 2000). A developing group of research accentuates the effect (e.g. affective, motivational and, behavioural effects) of perceived collective efficacy on group processes (Alavi, & McCormick, 2018; Gully, Incalcaterra, Joshi, & Beaubien, 2002; Nielsen & Daniels, 2012; Salanova, et al., 2003; Salanova, Llorens, & Schaufeli, 2011; Stajkovic, Lee, & Nyberg, 2009).

Moreover, Social Cognitive Theory (SCT) identifies four predictors of efficacy beliefs: enactive mastery experiences, vicarious experiences, social influence through verbal persuasion, and (positive/negative) affective states. According to Bandura, (2001, 2012), research indicates that performing a challenging task (i.e. mastery experience) can improve people's self-efficacy beliefs. In addition, self-efficacy is affected by vicarious learning, which takes place when people observe efficacious people (working individually or in teams) performing a similar task. According to Bandura, the more

noteworthy the apparent similitude between the role model and the objective individual, the more prominent the model's effect on the individual's self-efficacy will be. Verbal influence through social persuasion, for example, by positive leaders, is another mechanism to improve self-efficacy. Finally, the fourth major source of self-efficacy consists of (positive/negative) affects. For example, when individuals feel eager or fulfilled, they are likely to trust that they are useful and efficacious as well.

According to the SCT, and at the collective level, we could expect that when a group shares efficacy beliefs about good group performance (enactive mastery and vicarious experiences), they could feel more efficacious as individuals due to psychological mechanisms such as positive emotional contagion, defined by Hatfield, Cacioppo, and Rapson (1994, p.5) as the "tendency to automatically mimic and synchronize facial expressions, vocalizations, postures and movements with those of another person and, consequently, to converge emotionally". This emotional contagion has been applied to many contexts, including organizations and, specifically, research on teams and leadership processes (Tee, 2015; Torrente, Salanova & Llorens, 2013). We could expect that when group members feel efficacious, they also potentially exchange other positive emotions, such as joy, satisfaction, or pride in a job well done. According to Bandura, emotional expression is a valuable source of self-efficacy (the fourth source of self-efficacy). We propose that collective expressions of positive emotions about work well done could lead members to feel other positive emotions and, in turn, increase their individual self-efficacy over time.

It is important to understand whether collective beliefs of efficacy have crossed effects on individual self-efficacy over time and previous research has not studied these effects. A collective shared perception that a group feels efficacious in obtaining a specific goal could encourage each individual's beliefs that s/he can achieve

the goal/s as well ("If my group can, so can I"). We expect that individuals who work in a group where members believe that they have the capabilities to achieve group goals may, over time, come to believe that they can achieve their individual goals as well. Thus, we expect to find a positive relationship between collective efficacy and individual self-efficacy over time.

Hypothesis 1: Group-level collective efficacy at T2 has a significant cross-level effect on individual self-efficacy at T3, above and beyond previous levels of self-efficacy at T2 and at T1.

Shared transformational leadership perceptions and individual self-efficacy

Transformational leaders develop close inter-relationships with collaborators minimizing the distance between leaders and collaborators, in spite of "their ability", and by individualized beliefs about members' needs and abilities (Bass, 1990). This relationship is based on trust between leaders and followers, transparent communication, and empathy between leaders and followers, thus potentially enhancing their individual efficacy beliefs through vicarious experiences and social persuasion (Walumbwa et al., 2011). In this regard, leaders' behaviours influence cognitions, emotions, and behaviours of followers. Leggod, Thomas and Sacramento (2016) recently showed that leaders' trustworthy behaviour influenced organizational trust via trustworthiness perceptions and followers' trust in their leaders. Research suggests that a positive leadership style may exert its influence on followers through other psychological mechanisms such as self-efficacy (Stetz, Stetz, & Bliese, 2006). For example, Pillai and Williams (2004) found that transformational leadership was related to followers' self-efficacy in a sample of American fire service organizations. Salanova, Lorente, Chambel and Martínez (2011) found a direct path between transformational leaders and nurses' self-efficacy in 280 dyads (supervisors and nurses). Moreover, in a

sample of nurses, Afsar and Masood (2018) demonstrated that creative nurses' self-efficacy is a psychological mechanism (in interaction with others such as trust in supervisor and uncertainty avoidance) that explained how transformations leadership, influenced on nurse's innovative job behaviour.

According to SCT, enactive mastery is an important antecedent of self-efficacy (Bandura, 1997), which depends on previous success on similar tasks. Other important antecedents of self-efficacy may include social persuasion, vicarious experiences, and positive affect, all of these strategies may be employed by positive leaders (Sivanathan, Arnold, Turner, & Barling, 2004). In this regard, Podsakoff, MacKenzie, Moorman, and Fetter (1990) showed that transformational leaders influence collaborators' self-efficacy because leaders are modelling the right behaviours and followers identify with leaders through observational learning. Transformational leaders may improve followers' self-efficacy when they express high expectations that followers can successfully overcome difficulties (the Pygmalion effect, Eden, 1990). Transformational leaders also affect their collaborators' sense of efficacy through intellectual stimulation when they encourage followers to develop solutions to the challenges they face, rather than suggesting solutions themselves, thus encouraging followers to find better ways of doing things (Sivanathan et al., 2004).

A group's perception that they have a transformational leader who encourages trust, empathy, and authenticity (social persuasion) may contribute to enhancing the individual efficacy beliefs of the followers. Research has found that positive leadership behaviours (i.e., transformational, authentic, ethic…) predicted collaborators' self-efficacy (Afsar, & Masood, 2018; Dvir, Eden, Avolio, & Shamir, 2002; Kark, Shamir, & Chen, 2003; Nielsen & Munir, 2009; Wallumbwa, et al., 2011). In his review, Tee (2015) also showed that emotional contagion processes are developed from bottom-up

through intra-individual and between-individual factors to top-down from leaders to followers affecting to different organizational outcomes (Barsade & Knight, 2015).

Furthermore, based on emotional contagion as an explanatory mechanism and the fourth source of individual self-efficacy, research has shown the effect of how the moods of leaders influence on group positive affect. Chi, Chung, and Tsai (2011) showed that these positive leader emotions influence the group's positive affect. Also, group positive affect is associated with job performance and, in turn, on individual self-efficacy (Seong & Cho, 2014; Zhang, et al., 2017).

Research on the way transformational leaders influence group members' self-efficacy has mainly used a single level of analysis, i.e. the individual level. Thus, individual perceptions of leaders were linked to individual self-efficacy. For example, Liu, Siu and Shi (2010) showed that transformational leaders influence individual followers' self-efficacy and, in turn, employee well-being. According to Yammarino, Dionne, Chun, and Dansereau, (2005), previous research on transformational leadership has neglected the consideration of transformational leadership as a group/organizational factor as well. For example, how a leader relates to a group of followers or shared perceptions among the group members (i.e. within-group agreement) about how transformational their leader is. As far as we know, no multilevel studies have examined how shared perceptions of group members about transformational leadership (group level of analysis) are linked to individual self-efficacy (individual level of analysis) across levels. It is important to note that, in the study by Wallumbwa et al, (2011), an aggregated measure of ethical leadership was linked to followers' self-efficacy. In our study, we take a step forward by including not only aggregated leadership, but also collective efficacy, as multilevel predictors of individual self-efficacy, using a longitudinal design. In their meta-analysis on transformational leadership, Wang, Oh,

Courtright and Colbert (2011, p. 255) urged researchers to examine the "differential effects of transformational leadership on performance across levels of analysis should ideally be examined using the same sample following multilevel analysis principles (Kozlowski & Klein, 2000) to ensure that differences in effect sizes across levels of analysis are attributable to differences in levels of analysis alone".

Based on previous research, we expect that:

Hypothesis 2: Shared perceptions of transformational leadership at T2 have a significant cross-level effect on individual self-efficacy at T3, above and beyond previous levels of self-efficacy at T2 and T1.

Method

Sample and Procedure

A three-wave longitudinal laboratory study was carried out with 481 participants randomly distributed in 118 small groups and involved in three group tasks. Participants were recruited via a website the research group created for this purpose, as well as through ads posted on notice sheets around the college and in the city where the university is located. Participation in the study was voluntary. Participants were informed that the purpose of this study was to know more about how groups work in the context of creative tasks. For the purposes of the study, each group had a leader. These leaders (who were part of each group) were assigned using the same criterion for all the groups, i.e., status depending on age. The oldest member (highest status) of each group was designated as the leader at the beginning of the study. Before beginning the tasks, all the groups received the same instructions for the tasks and the leader's role.

Participants were randomly assigned to each group. To guarantee cooperation on the three tasks and avoid dropouts, members received a monetary reward (20 €) for their participation in the study.

Because the measurement referent for two variables (i.e. group efficacy beliefs and perception of transformational leadership) is the group, agreement indices were performed in order that all the groups shared similar perceptions of the study variables. Six groups with low agreement were excluded from the beginning. So sum up, 456 individuals nested in 112 groups (ranging from four to six members each) are the final participants in the study.

The final sample was a heterogeneous mixed sample consisting of 66% females, with an average age of 22.5 years. They were university students (80%) from different degree programmes (Law, Design, Engineering, Languages, Economics, Chemistry, Psychology, Business Management, Teaching and Educational Sciences), full-time workers (11.6%) representing different occupations, and the unemployed (8.4%). Participants were allocated to one of the 112 groups in such a way as to ensure that the groups have similar size (i.e. ranging from four to six) and diversity (i.e. similar combinations of students, employed/unemployed people).

Groups were working together during the three laboratory occasions, one time per week in three consecutive weeks. Moreover, each group worked on three creativity tasks (one different creative task per week) in order to avoid learning effects, (Ziessler & Nattkemper, 2001). Tasks were not complex and involved a unified creative project for two weeks with three face-to-face meetings among the group members. These three specific tasks, as well as the need to achieve a final group product, were chosen to promote important social interactions among group members, group decisions, feelings of efficacy (or not) during the three specific tasks, and the opportunity for leaders to interact with group members. Past research has used creative tasks that were accomplished in three similar time periods (Peñalver et al., 2018; Rodríguez-Sánchez, et al., 2017; Salanova, et al., 2003). At time 1 (T1), groups had to (imaginatively) work for

a toy company. During each of the three sessions, participants would perform a creative task for 45 minutes. In the first session (T1), they worked on an idea generation task (i.e., a creative slogan). Next lab session (T2), they worked on another creative task, which was to develop a toy prototype composed of recyclable materials. One week later (T3), they designed a poster to market this toy. Upon completing each task, participants, they completed a questionnaire.

Measures

Transformational Leadership was assessed by the validated Transformational Leadership Scale (Rafferty & Griffin, 2004), with five dimensions. Vision (three items, e.g. "As a leader, I am perfectly aware of the group's objectives"); Inspirational communication (three items, e.g. "As a leader, I say positive things about the group"); Intellectual stimulation (three items, e.g. "As a leader, I have ideas that stimulate group members to think about questions they had never thought about before"); Support (three items, e.g. "As a leader, I think about the personal needs of the group members"); and Personal recognition (three items, e.g. "As a leader, I congratulate group members when they do an excellent job"). Items were answered on a 7-point Likert-scale ranging from 0 (never) to 6 (always). Group members had to assess their leader's transformational style, and so the referent was the leader (level 2). We used transformational leadership at level II because it included the aggregated scores of all the members of each group related to their individual perceptions of each dimension of transformational leadership. We used a single scale of transformational leadership, and not its highly intercorrelated sub-components, as recommended by Bass (1999).

Collective efficacy was assessed by a scale composed of 4 items, following Bandura's guidelines (validated by Salanova et al., 2003), and adapted to creative tasks in the same way as the self-efficacy scale. Thus, the collective efficacy scale is specific

rather than general, i.e., creative collective efficacy. An example of an item is "My group can carry out this creative task despite not being familiar with this kind of task". Items were answered on a 7-point Likert-scale ranging from 0 (never) to 6 (always). Group members had to evaluate their group's perception of collective efficacy, so that the referent was the group and not the individual. Hence, collective efficacy was measured at the group level (level 2).

Individual self-efficacy was assessed by a scale composed of 4 items, following Bandura's ideas (validated in Salanova et al., 2003), but using "I" instead of "We" in order to evaluate "individual" self-efficacy. Thus, the self-efficacy scale is specific rather than general, i.e., creative self-efficacy. An example of an item is "I can carry out this creative task even though I am not familiar with this kind of task". Items were answered on a 7-point Likert-scale ranging from 0 (never) to 6 (always). Each member of the group had to evaluate his/her own self-efficacy belief, and so the referent is the individual (level 1).

We use age, gender, and previous levels of individual self-efficacy as control variables in our research model because previous research is inconclusive about self-efficacy differences in different settings. Some studies have shown age (Bausch, Michel, & Sonntag, 2014; Fukudome, & Morinaga, 2018; Grau, Salanova, & Peiró, 2001; Schweder, 2018) and gender differences (Beauregard, 2012; Huang, 2013; Huszczo, & Endres, 2017; Ye, Posada, & Liu, 2018), whereas other studies failed to find differences (Beas, & Salanova, 2006; Salanova, Peiró, & Schaufeli, 2002). We also included baseline levels of individual self-efficacy in T1 in order to control previous variance in this variable.

Data analysis

First, we computed descriptive analyses with the study variables. Furthermore, to assess the convergent validity of the scales, the composite reliability (CR) level was calculated (Chin, 1998). According to Nunnally (1967), CR should be greater than 0.7. Moreover, discriminant validity was checked by using the Average Variance Extracted (AVE) (Fornell & Larcker, 1981), being acceptable when it is greater than 0.5 (Chin, 1998). Second, because some of the study variables are collective, to test whether the group members showed sufficient agreement on the variables (i.e. group efficacy beliefs and perceived transformational leadership), we examined several indicators of within-group consensus, such as the r_{wg} index of within-group agreement (James, Demaree, & Wolf, 1993) and the intra-class correlation coefficients ICC(1) (Bliese, 2000; Bryk & Raudenbush, 1992). Values higher than .12 for ICC1 indicate an adequate level of within-unit agreement (James et al., 1984). ICC2 values greater than .60 were recommended by Glick (1985). $r_{wg(j)}$ cut-off point values ranging between .51 and .70 have moderate, and values between .71 to .90 strong agreements (LeBreton & Senter, 2007). So far, these indices support the individual responses aggregation at the next (group) level.

Third, our data are hierarchical because participants were nested within groups and within leaders. Hence, we used hierarchical linear modelling (HLM; Hox, 2002) to test the hypotheses. We can add multilevel predictors and improve the model, considering that a previous model could be tested taking into account a likelihood ratio statistic (Hox, 2002). In our study, we controlled for the effects of previous self-efficacy (T1 as baseline and T2) to investigate the influence of T2 collective efficacy and T2 transformational leadership on T3 self-efficacy. To compute multilevel analyses, we used MlwiN 2.02 software (Rashbash, Browne, Healy, Cameron, & Charlton, 2005).

Finally, all the variables, except the dummy variables (gender and age), were grand-mean centred for the model estimation (Bryk & Raudenbush, 1992).

Results

Descriptive and aggregation analyses

Table 1 presents means, standard deviations, bivariate correlations, internal consistencies (Cronbach's alpha), and convergent (CR) and discriminant validity (AVE) for all the variables in the study. All the Cronbach's alpha coefficients met the criterion value of .70 (ranging from .83 to .97), and the variables met the criterion for convergent and discriminant validity (CR values grater than 0.7 and AVE values greater than 0.5). As expected, all the study variables were positively and significantly related to self-efficacy at T3 and to the rest of our study variables. Based on Cohen's (1988) convention to interpret effect sizes, all the variables related to self-efficacy at T3 had a moderate to strong correlation. Finally, mean values (and standard deviations) of the collective measures were 4.60 (0.60) for group efficacy beliefs and 4.42 (0.75) for shared transformational leadership.

PLEASE INSERT TABLE 1 ABOUT HERE

Regarding the aggregation of our study variables, the ICC1 value for T2 collective efficacy was .24; the T2 transformational leadership ICC1 value was: .38; the ICC2 value for T2 collective efficacy was .58; and for T2 transformational leadership, the value was .71. The mean $r_{wg(j)}$ value for T2 collective efficacy at the group level was .81 (SD = .11), and for T2 transformational leadership, it was .73 (SD = .13). This means there is strong agreement on both variables, according to the cut-off points of LeBreton and Senter (2007). Hence, given the satisfactory ICC1, ICC2 (except T2 collective efficacy, for which the ICC2 was .58, but very close to .60), and $r_{wg(j)}$ values, we aggregated at the group level the variables of the present study.

Hypothesis testing

We calculated the intraclass correlation for the study variables to estimate the proportion of variance explained at each level studied (Hox, 2002). The results showed that 71% of the variance in T3 self-efficacy is explained by variables from the individual, and 29% from the group levels. These results suggests that a significant proportion of T3 self-efficacy variance may be explained by group-level variables (group efficacy beliefs and shared transformational leadership).

Then we tested 3 nested models, i.e., Model 0 intercept-only; Model 1, in which we added the variables at the first level, including the control variables age, gender, T1 self-efficacy, and T2 self-efficacy; and Model 2, with second level variables (i.e, T2 group efficacy beliefs and T2 shared transformational leadership). Table 2 presents unstandardized estimates, standard errors, t values and the deviance (-2*log).

PLEASE INSERT TABLE 2 ABOUT HERE

Results showed that Model 1 is better than Model 0. Variables at the individual level (T1 and T2 self-efficacy) are significantly related to T3 self-efficacy, and gender and age had no significant effect on T3 self-efficacy. In Model 2, we tested predictor variables at the group level, and T2 group efficacy beliefs and T2 shared transformational leadership were found to exert a significant effect on T3 self-efficacy. According the deviance levels, there is a significant improvement over Model 1. Thus, Model 2 got the better fit, showing significant effects of both individual (i.e. T1 and T2 self-efficacy) and group variables (i.e., T2 group efficacy beliefs, T2 shared transformational leadership) on the development of future self-efficacy (at T3). In other words, perceived collective efficacy of the group and perceived transformational leadership at T2 predicted participants' self-efficacy at T3, and these relationships were

significant beyond previous levels (T1 and T2) of individual self-efficacy (thus

confirming our hypotheses) (see the multilevel model in Figure 1).

PLEASE INSERT FIGURE 1 ABOUT HERE

Discussion

The present study builds on our understanding of the role of "collective" sources

of individual self-efficacy over time, i.e. shared group perceptions of transformational

leadership and group efficacy beliefs, extending the Social Cognitive Theory (Bandura,

1998, 2001, 2012). The study expands our understanding about what are relevant

indicators that explain the development of individual self-efficacy over time, providing

support for the idea that collective efficacy and leadership together play a relevant role

as group-level drivers of the development of individual self-efficacy over time. The

results simultaneously show the effects of collective psychosocial mechanisms on self-

efficacy over time.

The study demonstrates a comprehensive multilevel and longitudinal model of

the interplay between collective (group) antecedents or drivers of individual self-

efficacy involving cross-level links between the group and individual levels of analysis.

Previous research has shown that sources of self-efficacy, such as enactive mastery,

social persuasion, positive emotions and vicarious experiences are able to influence

efficacy beliefs (Bandura, 2001, 2012), but our findings extend previous literature on

antecedents of self-efficacy from a multilevel perspective, by considering the dynamics

of changes in self-efficacy over time. In this regard, the main study contributions reside

in empirically testing the idea that the group may be responsible for building self-

efficacy. In other words, working in an efficacious group helps to build the future self-

efficacy of its members. Previous research has focused on individual effects of self-

efficacy (Bandura, 2012; Buric & Macuka, 2018; Guarnaccia, et al., 2018; Lisbona et

al., 2018; Peterson et al., 2011; Salanova, Llorens, & Schaufeli, 2011; Schneider & Preckel, 2017; Stajkovic, Lee, & Nyberg, 2009; Talsma, Schüz, & Norris, 2019) or collective predictors of collective efficacy beliefs (Alavi, & McCormick, 2018; Gully, Incalcaterra, Joshi, & Beaubien, 2002; Nielsen & Daniels, 2012; Salanova, et al., 2003; Salanova, Llorens, & Schaufeli, 2011; Stajkovic, Lee, & Nyberg, 2009). Our findings confirm that individual self-efficacy can be explained by group variables (perhaps through emotional contagion) such as shared collective efficacy beliefs and shared perceptions of positive leaders. Our results support the Tee (2015) study, which stressed that emotional contagion processes are developed not only bottom-up, but also top-down where leadership processes are relevant as well. Future studies could test these emotional mechanisms more in-depth.

The results of this study yield a number of theoretical implications. The finding that group efficacy beliefs are a significant cross-level predictor of individual self-efficacy over time supports the importance of the group's beliefs about their efficacy because a group is a driver of each individual's efficacy beliefs over time. According to Bandura, emotional expression is a very valuable source of self-efficacy. Future research should test the mediating role of positive emotions at the group and individual levels of analysis as a psychological mechanism to explain why group efficacy beliefs can influence individual self-efficacy over time.

Another interesting theoretical implication has to do with the way positive leaders encourage collaborators' advancement and strength, in a way of expanding their capabilities and inspiration (Kark, Shamir, & Chen, 2003). Transformational leaders use their inspirational motivation influencing collaborators' self-efficacy by setting clear goals for their followers and communicating a positive better future. In addition, these leaders could improve their collaborators' self-esteem because they use an

individualized consideration of each one. In our study, we found that transformational leaders increased individual self-efficacy over time, as these leaders functioned as role models and applied verbal persuasion strategies through individualized consideration and inspirational motivation (Felfe & Heinitz, 2010).

Prochazka, Gilova, and Vaculik (2017) suggested that factors such as feedback from customers and colleagues, and work performance could affect self-efficacy. In our study, we showed that there are other drivers of individual self-efficacy apart from transformational leadership, such as group collective efficacy beliefs in combination with baseline levels of previous self-efficacy levels.

Our findings have important practical implications, they suggest managers need to be made aware of how they influence others' efficacy beliefs over time. Idealized influence may be a mechanism that leads group members to feel more efficacious as employees of a company. Through intellectual stimulation, transformational leaders motivate followers to achieve new inspiring goals at work in the future. In fact, previous research has established a link between self-efficacy and future job performance (Lisbona et al., 2018; Peterson et al., 2011; Schneider & Preckel, 2017; Stajkovic, Lee, & Nyberg, 2009; Talsma, Schüz, & Norris, 2019). Therefore, it is important for companies to understand the drivers of self-efficacy in order to enhance employees' self-efficacy beliefs and improve their performance. Our findings highlight the importance of developing individual self-efficacy as a powerful psychological resource to achieve goals at work and improve performance.

We strongly recommend that leaders develop a transformational style in order to enhance the individual self-efficacy of their followers. Specific healthy practices, such as open dialogue with followers through an empathic attitude, group training showing leaders how to engage in these positive behaviours, individual interactions

with followers with a compassionate attitude encouraging leaders to enact positive behaviours with their groups, and getting feedback from group members, may help managers adopt a transformational style with positive benefits for leaders, followers, and companies.

In addition, the positive cross-level influence of group collective efficacy beliefs on individual efficacy beliefs over time is an important finding in SCT because it seems that some of the variance in individual self-efficacy is explained by more collective (group) levels of shared efficacy beliefs about their own group. Organizational practices oriented towards building a sense of "group identity" and collective efficacy seem to be important to enhance individual perceptions of self-efficacy over time.

This study has provided some new insights into collective drivers of individual self-efficacy over time, however it has some limitations. We included a heterogeneous mixed sample of students, workers, and unemployed people, which limits generalizability to specific companies or occupations. Another limitation is the use of self-report measures. However, in our study we used psychological constructs such as "beliefs", and in these cases it is not appropriated to use objective data. In that cases, we common-method bias could treat to our results, however, we followed Podsakoff, MacKenzie and Podsakoff (2012) recommendations in constructing our survey in order to minimize bias. Furthermore, we did not observe high correlations among the study variables, and so common method variance is not a threat to our data (Spector, 2006). Finally, using three creative tasks, we achieved the study objectives; however, our results could be limited to creative tasks in groups, and replication of these findings using other tasks should be carried out.

Conclusion

To sum up, this study furthers our understanding of the way group (collective) efficacy and shared perceptions of transformational leadership are linked to members group' self-efficacy over time and in a group context. In addition, we showed cross-level drivers of individual self-efficacy, and so our results add to SCT by enhancing our understanding of the dynamic nature of the way shared group cognitions of collective efficacy and leadership style are linked to self-efficacy over time. We believe our results are a first step towards answering a key question in self-efficacy research, i.e. how collective processes simultaneously influence individual self-efficacy over time.

Notes

Compliance with Ethical Standards

Conflicts of Interest

The corresponding author, and coauthors, states that there are no conflicts of interest.

Informed Consent

We obtained the informed consent from all participants in the study.

Ethical Approval

The procedures performed in our study involved human participants and they agreed the ethical standards of the institutional research committee, and also with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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Table 1

Means, Standard Deviations, Correlations, Internal consistencies, Composite Reliability (CR) and Average Variance Extracted (AVE)

		Mean	SD	1	2	3	4	5	CR	AVE
1	T1 Self-efficacy	4.29	.91	(.83)	.50***	.49***	.37***	.21*	.85	.58
2	T2 Self-efficacy	4.35	.94	.45***	(.87)	.74***	.87***	.35***	.87	.62
3	T3 Self-efficacy	4.68	.89	.44***	.64***	(.89)	.69***	.46***	.94	.66
4	T2 Group efficacy beliefs	3.61	.57	.31***	.75***	.49***	(.88)	.48***	.88	.64
5	T2 Shared Transf. Leadership	4.41	.73	.11*	.21***	.31***	.25***	(.97)	.97	.84

Note. Individual-level intercorrelations below the main diagonal (N = 456) and group-level intercorrelations above the main diagonal (k = 112). Alpha coefficients on the diagonal.

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

According to Cohen's (1988) conventions to interpret effect size: A correlation coefficient of .10 is thought to represent a weak or small association; a correlation coefficient of .30 is considered a moderate correlation; and a correlation coefficient of .50 or larger is thought to represent a strong or large correlation.

Table 2

Hierarchical linear models predicting Self-efficacy T3 (level 1 individuals N = 456;
level 2 groups N = 112)

Parameters	Model 1	Model 2
Fixed effects		
Intercept	4.67*** (0.16)	4.65*** (0.15)
Level 1 (individuals)		
Gender	-0.39 (0.07)	-0.01 (0.07)
Age	0.00 (0.01)	0.00 (0.01)
Self-efficacy T1	0.17*** (0.04)	0.19*** (0.04)
Self-efficacy T2	0.49*** (0.04)	0.43*** (0.04)
Level 2 (groups)		
Group efficacy beliefs T2		0.20* (0.08)
Shared Trans. Leadership T2		
		0.15* (0.06)
Random parameters		
Level 2		
R^2		.23
Level 1		
R^2	.78	.56
-2*log likelihood	913.59	890.71

Note. Standard errors are in parentheses.

*p < .05. ***p < .001.

TIME 2   TIME 3

Shared Transformational Leadership

.15*

Group Efficacy Beliefs

.20*

Cross-level effects

Level 2: Group

Level 1: Individual

Control variables:
Age
Gender
Previous Self-efficacy

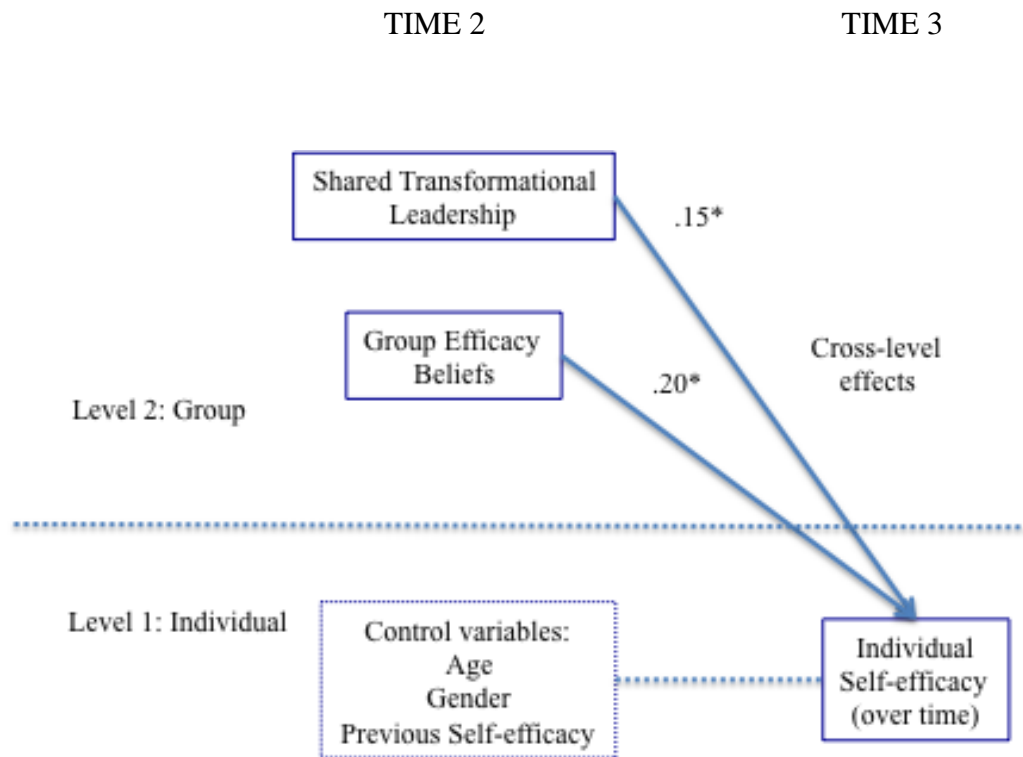Individual Self-efficacy (over time)

Figure 1. Multilevel Model Results (N= 112 groups at level 2, and N= 456 participants at level 1)