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Individual autonomy in work teams: The role of team autonomy, self-efficacy, and social support

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Task autonomy is long recognized as a means to improve functioning of individuals and teams. Taking a multilevel approach, we unravelled the constructs of team and individual autonomy and studied the interplay between team autonomy, self-efficacy, and social support in determining individual autonomy of team members. Hierarchical regression results of a survey among 733 members of 76 health care teams showed that individual autonomy was related not only to the level of team autonomy, but also to self-efficacy and social support. Moreover, results suggested that social support moderates the extent to which team autonomy is incorporated into the individual tasks of team members. In highly autonomous teams, individuals experiencing moderate support from co-workers and supervisors reported higher individual autonomy than members experiencing either low or very high support.

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Group work represents a mainstream theme in industrial and organizational psychology (Campion, Medsker, & Higgs, 1993; Kirkman & Rosen, 1999; Mueller, Procter, & Buchanan, 2000; Parker, Wall, & Cordery, 2001). An issue within this theme that has received considerable attention is group or team autonomy and its effects on performance and other outcomes of group work (Guzzo & Dickson, 1996; Kozlowski & Bell, 2003; Langfred, 2000, 2004; van Mierlo, Rutte, Kompier, & Seinen, 2001). Autonomy refers to control over (aspects of) task performance (Hackman & Oldham, 1980; Karasek, 1998), and is typically considered something positive, bringing health and satisfaction to the employee who disposes of it, and efficient work processes, profit, and satisfied clients to the employer who grants it.

Traditionally, researchers have either examined team or individual autonomy, relating it to either team or individual outcomes. High individual task autonomy has, for example, been linked to increased work motivation, job satisfaction, and performance, and to decreased psychological and psychosomatic complaints (Hackman & Oldham, 1975; Karasek, 1979; Warr, 1994). High team autonomy has been linked to increased productivity, quality of performance, innovativeness, job satisfaction, decreased turnover, and fewer accidents (Goodman, Devadas, & Hughson, 1988; Guzzo & Dickson, 1996; Hackman, 1987; Sundstrom, de Meuse, & Futrell, 1990). As the importance of issues of level of analysis is gaining recognition, several researchers have emphasized that autonomy can simultaneously reside at the level of the work team and the individual employee (Langfred, 2000; van Mierlo, Rutte, Kompier, & Doorewaard, 2005; van Mierlo et al., 2001). This observation calls attention to the conceptual meaning of both team and individual autonomy and to the nature of their relationship, if any. These are the issues that will be addressed in the present article. After discussing definitional issues, we will address the relationship between team and individual autonomy, and develop and test hypotheses about the mechanisms that may be involved in shaping this relationship.

TEAM AND INDIVIDUAL AUTONOMY DEFINED

Constructs at different theoretical levels (i.e., individual, team, organization) do not necessarily hold the same meaning over different levels (e.g., Klein & Kozlowski, 2000). How does this relate to the constructs of team and individual autonomy? Do they represent entirely different phenomena or situations, or do they represent similar constructs that can apply to different entities? Based on the prevailing definitions, we propose that team and individual autonomy are so-called isomorphic constructs, or, in other words, that team autonomy can be considered the team-level parallel of individual autonomy. Autonomy is typically defined as "the degree to which

the task provides substantial freedom, independence, and discretion in scheduling the work and in determining the procedures to be used in carrying it out'' (Hackman & Oldham, 1980, p. 79). *Individual* autonomy refers to freedom, independence, and discretion in the individual task (Hackman & Oldham, 1975, 1980; Karasek, 1998), while *team* autonomy refers to the same attributes in the task of a team (Cordery, Mueller, & Smith, 1991; Hackman, 1987; Kirkman & Rosen, 1999; Langfred, 2000). As Hackman (1987) puts it, in case of high team autonomy ''the group owns the task''.

Notwithstanding the similarity in meaning between team and individual autonomy, they remain distinct constructs. Team autonomy is a group-level construct that has no meaningful existence at the individual level (Langfred, 2000). All in all, in this article, we consider team autonomy the team-level analogy of individual autonomy.

TEAM AND INDIVIDUAL AUTONOMY RELATED?

If team and individual autonomy are indeed analogous constructs that coexist at different levels, then how are they related? Popular management interventions, such as implementing self-managing teamwork or empowering teams, aim at increasing the level of team autonomy. They may, however, also have implications for individual autonomy that are worth considering. Until now, researchers paid little attention to the relationship between team and individual autonomy. Langfred (2000) did emphasize that team and individual autonomy can exist simultaneously and measured both constructs in his study. Langfred did not, however, address the relationship between the constructs. In addition, his study only included group-level constructs; not taking into account the variation in individual autonomy within teams that is essential to the construct of individual autonomy as we conceive it.[1] Van Mierlo and colleagues (2001) did address the relationship between team and individual autonomy. They hypothesized and found a positive connection. Interestingly, the results of their study indicate that team autonomy relates to positive outcomes for individual employees, but in an indirect way, through a link with the autonomy in the individual tasks of employees. Van Mierlo et al. provided no detailed explanation of the relationship between team and individual autonomy and performed only individual-level analyses, which is not consistent with the team-level nature of team autonomy as we define it here.

[1]Please note that we in no way intend to criticize Langfred's study. The study was not designed with the purpose to examine the relationship between team and individual autonomy and, as such, made no claims about the appropriateness of the design for that purpose.

Building on the preliminary findings of van Mierlo et al. (2001), we propose that team autonomy is related to individual autonomy in the sense that it provides team members with the opportunity, but not necessarily the obligation, to take on extra responsibilities, resulting in a moderately positive relationship. This proposed positive relationship between team and individual autonomy constitutes the core of the present study and the subject of our first hypothesis:

Hypothesis 1: Team autonomy is positively related to individual autonomy.

Stating, however, that team autonomy gives team members the opportunity but not the obligation to take on extra responsibilities suggests that a high level of team autonomy does not automatically imply high individual autonomy for all members. Consider, for example, a health care team that is delegated work planning and budgeting tasks, leaving the team with the responsibility to act out their latitude. While three members immediately volunteer to take on part of the planning and budgeting responsibility, two others much prefer to continue doing what they always did, with no additional responsibilities. On average, the increased team autonomy will result in increased individual autonomy. At the same time, however, there will be marked differences among the members.

The question, if such differences indeed exist, is how to explain this. What mechanisms may determine whether or not team-level autonomy is incorporated into the task of an individual team member? In the present study we highlight the role of two factors: self-efficacy and social support. Both may be particularly important in determining how individual employees react to their work environment and, more specifically, how they respond to high team autonomy. The conceptual model for our study is presented in Figure 1.

Self-efficacy and autonomy

Previous research indicated that self-efficacy affects preferences for different types of jobs and work environments (Gibson, 2001; Jex & Bliese, 1999). Perceptions of self-efficacy strongly affect the extent to which employees are prepared to take on responsibility and challenge in their jobs (Bandura, 1997; Jex & Bliese, 1999). Compared to less efficacious individuals, highly efficacious individuals are more likely to aspire after "high scope" jobs that allow them to exercise personal judgement, tend to appreciate a challenge and intensify their efforts when their performance falls short, and do not react anxiously to threatening tasks or environments (Bandura, 1986; Jex & Bliese, 1999). In contrast, people who see themselves as inefficacious tend to shy away from difficult tasks or challenges, give up easily, and suffer anxiety

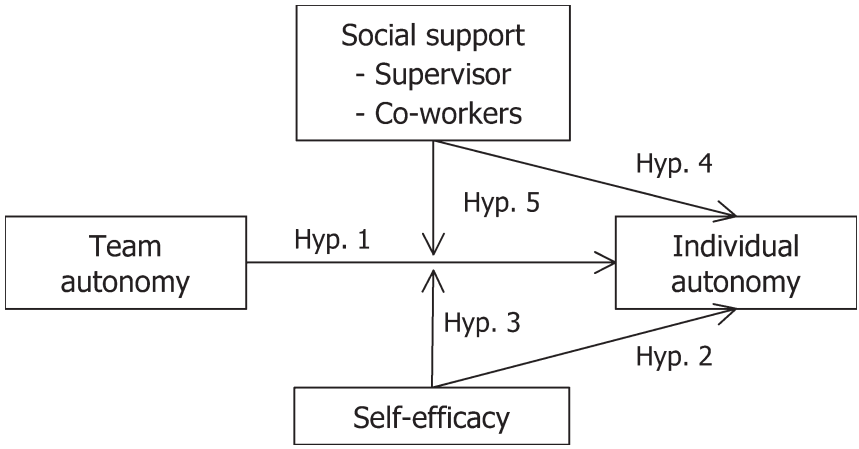

Figure 1. Conceptual model and hypotheses.

(Bandura, 1986). We propose that self-efficacy relates to individual autonomy of team members in two respects. First, regardless of the level of team autonomy, self-efficacy may be directly related to individual autonomy, in the sense that individuals with high self-efficacy actively pursue high-autonomy jobs. Second, self-efficacy may moderate the relationship between team and individual autonomy, such that individuals with high self-efficacy consider high team autonomy a source of challenge and possibilities for personal development. Compared to less efficacious individuals, they may thus more readily respond to high levels of team autonomy by incorporating this autonomy into their own, individual jobs. Concluding, we propose the following hypotheses:

Hypothesis 2: Self-efficacy is directly and positively related to the amount of autonomy in the tasks of individual team members.
Hypothesis 3: Self-efficacy moderates the relationship between team and individual autonomy, such that this relationship is stronger with increasing self-efficacy.

Social support and autonomy

We distinguish two important sources of social support in the work environment: co-workers and the direct supervisor. Our interest in social support in the context of autonomy originates from social exchange theory (e.g., Cole, Schaninger, & Harris, 2002; Seers, Petty, & Cashman, 1995; Settoon, Bennett, & Liden, 1996). The concept of ''leader–member exchange'' (LMX; Cole et al., 2002) can offer insight into to role of the

direct supervisor. LMX refers to a reciprocal relationship between a supervisor and an individual team member, in which both parties can offer each other valuable resources. The exchange of these resources is central to the exchange relationship. An important resource from the part of the supervisor is support, in the shape of direct help, emotional support, advice, or feedback (Buunk, de Jonge, Ybema, & de Wolff, 1998; Cole et al., 2002), while an important resource at the disposal of the employee is the willingness to adopt new behaviour (Cole et al., 2002). As such, a team member may engage in additional responsibilities to reciprocate the support of his or her supervisor.

The concept of "team-member exchange" (TMX; Cole et al., 2002; Seers et al., 1995) can shed light on the role of co-worker support. TMX and LMX are considered to be similar constructs (Cole et al., 2002; Seers et al., 1995). Both represent reciprocal relationships in which parties exchange valuable resources. According to Cole et al. (2002), TMX captures the willingness of an employee to engage in extrarole behaviours that help the team, or other team members, to accomplish their goals. An employee might thus reciprocate supportive actions from fellow team members by accepting new tasks, or more responsibilities.

As with self-efficacy, we propose that social support relates to individual autonomy of team members in two ways. First, team members who feel supported by their co-workers and direct supervisor may more easily agree to take on additional tasks and responsibilities compared to team members who experience less support, regardless of the amount of team autonomy. Second, social support may moderate the relationship between team and individual autonomy, such that team members who feel supported by their supervisor and/or their fellow team members are more inclined to incorporate additional responsibilities into their individual jobs in exchange to the support they receive.

Hypothesis 4: Social support from the direct supervisor and from co-workers is directly and positively related to the amount of autonomy in the tasks of individual team members.

Hypothesis 5: Social support from the direct supervisor and from co-workers moderates the relationship between team and individual autonomy, such that this relationship is stronger if support is higher.

METHOD

Sample

We obtained data for this study from five health care organizations (two domiciliary care organizations and three nursing homes). These organizations

had implemented self-managing teamwork several years prior to data collection. As a result, all teams had autonomy with regard to the organization of their work, although the nature and scope of their autonomy varied. Team members met regularly and often received training in, for example, work planning systems or communication skills.

Self-administered surveys were distributed during team meetings and filled out individually. Surveys were completed by 753 out of 1195 team members (63%). Each participating organization verified that the demographic characteristics in our sample did not deviate to an important extent from those of the total organization. We excluded two teams because of a large number of missing values, and two others because only one member responded to the questionnaire, reducing our sample to 733 members from 76 teams. Response rates per team varied from 30% to 100% ($M = 70\%$) and the average number of respondents per team was 9.64 ($SD = 5.12$). Teams did not differ significantly with respect to average age or tenure. The majority of respondents were female (93%) and the average age was 41 years ($SD = 10.62$).

Measures

Individual task autonomy. This was measured with the "work autonomy" scale from the Dutch Questionnaire on the Experience and Evaluation of Work (VBBA), a self-administered survey instrument developed to evaluate the work situation of individual employees. Previous research established the psychometric quality of this instrument (van Veldhoven, de Jonge, Broersen, Kompier, & Meijman, 2002). The scale included 11 items, asking respondents to indicate the extent to which they could control their work situation, for example "can you influence your work pace?" Items were answered on a four-point response scale, ranging from 0 ("never") to 3 ("all the time"). Cronbach's alpha for this scale was .86.

Perceived team task autonomy. This was measured with an adapted version of the individual task autonomy scale. The "you" in the original items was replaced with "your team" in the team items, for example "can your team influence its work pace?" We consider team task autonomy a team-level construct. We therefore averaged the individual scores at the team level. Alpha for the aggregated scale ($N = 76$) was .91.

Social support from co-workers and social support from the direct supervisor. These two measures were also taken from the VBBA. Both measures consisted of nine items, asking respondents to indicate the quality of their relationships with their co-workers and direct supervisor, for

example "Do you feel appreciated in your work by your co-workers?" or "Can you ask your direct supervisor for help if needed?" Again, items were answered on four-point response scales. Alpha was .84 for co-worker support and .88 for supervisor support.

Self-efficacy. This was measured with the Dutch translation of the Schwarzer (1992) general self-efficacy scale. To obtain a measure of work-related self-efficacy, we instructed respondents to think of their daily work when answering these questions. This scale consisted of 10 items, answered on five-point response scales, ranging from 0 ("fully disagree") to 4 ("fully agree"). Alpha was .82.

Data analysis

Aggregation issues. With regard to team autonomy, we assigned each team a score that represented the average response of all team members. In Chan's (1998) typology of composition models, this method is referred to as "referent-shift composition". Prior to aggregating responses to the team level, one should establish sufficient agreement among team members (Chan, 1998; Klein, Dansereau, & Hall, 1994). To this end, we calculated the $r_{wg(J)}$ index of within-group agreement for multiple items (James, Demaree, & Wolf, 1984), ICC(1) and ICC(2) (Bliese, 2000). $R_{wg(J)}$ is calculated by comparing the observed variance on a set of items in a group to the variance that would be expected if the group members would respond randomly. A value of .70 or higher is considered to represent satisfactory agreement (George, 1990; James et al., 1984). More recently, Dunlap, Burke, and Smith-Crowe (2003) proposed a significance test for r_{wg} and presented critical r_{wg} values for different sample sizes. r_{wg} is significant if it exceeds the critical value. Using the average team size of 9.64 in our sample as a rough estimate of r_{wg} sample size, the critical value for a scale with four categories is .58 (Dunlap et al., 2003). The average $r_{wg(J)}$ for our team autonomy scale was .95, with a range of .66 to 1.00, indicating substantial and significant agreement among team members ($p < .05$). ICC(1) is generally interpreted as the proportion of variance in a target variable that is accounted for by group membership (Bliese, 2000; Snijders & Bosker, 1999) and is calculated as the ratio of between-group variance to total variance. In applied field research, ICC values typically vary from .05 to .20 (Bliese, 2000). ICC(1) for team autonomy was .13, $F(75, 657) = 2.44$, $p < .01$, indicating that group membership explained a substantial and significant part of the variance in the responses (Bliese, 2000; Snijders & Bosker, 1999). Finally, ICC(2) assesses the reliability of the group means, based on ICC(1) and average group size. Values of .70 or higher are considered to represent satisfactory

reliability. With a value of .59, ICC(2) for team autonomy did not fully reach this rule of thumb. Considering the significant interrater agreement and the substantial ICC(1), though, we conclude that aggregation to the team level is appropriate.

Hierarchical linear modelling. We used hierarchical linear modelling (HLM) to test our hypotheses. HLM allows for the inclusion of variables at multiple levels and takes into account the nonindependence of observations by addressing the variability associated with each level of nesting (Bryk & Raudenbush, 1992; Goldstein et al., 1998; Snijders & Bosker, 1999).

RESULTS

Preliminary analyses

We used similar items to measure team and individual autonomy, the only difference being that "you" in the items for individual autonomy was replaced with "your team" for team autonomy. This similarity might undermine the discriminant validity of the two constructs. Prior to testing our hypotheses, we therefore verified whether respondents differentiated between team and individual autonomy using confirmatory factor analysis (CFA) in LISREL 8.50 (Jöreskog & Sörbom, 1993). If team and individual autonomy are distinct constructs, a two-factor model should fit our data better than a one-factor model. While CFA models are commonly specified with uncorrelated error terms, this is not necessarily appropriate (Bentler & Chou, 1987). In the present study the corresponding items for team and individual task autonomy were very similar, presenting a strong theoretical ground for allowing covariance between the error terms of corresponding items. Thus, our CFA model allowed covariation between the first item for team autonomy and the first item for individual autonomy, between the second items of both scales, and so on. This procedure does not undermine the factorial validity, but rather provides a more realistic representation of our data (see Bentler & Chou, 1987). We used a difference chi-square test and the AIC-fit measure (Akaike, 1987; Bollen, 1989) to compare the one- and two-factor model. The CFA-results show that the two-factor model fitted our data significantly better than the one-factor model, delta chi-square $= 1871.28$, $df = 1$, $p < .00$, a finding that was substantiated by the lower AIC value for the two-factor model (1176.60 compared to 3045.88 for the one-factor model). The correlation between the latent factors provides an additional indication of discriminant validity. If this correlation exceeds .85, constructs cannot be distinguished in a meaningful way (Kenny, 1998). The correlation between the two latent factors was .56, indicating satisfactory discriminant validity (Kenny, 1998). We conclude

that respondents did differentiate between their autonomy and that of their team.

Table 1 displays mean scores, standard deviations, reliability coefficients, and intercorrelations for all measures. For later interpretation of the proposed moderated relationships it is important to note the high average scores for supervisor and co-worker support. Both averages are just below the scale maximum.

Hypothesis testing

The standard procedure for testing moderated relationships involves a linear regression model including the separate predictor terms and an interaction term. This procedure presumes that the effect changes *linearly* as a result of changes in the moderator variable (Aiken & West, 1991). In the present study we had no reason to assume strict linearity of the hypothesized interaction. Self-efficacy may, for example, only start influencing the relationship between team and individual autonomy after it reaches a certain level. To be able to detect such potential nonlinear trends we used the procedure for higher order regression as described by Aiken and West (1991). We centred the variables to reduce potential multicollinearity.

The hierarchical analysis procedure involved six successive steps, starting from an intercept-only model (step 1) and successively adding the predictor terms: team autonomy (step 2), self-efficacy, supervisor support, or co-worker support (step 3), the quadratic term for self-efficacy, supervisor support, or co-worker support (step 4), the linear interaction term (step 5), and finally the quadratic interaction term (step 6). Steps 3–6 were performed separately for self-efficacy, supervisor support, and co-worker support. Steps 2–4 addressed hypotheses 1, 2, and 4 (direct relationships), and steps 5 and 6 addressed hypotheses 3 and 5 (moderated relationships).

TABLE 1
Means, scale range, standard deviations, and correlations

	Range	*M*	*SD*	*1*	*2*	*3*	*4*	*5*
1. Team autonomy	0–3	1.69	0.22	(.91)				
2. Individual autonomy	0–3	1.64	0.48	.25**	(.86)			
3. Self-efficacy	0–4	2.65	0.41	0.06	.21**	(.82)		
4. Supervisor support	0–3	2.48	0.46	.21**	.20**	.06	(.88)	
5. Co-worker support	0–3	2.44	0.40	.09*	.20**	.05	.50**	(.84)

N = 733. *$p < .05$; **$p < .01$; scale reliabilities (α) are displayed between parentheses on the diagonal.

Table 2 provides regression parameter estimates for each of the six steps of the analysis. Note that the parameter estimates in Table 2 are unstandardized regression coefficients.

Results for step 1 provided baseline values for random variance and the model deviance statistic (−2*loglikelihood). In line with our first hypothesis, results for step 2 indicated that team autonomy was positively related to individual autonomy ($b = .56$, $p < .05$).

Step 3 addressed the linear relationships between self-efficacy and individual autonomy, supervisor support and individual autonomy, and co-worker support and individual autonomy. As proposed, results showed a positive relationship between self-efficacy and individual autonomy ($b = .23$, $p < .05$), social support from the direct supervisor and individual autonomy ($b = .17$, $p < .05$), and between social support from co-workers and individual autonomy ($b = .21$, $p < .05$). Step 4 revealed a nonlinear trend in the relationship between supervisor support and individual autonomy ($b = .19$, $p < .05$). The trend was concave upward, suggesting that individual autonomy increased exponentially as a result of increasing supervisor support. The relationships of self-efficacy and co-worker support with individual autonomy showed no nonlinearity.

Steps 5 and 6 addressed the proposed moderated relationship between team and individual autonomy. Contrary to our third hypothesis, self-efficacy did not moderate the relationship between team and individual autonomy. With respect to social support from the supervisor, results showed a significant nonlinear interaction ($b = -.91$, $p < .05$). Similar results were obtained for support from co-workers, also showing a significant nonlinear interaction ($b = -.94$, $p < .05$).

We plotted the curvilinear interactions in two ways. First, we plotted the size of the regression coefficient for the regression of individual autonomy on team autonomy as a function of social support. These plots are displayed in Figure 2(a) (supervisor support) and Figure 3(a) (co-worker support). Second, following the procedure proposed by Aiken and West (1991), we plotted both interactions by deriving separate regression equations for average and high and low support (one standard deviation above and below average). Considering the high average score for both types of social support (see Table 2), we derived an additional regression equation that provides a more realistic representation of low support (three standard deviations below average, representing a score of 1.10 for supervisor support and 1.24 for co-worker support). Figure 2(b) displays these four regression lines for supervisor support, Figure 3(b) for co-worker support.

As a result of the high average scores for support, scores cannot exceed one standard deviation above average because that would imply exceeding the scale maximum. In practice, the regression coefficient will thus not turn negative at high levels of support, as is suggested by Figures 2(a) and 3(a).

TABLE 2
Direct and moderated relationships: Unstandardized results of hierarchical regression analysis

	Step 1	*Step 2*	*Step 3*	*Step 4*	*Step 5*	*Step 6*
Self-efficacy						
Team autonomy		0.56** (.10)	0.53** (.10)	.53** (.10)	.53** (.10)	.52** (.11)
Self-efficacy			.23** (.04)	.23** (.04)	.23** (.04)	.23** (.04)
Self-efficacy sqr				.01 (.05)	.01 (.05)	.00 (.05)
Team autonomy × Self-efficacy					.13 (.18)	.13 (.18)
Team autonomy × Self-efficacy sqr						.09 (.20)
Random variance within groups	.20	.20	.19	.19	.19	.19
Random variance between groups	.03	.02	.02	.02	.02	.02
−2* loglikelihood (IGLS)[a]	961.09	936.45	903.46	903.41	902.91	902.71
Supervisor support						
Team autonomy		56** (.10)	.49** (.11)	.49** (.10)	.48** (.11)	.67** (.13)
Supervisor			.17** (.04)	.23** (.05)	.23** (.05)	.24** (.05)
Supervisor support sqr				.19** (.07)	.21** (.07)	.17** (.07)
Team autonomy × Supervisor support					−.24 (.17)	−.53** (.20)
Team autonomy × Supervisor support sqr						−.91** (.35)
Random variance within groups			.19	.19	.19	.19
Random variance between groups			.02	.02	.02	.02
−2* loglikelihood (IGLS)[a]			917.392	910.541	908.49	901.979
Co-worker support						
Team autonomy		56** (.10)	.52** (.10)	.52** (.10)	.52** (.10)	.67** (.12)
Co-worker support			.21** (.04)	.23** (.05)	.23** (.05)	.23** (.05)
Co-worker support sqr				.11 (.09)	.14 (.09)	.09 (.09)
Team autonomy × Co-worker support					−.36* (.19)	−.54** (.21)
Team autonomy × Co-worker support sqr						−.94** (.41)
Random variance within groups	.20	.20	.19	.19	.19	.19
Random variance between groups	.03	.02	.02	.02	.02	.02
−2* loglikelihood (IGLS)[a]	961.09	936.45	913.03	911.33	907.77	902.71

Standard errors for the unstandardized regression coefficients are displayed between parentheses.
[a]Δdf for each next step is 1; "sqr" = squared; *$p < .10$; **$p < .05$.

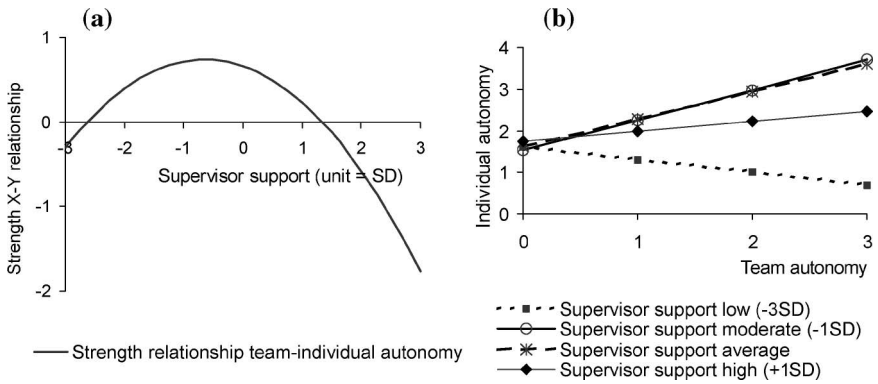

Figure 2. Supervisor support as a moderator of the relationship between team and individual autonomy. (a) Regression coefficient as a function of supervisor support. (b) Regression lines for different levels of supervisor support.

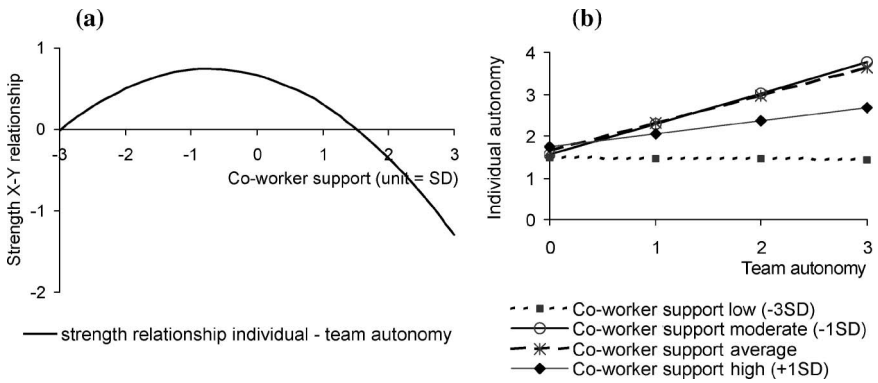

Figure 3. Co-worker support as a moderator of the relationship between team and individual autonomy. (a) Regression coefficient as a function of co-worker support. (b) Regression lines for different levels of co-worker support.

Figures 2(a) and 3(a) show that the relationship between team and individual autonomy was negative at low levels of support, turned positive at moderate levels of support, and declined again when support was above average. The positive relationship between team and individual autonomy was strongest at a score of 2.25 for supervisor support and 2.24 for co-worker support (scale from 0 to 3).

Overall, results confirmed the expected direct relationships, and the moderating effects of supervisor and co-worker support, but not the moderating effect of self-efficacy.

DISCUSSION

Interpretation of results

This study was designed to answer the question of how team autonomy is related to the individual autonomy of team members. Results showed a positive relationship between team and individual autonomy. As expected, the autonomy at the team level was, to a certain extent, incorporated into the tasks of individual team members. This finding is in line with the results of van Mierlo et al. (2001). We then examined self-efficacy and social support from co-workers and the direct supervisor as mechanisms that might act to determine the individual autonomy of team members. We expected that these three factors would not only be directly related to individual autonomy, but would also act to moderate the relationship between team and individual autonomy. The proposed direct positive relationships were supported by the results of three separate hierarchical regression analyses. Thus, not taking into account the extent to which the team was autonomous, the more self-efficacious team members were and the more they felt supported by their supervisor and co-workers, the more individual autonomy they reported. The relationship between support from the supervisor and individual autonomy was nonlinear, in the sense that the increase in individual autonomy accelerated as supervisor support was higher.

Because we had no reason to expect strictly linear effects we included higher order interaction terms for self-efficacy and both support measures to test the proposed moderated relationships. Results did not support a moderating role of self-efficacy. In our study, efficacious team members reported more individual autonomy than less efficacious team members, irrespective of the autonomy of their team. Results did support the proposed moderating role of supervisor and co-worker support. Interestingly, both moderated relationships were curvilinear. The relationship between team and individual autonomy was negative at very low levels of support, turned positive when support increased, and reached its maximum size when support was half a standard deviation below average (representing a score of 2.25 for supervisor and 2.24 for co-worker support). When support exceeded the average score, the relationship between team and individual autonomy declined, to disappear altogether when support reached its maximum level (see Figures 2a and 3a). Results also indicated that members of teams with low team autonomy reported moderate levels of individual autonomy, irrespective of the extent to which they felt supported by co-workers or their supervisor (see Figure 2b and 3b). With increasing team autonomy, social support began to differentiate between team members: In teams with high autonomy, team members who lacked social support reported the lowest level of individual autonomy. Team members with either high or low

support from their supervisor or co-workers reported moderate individual autonomy and individual autonomy was highest for team members who experienced moderate levels of support. Apparently, there are limits to the benefits of social support.

With regard to co-worker support, the concept of the "iron cage of concertive control" in self-managing teams may offer an explanation (Barker, 1993). Teams in participative work environments collectively control their own behaviours via a variety of mechanisms, one of which is the social structure of the team. Such teams develop their own system of norms and rules, and peers within the team enforce the concertive control system on each other (Barker, 1993; Wright & Barker, 2000). Team members who feel strongly supported are likely to be more deeply embedded in the team's social structure, making them more susceptible to the pressure to conform. Instead of feeling in control, they may feel controlled as a result of working in a team with high autonomy. Team members with moderate support may feel sufficiently supported to assume additional responsibilities but at the same time sufficiently independent to feel in control. Similarly, members of a team that is to a large extent autonomous who experience high levels of support from their direct supervisor may feel restricted rather than encouraged in their personal latitude. It goes without saying that, as long as they are not examined and confirmed in further research, such explanations remain speculative.

Implications

The results of our study indicate that high autonomy at the team level is, in itself, related to higher autonomy for individual team members. As such, increasing team autonomy or responsibilities may be an effective means of improving individual task design, and thereby improving team member psychological well-being. A way to achieve increased team autonomy could for example be the introduction of self-managing teamwork. An additional means to increase individual autonomy may be to promote team member self-efficacy and to provide a supportive work environment.

In an autonomous team context, moderate levels of support appear to be most effective in encouraging team members to assume individual responsibility. In such a context, a work environment that is too supportive can miss its purpose.

Attention to the role of the supervisor and supervisor support might be especially important in a teamwork environment, since previous research showed that team working in general decreases employee perceptions of supervisor support (Griffin, Patterson, & West, 2001). To promote social support in the direct work environment, one might, for example, stimulate employees to work together by increasing task and/or goal interdependence,

provide management training in coaching behaviour, stimulate group cohesiveness, and enhance the social skills of team members.

With regard to self-efficacy, individuals base their perception of self-efficacy on many different sources of information. We refer the interested reader to Bandura (1997), who provides a comprehensive overview of, among other things, the meaning, sources, and consequences of self-efficacy. Self-efficacy is commonly regarded as an important determinant of many aspects of human behaviour, in a large variety of situations. By influencing the various sources of self-efficacy, such as previous experience, positive reinforcement, and social persuasion, one might attain important changes in the task behaviour of individual team members, advance team development, and promote the psychological well-being of team members.

Limitations

First, a restriction of range might exist in our data. The average level of perceived social support, both from the direct supervisor and from co-workers, was very high, reducing desired variability in the social support data. This led us to extend the Aiken and West (1991) procedure for plotting nonlinear interactions by adding a regression line for a level of social support that can be considered low relative to the scale anchors. Range restriction could present a problem for data analysis, but the fact that we did obtain significant results suggests relative robustness.

Since teams in our sample were all self-managing to at least some degree, restriction of range might also have been an issue for our measure of team autonomy. However, the restriction does not appear to be severe, considering that the extent to which the teams were self-managing and the nature of their latitude did vary, and given that scores for team autonomy approached the normal distribution.

A second limitation of the present study is the cross-sectional design that does not enable us to make strong causal inferences. We were, for example, unable to address the possibility that self-efficacy not only acts as a predictor of individual autonomy, but at the same time as an outcome. Such a mechanism was previously examined with respect to self-efficacy and task performance. The so-called "efficacy-performance spiral" refers to a reciprocal relationship between self-efficacy and performance, in which perceptions of self-efficacy result in high task performance, which in turn results in increased perceptions of self-efficacy, and so on (Lindsley, Brass, & Thomas, 1995). Future studies with a longitudinal design could examine whether a similar reciprocal relationship exists between self-efficacy and individual task autonomy (see also Taris & Kompier, 2003).

Finally, we relied exclusively on self-reported measures. This demerit is somewhat compensated by the results of our confirmatory factor analysis

that clearly indicated that team and individual autonomy represented distinct constructs. In addition, we designed our survey to minimize answering biases as much as possible. For practical and financial reasons, it is a major challenge in group research to use alternative methods of data collection (e.g., observation or interviews). Nonetheless, future studies would certainly gain impact and credibility if they would incorporate such methods (see Semmer, Grebner, & Elfering, 2004).

While more and more researchers recognize the importance of issues of level of theory, measurement, and analysis (Klein et al., 1994; Klein & Kozlowski, 2000), we only know of few who have explicitly addressed the relationship between similar constructs at different levels. As such, we believe the present study illuminates a previously unexplored but promising research domain within the tradition of group research. Indirectly, it also contributes to our knowledge of the mechanisms through which teamwork may affect psychological well-being, by addressing factors that influence the relationship between team and individual task design. Moreover, it provides practical suggestions as to how integration of team autonomy into the individual tasks of team members may be encouraged.

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