

# Participation at setting performance goals – A cross-sectional study on self-reported control, objective control and vital exhaustion

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## ABSTRACT

Management by objectives is widely used and very popular in company practice. However, if performance goals are used as a tool of control from above, negative effects can be a consequence. A cross-sectional field study was conducted to test the hypotheses. The sample consisted of 275 employees of a bank and a public service provider. We measured control the job provides by expert-ratings. The perception of control, vital exhaustion as well as the goal source (imposed versus participatively set) were measured with self-reports. Factorial variance analyses were used to identify main effects and interactions. In jobs that offer a high level of objective control and that have imposed performance goals, employees report a vital exhaustion sum score of  $m = 18.88$ , which is twice as high as in jobs that offer a high level of objective control but have participatively set performance goals ( $m = 9.34$ ). We conclude that participation at setting performance goals can help to adapt the performance goal to individual performance requisites of employees. Through participation at goal setting performance goals do not limit control and avoid vital exhaustion.

## Keywords

Goal setting – management by objectives – task design – control – mental strain

## 1 Introduction

The principles of performance goals are widely-used and very popular (Locke, 2004). Performance goals in the sense of management by objectives (Drucker, 1954) can allow employees to align their action to reach specified criteria. If an objective for example is to sell 20 insurances in a week, then the actual number of insurances sold can be directly compared to this objective. Drucker (1954, p. 131) emphasizes that performance goals should be used to help employees to align themselves towards certain goals and that it should not be used as „a tool of control from above“. Thus, management by objectives should increase the ability to regulate own action, not decrease control. However, management systems in which employees are not participated at goal setting are associated with a low level of perceived control (Konradt, Hertel & Schmook, 2005), work overload (Brown & Benson, 2005) and mental strain (DeFrank & Ivancevich, 1998).

This study aims to take a closer look at performance goals and their interaction with objectively given working conditions. We ask whether perceived control or vital exhaustion depend on the goal source

(whether the performance goal was imposed or participatively set) under the condition of a job that either provides high versus low objective control.

### 1.1 Setting performance goals

Assignments at work can be set in several ways. Locke and Latham (1990) distinguish three different *goal sources*: self-set goals, goals assigned by others and participatively set goals. In work context, assignments are mostly imposed or participatively set, hence there are almost no sheer self-set goals (self-employed are an exception).

Imposed or participatively set goals, on the one hand, can be understood as assignments or orders. Orders are legally binding performance criteria, which determine job content, results that need to be achieved and conditions under which tasks are executed (Hackler, 2005). Self-set goals, on the other hand, can be compared to the concept of goals in action theory where they are understood as anticipations of results as well as intentions. Work action is regulated by self-set goals – not orders (also see the concept of internal and external goals; Frese & Zapf, 1994). An order can-

not turn into an action, unless it is translated into a self-set goal. Orders need to be thoroughly understood, re-interpreted and accepted (Hackman, 1969). This differentiation also has implications for the setting of performance goals.

According to goal setting theory, specific goals increase performance (Locke & Latham, 1990, 2013) as the expected outcome is clarified and attention is focused on achieving this outcome (Klein, Whitener & Ilgen, 1990). Although several meta-analyses provide support for this effect (Chidester & Grigsby, 1984; Kleingeld, van Mierlo & Arends, 2011; Mento, Steel & Karren, 1987; Tubbs, 1986; Wood, Mento & Locke, 1987), the relationship of specificity and mental strain is still relatively unknown. To elucidate this relation, specificity of self-set goals and orders need to be differentiated. While self-set goals need to be specific (employees need to know what to do how in certain situations; see Kahn, Wolfe, Quinn, Snoek & Rosenthal, 1964; Schmidt, Roesler, Kusserow & Rau, 2014) specificity of orders is two-fold: On the one hand, specific performance goals are useful if they are re-interpreted to a specific self-set goal (Hackman, 1969). On the other hand, specific performance goals might decrease flexible responses to environmental contingencies (Locke, Chah, Harrison & Lustgarten, 1989) and therefore reduce control.

### 1.2 Goal source and control

Control (or autonomy) is defined as the degree to which the job provides independence to the individual in scheduling the work and in determining the procedures to be used in carrying it out (Hackman & Oldham, 1976). To set a specific order that leads to a specific self-set goal, which does not restrict flexibility or control, the process of getting to the order needs to be considered. Imposed performance goals decrease perceived control, especially when performance criteria determine the work method (Karasek & Theorell, 1990). When orders are set, individual performance prerequisites (like knowledge, experience, skills and abilities) need to be taken into account (Hacker, 2003) to avoid work under- or overload (French, Caplan & van Harrison, 1982). As mentioned before, there is research on the relationship between participation at goal setting and perceived control. Unclear is whether this relation can change under the consideration of objective control which is provided through the job.

### 1.3 Objective and self-reported control

In most studies control is operationalized by questionnaires which gather self-reported information. As questionnaires can either ask for the recognition, the mastery or the use of control, they suffer an im-

manently subjective bias (Podsakoff, MacKenzie, Lee & Podsakoff, 2003; Schweden, Kästner & Rau, 2019). Consequently, the degree of freedom a job provides (*objective control*), cannot be quantified by self-report measures, as the amount of control provided in the job is not necessarily equal to the amount of control perceived by the employee (Hacker, 2003; Rau, Morling & Rösler, 2010). Therefore, the identification of *objective control* conducted by expert-ratings is indispensable for the analysis of work. To assess *self-reported* and *objective control*, it is necessary to use *questionnaires* as well as *expert-ratings* (Rau, 2004).

### 1.4 Research questions

Including individual performance requisites (knowledge, experience, skills and abilities) into the goal setting process can help to adapt performance goals to what can be achieved by the employee. We already know that participatively set performance goals (Hoppe & Rau, 2017; Laurence, Fried & Raub, 2016) and *objective control* (Rau, 2004; Rau et al., 2010) are related to *self-reported control*. We do not know whether the relationship of participatively set performance goals and self-reported control interacts with *objective control*. Therefore, we want to test:

*H1:* There is a difference in self-reported control based on objective control and goal source. We expect that employees with a high level of objective control report more control than employees with a low level of objective control. Further we expect that employees with imposed performance goals report less control than employees with participatively set performance goals. We also expect, that the relationship of objective control and self-reported control depends on the level of goal source.

In addition to self-reported control as dependent variable, we are interested whether the combination of goal source and objective control results in different levels of vital exhaustion. Imposed performance goals are positively related to exhaustion (Laurence et al., 2016) and participation in decision making (which is more general than participation in setting performance goals) is negatively related to mental strain (Jackson, 1985; Spector, 1986). While *objective control* was found to be related to mental health and satisfaction (Rau, 2006) there are studies that indicate an independence of *objective control* with negative spillover and vital exhaustion (Schuller, Roesler & Rau, 2012) as well as depression (Rau et al., 2010). In studies that examined *objective control*, *goal source* has not been considered. Therefore, the relationship between *objective control* and mental strain needs to be revealed accounting for the *goal source* (in terms of an interaction). Like in hypothesis 1, we therefore want to test:

*H2*: There is a difference in vital exhaustion based on objective control and goal source (participatively set / imposed). We expect that employees with a high level of objective control report less vital exhaustion than employees with a low level of objective control. Further we expect that employees with imposed performance goals report more vital exhaustion than employees with participatively set performance goals. We also expect, that the relationship of objective control and vital exhaustion depends on the level of goal source.

## 2 Methods

### 2.1 Participants

Data of this cross-sectional field study was collected in two German organizations (A = public service provider, B = bank) in which we performed risk analysis of mental work load. All employees were eligible and recruited via intranet. From about 3000 employees in organization A, 125 employees (4.1 %) and from 1.500 employees in organization B, 168 employees (12.5 %) participated in the study ( $n = 291$ ). Overall 17 participants were excluded from data analysis. Six participants were excluded because they answered less than 90% of the items. Another five participants filled out the questionnaires but did not allow expert-rated job interviews. Six participants in organization B did not answer the interview question regarding *goal source*. Of the remaining data ( $n = 275$ ) 99.86 % is complete. The 20 missing values (0.14 %) are estimated by regression procedures. The final sample consists of 275 employees. Female participants were slightly over-represented ( $n = 169$ , 61.5 %). The average age of employees was 41.2 years ( $SD = 9.71$ ) ranging from 22-64 years. Almost all participants ( $n = 265$ ) had goal setting or job appraisal interviews at least once a year. Ten employees reported to have performance goals but no official goal-setting interviews. We asked if performance goals are imposed or participatively set, apart from these interviews (7 answers were coded as *imposed* and 3 answers were coded as *participatively set* performance goal).

### 2.2 Psychometric scales

*Vital exhaustion* is described as excessive fatigue as well as feelings of general malaise and can predict myocardial infarction (Appels, Höppener & Mulder, 1987). It was examined with the Maastricht Questionnaire which contains 21 items such as „Do you often feel tired?“ and asks for symptoms of exhaustion, like fatigue, irritability, and demoralization, occurring during the last 4 weeks. High values in the questionnaire indicate a high level of vital exhaustion.

*Goal source* in organization A was conducted in a structured interview. Employees were asked whether performance goals at work are set participatively or are imposed. In organization B, a three-item scale was constructed to conduct goal source. Items such as „I can influence the setting of performance goals“ are rated on a four-point scale. The items were constructed with regard to the methods of goal setting (imposed or participatively set) as described by Locke and Latham (1990).

Self-reported control was measured with the *questionnaire to assess job demands and job control* (FIT; Richter et al., 2000) which is based on Karasek's Job-Demand-Control-Model (Karasek, 1979). The scale *job control* consists of seven items such as „I can plan and organize my work autonomously“ and asks for procedural degrees of freedom, decision latitude, and skill utilization. High values correspond with a high level of *self-reported control*.

*Objective control* was assessed by expert-ratings using the *Task Diagnosis System* (TDS; dt. Tätigkeitsbewertungssystem, TBS; Rudolph, Schönfelder & Hacker, 1987) which is based on the concept of action regulation (Hacker, 2005). The TDS consists of 52 ordinal rating scales which have defined content-anchored levels. To rate the TDS-scales, an onsite workplace observation combined with a structured interview is conducted. TDS-scales are compared to a critical value. Scales below this critical value have the risk of causing mental strain. *Objective control* was assessed with the scales „procedural degrees of freedom“, „decision authority“, „skill utilization“, and „requirement to learn“(Rau, 2004).

### 2.3 Procedure

Following recommendations to avoid a possible common method bias (by for example measuring data at the same time or from the same source), data was collected at three different days (temporal separation of measurement; Podsakoff et al., 2003). Moreover data was collected using self-report questionnaires as well as objective job analyses (methodological separation of measurement; Podsakoff et al., 2003).

To test the hypothesis *objective control* was artificially dichotomized into a high and low level of *objective control*. Dichotomizing continuous variables is generally problematic but justified when there is a theoretical rationale behind it (MacCallum, Zhang, Preacher & Rucker, 2002). *Objective control* can be dichotomized into jobs that are well versus poorly designed. As values are centered around critical values prior to analysis, a meaningful break point for *objective control* is at 0 (a critical value greater than or equal to 0 corresponds to well-designed jobs and a critical value less than 0 corresponds to a job that is likely to

cause mental strain). Following this strategy, there are more jobs with high ( $n = 215$ ) than low *objective control* ( $n = 60$ ), indicating that jobs in this sample are predominantly well-designed. As unequal sample sizes in the conditions cause statistical complications, groups were split at the median ( $md = .50$ ). This is still justified as the median value represents a threshold referring to a theoretical rationale (content-anchored levels of scales).

*Goal source* in organization B, has been assessed on a four-point rating scale and needs to be dichotomized as well. A meaningful break point is at the middle value of the scale (at 2.5). The lower end of the scale represents imposed performance goals and that the higher end of the scale represents participatively set goals.

## 5 Results

Descriptive statistics, correlations and internal consistency for all variables are displayed in Table 1. Of the 275 participants, 152 employees (48.0 %) report that they have imposed performance goals. Although the mean value ( $m = .26$ ) for *objective control* is above the critical value, 60 jobs of participants (21.8 %) are below the critical value and therefore indicate a possible danger for employees health. Moreover 124 par-

ticipants (45.1 %) report a *vital exhaustion* score of 14 or higher, which indicates severe feelings of exhaustion (Appels et al., 1987).

### Hypothesis 1

A two-way analysis of variance was conducted to compare the main effects of *goal source*, *objective control* and the interaction effect between *goal source* and *objective control* on *self-reported control*. *Goal source* included two levels (imposed, participatively set) and *objective control* also included two levels (high, low). The Levene's test ( $p = .118$ ) indicates that variance in *self-reported control* is equal across various combinations of *objective control* and *goal source*. All effects were significant at the .05 significance level except for the interaction. The main effect for *goal source* yielded an  $F$  ratio of  $F(1, 271) = 76.03, p = .000, \eta^2 = .219$ , indicating a significant difference between imposed ( $M = 2.99, SD = 0.45$ ) and participatively set performance goals ( $M = 3.44, SD = 0.40$ ). The main effect for *objective control* yielded an  $F$  ratio of  $F(1, 271) = 31.32, p = .000, \eta^2 = .104$ , indicating a significant difference between high ( $M = 3.38, SD = 0.44$ ) and low *objective control* ( $M = 3.07, SD = 0.45$ ). The interaction between *goal source* and *objective control* on *self-reported control* was not significant,  $F(1, 271) = 0.03, p = .856, \eta^2 = .000$ . An error-bar chart is displayed in Figure 1.

Table 1: Descriptive statistics, correlations (internal consistency).

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	7
1 Age	41.20	9.70	-					
2 Gender <sup>a</sup>	0.39	0.49	.011	-				
3 Goal source <sup>b</sup>	0.52	0.50	.055	-.047	-			
4 Objective control (mean)	0.26	0.37	.058	.170**	.169**	-		
5 Self-reported control (mean)	3.23	0.47	.080	.051	.476***	.424***	(.700)	
7 Vital exhaustion (sum)	13.35	10.10	.041	.043	-.348***	.023	-.293***	(.912)

Note: Pearson product-moment correlation coefficient (two-tailed).

<sup>a</sup> 0 = male, 1 = female

<sup>b</sup> 0 = imposed performance goals, 1 = participatively set performance goals

\*\*  $p < .01$ , \*\*\*  $p < .001$ .

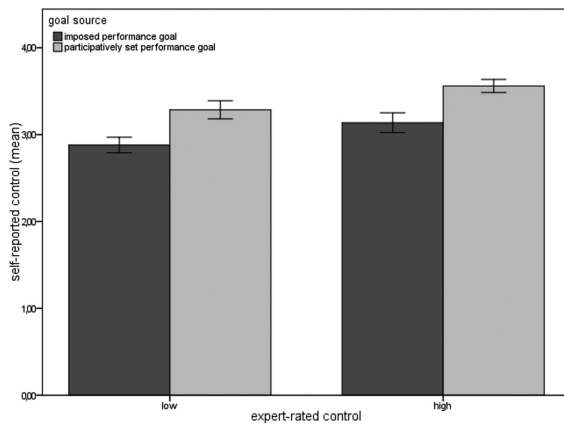


Figure 1: Two-way ANOVA with self-reported control as dependent variable.

### Hypothesis 2

A two-way analysis of variance was conducted to compare the main effects of *goal source*, *objective control* and the interaction effect between *goal source* and *objective control* on *vital exhaustion*. The Levene's test ( $p = .128$ ) indicates that variance in *vital exhaustion* is equal across various combinations of *objective control* and *goal source*. All effects were significant at the .05 significance level except for the factor *objective control*. The main effect for *goal source* yielded an  $F$  ratio of  $F(1, 271) = 58.55, p = .000, \eta^2 = .125$ , indicating a significant difference between imposed ( $M = 16.99, SD = 10.05$ ) and participatively set performance goals ( $M = 9.98, SD = 8.94$ ). The main effect for *objective control* yielded an  $F$  ratio of  $F(1, 271) = 0.75, p = .394, \eta^2 = .005$ , indicating no significant difference between high ( $M = 13.39, SD = 10.15$ ) and low *objective control* ( $M = 15.30, SD = 15.08$ ). The interaction between *goal source* and *objective control* on *self-reported control* was significant,  $F(1, 271) = 4.51, p = .035, \eta^2 = .016$ . An error-bar chart is displayed in Figure 2.

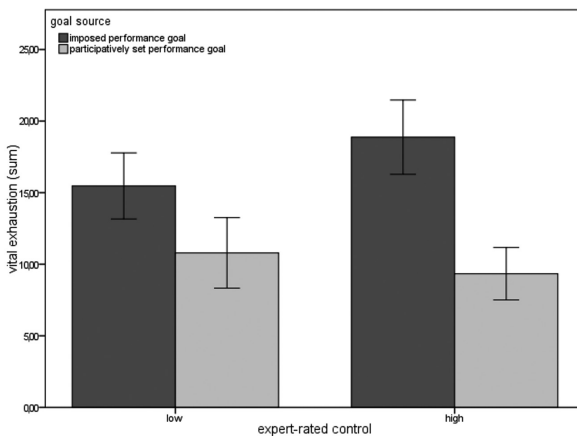


Figure 2: Two-way ANOVA with vital exhaustion as dependent variable.

## 4 Discussion

We hypothesized that the relationship of participatively set performance goals and self-reported control interacts with objective control, which did not find empirical support. However, results of past research can be confirmed as participatively set performance goals (Hoppe et al., 2018; Hoppe & Rau, 2017) and objective control (Rau, 2004, 2006; Rau et al., 2010) are related to self-reported control. Results reveal that employees with imposed performance goals, who have a job that provides a high amount of control, perceive less control than employees with participatively set performance goals and a job that provides a low amount of control. This is intriguing, because it points to the assumption that management by objectives, if executed wrong, can have a counterproductive effect – especially in jobs that provide a high amount of *objective control*, which for example can apply to employees in executive functions.

Results further indicate that *vital exhaustion* differs at the two categories of goal source. Employees with imposed performance goals report more *vital exhaustion* than employees with participatively set performance goals. If performance goals are imposed, the mean values for *vital exhaustion* are above the threshold of 14 points (values that are greater than or equal to 14 points indicate a health risk). Whereas the mean values for *vital exhaustion* are below the threshold of 14 points, if performance goals are participatively set. *Vital exhaustion* does not differ at the two categories of *objective control* (in fact, the mean values are almost identical). This corresponds to past findings (Schuller et al., 2012). However, the significant interaction effect between *goal source* and *objective control* on *vital exhaustion* reveals that imposed performance goals have a different effect on employees with high versus low *objective control*: imposed goals lead to a higher amount of *vital exhaustion* in jobs with high *objective control* compared to jobs with low *objective control*. At the same time, participatively set goals lead to a lower amount of *vital exhaustion*, in jobs with high *objective control* compared to jobs with low *objective control*. Consequently, the effect of *goal source* on *vital exhaustion* increases in jobs with high *objective control*. The most interesting result is the interaction of both groups: employees in jobs that have imposed performance goals and high objective control report a vital exhaustion score of  $m = 18.88$  which is twice as high as the score reported by employees in jobs that have participatively set performance goals and high objective control ( $m = 9.54$ ).

#### 4.1 Limitation

Goal source was measured by a dichotomous item in a structured interview (organization A) and by three items of a rating scale (organization B). The rating scale was dichotomized. There can be severe problems that occur when dichotomizing continuous variables (MacCallum et al., 2002). If *goal source* and *objective control* influence each other over time is unknown. Through participation at goal setting over the course of time, more *objective control* could be achieved. One might argue that jobs higher in the hierarchy also have better designed jobs and more participation. A long-term study might reveal the relationship of goal source and objective control.

#### 4.2 Implications

It cannot be ruled out that subordinates are able to set performance goals that fit employee's performance prerequisites. However, a precondition is that subordinates are adequately aware of knowledge, experience, skills and abilities, which might be problematic especially regarding intellectual and complex tasks in a digitalized world. Due to *participation at setting* performance goals, employees themselves can influence conditions, which facilitate or exacerbate goal achievement. The result can be a balance between helpful standards on one hand and individually adapted degrees of freedom on the other hand (Hacker, 2003).

Management by objectives can increase performance if done correctly, but it can be dangerous for health and performance of employees if not executed properly. It has to be stressed that performance criteria need to function as a mean for self-regulation, not as a tool of control from above (Drucker, 1954). To set goals that are not experienced as a tool of control from above, employees need to be participated at goal setting.

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