

Good Organizational Design for Bad Motivational Dispositions?

*Katja Rost, Antoinette Weibel, Margit Osterloh**

Summary:

Helping and sharing behaviors - the essence of team work and organizational success - are to a great part intrinsically motivated. How can organizations influence intrinsic motivation in a predictable way? Different research approaches give different answers: The situationist approach suggests designing a good organizational context. The individual difference approach concentrates on the selection of employees with good motivational dispositions. We follow an interactionist approach which has been rarely applied in the field of helping and sharing behaviors. It combines organizational design with personnel selection. We draw on self-determination theory to specify the determinants of interaction between organizational design and motivational dispositions. Our propositions are tested with a vignette study. The results show that the organizational context is the strongest predictor of helping and sharing behaviors. Nevertheless, motivational dispositions play an important role by acting as perceptual filters. In a good organizational setting even individuals with a "bad motivational disposition" can be motivated to cooperate in a good-spirited way.

Keywords: Volunteering, intrinsic motivation, organizational design

Kurz Zusammenfassung:

Wechselseitige Unterstützung – die Essenz von Teamzusammenarbeit – ist zu einem Grossteil intrinsisch motiviert. Wie können Organisationen diese intrinsische Motivation gezielt beeinflussen? Verschiedene Forschungsansätze geben unterschiedliche Antworten: Der situationale Ansatz empfiehlt eine entsprechende Organisationsgestaltung. Der individualistische Ansatz stützt sich auf die Auswahl geeigneter Mitarbeiter. Wir verfolgen einen interaktionistischen Ansatz, der bislang nur selten zur Erklärung für die wechselseitige Unterstützung in Unternehmen genutzt wurde. Letzterer kombiniert die Organisationsgestaltung mit der Auswahl geeigneter Personen. Wir stützen uns auf die Theorie der Selbstbestimmung, um Wechselwirkungen zwischen persönlichen Prädispositionen und Organisationsgestaltung zu erklären. Wir testen diese Hypothesen mit Hilfe einer Vignettenstudie. Unsere Ergebnisse zeigen, dass Organisationsgestaltung der wichtigste Erklärungsfaktor für wechselseitige Unterstützung in Unternehmen ist. Allerdings verändern persönliche Prädispositionen die Wahrnehmung von Personen. Die Ergebnisse zeigen, dass eine entsprechende Organisationsgestaltung auch Personen mit weniger vorteilhaften Prädispositionen zur wechselseitigen Unterstützung motivieren kann.

Keywords: übervertragliches Arbeitsengagement, intrinsische Motivation, Organisationsgestaltung

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Summary:

Helping and sharing behaviors - the essence of team work and organizational success - are to a great part intrinsically motivated. How can organizations influence intrinsic motivation in a predictable way? Different research approaches give different answers: The situationist approach suggests designing a good organizational context. The individual difference approach concentrates on the selection of employees with good motivational dispositions. We follow an interactionist approach which has been rarely applied in the field of helping and sharing behaviors. It combines organizational design with personnel selection. We draw on self-determination theory to specify the determinants of interaction between organizational design and motivational dispositions. Our propositions are tested with a vignette study. The results show that the organizational context is the strongest predictor of helping and sharing behaviors. Nevertheless, motivational dispositions play an important role by acting as perceptual filters. In a good organizational setting even individuals with a "bad motivational disposition" can be motivated to cooperate in a good-spirited way.

1. Introduction

Most companies know about the importance of teamwork and knowledge sharing for a sustained competitive advantage. They launch many initiatives to facilitate this behavior. Nevertheless, they often find themselves plagued by "each man for himself" actions and knowledge-hoarding. Why do investments in teamwork, knowledge management and leadership training often fail to yield the expected results? It seems that companies still practice traditional command-and-control systems to ensure rule-following. Also, their selection and rewarding systems are primarily directed to the cognitive or physical capabilities of their employees, and not so much to their willingness to contribute to the commons of the company (e.g. *Husted/Michailova* 2002; *Frey/Osterloh* 2005).

Research has shown that these traditional systems fall short of inducing helping and sharing behavior (e.g. *Drucker* 1999; *von Krogh* 2002), which is the essence of team work and organizational success. Helping and sharing behavior is better seen as a voluntary gift from the employees for the organization, sometimes even in contradiction with their immediate self-interests (*Barnard* 1938; *Katz/Kahn* 1966; *Akerlof* 1982; *Bateman/Organ* 1983). Successful cooperation in firms depends to a high degree on how much employees are willing to surpass the enforceable efforts voluntarily, because employment contracts are mostly incomplete. This kind of good-spirited cooperation is based on loyalty and identification (*Simon* 1991). It helps to overcome free riding, moral hazard as well as externalities originating from attachment to sub-goals or inefficiencies. Loyalty and identification are crucial for solving social dilemmas, which - as argued by *Miller* (1992: 35) - are at the heart of the managerial problem.

Good-spirited cooperation is in large part based on intrinsic motivationⁱ, which has become increasingly popular in social sciences. *Intrinsic* motivation makes people strive for immediate need satisfaction. An activity is valued for its own sake and is undertaken without external commands, controls and rewards (*Calder & Stew*, 1975: 599; *Deci & Ryan* 1985). The importance of intrinsic motivation for sharing and helping behavior and for contributing to common goods has been confirmed in social psychology (e.g. *Brief/Motowidlo* 1986; *Organ* 1988; *Van Dyne et al.* 1994; *Gagné* 2003) and in psychological economics (*Frey et al.* 1996; *Gneezy/Rustichini* 2000; *Fehr/Falk* 2002; *Frey/Meier* 2004). Yet, much less is known on how organizations can systematically

influence intrinsic motivation for voluntary work behavior. This question is explored in our study.

Firms have several possibilities to enhance intrinsically motivated voluntary work behavior. They can design a “good” organizational context to increase intrinsic motivation, they can select employees with the “right” motivational disposition, and they can combine organizational design with personnel selection. These different strategies have been explored through three different research approaches (*Chatman 1989*). (1) The *situationist* approach considers the impact of the organizational context on behavior. For example, *Argyris (1957; 1959)* argues that formal organizations with a low degree of participation reduce the motivation to cooperate voluntarily and to contribute to the common good. (2) The *individual difference approach* considers the impact of selection by measuring personal dispositions, traits, values, and motives. For example, *McClelland (1985)* argues that people differ in the strength of their needs for power, affiliation, and achievement. These differences influence what people prefer doing and what effort people show. (3) The *interactionist* approach considers both personality and situation (*Schneider 1983; Chatman 1989*). It analyzes, for example, to what extent individual dispositions have an impact on the perception of the organizational context and on cooperative and helping behavior.

This study follows an *interactionist* perspective, which has rarely been applied to the field of voluntary work behavior (for an overview cf. *Podsakoff et al. 2000*). We draw on self-determination theory to specify the characteristics of the organizational context and the dispositions of the person that influence voluntary work behavior (*Deci/Ryan 2000; Gagné/Deci 2005*). Based on self-determination theory, we develop propositions on how both organizational context and motivational dispositions interact (*Koestner et al. 1992; Koestner/Zuckerman 1994*). In particular, we suggest that persons perceive an organizational context differently depending on their motivational disposition and thus react differently. We test our propositions with a vignette study conducted with 149 part-time executive MBA students.

This study complements existing literature in two ways. First, most studies in the field of voluntary work behavior have focused either on contextual factors (e.g. *Niehoff/Moorman 1993; Podsakoff/MacKenzie 1995; De Cremer/van Knippenberg 2002*) or on dispositional factors (e.g. *Organ/Ryan 1995; Borman et al. 2001*). These studies have considerably added to our understanding of the predictors of voluntary work behavior. At the same time, their narrow focus may have led to a systematic bias in measuring singular predictors of voluntary work behavior. Based on our theoretical framework, we test context *and* disposition variables in the same framework. We are able to show the relative importance of each construct for voluntary work behavior in a setting that mirrors the complexity of variables. Second, we study *interaction effects* between organizational context and motivational dispositions systematically, that is, the impact of motivational dispositions on the perception of the organizational context and on helping and sharing behavior. Our study illustrates how individuals can be induced to contribute voluntarily to commons in organizations, which is crucial for organizational success.

2. Voluntary Work Behavior

A large body of literature substantiates that helping and sharing work behavior occurs on a regular basis. This behavior have been described as extra-role behavior (*Van Dyne et al. 1995*), prosocial organizational behavior (*Brief/Motowidlo 1986*), contextual performance (*Borman/Motowidlo 1993*), organizational citizenship behavior (*Bateman/Organ 1983*), warm-glow giving (*Andreoni 1990*) or rent-leaving (*Bohnet/Frey 1997*). These different and sometimes overlapping types of helping and sharing behavior have one characteristic

in common: They are voluntary in the sense that people have discretion in showing this behavior or not (Penner et al. 1997). In this paper, we deal with voluntary work behavior. This includes general helping and sharing behavior, such as organizational citizenship behavior (OCB). It can either be directed to individuals in the organization (OCBI) or to the organization as a whole (OCBO). A more specific type of sharing and helping, which has gained importance in the last few years, is also included: knowledge-sharing behavior. Sharing and helping behavior have been found to promote organizational effectiveness (Organ/Konovsky 1989; George/Bettenhausen 1990; Podsakoff et al. 1997) and to contribute to the competitive advantage of the firm (Kogut/Zander 1996; Argote/Ingram 2000; Foss/Foss 2000). The lack of knowledge-sharing is often seen as a major hindrance for organizational innovation capacity (Foss et al. 2003; Osterloh/Frey 2005).

While there is ample literature about the existence of voluntary behavior, the question remains partly open *why* employees are willing to help and share with others. What is the motivational foundation of voluntary work behavior? Research on organizational behavior traditionally assumes voluntary work behavior to be primarily intrinsically motivated. Organ (1988), for example, conceptualized this behavior as “good soldier syndrome”. Employees choose voluntary work behavior because they find the activities interesting or because they deem them to be important (O’Reilly/Chatman 1986; Ryan/Deci 2000; van Knippenberg 2000; Gagné 2003; Piccolo/Colquitt 2006). Research on psychological economics also considers intrinsic motivation to be an important elicitor for engaging in voluntary prosocial behavior. This has been shown in field studies on blood donation (Titmuss 1970), environment protection (Baumol et al. 1979; Kelman 1981), volunteering (Gneezy/Rustichini 2000), gift-giving (Akerlof 1982), and contributing to maintain social norms. Evidence has also been found in laboratory experiments, which reveal that a large number of people voluntarily contribute to common goods (for an overview Rabin 1998). For example, a consistently high rate of individuals is willing to contribute to public goods in a one-shot game (e.g. Fehr/Falk 2002) and is willing to punish free riders although the punishment is costly to them and yields no material gains (e.g. Fehr/Gächter 2000).

3. Framework and hypothesis development

Most of the studies we have discussed so far explain voluntary work behavior by drawing either on the individual difference approach or on the situationist approach. Self-determination theory offers a framework to link the characteristics of the organizational context to characteristics of the person in order to explain voluntary work behavior. This theory predicts the relative strength of intrinsically motivated voluntary work behavior on the basis of (1) characteristics of the organizational context, (2) individual motivational dispositions, and (3) the interaction of context and dispositions. Figure 1 illustrates the theoretical model on which our paper is based. In the next section, we analyze how the *organizational context* might influence voluntary work behavior. We then discuss how *motivational dispositions* influence voluntary work behavior. Finally, we develop some tentative propositions on *how context and dispositions interact* in influencing the amount of voluntary work behavior exerted.

Insert Figure 1 about here

3.1. Organizational Context and Motivation: The Concept of Needs

Proponents of self-determination theory suggest that human beings share three universal needs: The need for autonomy, competence, and relatedness (Ryan/Deci 2000; Sheldon et

al. 2001). While the need for *autonomy* plays a central role in self-determination theory, it is far less prevalent in other psychological theories (Ryan *et al.* 1995). However, the needs for *competence* and *relatedness* are well established in psychology and reflected in earlier concepts, such as White's concept of mastery (White 1959), Bandura's concept of self-efficacy (Bandura 1977) or Baumeister's and Leary's concept of the need to belong (Baumeister/Leary 1995). In the following section, we discuss the three needs mentioned above, the support of these needs through the characteristics of the organizational context, and their effect on voluntary work behavior.

3.1.1 *Need for autonomy and support for autonomy.*

According to self-determination theory, individuals strive for autonomy. They need to feel that their behavior is truly chosen by them rather than imposed on them by others (Ryan *et al.* 1996). De Charms (1968) suggests that the fundamental requirement for intrinsic motivation is perceiving oneself as the locus of causality for one's own behavior. Hackman & Oldham (1974) argue that an experienced sense of self-responsibility (stemming from autonomy) is important for voluntary engagement. Furthermore, Ryan & Deci (2000) state that autonomy enables individuals to internalize external requirements of the workplace. An autonomy-supportive organizational context can be characterized by choice of tasks, delegation of decision rights and by a leadership style based on promoting personal initiative and participation rather than exercising pressure (Gagné/Deci 2005). Empirical studies have concluded that there exists a positive relationship between autonomy support and voluntary work behavior. Field studies in psychological economics show that participation and delegation of decision rights are positively related to voluntary work behavior (e.g. Feld/Frey 2002). There is also evidence from research on organizational behavior. Gagné (2003) exposes that autonomy support is conducive to voluntary work behavior. Farh, Podsakoff, & Organ (1990) find that perceived task autonomy has a strong positive effect on prosocial behavior and voluntary compliance. Furthermore, a number of studies show that participation in decision-making can lead to engagement in voluntary work behavior, such as helping new members of the work group (for a review see Porter *et al.* 1996). These findings support the following hypothesis:

Hypothesis 1. An autonomy-supportive organizational context increases voluntary work behavior.

3.1.2 *Need for competence and support for competence*

According to self-determination theory, all individuals share the need for competence, i.e. they want to control outcomes and to experience efficacy. In general, motivation requires that individuals see a relationship between their behavior and desired outcomes (Locke/Latham 1990).

A competence-supportive organizational context provides the individuals with challenges. Challenges are found in tasks that are neither too easy nor too difficult and thus enable a meaningful confirmation of individual ability. Another characteristic of a competence-supportive organizational context is positive and helpful feedback (Deci 1975; Vallerand/Reid 1984). Finally, competence is also supported when individuals are provided with a meaningful rationale for their task, even if the assignment is not challenging (Deci *et al.* 1994).

The effect of competence-support on voluntary work behavior has been established empirically. Positive performance feedback enhances intrinsic motivation of students (Deci *et al.* 1991). Deci, Connell, & Ryan (1989) show that positive work outcomes result

when training managers provide relevant information in a non-controlling way. *Oldham & Cummings* (1996) have discovered that manufacturing employees produce the most creative outcomes when they work on complex, optimally challenging jobs and are given positive and mainly informational feedback. Furthermore, in a meta-analysis *Kluger & deNisi* (1996) conclude that feedback has on average a moderately positive effect on job outcomes, whereby constructive feedback is thought to be the driver for the positive effects. Task feedback is also found to be an important antecedent of organizational citizenship behavior (*Podsakoff et al.* 2000). Thus, we conclude:

Hypothesis 2. A competence-supportive organizational context increases voluntary work behavior.

3.1.3 Need for relatedness and support for relatedness

According to self-determination theory, human beings strive for relatedness. *Baumeister & Leary* (1995: 499) argue “that a need to belong, that is, a need to form and maintain at least a minimum quantity of interpersonal relationships is universal among human beings”. *Van Lange* (1999) explains why relatedness is such an important need when it comes to voluntary work behavior. Individuals communicate their belongingness and consideration for co-workers, the supervisor, and the organization by showing voluntary work behavior. Belongingness, however, needs to be complemented by the other party, i.e. only if the object of care responds in the same way, belongingness is achieved.

A relatedness-signaling context communicates respect, liking, and trust. Self-sacrificing leadership, for example, signals positive intent of the leader (*Conger/Kanungo* 1987). This signal is needed to complement an individual’s own intrinsic intentions when engaging in voluntary work behavior. In a recent survey study, *Baard, Deci & Ryan* (2004) have found that a relatedness-supportive organizational context results in greater need satisfaction and higher performance. In their study, relatedness is a function of the managers’ behavior: managers who are caring and understanding and who take on the employees’ perspective convey feelings of relatedness.

Several empirical studies demonstrate the importance of relatedness for voluntary work contributions. *Tyler & Blader* (2000) show in the field of organizational justice that benevolent, respectful and fair managers convey feelings of relatedness. This results in citizenship behavior. In the field of organizational support, *Rhoades, Eisenberger & Armeli* (2001) show that a caring supervisor who takes the needs of his employees into account strengthens the feelings of relatedness, which results in higher affective commitment to the organization. In a literature overview, *Rhoades & Eisenberger* (2002) conclude that supervisor support is the strongest predictor of perceived organizational support and, in turn, that perceived organizational support is a relatively strong predictor of extra-role behavior (*Rhoades/Eisenberger* 2002). We thus hypothesize:

Hypothesis 3. A relatedness-supportive organizational context increases voluntary work behavior.

3.2. Dispositions and Motivation: The Concept of Causality Orientation

Self-determination theory differentiates three motivational dispositions that tend to become manifest in behavior: autonomy orientation, control orientation, and impersonal orientation (*deCharms* 1968; *Deci/Ryan* 1985a). *Autonomy oriented* individuals are more likely to be intrinsically motivated in their conduct (*deCharms* 1968; *Deci/Ryan* 1985a). *Control oriented* persons are more often extrinsically motivated in their activities

(*deCharms 1968; Deci/Ryan 1985a*). *Impersonal orientation* is related to a state of amotivation where behavior is experienced to be beyond one's intentional control (*Deci/Ryan 2000*). It is often linked to a sense of incompetence. It is called "impersonal" because the behavior is believed to be initiated and regulated by impersonal forces, such as chance and destiny (*Deci/Ryan 1985b*).

Motivational dispositions are seen as a function of former individual experiences with a supportive or non-supportive context (*Baard et al. 2004*). For example, long-term unemployed persons often score high in impersonal orientation, due to a history of rejections (*Jahoda et al. 1932; Frese/Mohr 1987; Frese et al. 1987*).

3.2.1 *Autonomy orientation*

Previous research has revealed that autonomy orientation is positively correlated with a number of positive behavioral outcomes. Persons who score high on autonomy orientation show a higher engagement in self-chosen voluntary behavior: autonomy orientation correlates strongly with self-ratings on the intensity of engagement in an animal welfare organization (*Gagné 2003*). Employees with high autonomy orientation experience higher need satisfaction and, as a result, score better in performance evaluations (*Baard et al. 2004*). Thus, there is some evidence that:

Hypothesis 4. A higher autonomy orientation increases voluntary work behavior.

3.2.2 *Control orientation*

Control oriented individuals tend to comply with external demands, that is, they tend to react to threats, deadlines, and expectations of significant others. *Deponte (2004)* argues that control oriented individuals are primarily driven by other people's expectations. Therefore, a negative effect on voluntary work behavior can be expected.

Hypothesis 5. A higher control orientation decreases voluntary work behavior.

3.2.3 *Impersonal orientation*

Impersonal orientation is often connected to a sense of helplessness and personal unworthiness (*Deci/Ryan 1985a*). *Pelletier, Dion, Tuson & Green-Demers (2004)* find that impersonal orientation has a negative impact on environment-friendly behavior. People with a high score on impersonal orientation feel that they are not capable of performing and that this behavior would not change environmental problems anyway. Thus, there is some evidence that:

Hypothesis 6. A higher impersonal orientation decreases voluntary work behavior.

3.3. Interaction of Context and Dispositions: Motivational Dispositions as Moderators

To our knowledge, the impact of the interaction between organizational context and motivational dispositions on voluntary work behavior has never been tested. The question on how *both* the organizational context and the motivational dispositions influence behavior can be answered from several perspectives. First, interaction could be modeled as

a *self-selection process*, that is, people actively choose their organizational context. It has been shown that people with high achievement motives are likely to work as self-employed entrepreneurs (Tucker 1988). Second, interaction effects take place when people actively *change their organizational context*. Kohn & Schooler (1978) have found that people influence their jobs more than their jobs influence them. In particular, people who are more flexible intellectually enhance the complexity of their work. A third interaction approach is followed in this study: people *perceive situations differently* depending on their dispositions. Mayer, Davis & Schoorman (1995) suggest that the propensity to trust moderates the perception of the trustworthiness-signaling characteristics of a trustee. A person with a strong disposition to trust tends to view other people in a more positive way. The same reasoning might also apply to motivational dispositions: motivational dispositions alter the way individuals perceive the characteristics of the organizational context.

The impact of the organizational context's characteristics on internal motivation depends on the aspect of the context that is salient to the perceiver (Knee/Zuckerman 1996). People differ in the extent to which they perceive the environment to foster autonomy depending on their prominent motivational disposition (Deci/Ryan 1985a). Thus, the influence of the organizational context on internal motivation should be moderated by the motivational disposition of the individual.

3.3.1 *Autonomy orientation as a moderator*

According to Deci & Ryan (1985a), individuals scoring high in autonomy orientation tend to interpret their existing situations as more promoting. Koestner & Zuckerman (1994) describe autonomous individuals as viewing unresolved problems as challenges. They tend to be more task-involved than ego-involved, which makes them choose opportunities for growth and challenge (Knee/Zuckerman 1996). Furthermore, they seem to be more interested, more open and more supportive in fostering these traits in others (Neighbors/Knee 2003). Individuals scoring high in autonomy orientation feel more autonomous, competent, and related to their managers *and* coworkers because of their tendency toward active engagement with the whole social context (Baard *et al.* 2004). Thus, we suggest:

Hypothesis 7. Autonomy orientation moderates the relationship between organizational context and voluntary work behavior. The relationship between a need-supportive organizational context (providing autonomy-, competence- and relatedness-support) and voluntary work behavior is stronger for persons with a high autonomy orientation than for persons with a low autonomy orientation.

3.3.2 *Control orientation as a moderator*

Control orientated people tend to perceive their existing situation as more rigid; they interpret events as policing (Soenens *et al.* 2005). These individuals look for guidelines, external standards, and external controls in order to understand what they are expected to do. They concentrate more on themselves than on their tasks and chronically perceive pressures from the environment. Hence, they focus on proving and defending themselves rather than concentrating on the careful completion of tasks (Knee/Zuckerman 1996). Hodgins, Koestner & Duncan (1996) have observed that control orientation is associated with more defensiveness in interpersonal interactions. In sum, control oriented people are less likely to perceive the organizational context as need-supportive. Thus, we assume:

Hypothesis 8. Control orientation moderates the relationship between organizational context and voluntary work behavior. The relationship between a need-supportive organizational context (providing autonomy-, competence- and relatedness-support) and voluntary work behavior is weaker for persons with a high control orientation than for persons with a low control orientation.

3.3.3 Impersonal orientation as a moderator

A person with high impersonal orientation tends to interpret most situations as threatening, i.e. he or she may believe to be at the whims of some external agent (*Deci/Ryan 1985a*). This disposition often correlates with a sense of helplessness, which makes these individuals vulnerable to failure experiences (*Deponte 2004*). A need-supportive context, such as organizational characteristics that are geared toward giving people leeway and autonomy, may fuel this perception of threat and the fear to fail. Therefore, we expect:

Hypothesis 9. Impersonal orientation moderates the relationship between perceived characteristics of the organizational context and voluntary work behavior. The relationship between a need-supportive organizational context (providing autonomy-, competence- and relatedness-support) and voluntary work behavior is weaker for persons with a high impersonal orientation than for persons with a low impersonal orientation.

4. Method

4.1. Study design: the vignette method

We conducted a vignette study, also known as the ‘factorial survey approach’ (*Rossi/Anderson 1982*). Vignettes are defined as “short descriptions of a person or a social situation that contain precise references to what are thought to be the most important factors in the decision-making or judgment-making processes of respondents” (*Alexander/Becker 1978: 94*). Vignettes combine two methods, experiment and survey. Researchers design controlled scenarios with different parameters of context variables, which are randomly distributed to the respondents (*Alexander/Becker 1978*). Each vignette is linked to some survey questions in order to elicit judgments from the respondents.

Vignette-based studies exhibit the following *advantages* compared to conventional experimental methods: (1) The researcher supplies standardized stimuli to all participants. The degree of uniformity and control over the stimulus approximates the degree usually achieved in pure experimental designs (*Rossi et al. 1983*). However, vignettes isolate independent variables in a less artificial way: Laboratory experiments usually isolate only *one or a few independent variables* and, therefore, are inclined to overestimate certain causal relations between the independent and the dependent variables. In contrast, the vignette design isolates *numerous independent variables*. They offer a rich variety of situational factors (*Robertson 1993*), which usually surpass those of usual experiments. (2) Vignettes are characterized by multi-dimensionality. In contrast to usual experimental settings, respondents have to compare the relative importance of numerous independent variables. Therefore, vignettes potentially provide greater realism (*Cavanagh/Fritzsche 1985; Wason/Cox 1996*) (3) Vignette designs facilitate role interpretations drawn from everyday life and therefore require that the respondents possess practical experiences within the described situation. This is not the case for most other laboratory tests.

In comparison to field experiments, vignette studies - and all laboratory experiments alike - feature clear *disadvantages*: (1) The most important disadvantage of vignette studies is the lack of „natural“ conditions (Harrison/List 2004). However, the vignette technique allows for testing reactions to a maximum variety of settings, which is seldom the case in usual experiments. As our organizational setting is composed of three variables (autonomy, competence, and relatedness), with at least two parameter values each (minimum, maximum), field experiments would need to be conducted in 8 different organizational settings (2*2*2) in order to achieve the same variety.

(2) Vignette studies evaluate unobservable psychological constructs, such as motivation, motivational dispositions, and behavioral intentions. There is a danger that these data do not reflect the actual observable behavior. There often exists a gap between attitude and behavior (e.g. Bertrand & Mullainathan 2001), e.g. due to social desirability bias and the potential cognitive overload of the participants. But there also exist measures to attenuate these disadvantages: (a) Social desirability bias can be minimized through careful wording and the promise of anonymity. (b) The application of multilevel analysis allows for controlling for individual specific answer patterns. (c) To avoid cognitive overload, a vignette should not be composed of too many variables. Unfortunately, there exists no rule of thumb on the maximum number of variables.

Our vignette is composed of 10 independent factor variables with two or three parameter values each. Every factor represents a different characteristic of the organizational context. Two exemplary vignettes of our study are shown in Figure 3. Three factor variables are relevant to this study, notably the degree of autonomy-support, competence-support, and relatedness-support of the organizational context (parameter values: high or low). The other seven variables encompass the supervisor's intentions, neutrality, participation, interpersonal fairness, distributive justice, contingency of rewards, and long-term outlook. As our vignette is composed of 10 variables with either two or three parameter values each, our factorial object universe is 1536 (2x2x2x2x2x2x3x2x2x2 design).

Insert Figure 2 about here

These different vignettes were allocated randomly to the respondents in a specific order. We first generated “extreme” vignettes, which were either very positive or very negative. That is, we selected all possible vignettes with more than 7 variables with a high (positive) value (and more than 7 variables with a low value respectively). Subsequently, four vignettes were allocated randomly to each respondent in the following order: one extremely positive, one intermediate, one extremely negative, and another intermediate vignette.

In order to achieve a high external validity and to avoid cognitive overload we conducted a pretest with executive MBA studentsⁱⁱ in Switzerland (100 questionnaires i.e. 400 vignettes, response rate 25%). As a result, the vignettes were shortened (one variable was dropped), and the wording was adjusted. Our main study has been conducted in 2006 with 186 part-time executive MBA students on site who filled out 4 vignettes each (149 questionnaires i.e. 596 vignettes, response rate 80%). A typical respondent has nine years of work experience and a college degree in applied sciences. 67% of the respondents have managing functions.

4.2. Measurement

4.2.1 Voluntary work behavior

Each vignette was linked to questions on the frequency of voluntary work behavior within a designed situation (ascending Likert-scale from 1=low frequency to 5=high frequency). We differentiated three types of voluntary work behavior: helping co-workers (OCBI), helping the organization (OCBO), and knowledge-sharing. A full description of all variables can be found in Appendix 1. The coefficients alpha of the scales were good (OCBO $\alpha = .70$; OCBI $\alpha = .72$; knowledge sharing $\alpha = .82$). The appropriateness of each dimension underlying OCBO, OCBI, and knowledge-sharing was also tested through an exploratory factor analysis (using Varimax rotation, communality estimates ≥ 1). This factor analysis of the 7 items demonstrated three clear factor loadings along the proposed dimensions. For further analysis, we formed an overall additive index for each kind of behavior. Each index indicates whether the behavior is low (Minimum =1) or high (Maximum=5).

4.2.2 Characteristics of the organizational context

The organizational context within our vignette was measured with three factor variables. Our measurement followed the basic need satisfaction scale (Baard *et al.* 2004). Each variable of the organizational context, notably support for autonomy, competence, and relatedness, consisted of two possible parameters. The value “0” indicates that the organizational context does not support the need for autonomy, competence, or relatedness respectively, the value “1” indicates that the organizational context does support the need for autonomy, competence, or relatedness. The exact wording of items can be found in Appendix 1.

4.2.3 Motivational dispositions

At the end of each questionnaire, respondents were asked to answer questions on personality characteristics. These variables were measured for each respondent, irrespective of the vignette design. We used an abridged version of the validated German translation of the general causality orientation scale (Deci/Ryan 1985a; Scherhorn *et al.* 2004) to measure motivational dispositions. The German scale consists of 8 vignettes and 24 items (for comparison, the long GCOS consists of 12 vignettes and 36 items). We selected 3 out of 8 vignettes, which were set in a work context and thus were more applicable to our study design. These three vignettes have shown the best reliability in the study of Scherhorn *et al.* (2004). A full description of the vignettes and items can be found in Appendix 1.

A factor analysis (using Varimax rotation) of the 9 items demonstrated three clear factor loadings along the dimensions of autonomy orientation, control orientation, and impersonal orientation. Deci & Ryan (1985a) and the German study by Scherhorn *et al.* (2004) reported the following coefficients alpha of their scales: Autonomy orientation $\alpha = .74$ (German scale: $\alpha = 0.67$); control orientation $\alpha = .69$ (German scale: $\alpha = 0.59$); impersonal orientation $\alpha = .74$ (German scale: $\alpha = 0.61$). In this study, the coefficients alpha for the 3-item scales were $\alpha = .71$ for autonomy orientation; $\alpha = .48$ for control orientation; and $\alpha = .54$ for impersonal orientation.

Whereas the coefficient alpha for autonomy orientation is acceptable, the coefficients alpha of control and impersonal orientation are low. The results, however, are comparable

to the short German causality orientation scale and to the original general causality orientation scale, since we used 3 items to measure each dimension instead of 9 resp. 12 items. A possibility to increase the reliability of our scale would have been the elimination of one item per scale. In our study, this strategy would have led to better coefficients alpha for control and impersonal orientation. However, while improving reliability the scale's construct validity would have suffered, because the additional item contains important information. Since the exploratory factor analysis with 9 items demonstrated three clear factor loadings along the suggested dimensions, we decided to construct the scales with all mentioned items. We dealt with the low reliability of the scales through dichotomizing the variables by median split. Binary measurements contain fewer information but are less error-prone. A value of 0 indicates that a person has a lower autonomy, control, or impersonal orientation; and a value of 1 indicates that a person has a higher autonomy, control, or impersonal orientation.

4.2.4 Control variables

At the level of each vignette, we verified whether the designed situation was perceived to be realistic (ascending Likert-scale from 1 to 5). At the level of each respondent, we controlled for demographical characteristics: gender (1=female, 2=male), year of birth, and years of work experience.

5. Results

The means, standard deviations, and correlations among the variables of our study are shown in Table 1.

Insert Table 1 about here

Table 2 presents the results for organizational context, motivational dispositions, and interaction terms predicting OCBO, OCBI, and knowledge-sharing behavior. We used multilevel mixed-effects linear regression to examine the relationships. Our data is structured on two levels of nested groups: 149 individuals and four vignettes per individual (=596). Mixed models contain both fixed effects and random effects. The fixed effects are analogous to standard regression coefficients and are estimated directly. The random effects are assessed indirectly, according to their estimated variances and covariances. The random effects portion of the model is specified by considering the grouping structure of the data; in our sample the random effects vary according to the variable 'individual'.

Insert Table 2 about here

We conducted a step-wise analysis to test the robustness of the results. First, the control variables were entered (Model 1), then the context variables (Model 2), the individual motivational dispositions (Model 3), and the interaction effects (Model 4). Overall, the results were robust across the different models. Both fit measures – the log restricted-likelihood and the wald chi/df – indicate a good model fit.

5.1. Characteristics of the organizational context

The results confirm that a need-supportive context has an overall positive effect on voluntary work behavior. Autonomy support, as stated in *Hypothesis 1*, and relatedness-support, as stated in *Hypothesis 3*, are significantly positively related to all types of voluntary work behavior. In the full model (model 4), the regression coefficients of autonomy support are .23 for OCBO ($p < .05$), .22 for OCBI ($p < .05$), and .22 for knowledge sharing ($p < .05$). Thus, autonomy support seems to have a stable effect on all types of voluntary work behavior. Relatedness support is also significantly and strongly related to all types of voluntary work behavior. The regression coefficients of relatedness support in the full model are .22 for OCBO ($p < .05$), .61 for OCBI ($p < .001$), and .32 for Knowledge sharing ($p < .001$). Interestingly, an organizational context that provides support for relatedness is by far the most important predictor of OCBI. Hypothesis 1 and 3 are thus supported by the data.

However, competence support relates positively only to OCBO, in contradiction to *Hypothesis 2*. The regression coefficient for OCBO is .29 and highly significant ($p < .001$). Yet, competence support is not significantly related to OCBI. Furthermore, it is significantly and negatively related to knowledge-sharing behavior. In the full model, the regression coefficient for knowledge-sharing behavior is $-.18$ ($p < .10$). Thus, hypothesis 2 is inconsistent with the data.

5.2. Motivational dispositions

We find no support for our hypothesis. In the full model, only autonomy orientation is significantly related to voluntary work behavior. In contrast to hypothesis 4, autonomy orientation is negatively related to all voluntary work behavior. In the full model, the regression coefficients of autonomy orientation are $-.28$ for OCBO ($p < .05$), -0.31 for OCBI ($p < .05$), and -0.28 for knowledge sharing ($p < .01$).

Hypothesis 5 and 6 are not supported either by the data. Neither control orientation nor impersonal orientation has an effect on voluntary work behavior. Only in model 3, when we do not control for interaction effects, impersonal orientation is found to negatively influence OCBO ($\beta = -.17$, $p < .05$) and OCBI ($\beta = -.29$, $p < .001$).

5.3. Motivational dispositions as a moderator

We discover several robust moderation effects, that is, motivational dispositions consistently alter the individual's perception of the organizational context. The data partially supports *hypothesis 7*: Individuals scoring high in autonomy orientation react more favorably to a need-supporting context. The following regression coefficients of the interaction between autonomy orientation and relatedness support are significant: .21 for OCBO ($p < .05$), .36 for OCBI ($p < .01$), and .18 for knowledge sharing ($p < .10$). A high autonomy orientation seems to strengthen the positive effect of relatedness-support on voluntary work behavior.

There is also partial support for *hypothesis 9*: Individuals scoring high in impersonal orientation react more negatively to a need-supportive context. The following regression coefficients of the interaction between impersonal orientation and autonomy support are significant: $-.18$ for OCBO ($p < .10$), $-.25$ for OCBI ($p < .05$), and $-.22$ for knowledge sharing ($p < .05$). It seems that individuals scoring high in impersonal orientation react most strongly to an autonomy-supportive context. It may be speculated that they perceive autonomy support as a threat and thus react with less voluntary work behavior.

We find no support for *hypothesis 8*. On the contrary, a high control orientation moderates the relationship between competence-support and knowledge-sharing in the opposite direction, that is, individuals scoring high in control orientation react positively to competence-support and share more knowledge than individuals scoring low in control orientation ($\beta=.21$, $p < .05$). As a general overview, the theoretically expected effects and the empirically observed effects on voluntary work behavior are summarized in table 3.

Insert Table 3 about here

6. Discussion

In our study, the effects of the organizational context's characteristics on voluntary work behavior are largely consistent with prior research: A need-supportive context induces voluntary work behavior. Competence-support is a notable exception as it influences knowledge-sharing negatively. Contrary to earlier studies, we find no direct effects of motivational dispositions on voluntary work behavior. A possible explanation is that former studies may have overestimated the effects of motivational dispositions, because they have not controlled for the effects of the organizational context. Complementing existing research, we show that motivational dispositions interact with the organizational context in inducing voluntary work behavior. Individuals with a high impersonal orientation react negatively to an autonomy-supportive context, whereas individuals with a high autonomy orientation react positively to a relatedness-supportive organizational context.

6.1. Implications for research

The data clearly shows that organizational settings influence voluntary work behavior (and therefore performance), irrespective of any individual differences. Some of our findings, however, merit further investigation.

First, OCBO, OCBI, and knowledge sharing are differently related to organizational context variables. OCBI is strongly driven by a relatedness-signaling context communicating respect, liking, and trust. In contrast, autonomy support seems to be as important as a relatedness-signaling context for OCBO. The difference in antecedents clearly indicates that the distinction between these forms of voluntary work behavior is useful and should be explored further.

Second, the influence of competence-support on voluntary work behavior is ambiguous. A competence-supportive context provides the individuals with challenges and thus enables them to confirm their individual ability. In our study, the confirmation of individual ability increases the helping behavior toward co-workers but, at the same time, decreases knowledge sharing behavior. It seems that organizations are caught between the devil and the deep blue sea because both OCBI and knowledge sharing behavior are important drivers for organizational effectiveness.

Third, two findings concerning the effects of *motivational dispositions* call for further research. (a) In contrast to earlier studies (*Gagné 2003*), we find that autonomy orientation is negatively related to all types of voluntary work behavior. A possible explanation is that previous studies typically analyzed self-chosen and thus "truly" voluntary behavior. "Voluntary" work behavior in firms is not as freely chosen as leisure-time related behavior. They are, to some extent, expected by other persons and by the organization. Thus, the effect of informal role expectations on the motivation to show voluntary work behavior should be further explored. (b) In our study, motivational dispositions seem to be

a perceptual filter that influences voluntary work behavior strongly, whereas direct effects are absent. This finding should be investigated for other types of dispositions and personality characteristics as well. For example, *Organ & Ryan* (1995: 794) indicate that dispositions, such as agreeableness and conscientiousness, “predispose people to certain orientations vis-à-vis coworkers and manager”, that is, they act as perceptual filters. This call for research on the indirect effects of dispositions has rarely been taken up. Furthermore, other dispositions that are newer to the field of voluntary work behavior, such as the disposition to trust, may also influence the individual’s perception of organizational characteristics and should be investigated.

6.2. Implications for Practice

Our data highlight the importance of the organizational context for voluntary work behavior. An organizational context that promotes choice and emphasizes trust is a fruitful ground for voluntary work behavior. Combining employees’ characteristics with job design in an appropriate way is another important way to influence voluntary work behavior. First, people scoring high in impersonal orientation need time to adapt to autonomy. Long-term unemployed persons often score high in impersonal orientation at the beginning of their reintegration at the workplace (*Frese/Mohr* 1987). Exposing these employees to a weak regulatory environment may weaken their internal motivation for (voluntary) work behavior (*Frese et al.* 1987). At the beginning, their optimal work setting should involve moderate task autonomy and low delegation of decision rights. Second, people scoring high in autonomy orientation react strongly to relatedness-support. In a trusting environment, they are much more likely to share knowledge and to help their colleagues and the organization.

6.3. Limitations

The first and main limitation of our vignette study is the “imaginary” nature of the behavioral outcome variables (*Rooks et al.* 2000). We measure behavioral intentions based on hypothetical decision situations. In natural setting, respondents may not behave as indicated in the hypothetical setting. The vignette technique, however, allows us to test reactions to a maximum variety of settings, which is seldom the case when observable behavior is measured. Furthermore, the perception of organizational settings in surveys creates problems due to endogeneity. For example, a common way to measure voluntary work behavior is to rely on supervisory ratings. These ratings are then matched with the employees’ perception of the organizational setting. A vignette design allows us to abstract from problems due to endogeneity. As a consequence, the vignette study should be complemented with field research.

Second, we used a mixed-effect linear regression model to study the effects of organizational context and motivational dispositions on OCBO, OCBI, and knowledge-sharing behavior. The problem with self-assessment questions is that answers to them differ across respondents according to the actual level and interpersonal incomparability (differential item functioning along with random measurement error). The inclusion of random effects possesses some advantages but might also hurt the orthogonality assumption: random effects do not only correct for random measurement errors but also for systematic person-specific effects, i.e., the way different individuals answer the same question differently (*Gary, Murray, Salomon, and Tandon* 2004). Our study does not disjoint both effects. The literature started to offer parametric methods which address this problem. Further studies should be aware of this issue and could apply more profound models.

Third, we are not able to estimate the effects of organizational context and motivational dispositions on OCBO, OCBI, and knowledge-sharing behavior by controlling for social desirability. In the vignette study the participants had to imagine their behavioural reactions to hypothetical situations that were described in a black-and-white style. It may be therefore not too difficult for the participants to identify the socially desired behaviour. Further research could solve this problem by contrasting the results of vignette experiments with the results of field experiments or other more objective methods.

Fourth, we take for granted that voluntary work behavior is intrinsically motivated. It is, however, to some extent unclear whether employees choose voluntary work behavior because they find this behavior interesting or important, or because they expect more pecuniary advantages, e.g. promotion. In the latter case, this behavior is extrinsically motivated. Extrinsic motivation requires other organizational incentives than intrinsic motivation. In the case of a mixed motivation, this study might overrate the effects of organizational conditions that are decisive for the intrinsic motivation of voluntary work behavior. Additional research should analyze the motivational foundation of voluntary work behavior more carefully.

7. Conclusion

Organizations can nurture their employees' motivation to contribute to the commons and to behave in a good-spirited way. The institutional context, that is, the organizational setting seems to be the strongest predictor of voluntary work behavior. Nevertheless, individual differences, in particular motivational dispositions, play an important role in the form of perceptual filters. Organizations should take into account the interaction effects between organizational design and personal dispositions. In a "good" organizational setting, all individuals can be motivated to show voluntary work behavior, even those with the "wrong" motivational dispositions.

8. Figures and Tables

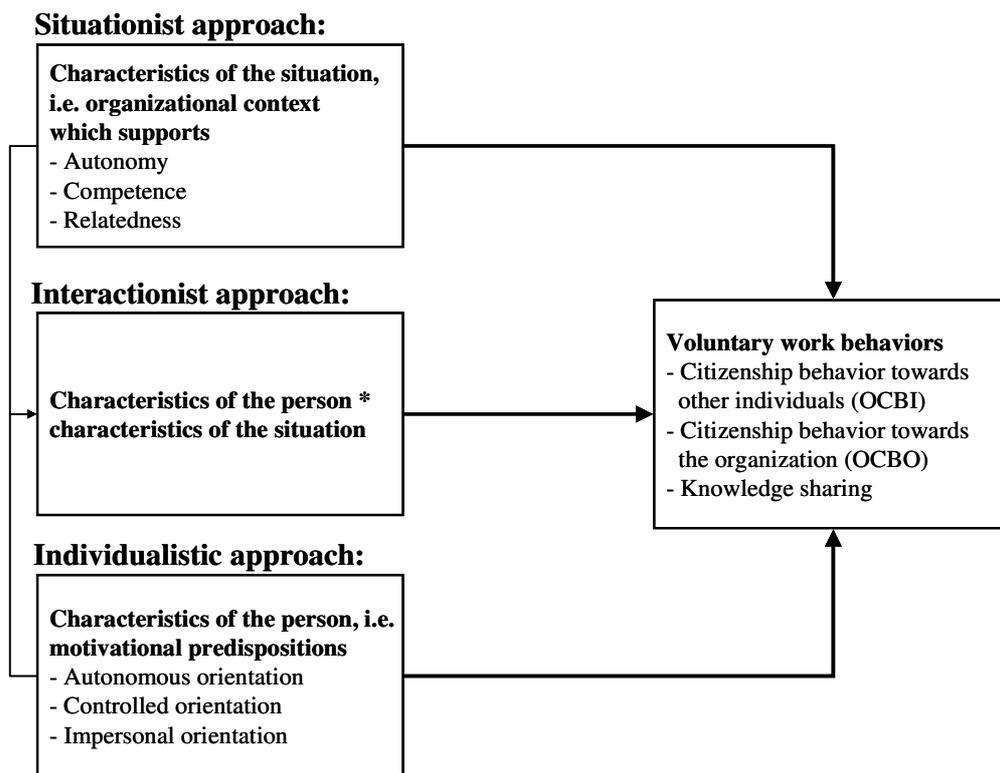


Figure 1 : Summary model showing the organizational context and personality characteristics as antecedents of voluntary work behavior

Vignette 1:

In your firm you usually work in projects. The organizational context usually...:
Work Context: Within the scope of the projects you most often have to do what has been **prescribed** with the time of execution and the way to solve the task also being mostly regulated. However, when working you very often get the **feeling of being good** at what you are doing. You can use your capabilities at full length most of the time.
Work Climate: In your daily project work you have to work closely with your colleagues. In general you have the feeling that quite **like** and respect you.
Wage:...
Supervisor:...

2	In this organizational context:				
... I will defend this project against criticism from outsiders, for example against critique of other departments. <i>Please estimate how vehemently you would defend the project?</i>	very vehemently	vehemently	middle	rather not so	not at all
	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Vignette 2:

In your firm you usually work in projects. The organizational context usually...:
Work Context: Within the scope of the projects **you can determine** to a large extent what you do on which occasion and how you do it. When working you very often get the **feeling of being good** at what you are doing. You can use your capabilities at full length most of the time.
Work Climate: In your daily project work you have to work closely with your colleagues. In general you have the feeling that quite **like** and respect you.
Wage:...
Supervisor:...

2	In this organizational context:				
... I will defend this project against criticism from outsiders, for example against critique of other departments. <i>Please estimate how vehemently you would defend the project?</i>	very vehemently	vehemently	middle	rather not so	not at all
	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Figure 2: Example of a vignette study

ID	Variable	N	M	SD	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12	
1	OCBO	596	3.41	.80	1.00	5.00													
2	OCBI	596	3.34	.85	1.00	5.00	.52												
3	Knowledge sharing	596	3.47	.83	1.00	5.00	.41	.56											
4	Autonomy support	596	.50	.50	.00	1.00	.18	.10	.12										
5	Competence support	596	.50	.50	.00	1.00	.26	.08	-.03	.04									
6	Relatedness support	596	.50	.50	.00	1.00	.31	.47	.27	.14	.13								
7	Autonomy orientation	149	.42	.49	.00	1.00	.00	-.06	-.04	-.03	.05	.05							
8	Control orientation	149	.41	.49	.00	1.00	-.10	-.15	-.08	.04	.00	-.02	-.14						
9	Impersonal orientation	149	.33	.47	.00	1.00	.02	-.02	-.09	.04	.03	.00	-.16	.14					
10	Vignette close to reality	596	3.58	.86	1.00	5.00	-.34	-.22	-.20	-.05	-.04	-.18	.00	.04	-.06				
11	Gender	149	1.58	.49	1.00	2.00	-.07	-.10	-.11	-.02	.00	-.06	-.07	-.06	.03	.14			
12	Year of birth	149	1978.00	4.93	1959.00	1984.00	-.04	-.01	-.07	.07	-.04	.02	-.11	.21	.09	.08	.06		
13	Work experience in years	149	9.39	5.59	1.00	30.00	.03	.00	.10	-.09	.02	-.01	.11	-.23	-.14	-.12	-.04	-.63	

Table 1: Means, Standard Deviations, and Correlations

Note: N = 596

	OCBO								OCBI								Knowledge sharing												
	Model 1		Model 2		Model 3		Model 4		Model 1		Model 2		Model 3		Model 4		Model 1		Model 2		Model 3		Model 4						
	β	p	Z	β	P	z	β	p	z	β	p	z	β	p	z	β	p	z	β	p	z	β	p	z	β	p	z		
Organizational context																													
Autonomy support				.23***	3.91	.23***	3.96	.23*	2.17				.03	.52	.04	.71	.22*	1.97				.10*	1.66	.10*	1.77	.22*	2.10		
Competence support				.38***	6.45	.38***	6.35	.29***	2.65				.05	.84	.06	.94	.11	1.00				-.09	-1.55	-.09	-1.45	-.18†	-1.65		
Relatedness support				.35***	5.79	.34***	5.73	.22*	1.99				.81***	12.78	.80***	12.70	.61***	5.26				.43***	7.23	.43***	7.23	.32***	2.86		
Motivational dispositions																													
Autonomy orientation						-.04	-.48	-.28*	-2.31							-.19*	-2.16	-.31**	-2.41							-.13	-1.27	-.28*	-2.01
Control orientation						.00	-.05	-.03	-.20							-.05	-.54	.01	.11							-.16	-1.45	-.18	-1.25
Impersonal orientation						-.17*	-2.02	-.15	-1.16							-.29***	-3.22	-.17	-1.33							-.10	-.94	-.04	-.26
Organizational context*																													
Motivational dispositions*																													
Autonomy orientation*																													
- Autonomy support								.10	.77									-.07	-.55								-.01	-.10	
- Competence support								.14	1.13									-.04	-.29								.14	1.13	
- Relatedness support								.21*	1.98									.36**	2.80								.18†	1.66	
Control orientation*																													
- Autonomy support								-.13	-.98									-.13	-.97								-.09	-.69	
- Competence support								.12	.95									.08	.62								.21*	1.98	
- Relatedness support								.04	.33									-.10	-.76								-.08	-.63	
Impersonal orientation*																													
- Autonomy support								-.18†	-1.82									-.25*	-2.25								-.22*	-1.99	
- Competence support								-.02	-.16									-.13	-1.03								-.06	-.51	
- Relatedness support								.05	.44									.15	1.18								.16	1.29	
Control variables																													
Vignette close to reality	.31***	7.92	.26***	7.11	.26***	7.01	.27***	7.05	.23***	5.15	.14***	3.61	.14***	3.54	.14***	3.41	.19***	4.73	.14***	3.58	.14***	3.51	.14***	3.48					
Gender	-.04	-.52	-.03	-.38	-.04	-.48	-.04	-.47	-.14	-.48	-.14	-.43	-.14	-.49	-.15	-.43	-.16	-1.54	-.14	-1.39	-.14	-1.39	-.15	-1.40					
Year of birth	-.01	-.70	-.01	-.63	-.01	-.58	-.01	-.36	.00	-.46	.00	-.19	.00	-.16	.00	-.29	.00	.26	.00	.17	.00	.18	.01	.32					
Work experience in years	-.01	-.74	-.01	-.50	-.01	-.70	-.01	-.58	.01	-.72	.02	-.75	.02	-.61	.02	-.69	.01	.78	.01	.84	.01	.69	.01	.79					
Random-effects	β	SDβ	β	SDβ	β	SDβ	β	SDβ	β	SDβ	β	SDβ	β	SDβ	β	SDβ	β	SDβ	β	SDβ	β	SDβ	β	SDβ	β	SDβ			
SD R.idl	.28	.20	.33	.04	.33	.04	.33	.04	.30	.05	.38	.04	.36	.04	.36	.04	.49	.04	.50	.04	.50	.04	.51	.04	.04				
SD Residual	.71	.66	.63	.02	.63	.02	.62	.02	.79	.03	.66	.02	.65	.02	.65	.02	.65	.02	.61	.02	.60	.02	.60	.02	.60				
Number of obs		596		596		596		596		596		596		596		596		596		596		596		596		596			
Number of groups		149		149		149		149		149		149		149		149		149		149		149		149		149			
Log restricted-likelihood		-619		-574		-572		-578		-675		-574		-596		-598		-614		-591		-585		-590		-590			
Wald chi2DF		66		194		194		205		31		194		230		251		28		92		95		107		107			

Table 2: Regression results (multilevel mixed-effects linear regression)

Note: † p < .10; * p < .05; ** p < .01; *** p < .001

Variable	Hypothesis	Hypothesis direction	Obtained effects	Hypothesis support
Situationist approach:				
Autonomy support	1	▲	▲	yes
Competence support	2	▲	▲ & ▼	no
Relatedness support	3	▲	▲	yes
Individualistic approach:				
Autonomy orientation	4	▲	▼	no
Control orientation	5	▼	—	no
Impersonal orientation	6	▼	—	no
Interactionist approach:				
Autonomy orientation*	7	▲		yes
- Autonomy support			—	
- Competence support			—	
- Relatedness support			▲	
Control orientation*	8	▼		no
- Autonomy support			—	
- Competence support			—	
- Relatedness support			—	
Impersonal orientation*	9	▼		yes
- Autonomy support			▼	
- Competence support			—	
- Relatedness support			—	

Table 3: Summary of the theoretically expected and empirically observed effects on voluntary work behavior

Note: ▲ significant ascending effects on voluntary work behavior; ▼ significant descending effects on voluntary work behavior; — insignificant effects on voluntary work behavior

9. Appendix

Vignette Level (4 vignettes per individual): experimental design of the organizational context

Autonomy Support

- 0 Within the scope of the projects you most often have to do what has been prescribed with the time of execution and the way to solve the task also being mostly regulated.
- 1 Within the scope of the projects you can determine to a large extent what you do on which occasion and how you do it.

Competence Support

- 0 When working you rarely get the feeling of being good at what you are doing. Very often you cannot use your capabilities at full length.
- 1 When working you very often get the feeling of being good at what you are doing. You can use your capabilities at full length most of the time.

Relatedness Support

- 0 In your daily project work you have to work closely with your colleagues. However, you have the feeling that they neither like nor respect you.
 - 1 In your daily project work you have to work closely with your colleagues. In general you have the feeling that quite like and respect you.
-

Vignette Level (4 answers per individual): survey questions of voluntary work behavior within the designed organizational context (Likert-scale: 1=low frequency to 5=high frequency)

OCBO: In this organizational context ...

- I will defend this project against criticism from outsiders, for example against critique of other departments. Please estimate how vehement you would defend the project.
- I will spend additional time in meetings (during official work hours), though voluntary, but nonetheless very important for the project. Please estimate how many hours per week would dedicate to this.

OCBI: In this organizational context ...

- I will support colleagues if they face unwarranted criticism. Please estimate how vehement you would defend them?
- I will support colleagues who have an unusual big workload even if it means working long hours. Please estimate how much overtime per week would dedicate to this.

Knowledge_Sharing: In this organizational context I will share my expertise with others even if this knowledge-sharing is costly to me and even I can expect no monetary gain from this behavior.

- To what degree would you share your expertise with your supervisor?
 - To what degree would you share knowledge (in writing or talking) with your colleagues to structure your thoughts?
 - To what degree would you share your expertise with your colleagues?
-

Individual Level (1 answer per individual): survey questions of causality orientations (Likert-scale: 1=low orientation to 5=high orientation)

1. You have been offered a new position in a company where you have worked for some time. The first question that is likely to come to mind is:

Impersonal oriented: What if I can't live up to the new responsibility?

Control oriented: Will I make more at this position?

Autonomy oriented: I wonder if the new work will be interesting.

2. You are asked to plan a picnic for yourself and your fellow employees. Your style for approaching this project could most likely be characterized as:

Control oriented: Take charge: that is, you would make most of the major decisions yourself.

Impersonal oriented: Follow precedent: you're not really up to the task so you'd do it the way it's been done before.

Autonomy oriented: Seek participation: get inputs from others who want to make them before you make the final plans.

3. You are embarking on a new career. The most important consideration is likely to be:

Impersonal oriented: Whether you can do the work without getting in over your head.

Autonomy oriented: How interested you are in that kind of work.

Control oriented: Whether there are good possibilities for advancement.

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11. Endnotes

ⁱ Intrinsic motivation has two aspects: enjoyment-based and obligation-based intrinsic motivation *Frey/Osterloh (2002)*. Enjoyment-based intrinsic motivation refers to a satisfying flow of activity *Csikzentmihalyi (1975)*, such as playing a game or reading a novel for pleasure. Obligation-based intrinsic motivation relates to internalized norms and standards that are followed for their own sake *Frey/Osterloh (2002)*. It is explained by the wish to act appropriately in certain contexts and is developed through identification and internalization *Ryan (1995), Lindenberg (2001)*.

ⁱⁱ The interviewed MBA-students were not taught by us or by any other researcher who teaches self-determination theory.