

Organisational citizens or reciprocal relationships?

An empirical comparison

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Introduction

For more than 65 years, managers and organisational researchers have been interested in cooperative types of behaviour of employees. Writing in 1938, Barnard characterized effective organisations as systems in which individuals cooperate to reach organisational ends. Cooperative types of behaviour and attitudes have been conceptualised under different headings, such as ‘willingness to cooperate’ (Barnard, 1938), ‘organisational loyalty’ (Hirschman, 1970; Hage, 1980), ‘organisational commitment’ (Mowday *et al.*, 1982), and ‘extra-role behaviours’, (Van Dyne *et al.*, 1995), such as ‘organisational citizenship behaviour’ (Organ, 1988), ‘contextual performance’ (Borman and Motowidlo, 1993), and ‘prosocial organisational behaviour’ (Brief and Motowidlo, 1986).

Organisational Citizenship Behaviour (OCB: Organ, 1988) is the most frequently studied form of cooperative behaviour. It consists of employee behaviour that has an overall positive effect on the functioning of the organisation, but cannot be enforced by the employment contract. Although researchers’ interest in this type of behaviour has grown over the years, there are ongoing debates regarding the content, causes and possible effects of OCB (Podsakoff *et al.*, 2000). OCB research focuses mainly on cooperative behaviour as an individual characteristic of the employee, and tries to explain why some employees behave more cooperatively than others. Therefore, it neglects the reciprocal nature of cooperative behaviour. In this article we argue that the nature of cooperative behaviour is that it involves at least two persons, is directed to specific others, and is affected by the behaviours of others. This means that cooperative behaviour should not be examined as an individual characteristic of employees, but as a characteristic of the interpersonal relationship including the behaviour of others. In this article, we introduce the concept of Organisational

Solidarity (OS) that focuses on cooperative behaviour in interpersonal relationships within organisations. We argue that employee behaviour is influenced by the behaviour of supervisors and co-workers. Since these relationships qualitatively differ from each other, we should make a distinction between them (Smith *et al.*, 1995). Therefore, we study the relationships employees have with their supervisors (vertical) and their co-workers (horizontal).

The first aim of this article is to examine if the idea of distinguishing between behaviour in horizontal and vertical relationships makes sense. We develop OS based on an existing theory of solidarity. The second aim of this article is the empirical comparison between OS and two existing dimensions of OCB, with special attention to the effect of behaviour of others. The research question of this article therefore reads: *Can the different dimensions of Organisational Solidarity be distinguished from each other and is reciprocity of cooperative behaviour an important mechanism in explaining this behaviour?*

The article is structured as follows. It starts with an overview of issues in OCB research in section 2. In section 3 a theory of workplace solidarity is introduced and hypotheses are formulated. The research data are described in section 4. The method of analysis and results are presented in section 5 and in section 6 these results are discussed.

Issues in OCB research

OCB research was originated in the early eighties (Bateman and Organ, 1983; Smith *et al.*, 1983). In a recent review of this field, OCB was defined as:

“Individual behaviour that is discretionary, not directly or explicitly recognized by the formal reward system, and that in aggregate promotes the

effective functioning of the organisation. By discretionary, we mean that the behaviour is not an enforceable requirement of the role or job description, that is, the clearly specifiable terms of the person's employment contract with the organisation; the behaviour is rather a matter of personal choice, such that the omission is not generally understood as punishable" (Organ, 1988: 4).

In the twenty years following, the amount of research on OCB increased tremendously (for a review and a sketch of the historical development of this research, see Podsakoff *et al.*, 2000). Although OCB has proven itself a fruitful concept for research, the same issues emerged in different studies (LePine *et al.*, 2002; Motowidlo, 2000). The first problem concerns what kinds of behaviour should be classified as OCB. For instance, many articles pose the question whether it is possible to distinguish in-role from extra-role behaviour: does OCB consist of types of behaviour that are beyond the job description or does it also include contractually required behaviour? Moreover, the dimensionality of the OCB construct is a recurring problem in the literature. Here, the question is how many dimensions of OCB should and can be distinguished and under what headings they should be placed. A third and final problem is the lack of a clear theoretical approach to OCB in the literature. These issues are discussed in more detail in the following subsections.

OCB: in-role versus extra-role behaviour?

Employee performance is a combination of in-role and extra-role behaviour (Williams and Anderson, 1991). The distinction between in-role and extra-role behaviour is meant to draw a line between the types of behaviour that an employee is expected to show according to the formal employment contract (in-role behaviour) and the types of

behaviour that go beyond the formal contract (extra-role behaviour). Following the definition of Organ (1988), which states that OCB consists of positive types of behaviour that are not part of the formal job description, OCB should be limited to extra-role behaviour. However, research shows that the distinction between in-role and extra-role is not as clear as it may seem at first. For example, Pond *et al.* (1997) show that supervisors in fact formally evaluate some types of behaviour that are considered extra-role in the literature. This finding is not consistent with the frequently made assumption that extra-role behaviour is not rewarded. In some instances, extra-role behaviour is part of the formal role description and rewarded accordingly. What is more, employees tend to engage more in extra-role behaviour if they are rewarded for doing so (Pond *et al.*, 1997). Besides that, there is the problem that researchers put themselves in a difficult position of making this distinction, while it “varies across persons, jobs, organisations and over time and with circumstances for individual job incumbents” (Van Dyne *et al.*, 1994: 766).

In contrast to the original statement of Organ (1988) that in-role behaviour and OCB are distinct from one another, it has been claimed that OCB includes both extra- and in-role behaviours (Graham, 1991; Van Dyne *et al.*, 1994). The second approach overcomes this problem by not distinguishing in-role from extra-role behaviour, but classifying all positive and organisationally relevant types of behaviour shown by employees as OCB (Van Dyne *et al.*, 1994). Instead of making an effort of distinguishing between in-role and extra-role behaviour, this approach is more aimed at identifying employee behaviour that positively contributes to the organisation. Since there are considerable difficulties with clearly distinguishing in-role from extra-role behaviour, we regard this second approach as a promising solution.

Dimensionality of OCB

When OCB was introduced by Smith *et al.* (1983) and Bateman and Organ (1983) a distinction was made between two dimensions of employee behaviour: general compliance (doing what a good employee should do) and altruism (helping specific others). After its introduction, the content of the concept underwent a number of transformations. In his review of the research field in 1988, Organ states that OCB has five distinct dimensions (Organ, 1988): (1) altruism (helping specific others); (2) civic virtue (keeping up with important matters within the organisation); (3) conscientiousness (norm compliance); (4) courtesy (consulting others before taking action); and (5) sportsmanship; (not complaining about trivial matters). The last couple of years there has been a shift in the dimensions again. According to Organ (1997), OCB consists of three dimensions: helping, courtesy, and conscientiousness. Other OCB researchers have also struggled with defining its dimensions. This has resulted in a proliferation of OCB dimensions, causing difficulty in finding the exact items comprising the different dimensions of OCB (Podsakoff *et al.*, 2000).

A different view on the dimensionality of OCB comes from Williams and Anderson (1991). They divide OCB in two types (Van Dyne *et al.*, 1995; Williams and Anderson, 1991). The first form they distinguish consists of behaviour directed at specific individuals in the organisation, such as courtesy and altruism (OCB-I), while the second refers to behaviour that is concerned with benefiting the organisation as a whole, such as conscientiousness, sportsmanship and civic virtue (OCB-O). Although these dimensions that are more specific and may be a fruitful way of elaborating OCB research, these two dimensions of OCB could not be clearly distinguished from each other empirically. This may be in line with the conclusion that OCB may refer to a general tendency to be cooperative within an organisational setting (LePine *et al.*,

2002). In our view, however, the problem is that it is not fully recognized that these types of behaviour depend on the behaviour of specific others.

OCB: a concept in search of a theory?

Besides the issues surrounding its conceptualisation, the theoretical underpinnings of OCB have also been debated in literature (Van Dyne *et al.*, 1994). The conceptual confusion, some parts of which have been highlighted, is in our opinion due to the fact that there is no such thing as ‘the theory of OCB’. The items measuring OCB have been selected on an empirical rather than a theoretical basis, which places OCB in the category of a first-degree construct. Whereas first-degree constructs do not have precise definitions, second-degree constructs are carefully defined and can be conceptually and theoretically differentiated from other constructs (Van Dyne *et al.*, 1995). Although OCB can be considered a second-degree construct because it is defined, it was not defined at the onset. Moreover, the different dimensions of OCB lack specific definitions. Since the development of the OCB dimensions is not based on theoretical considerations, it is hard to decide what items should be measured. In addition to the question whether OCB is a second-degree or a first-degree construct, a more important issue is what factors are found to influence OCB.

Organ (1990) proposed that an employee's individual disposition would provide the most valuable explanation of OCB, which agreed upon by many OCB researchers (Schnake and Dumler, 2003). Considering that individual dispositions are not the only predictors of cooperative behaviour and that social context and interpersonal relations are assumed to play an important role (e.g., Granovetter, 1985), this may be a fruitful way to examine this behaviour.

Organisational solidarity (OS)

In this section we argue that some of the problems related to OCB research can be dealt with using a relational approach to cooperative behaviour within organisations. Organisational Solidarity (OS) explicitly defines cooperative behaviour as involving at least two people, a point that has not been fully developed in OCB literature. Instead of being an individual choice – an implicit assumption in OCB research – cooperative behaviour can be seen as interpersonal behaviour, which is affected by the behaviour of others. Therefore, it is also necessary to make clear at whom the behaviour is directed. To distinguish this form of cooperative behaviour from OCB, we use the term Organisational Solidarity.

Solidarity refers to individual contributions to the common good (Hechter, 1987; Lindenberg, 1998). Such contributions may create a tension between individual and collective interests because for individuals cooperation is more costly than non-cooperation while at the same time everyone would be better off if everyone else cooperates (Miller, 1992; Murnighan, 1994; Aquino, 1998). As a result, cooperation does not come about easily in short-term relationships, but needs additional mechanisms to be sustained¹.

Solidarity involves at least two persons who can choose to cooperate or not. Social interaction within these relationships is regarded as fundamental to the development of OS. Social exchange theorists (Blau, 1964; Homans, 1961) regard cooperation in social relationships to be based on the norm of reciprocity (Gouldner,

¹ According to Murnighan (1994), cooperation depends on similarity in partners' values, the perceived status and legitimacy of partners, the extent of their prior social ties (the reliability and predictability of the others), and the social context. These determinants show that the characteristics of others should be taken into account when trying to understand this type of behaviour.

1960), which means that cooperative behaviour of one actor will be responded to by a cooperative move of the other actor. It follows that employees will reciprocate solidarity received from both their co-workers and their supervisors. Some recent attempts that suggest linking OCB to social exchange theory (Podsakoff *et al.*, 2000) take a step in that direction since social exchange theory explicitly models the exchange between two actors (Blau, 1964; Homans, 1961). The investment approach to employment relations (Tsui *et al.*, 1997) shows that employees engage more in OCB if organisations invest in them. Although the logic behind this reasoning is convincing, some more detail can be added to this general exchange framework. In addition, the exchange between organisations and employees is clear, but it is harder to use the same exchange framework to understand effects for co-worker behaviour. For instance, it does not provide the logic to understand why co-workers would be willing to show altruism toward each other. The same holds for leader-member exchange theory (Dienesch and Liden, 1986). These theories focus on the effects of the vertical relationship between supervisors and subordinates, but do not include the horizontal relationship between employees.

This article focuses on both horizontal and vertical relationships. Employees will be solidary towards their co-workers when their co-workers act solidary towards them. Similarly, employees will be solidary towards their supervisor if their supervisor is solidary towards them. We argue that these two kinds of behaviour differ since they depend on the behaviour of different others (Cole *et al.*, 2002). Besides the introduction of OS as a form of behaviour, we are interested in comparing it to existing OCB dimensions. In order to do so, we return to the two basic OCB dimensions *Generalized Compliance* and *Altruism*. *Generalized Compliance* refers to behaviours that a good employee has to show according to the organisation. This of course

captures several types of behaviour of which *Solidarity toward the Supervisor* maybe one. *Altruism* has to do with behaviour toward co-workers, such as helping someone out. This kind of behaviour comes closest to *Solidarity toward Co-workers*. Based on these theoretical considerations we formulate two hypotheses:

Vertical Reciprocity Hypothesis (Hypothesis 1):

Perceived solidarity from supervisor positively affects solidarity toward supervisor (hypothesis 1a), and generalized compliance (hypothesis 1b).

Horizontal Reciprocity Hypothesis (Hypothesis 2):

Perceived solidarity from co-workers positively affects solidarity toward co-workers (hypothesis 2a), and altruism (hypothesis 2b).

Data

Respondents

Respondents are recruited from nine different organisations. The dataset includes employees from a ministerial organisation, a military organisation, a newspaper-publishing organisation, an engineering organisation, a foundation for cultural activities, a consultancy firm, a recreation centre, and a municipality. The dataset consists of 674 employees. Table I provides an overview of the background characteristics of the organisations.

take in Table I

In the newspaper-publishing organisation, all responding employees are men. This is a considerable difference with 73 percent female respondents of the swimming pool. The educational level of employees is measured on a scale from 1 (no education completed) to 9 (Ph.D. level completed). The employees working at the recreation centre have the lowest educational level. The consultancy firm employs the highest educated employees.

Procedure

Questionnaires were developed to gather data among employees (for the complete questionnaire see Lambooij *et al.*, 2003). In each of the organisations a student was present during that period to collect the data. The aim of this data collection procedure was to increase the response rate. Because the questionnaire was modified to fit the specific needs of the organisation this was expected to be the case. Modification of the questionnaire was done by adding questions about topics that were of special interest to the organisation. The items measuring the variables used in this article were asked in the same fashion across the different organisations. Another advantage was that the students could respond to employees' questions and complaints regarding the questionnaire or the research in general. Because of this procedure, respondents were more informed about the aim of the research and were more willing to participate. The overall response rate of the organisations in the sample is 45%.

Measures

All the items of the scales that are used in this study were measured with a 7-point Likert-type scale (1 = strongly disagree, 7 = strongly agree) and were indicated by the

employee. An overview of the items measuring OCB, and OS, is provided in Appendix A.

Dependent and independent variables

To measure *Organisational Solidarity*, we apply the general definition of Lindenberg (1998), according to which solidarity consists of cooperative behaviour of an individual in five social dilemma situations with an Ego and an Alter, terms that refer to the self and the other (Sanders *et al.*, 2003; Sanders, 2004; Sanders and Schyns, 2006). The five social dilemmas are translated into organisational situations (Sanders *et al.*, 2002) and are applied to two fundamentally different dyadic relationships within organisations: horizontal, among employees at the same hierarchical level, and vertical, between supervisors and subordinates (Smith *et al.*, 1995). As a result, four measures of solidarity could be created, including the behaviour of Alter and Ego. Since employees provide the answers, we do not directly measure the actual behaviour of supervisors and co-workers but an indication of the way the employee perceived their behaviour. There are four variables measuring OS. These are vertical solidarity, consisting of solidarity toward the supervisor (*Solidarity toward Supervisor*) and perceived solidarity from the supervisor (*Solidarity from Supervisor*); and horizontal solidarity consisting of solidarity toward co-workers (*Solidarity toward Co-workers*) and perceived solidarity from co-workers (*Solidarity from Co-workers*). The employee questionnaire contains items measuring OCB and OS. The *Organisational Citizenship Behaviour* items were drawn from MacKenzie *et al.* (1991). Two dimensions of OCB usually studied in OCB research (Wayne and Cordeiro, 2003) were examined: *Generalized Compliance* and *Altruism*. *Generalized Compliance* refers to what a good employee ought to do, such as attendance and punctuality. *Altruism* on the other hand,

means helping others such as providing support and orienting new co-workers. An item measuring *Generalized Compliance* is: “I fulfil the obligations as stated in my job description”, an item measuring *Altruism* is: “I will help someone who is very busy”.

Statistical control variables

Task interdependence is the extent to which members rely on each other to complete their jobs. It for instance results in team members sharing materials, information, and advice (Cummings, 1978; Susman, 1976; Van de Ven *et al.*, 1976) and is likely to affect vertical and horizontal relationships. The scale for task interdependence consists of three items based on earlier measures (Van der Vegt *et al.*, 1998) (Cronbach's Alpha = .81). An example of an item measuring task interdependence is: “I depend on my co-workers in order to be able to do my work well”. Gender is coded 0 (male) and 1 (female). *Educational level* was measured by asking the highest level of education that the respondent completed. This variable is measured on a scale from 1 (no education completed) to 9 (Ph.D. level completed). Since it is possible to compare educational level across organisations and related to discretion in jobs, no other job-related variables were included. To check the stability of the results, *organisational dummies* are added to the regression analysis. They are reported only if they influence the relationship between the main variables.

Data analyses

Multiple group method

In order to test the prediction put forward in this article, we use several methods. First, the scales are constructed using the Multiple Group Method (MGM). After this, OLS regression analyses are conducted to test the hypotheses. Factor analysis is commonly

used to investigate whether or not individual items belong to a scale (Kim & Mueller, 1978) and the usual procedure is to employ factor analysis to explore whether items can be scaled into different factors or dimensions. However, if there are theoretical reasons to classify items under a particular factor, it is possible to perform a confirmatory factor analysis (Jöreskog, 1969). The LISREL program especially (Jöreskog and Sörböm, 1996) is widely used to this end. An alternative technique is the Multiple Group Method (MGM) (Guttman 1952; Nunnally, 1978). MGM is less often applied than LISREL, despite the fact that the results generated are easier to interpret and often more accurate (Hendriks and Kiers, 1999; Tuerlinckx *et al.*, 1996).

In MGM the items are assigned to theoretically expected subscales. Adding up the different items that are expected to belong to the scale creates the subscales. The next step is to correlate each of the items with all subscales (excluding that particular item from the scale). If each item has the highest correlation with the subscale to which it is assigned the proposed structure of the scales fits the data. An item is not rightly assigned to a subscale if it scores higher on another subscale than on the one to which it was assigned. In this case, the item should be reassigned to the new subscale.

We use the MGM procedure to test the proposed factor structure. If horizontal solidarity differs from vertical solidarity, and if the behaviour of the employee differs from the behaviour of supervisor and co-workers, then we should find four different subscales: *Solidarity toward Supervisor*, *Solidarity from Supervisor*, *Solidarity toward Co-workers*, and *Solidarity from Co-workers*. The items intended to measure these different types of behaviour are assigned to four different subscales. We also investigate whether or not horizontal and vertical solidarity differs from OCB. Items are assigned to two OCB factors often used in research: *Generalized Compliance* and *Altruism*. Correlation coefficients are computed for all the items with all the scales.

When an item correlates with the subscale to which it self is assigned, the problem of self-correlation arises. Therefore, items do not correlate with the whole subscale, but rather with the other items in that particular subscale.

Scale construction

Tables IIa-IIf show the results of the MGM analysis, presenting the correlation coefficients between the individual items and the subscales. In the tables, the scales are in the rows and the individual items are in the columns. The first four tables (IIa-IId) show that the OS items are strongly related to the subscales to which they were assigned. In Table IIa, there is only 1 item that does not fit the expected scale. The item “I apologize when I have made a mistake regarding my supervisor” scores higher on the *Solidarity toward Co-workers* scale than the *Solidarity toward Supervisor* scale. Therefore, we excluded this item from the scale and did not include it in any other scale. All other OS items score high on the scale to which they are assigned. The correlation coefficients range from .53 to .82. Examining the pattern in Table II, it turns out that the OS scales are measuring four different forms of behaviour: from the employee to the supervisor, from the supervisor to the employee, from the employee to the co-workers, and from the co-workers to the employee. The last two tables (IIe and IIf) provide the results for the OCB scales *Generalized Compliance* and *Altruism*. The MGM analysis shows that the three *Generalized Compliance* items indeed form one scale and that the two *Altruism* items form another one.

In addition to the MGM analyses, reliability analyses were conducted. All four OS scales proved to be quite reliable. The Cronbach’s Alphas for the scales are: *Solidarity toward Supervisor* (.78), *Solidarity from Supervisor* (.89), *Solidarity toward*

Co-workers (.85), and *Solidarity from Co-workers* (.92). The reliabilities for the OCB scales are: *Generalized Compliance* (.70), and *Altruism* (.70).

take in Table II

take in Table III

Correlations

The means, standard deviations, and correlation coefficients among the variables are shown in Table III. Table III shows that the relationships between the OCB and OS scales are all positive and significant. *Solidarity toward Supervisor* is related to *Solidarity from Supervisor* ($r = .48, p < .01$) and *Solidarity toward Co-workers* is related to *Solidarity from Co-worker* ($r = .53, p < .01$). Furthermore, *Solidarity toward Supervisor* and *Generalized Compliance* are related ($r = .40, p < .01$), as well as *Solidarity toward Co-workers* and *Altruism* ($r = .52, p < .01$).

Regression analyses

The hypotheses that we formulated are (1) *Solidarity toward Supervisor* is positively related to *Solidarity from Supervisor*, and (2) that *Solidarity toward Co-workers* is positively related to *Solidarity from Co-workers*. Furthermore, since *Solidarity toward Supervisor* and *Generalized Compliance* refer to vertical relations and *Solidarity toward Co-workers* and *Altruism* both are horizontally directed, we tested whether

these two OCB dimension are also affected by *Solidarity from Supervisor* and *Solidarity from Co-workers* respectively. We tested these hypotheses with OLS regression analysis. We study the hypotheses in three steps. The first step examines the effects of perception of *Solidarity from Supervisor* and *Solidarity from Co-workers* (model 1). The second model adds for task interdependence, gender and educational level (model 2). The third model also includes the dummy variables for the organisations. Including the dummies did not affect the third model significantly; therefore, they were not reported in the tables (model 3). The results of the regression analyses are shown in Tables IV, V, VI, and VII.

take in Table IV

take in Table V

take in Table VI

take in Table VII

Table IV shows that perceived *Solidarity from Supervisor* is the most important predictor of *Solidarity toward Supervisor* ($b = .44$), also *Solidarity from Co-workers* is

a predictor as well, but is less important ($b = .13$). Other variables in the regression model do not have an effect on *Solidarity toward Supervisor*. Table V shows that *Solidarity toward Co-workers* is most strongly influenced by *Solidarity from Co-workers* ($b = .46$) and to a lesser extent by *Solidarity from Supervisor* ($b = .17$). The final model also shows that women tend to show more *Solidarity toward Co-workers* and higher educated employees show fewer *Solidarity toward Co-workers*. Table VI investigates *Generalized Compliance*. In the first model, *Generalized Compliance* is positively related to *Solidarity from Supervisor* ($b = .11$) and *Solidarity from Co-workers* ($b = .15$), but compared to predictors of *Solidarity toward Supervisor* and *Solidarity toward Co-workers* they are lower. Higher educated employees show less *Generalized Compliance* than lower educated employees. Table VII shows that *Altruism* of employees is positively influenced by *Solidarity from Co-workers*. Women show more *Altruism* and there is a negative relation between educational level and *Altruism* of employees. Comparing the explained variance of the models shows that the models including OS have higher explanatory power than the ones including OCB.

Discussion and conclusions

Theoretical and practical implications

In this article, we studied Organisational Solidarity (OS) as a specific form of Organisational Citizenship Behaviour (OCB). In an attempt to overcome the problems associated with OCB, we introduced the concept of OS. The point we wish to make in this article is that two requirements must be met when attempting to understand cooperative behaviour within organisations. The first is that cooperative behaviour involves at least two parties. It is therefore necessary to look at the behaviour of these parties towards one another. The second, following from the first, is that within

organisations vertical forms of cooperation should be distinguished from horizontal. The review of OCB shows that it is difficult to measure the concept and come up with a theoretical explanation of why employees engage in this type of behaviour. This may be because OCB measures do not meet the two requirements. By being more specific about who is cooperating with whom and why, some of the problems in OCB research might be resolved.

In this study we compare two existing OCB dimensions (*Generalized Compliance* and *Altruism*) to four forms of OS (*Solidarity toward Supervisor*, *Solidarity from Supervisor*, *Solidarity toward Co-workers*, and *Solidarity from Co-workers*). A Multiple Group Method analysis showed that the OCB and OS dimensions measure different forms of behaviour. The forms of OS turned out to have a higher reliability than the OCB dimensions. We also investigated if there are similarities between OCB and OS. Based on their description in literature and the way they are measured we put forth the idea that *Generalized Compliance* might be related to *Solidarity toward Supervisor* and that *Altruism* will be related to *Solidarity toward Co-workers*. It is shown that *Solidarity from Supervisor* influences *Generalized Compliance* and that *Solidarity toward Co-workers* is related to *Altruism*.

The finding that the behaviour of supervisors and co-workers is related to the OCB dimensions does have an implication for OCB research. In this article the emphasis is on distinguishing four forms of solidarity that were expected to be related to each other in the employee – supervisor and employee – employee dyad. The argument behind this is that the person at whom the behaviour is directed influences cooperative behaviour. That the different dimensions of OCB are related to supervisor solidarity and co-worker solidarity also supports this claim. This finding shows that it is important to take the behaviour of other actors in account. Research that approaches

OCB from an exchange perspective can use supervisor solidarity and co-worker solidarity (or similar) measures to investigate what kind of exchanges are relevant to explain OCB. For instance, a researcher interested in explaining *Altruism* of employees could take the level of *Altruism* of other employees in the same team into account.

Our investigation of OS also contributes to theories about co-worker relations and employment relations. The finding that reciprocity explains cooperative behaviour is similar to research in the fields of leader-member exchange (Dienesch and Liden, 1986), organisational support (Eisenberger *et al.*, 1986), and organisational justice (Folger and Cropanzano, 1998). However, this kind of research focuses solely on exchanges in the vertical dimension of organisational relationships (Tekleab and Taylor, 2003). What the current study tries to show is that both the vertical and the horizontal dimension of relationships matter. Moreover, the kind of behaviour that employees show toward their organisation may not only result from the vertical relationships, but may also result from horizontal relationships (Bommer *et al.*, 2003). On the other hand, these horizontal relationships are likely to be influenced by the vertical relationships. Therefore, it may be useful for researchers examining vertical relationships to integrate the horizontal dimension in their models, and for researcher studying the horizontal dimension, to incorporate vertical relationships as well.

In this study we investigated the scalability of the different OS dimensions and how these relate to OCB dimension. Therefore, it is not possible to say anything about the outcomes of OS on different levels. It would be of theoretical and practical interest to systematically investigate what the organisational, team and individual level effects of OS are. For instance, questions that need to be addressed in future research are if OS leads to more satisfied workers, less turnover, and higher organisational performance.

Clearly, additional data and theory are needed to test if these kinds of effects occur and to explain these effects.

A practical implication of this study is that supervisors play a key role in eliciting cooperative behaviour from their subordinates. They can do this directly because they can increase the cooperative behaviour of the team members by showing cooperative behaviour towards them. Since cooperation is reciprocal, it is expected that a good move from the supervisor will be answered by a cooperative move from the subordinates. What is more, supervisors can also play a role in creating solidarity relationships among team members. Although it is more indirect than with vertical relationships, it is possible that supervisors monitor the horizontal relationships within a team and intervene whenever it is clear that solidarity between particular members is declining, for instance by changing the design of the tasks in the team.

Limitations and suggestions for future research

This article can be improved upon in several ways. First, we still need to explore whether or not the five social dilemmas described in solidarity theory are the most relevant to organisational settings. Future research should investigate if the five social dilemma situations are indeed the most important ones. In addition, research should aim at further studying the relationship between the different forms of behaviour that comprise solidarity. This line of research should focus on the question of what meaning people give to solidarity themselves. Also the question needs to be answered if it holds that solidarity means that people should be showing cooperative behaviour in all five situations or that variations are possible. In other words, the concept of OS is plausible on theoretical grounds but it is necessary to investigate the empirical content in more detail. This was one of the goals of this article; however, more work needs to

be done in that direction. A second point that needs to be investigated further has to do with the data we used: these data were gathered through self-reports from employees. So, employees had to answer questions about their level of solidarity towards their supervisor and co-workers and at the same time they were asked to indicate how much cooperation they get from their supervisor and co-workers. This information is likely to be affected by common-source bias (Dionne *et al.*, 2002). Unfortunately, we were not able to use measure from different sources. At this moment, the MGM analysis provides an answer to the question how seriously using data from one-source biases the results. We found four different factors measuring OS. If the data were completely biased, the different variables would mesh into one factor. However, this is only one piece of evidence and to investigate the impact of common-source bias, additional information of different actors is needed. Furthermore, this article only serves as an introduction to the concept of OS and its theoretical background. Our research tests the usefulness of the scales and how they relate to the OCB dimensions. However, what factors influence OS and how this can be explained remains to be discussed. Future research is needed to study these relationships in more detail, at which point we will be better able to answer the question of whether OS can advance research in organisational behaviour.

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Tables

TABLE I
Descriptive statistics of the organizations

| | Number of respondents | Percentage women | Mean educational level |
|-----------------------------|----------------------------------|-----------------------------|-----------------------------------|
| Ministry | 266 | 33.1 | 6.1 |
| Military organization | 199 | 12.1 | 5.2 |
| Supportive staff university | 11 | 0.0 | 5.6 |
| Engineering | 17 | 5.9 | 4.7 |
| Art foundation | 17 | 64.7 | 6.4 |
| Consultancy firm | 15 | 53.3 | 6.9 |
| Housing foundation | 14 | 35.7 | 4.9 |
| Recreation center | 15 | 73.3 | 4.6 |
| Municipality | 120 | 39.2 | 5.0 |
| Total | 674 | 29 | 5.6 |

TABLE II
Results of multiple group method analysis

| IIa: Solidarity toward Supervisor | | | | | |
|--|------------|------------|------------|------------|------------|
| | (1) | (2) | (3) | (4) | (5) |
| Solidarity toward supervisor | .53 | .59 | .51 | .57 | .56 |
| Solidarity from supervisor | .36 | .46 | .23 | .37 | .26 |
| Solidarity toward co-workers | .28 | .43 | .62 | .36 | .52 |
| Solidarity from co-workers | .23 | .33 | .28 | .18 | .27 |
| Generalized compliance | .28 | .31 | .35 | .31 | .34 |
| Altruism | .21 | .20 | .36 | .22 | .45 |

| IIb: Solidarity from Supervisor | | | | | |
|--|------------|------------|------------|------------|------------|
| | (1) | (2) | (3) | (4) | (5) |
| Solidarity toward supervisor | .41 | .43 | .40 | .25 | .25 |
| Solidarity from supervisor | .64 | .68 | .66 | .73 | .68 |
| Solidarity toward co-workers | .16 | .20 | .33 | .24 | .28 |
| Solidarity from co-workers | .22 | .22 | .31 | .29 | .32 |
| Generalized compliance | .09 | .12 | .10 | .09 | .09 |
| Altruism | .03 | .14 | .20 | .13 | .15 |

| IIc: Solidarity toward Co-workers | | | | | |
|--|------------|------------|------------|------------|------------|
| | (1) | (2) | (3) | (4) | (5) |
| Solidarity toward supervisor | .49 | .53 | .53 | .50 | .48 |
| Solidarity from supervisor | .27 | .31 | .24 | .33 | .20 |
| Solidarity toward co-workers | .69 | .72 | .66 | .66 | .59 |
| Solidarity from co-workers | .42 | .51 | .39 | .45 | .31 |
| Generalized compliance | .48 | .49 | .33 | .40 | .38 |
| Altruism | .30 | .38 | .31 | .27 | .47 |

TABLE 3.2 (continued)
Results of multiple group method analysis

| IId: Solidarity from Co-workers | | | | | |
|--|------------|------------|------------|------------|------------|
| | (1) | (2) | (3) | (4) | (5) |
| Solidarity toward supervisor | .29 | .28 | .30 | .28 | .23 |
| Solidarity from supervisor | .30 | .34 | .35 | .37 | .35 |
| Solidarity toward co-workers | .47 | .48 | .50 | .46 | .40 |
| Solidarity from co-workers | .80 | .82 | .78 | .79 | .78 |
| Generalized compliance | .26 | .23 | .17 | .22 | .15 |
| Altruism | .19 | .18 | .15 | .12 | .16 |

| IIE: Generalized Compliance | | | |
|------------------------------------|------------|------------|------------|
| | (1) | (2) | (3) |
| Solidarity toward supervisor | .27 | .38 | .27 |
| Solidarity from supervisor | .10 | .15 | .13 |
| Solidarity toward co-workers | .36 | .38 | .29 |
| Solidarity from co-workers | .16 | .16 | .11 |
| Generalized compliance | .53 | .58 | .45 |
| Altruism | .32 | .37 | .23 |

| IIf: Altruism | | |
|------------------------------|------------|------------|
| | (1) | (2) |
| Solidarity toward supervisor | .38 | .43 |
| Solidarity from supervisor | .13 | .18 |
| Solidarity toward co-workers | .41 | .51 |
| Solidarity from co-workers | .16 | .26 |
| Generalized compliance | .30 | .39 |
| Altruism | .54 | .54 |

n = 674.

The scales are in the rows and the individual items in the columns. Correlation coefficients are reported (highest coefficients are in boldface). For an overview of the items, see Appendix A.

TABLE III
Means, standard deviations, and correlations

| | Mean | s.d. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. |
|---------------------------------|-------------|-------------|-----------|-----------|-----------|-------------------|-----------|-----------|-----------|-----------|
| 1. Solidarity toward supervisor | 5.67 | .89 | .78 | | | | | | | |
| 2. Solidarity from supervisor | 5.06 | 1.36 | .48** | .89 | | | | | | |
| 3. Solidarity toward co-workers | 5.95 | 7.09 | .57** | .34** | .85 | | | | | |
| 4. Solidarity from co-workers | 5.44 | 1.04 | .29** | .39** | .53** | .92 | | | | |
| 5. Generalized compliance | 5.76 | .80 | .40** | .16** | .43** | .18** | .70 | | | |
| 6. Altruism | 5.71 | .86 | .44** | .16** | .52** | .23** | .39 | .70 | | |
| 7. Task interdependence | 5.23 | 1.25 | .10** | .14** | .01 | .12** | -.06 | .08* | .81 | |
| 8. Gender (1 = female) | .29 | .45 | -.01 | -.07 | .09* | -.02 | -.01 | .08* | -.13** | |
| 9. Educational level | 5.55 | 1.32 | .04 | .02 | -.19** | -.07 [†] | -.10** | -.10* | .18** | .02 |

n = 674. Cronbach's Alphas are on the diagonal.

[†] p < .10; * p < .05; ** p < .01

TABLE IV
Results of regression analysis for solidarity toward supervisor

| | Hypothesis | (1) | (2) | (3) |
|-----------------------------|------------|------------------|------------------|------------------|
| Solidarity from supervisor | + | .44** (11.98) | .44** (11.86) | .42** (11.08) |
| Solidarity from co-workers | | .13** (3.52) | .13** (3.56) | .14** (3.81) |
| STATISTICAL CONTROLS | | | | |
| Gender (1 = female) | | | .02 (.66) | .05 (1.29) |
| Task interdependence | | | .01 (.40) | -.01 (.33) |
| Educational level | | | .04 (1.20) | .00 (.10) |
| Adjusted R ² | | .26 | .25 | .28 |
| F statistics | | 110.11** | 44.45** | 19.70** |

n = 674. Standardized regression coefficients are reported; absolute value of t-statistics in parentheses. The third model also includes the organization dummies (not shown).

† p < .10; * p < .05; ** p < .01

TABLE V
Results of regression analysis for solidarity toward co-workers

| | Hypothesis | (1) | (2) | (3) |
|-----------------------------|------------|------------------|------------------|------------------|
| Solidarity from supervisor | | .17** (4.77) | .19** (5.37) | .17** (4.92) |
| Solidarity from co-workers | + | .47** (13.01) | .45** (12.92) | .46** (12.85) |
| STATISTICAL CONTROLS | | | | |
| Gender (1 = female) | | | .12** (3.70) | .13** (3.89) |
| Task interdependence | | | -.03 (.86) | -.04 (1.14) |
| Educational level | | | -.16** (4.88) | -.17** (4.82) |
| Adjusted R ² | | .30 | .34 | .35 |
| F statistics | | 140.3** | 67.57** | 27.30** |

n = 674. Standardized regression coefficients are reported; absolute value of t-statistics in parentheses. The third model also includes the organization dummies (not shown).

† p < .10; * p < .05; ** p < .01

TABLE VI
Results of regression analysis for generalized compliance

| | Hypothesis | (1) | (2) | (3) |
|-----------------------------|------------|-----------------|-----------------------------|-----------------|
| Solidarity from supervisor | + | .10* (2.47) | .12** (2.74) | .11* (2.44) |
| Solidarity from co-workers | | .14** (3.37) | .14** (3.35) | .15** (3.40) |
| STATISTICAL CONTROLS | | | | |
| Gender (1 = female) | | | .01 (.17) | .01 (.30) |
| Task interdependence | | | -.08 [†] (1.90) | -.09* (2.13) |
| Educational level | | | -.08* (2.09) | -.09* (1.99) |
| Adjusted R ² | | .04 | .06 | .07 |
| F statistics | | 13.97** | 7.68** | 3.71** |

n = 674. Standardized regression coefficients are reported; absolute value of t-statistics in parentheses. The third model also includes the organization dummies (not shown).

[†] p < .10; * p < .05; ** p < .01

TABLE VII
Results of regression analysis for altruism

| | Hypothesis | (1) | (2) | (3) |
|-----------------------------|------------|----------------------------|----------------------------|----------------------------|
| Solidarity from supervisor | | .08 [†] (1.90) | .08* (1.20) | .07 (1.58) |
| Solidarity from co-workers | + | .22** (5.19) | .20** (4.80) | .22** (5.11) |
| STATISTICAL CONTROLS | | | | |
| Gender (1 = female) | | | .09* (2.34) | .08 [†] (1.86) |
| Task interdependence | | | .07 [†] (1.81) | .06 (1.56) |
| Educational level | | | -.11** (2.77) | -.14** (3.41) |
| Adjusted R ² | | .06 | .08 | .09 |
| F statistics | | 22.22** | 11.73** | 5.50** |

n = 674. Standardized regression coefficients are reported; absolute value of t-statistics in parentheses. The third model also includes the organization dummies (not shown).

[†] p < .10; * p < .05; ** p < .01

Appendices

APPENDIX A

Variables and items

| Variable | Item |
|------------------------------|---|
| Solidarity toward supervisor | <ol style="list-style-type: none">1. I help my supervisor to finish tasks2. I am willing to help my supervisor when things go wrong unexpectedly3. I apologize to my co-supervisor when I made a mistake4. I try to divide the pleasant and unpleasant tasks equally between myself and my supervisor5. I live up to agreements with my supervisor |
| Solidarity from supervisor | <ol style="list-style-type: none">1. My supervisor helps me to finish tasks2. My supervisor is willing to help me when things go wrong unexpectedly3. My supervisor apologizes to me when they have made a mistake4. My supervisor divides the pleasant and unpleasant tasks equally between them and me5. My supervisor lives up to agreements with me |
| Solidarity toward co-workers | <ol style="list-style-type: none">1. I help my co-workers to finish tasks2. I am willing to help my co-workers when things go wrong unexpectedly3. I apologize to my co-workers when I made a mistake4. I try to divide the pleasant and unpleasant tasks equally between myself and my co-workers5. I live up to agreements with my co-workers |
| Solidarity from co-workers | <ol style="list-style-type: none">1. My co-workers help me to finish tasks2. My co-workers are willing to help me when things go wrong unexpectedly3. My co-workers apologize to me when they have made a mistake4. My co-workers divide the pleasant and unpleasant tasks equally between them and me5. My co-workers live up to agreements with me |
| Generalized compliance | <ol style="list-style-type: none">1. I fulfill the obligations as stated in my job description2. I fulfill all formal responsibilities that come with my job3. I am satisfied with my job performance |
| Altruism | <ol style="list-style-type: none">1. I will help someone who is very busy2. I will help doing tasks for others when they are sick or absent |
| Task interdependence | <ol style="list-style-type: none">1. To perform my tasks, I need information from other team members2. I depend on my co-workers in order to be able to do my work well3. To perform my tasks, I have to work together with other team members |
