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Generalized Exchange Orientation: Conceptualization and Scale Development

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Abstract

We conceptualize generalized exchange orientation, and develop and validate a scale assessing individual orientations toward generalized exchange as well as reciprocal and negotiated exchange for offering a full set of measurements for social exchange orientation. Through four phases and using data from 1,408 participants, we established factorial, nomological, discriminant, and incremental validity of the social exchange orientation scale and examined measurement invariance of the scale between samples from the United States and Japan. First, our findings indicate the newly developed scale for generalized exchange orientation (GEO) is distinct from measures of other forms of social exchange orientation and prosocial orientation. Second, the GEO scale shows incremental validity as it predicts citizenship behaviors toward individuals above and beyond the key dispositional antecedents known in the literature. Implications and future research on generalized exchange are discussed.

Keywords: social exchange, generalized exchange, exchange orientation, scale development

Generalized Exchange Orientation: Conceptualization and Scale Development

In this study, we aim to advance research on generalized exchange by conceptualizing and developing a measure that captures individuals' tendencies to engage in generalized exchange. Generalized exchange occurs in a social group with three or more members through indirect reciprocation, and thus is distinct from other forms of social exchange such as negotiated exchange[1] and reciprocal exchange, which take place in dyadic relationships through direct reciprocation (Molm, 2003; Flynn, 2005). The relevance of generalized exchange to organizations has already been recognized in the literature (Blau, 1964) and continues to grow as organizations increasingly rely on flexible collaboration among employees beyond geographical and organizational boundaries in an increasingly globalized business environment. For example, many organizations encourage their employees to use virtual platforms that enable interactions among a large number of individuals who do not know one another personally and may not form dyadic relationships with each other (Yoshikawa, Wu, & Lee, 2018). However, only a few studies have empirically examined generalized exchange in an organizational context (e.g., Baker & Bulkley, 2014; Westphal, Park, Mcdonald, & Hayward, 2012; Willer, Flynn, & Zak, 2012), and they all took on a structural perspective that focuses on the pattern of interactions among individuals and its impact on individual attitudes. We argue that individual differences should also play an important role in shaping employees' generalized social exchange, because people can vary in their beliefs that they will receive indirect reciprocation from someone in the social group at some point if they give resources to another. In line with this notion, prior research has recognized the importance of individual differences in beliefs about engaging in reciprocal social exchange (e.g., Eisenberger, Hntington, Hutchison, & Sowa, 1986; Eisenberger, Cotterell, & Marvel, 1987) and found the individual differences have a significant impact on employees' behaviors (e.g., Coyle-Shapiro & Newman, 2004; Eisenberger, Armeli, Rexwinkel, Lynch, & Rhoades, 2001).

We conceptualize generalized exchange orientation to capture *differences in individuals' beliefs on following the rules of collective reciprocity in organizations.* Because different forms of social exchange - negotiated exchange, reciprocal exchange, and generalized exchange - are governed by different regulating rules (cf. Cropanzano & Mitchell, 2005), we argue that individuals can vary in

their beliefs regarding applying these different rules. We define these individual differences as negotiated exchange orientation (NEO), reciprocal exchange orientation (REO), and generalized exchange orientation (GEO), respectively, and develop the social exchange orientation scale (SEOS) to assess the three orientations. Although our focus is GEO, we include NEO and REO because their inclusion helps differentiate GEO from other exchange orientations, and offers a comprehensive measurement for assessing three specific social exchange orientations. We develop SEOS through four phases following best practices (Hinkin, 1995, 1998). In the first phase, we generate and refine scale items and examine the factor structure. The second phase analyzes the factorial and nomological validity of the new scale, and the third phase examines the discriminant validity of GEO from existing measures of individuals' prosocial orientation and its incremental validity in explaining organizational citizenship behavior (OCB), one of the most frequently studied behaviors in the social exchange literature (Cropanzano & Mitchell, 2005). In the fourth phase, we examine its measurement invariance between two countries, the United States and Japan, then replicate and expand the test of incremental validity with the Japanese sample.

Overall, our study aims to make two major contributions. First, we contribute to advancing the generalized exchange literature by offering an individual-differences perspective to understand generalized exchange behavior in an organizational setting. The individual-differences perspective helps explain why some employees are more likely than others to give their resources to other employees who may not be able to reciprocate directly. Second, we offer scales measuring NEO, REO, and GEO as a full set. The existing approaches are based on either personality traits (e.g., Bauer, Erdogan, Liden, & Wayne, 2006; Orvis, Dudley, & Cortina, 2008) or specific exchange beliefs that are limited to the reciprocal exchange relationships only (e.g., Eisenberger et al., 1986, 1987). Our newly developed measure, the SEOS, captures the degree to which individuals are inclined to adopt different rules of exchange, which, in turn, serves as a key determinant of social exchange behaviors (Cropanzano & Mitchell, 2005).

Three Types of Social Exchange Orientation

Social exchange is a joint endeavor by two or multiple individuals, and a particular form of exchange emerges from an individual's choice to follow a particular rule, expecting eventual benefits

from the choice (Cropazano & Mitchell, 2005; Flynn, 2005). For example, participants in negotiated exchange explicitly negotiate the terms of exchange in advance and follow them (Molm, 2003), whereas the universal 'norm of reciprocity' (i.e., one should reciprocate what one receives from others, and those who do not comply are punished; Goudlner, 1960) is thought to regulate reciprocal exchange. Generalized exchange is more complex because it involves more than two individuals. Due to the complexity of the structure, generalized exchange can be regulated based on three different rules: paying it forward (PIF), rewarding reputation (RR), and unilateral giving with an expectation of indirect reciprocation (UG). Figure 1 illustrates a graphical representation of the three rules. First, PIF refers to the following: An individual (A) receives resources from someone (B) in a social group, and he or she then gives resources not to the original giver but to another person (C) in the same social group (Nowak & Sigmund, 1998). Second, RR indicates an individual (A) gives resources to other person (B) who gave resources to someone (C) in the social group (Takahashi, 2000). Third, UG suggests an individual (A) unilaterally gives resources to another member (B) of the social group, expecting that the giving individual (A) will receive indirect reciprocation from someone (C) in the group (Yamagishi, Jin, & Kiyonari, 1999). Although these rules appear distinct, a common principle underlies them: Individuals balance the debt and credit at the collective level. In PIF and UG, one balances what one receives from other members (B + C) with what one gives to them (B + C). In RR, B's contribution to the other members (A + C) is balanced by what B receives from other members (A + C). We label this underlying principle as *the rule of collective reciprocity*[2]. This principle is consistent with the fundamental assumption of social exchange theory that individuals are rational and calculative (Blau, 1964; Emerson, 1972; Homans, 1961)[3].

Insert Figure 1 about here

Based on the three forms of social exchange behavior and their underlying rules, we propose three specific social exchange orientations (GEO, NEO, and REO). Specifically, we define NEO as an individual's beliefs in favor of having explicit negotiations about the terms of exchange in interactions with other members in the workplace; REO as an individual's beliefs in favor of the norm of

reciprocity in interactions with other members in the workplace; and GEO as an individual's beliefs in favor of the rule of collective reciprocity in interactions with other members in the workplace. Individual differences in these orientations can result from various antecedents, such as individuals' dispositional tendencies in interacting with people, their previous work experiences, and organizational climate and norms (Ballinger & Rockmann, 2010; Flynn, 2005). While individuals may gain positive (or negative) ideas about indirect reciprocation through one of the three distinct rules (PIF, RR, and UG), once they establish the beliefs of favoring indirect reciprocation then they may respond similarly to the other rules too. Therefore, we expect GEO as the higher-order factor with three orientations toward PIF, RR, and UG as lower-order components.In other words, when individuals experience and learn the favorability of generalized exchange within their groups through any one of the three rules, they are more likely to endorse all three rules that can facilitate collective reciprocity.

Our conceptualization has several key features. First, we focus on the regulating rules because they are the main features that differentiate the three exchanges. This focus has several merits. It provides a direct approach to differentiating the three exchanges, compared with the focus on the structure (dyadic or collective), process (explicit or implicit), or the inherent risks (negotiated < reciprocal < generalized) steming from the structure and process (Molm, Cotterel, & Schaefer, 2007). In addition, it helps identify the commonality of specific social exchange behaviors (e.g., UG, PIF, and RR have been treated as distinct behaviors, but we propose that they are manifestations of GEO), and thus facilitates our understanding of specific social exchange behaviors with a broad framework (i.e., the three types of social exchange). Our conceptualization is thus different from exchange ideology (orientation to apply the norm of reciprocity to their relationship with the employer; Eisenberger et al., 2001), creditor ideology (beliefs that reciprocating more than previously received will lead to greater benefits; Eisenberger et al., 1987), and reciprocity wariness (caution in reciprocating resources to avoid being taken advantge of; Eisenberger et al., 1987) because these constructs focus on the amount of giving or the risks of receiving in a reciprocal relationship. In other words, they do not focus on the rules of exchange, but rather on the concerns of reciprocity. Finally, by focusing on the regulating rules of exchange, we address the "black box" in social

exchange research (Liden, Sparrowe, & Wayne, 1997); that is, we directly analyze the impact of different exchange rules in shaping the process of social exchange (Cropanzano & Mitchell, 2005).

Second, we focus on differences in individuals' beliefs in favor of specific regulating rules. Individuals can vary in their beliefs regarding favoring the rules, due to their traits, prior interactions with others, and organizational context (Ballinger & Rockmann, 2010; Flynn, 2005). In addition, we position the concept of social exchange orientations in the middle of the spectrum of individual characteristics that spans from highly specific attitudes (e.g., toward a single task) to highly general personality traits (Frese & Fay, 2001). This level of conceptualization is in line with the concepts of exchange ideology (Eisenberger et al., 2001), creditor ideology, and reciprocity wariness (Eisenberger et al., 1987), which focus on individuals' beliefs in engaging in reciprocal social exchange. Accordingly, the concept of social exchange orientations is not a state, such as emotions, that changes all the time. On the other hand, the concept of social exchange orientations is not as enduring as personality traits. By setting the concept in the middle of the generality–specificity continuum, we aim to ensure the new constructs are relevant to the phenomenon of interest (i.e., social exchange) but are applicable to a variety of social exchange situations individuals might face in organizations (c.f. Bandura, 1997; Fishbein & Ajzen, 1974; Rotter, Chance, & Phares, 1972). We also focus on social exchange orientation in an organizational context (i.e., workplace), because individuals are likely to hold different beliefs toward social exchange in work and nonwork settings (Belmi & Pfeffer, 2015), and we are interested in social exchange relationships in the workplace.

Phase 1: Item Generation, Refinement, and Factor Analysis

In this phase, we generated items, evaluated the content validity of those items and refined them, and conducted exploratory factor analysis to examine the factor structure of the refined items.

Item Generation

Based on the specific rules for different forms of social exchange, we generated items for assessing orientations toward different forms of social exchange. We collected episodes of negotiated and generalized exchange relationships from empirical studies (Shibayama, Walsh, & Baba, 2012; Westphal et al., 2012) and interviews of 15 professionals in the United Kingdom (average tenure = 8.7 years, gender = 67% male, 33% female; industries include banking, manufacturing, and consulting) as

a basis for item generation. We generated items for NEO directly but developed items for UG, PIF, and RR, the three different generalized exchange rules, to assess GEO as a second-order concept for their commonality in collective reciprocity. Regarding REO, we adopted and modified items from two prior studies by Eisenberger and colleagues (1987, 2004), making sure the items referred to a particular exchange partner and concerned interactions at work. We generated eight items for each of the five constructs (NEO, REO, UG, PIF, and RR) and have 40 items altogether.

Item Refinement

We next examined the content validity of the generated items by applying the sorting method (Anderson & Gerbing, 1991). We invited 20 researchers in organizational behavior or related fields to participate in an online survey, and 14 responded (response rate = 70%). We asked each participant to categorize each item in one of the constructs he or she considered to be best captured by the item, based on the definition of the constructs. To prevent the order of items from influencing the responses, the order of items was randomized for each participant. Two out of 40 items indicated problems in content validity, showing a substantive validity coefficient[4] below the .30 cutoff point recommended by Yao, Wu, and Yang (2008). Hence, we removed the two items from the following analysis.

Factor Analysis

To analyze the factor structure of the remaining 38 items, we collected data from full-time employees working in organizations with 30 or more employees in the United States on the Amazon Mechanical Turk (MTurk) platform (Buhrmester, Kwang, & Gosling, 2011). Participants were asked to what degree they agreed with each item on a 7-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*). Each participant received US$1.15 upon completion. We implemented several quality assurance measures, such as including attention filters in the survey and making sure each participant could respond only once. We collected complete responses from 200 participants after removing 14 because they failed to pass the attention filters (completion rate = 93.5%). The sample was predominantly Caucasian (81%) and male (63%), and, on average, participants were in their mid-30s (*mean* = 33.9, *standard deviation (SD)* = 10.2) and had 6.6 years of work experience (*mean* = 6.6, *SD* = 5.3 years).

We conducted exploratory factor analyses (EFA) with the maximum likelihood extraction

method and Promax rotation. The number of factors was determined by eigenvalue > 1.0. After several iterations of removing cross-loaded items, EFA with 34 items resulted in five factors that accounted for 65.7% of the total variance. Table 1 summarizes the results. The solution is consistent with the proposed five-factor structure, with all items showing factor loadings greater than .50 and no cross-loading, suggesting the items tap five distinct constructs. In addition, factors corresponding to UG, PIF, and RR (factor 1, 3, and 4, respectively) have higher correlations (ranging from .53 to .58) than with other factors, suggesting a second-order factor of GEO, which is further examined in the next phase.

Insert Table 1 about here

Phase 2: Psychometric Analysis

To further examine the validity of the new scale, we conducted a study to once again examine the factor structure of the new scale with a specific examination of the second-order structure of GEO manifested by UG, PIF, and RR. We also examined nomological validity (Cronbach & Meehl, 1955) by first considering the existing measures of individual orientation on social exchange[5] (i.e., creditor ideology and reciprocity wariness) with an aim to examine whether SEOS is different from the existing concepts. We also considered agreeableness, Machiavellianism, and neuroticism as indicators of one's affiliative motive, manipulative motive, and concerns for interpersonal risks that help differentiate NEO, REO, and GEO, as we elaborate on shortly. We also considered employees' trust in close colleagues and in the members of the organization in general. These two trust variables can help differentiate REO and GEO with regard to the specificity of the exchange context. Finally, we examined the susceptibility of the new scale to social desirability.

Nomological Networks of SEO

Creditor ideology and reciprocity wariness. Creditor ideology refers to the expectation that giving more than one receives leads to further benefits (Eisenberger et al., 1987); hence, we expect that those with high creditor ideology are likely to have stronger REO and GEO because they have positive expectations about the future benefits stemming from giving. Because reciprocity wariness

refers to concerns about the lack of reciprocation and being exploited by exchange partners (Eisenberger et al., 1987), we expect that wary individuals tend to have stronger NEO because explicit negotiation allows them to reduce uncertainty in exchange relationships. They are also likely to have weaker GEO because generalized exchange exposes them to high levels of the risk of nonreciprocation (Molm et al., 2007).

Agreeableness. Individuals with high levels of agreeableness are sensitive to and concerned with the welfare of others (Chiaburu et al., 2011) and are cooperative and trusting (Costa & McCrae, 1992). We expect agreeable individuals to have stronger REO and GEO because the norm of reciprocity and the rule of collective reciprocity are considered the basis of collaboration in human societies (Goldner, 1960; Takahashi, 2000) and require individuals to pay attention to others' interests (Flynn, 2005). On the other hand, people with lower levels of agreeableness are likely to have stronger NEO, because such individuals are likely to prefer transactional relationships with others and to focus on their own interests.

Machiavellianism. Machiavellianism is a dark personality trait that refers to individuals' tendencies to manipulate others without considering their welfare (Jones & Paulhus, 2014). Dyadic exchange (i.e., negotiated and reciprocal) can be a useful tool for influencing other individuals for ones' own interests (e.g., flattery can be used to obtain resources through reciprocal exchange; Westphal & Stern, 2007); however, among the two direct forms of exchange, reciprocal exchange can also stem from prosocial concern for others, as we noted above. Hence, we expect Machiavellianism to have a positive relationship with NEO and a non-significant, neutral relationship with REO. We expect a negative association between Machiavellianism and GEO because people high in Machiavellianism would not consider exchanging benefits without seeing direct reciprocation.

Neuroticism. Neuroticism refers to the tendency to show wariness, concern, anxiety, and a lack of social adjustment (Costa & McCrae, 1992; Goldberg, 1990). We expect neuroticism to be positively related to NEO but negatively related to REO and GEO, because individuals high in neuroticism are sensitive to risks and tend to protect themselves in social interactions (Nicholson, Soane, Fenton-O'Creevy, & Willman, 2005) and thus prefer negotiated exchange, which does not require an individual to go beyond explicit and specific aggreements. By contrast, people low in

neuroticism are more likely to have a stronger REO and GEO due to their emotional capacity to build positive social relationships with others.

Trust. Trust is defined in multiple ways in the organizational behavior literature, but these definitions commonly include positive expectations about other individuals' behaviors (e.g., Mayer, Davis, & Schoorman, 1995; McAllister, 1995). Trust reduces the perceived risk in colleagues' behaviors (Lewis & Weigert, 1985); thus, individuals who think they are surrounded by trustworthy colleagues are likely to engage in reciprocal and generalized exchange. We investigate two types of trust: trust toward close colleagues (target-specific trust) and trust toward organization members in general (depersonalized trust; see Kramer, 1999, for a discussion about these two types of trust). We expect the former to be strongly associated with REO because it reduces perceived risks in social exchange relationships with particular individuals. The latter is likely to be strongly associated with GEO because it contains risks in social exchange relationships that involve unspecified individuals in the organization. Both are likely to be negatively associated with NEO because explicit negotiation is not efficient when one can trust an exchange partner.

Participants and Procedure

Using MTurk, we collected data from full-time workers from U.S. organizations that have 100 or more employees, offering each a $1.95 reward. The participants from Phase 1 were not allowed to participate. Among the resulting 339 participants, 300 passed the attention filters (88.5% completion rate). The participants were predominantly Caucasian (85%) and male (61%); they had an average age in the mid-30s (*mean* = 33.0, *SD* = 9.6) and a mean of 6.2 years of work experience (*SD* = 10.3).

Measures

We selected four items for each of the five SEOS constructs (NEO, REO, UG, PIF, and RR) from among the 38 items from Phase 1. In choosing these items, we considered the factor loadings found in Phase 1 and the items' conceptual coverage of the construct domain.[6] We aimed to include a diverse set of items for each construct and to avoid the inclusion of relatively similar items. We asked respondents to what degree they agreed with each item on a 7-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*). Cronbach's alpha values were .84 (NEO), .90 (REO), .88 (UG), .92 (PIF), and .91 (RR). Table 2 summarizes information about measures that we used for other variables

in Phase 2 and the following Phases 3 and 4.

Insert Table 2 about here

Results

Factor structure. We examined the factorial validity of SEOS using confirmatory factor analysis (CFA) in Mplus (version 7.31). Table 3 summarizes the results. The hypothesized model (Table 3-1) with a second-order factor structure for GEO shows an acceptable fit (χ^2 = 282.03, *df* = 164, $p < .01$, *CFI* = .97, TLI = .97, *RMSEA* = .05, *SRMR* = .05). The signs of the correlations between NEO, REO, and GEO are consistent with the results from Phase 1, and the factor loadings are all significant ($p < .01$) and larger than .70. Table 4 shows the hypothesized model, including the full list of items, the factor loadings, and the correlation among latent factors. Following Credé and Harms (2015), we examined three alternative models (Table 3-2): the five-factor model, which only includes five first-order latent factors; the three-factor model, in which the UG, PIF, and RR items directly load onto the GEO factor; and the single-factor model, in which all items directly load onto a single factor. The five-factor model fits slightly but significantly better than the hypothesized model ($p < .01$), whereas the three-factor and single-factor models show significantly worse fit ($ps < .01$). Whereas the first-order five-factor model fits slightly better than the hypothesized model, the three factors of GEO are highly correlated (rs = .56 to .69) in the five-factor model, and our hypothesized model provides more parsimonious representation of GEO than the alternative five-factor model. Next, we added creditor ideology and reciprocity wariness to the hypothesized model and correlated them with NEO, REO, and GEO (Table 3-3). This model shows an acceptable fit (χ^2 = 662.58, *df* = 364, $p < .01$, *CFI* = .96, *TLI* = .95, *RMSEA* = .05, *SRMR* = .06). The alternative models, in which we collapsed creditor ideology and reciprocity wariness with either NEO, REO, UG, PIF, or RR (Table 3-4), show worse fit, suggesting SEOS is distinct from creditor ideology and reciprocity wariness.

Insert Table 3 & 4 about here

Nomological validity. Table 5 shows descriptive statistics and the correlation matrix. Because the variables we used to analyze nomological validity were correlated with one another, zero-order correlations between SEOS and other variables might be spurious. Hence, we used regression analysis to examine the relationships between three new variables (NEO, REO, and GEO) and the other variables (Table 6).

In general, we found differential relationships between the SEOS variables and the predictor variables, with the exception of creditor ideology, which shows positive and significant coefficients for all three measures of NEO, REO, and GEO (bs = .15 to 23, ps < .01), suggesting the unique element of creditor ideology, after controlling for other factors, is the willingness to engage in any type of social exchange. Reciprocity wariness has a significant positive association with NEO (b = .25, p < .01) and a negative association with REO (b = -.10, p < .05) but is insignificantly associated with GEO (b = -.04, p > .10). Agreeableness is positively associated with REO (b = .27, p < .01) and GEO (b = .35, p < .01), Machiavellianism shows a positive and significant coefficient for NEO (b = .47, p < .01) and REO (b = .49, p < .01), and neuroticism has a positive association with NEO (b = .15, p < .05). These results are largely consistent with our expectations, indicating NEO, REO, and GEO have distinct relationships with the individual dispositions. Trust toward close colleagues shows a positive association with both REO (b = .20, p < .05) and GEO (B = .25, p < .01); the sizes of the coefficients are similar for these associations. Trust toward organization members in general is positively and significantly associated with GEO (b = .14, p < .01) but is negatively associated with NEO (b = -.22, p < .01); its association with REO is not significant (b = .03, p > .10). These results are also largely consistent with our expectations, indicating that a unique relationship exists between GEO and depersonalized trust but that trust toward close colleagues does not distinguish between REO and GEO. The social desirability scale shows a significant correlation with NEO (r = -.19, p < .05) and GEO (r = .21, p < .01) but not with REO (r = .00, p > .10). However, the square of the correlation coefficients for NEO and GEO (.04 for both) suggests respondents' attitudes toward socially desirable

responses had a limited impact on the variance of these measures. We observed similar findings on the association of NEO, REO and GEO with other variables when we use control for social desirability in regression analyses. Overall, the results provide support for the factorial and nomological validity of the SEOS measures.

Insert Table 5 & 6 about here

Phase 3: Discriminant and Incremental Validity

We conducted Phase 3 to examine the discriminant validity of GEO from existing measures of individuals' prosocial orientation as well as its incremental validity over them. Prosocial individuals are concerned with others' welfare and thus are likely to engage in behaviors that benefit others (Baston, 1987; Grant, 2008). By contrast, individuals with high GEO pay attention to the interests of both the self and others and are likely to engage in similar behaviors, believing that benefiting others will eventually and indirectly benefit themselves. Therefore, we expect that GEO, although positively related to, is distinct from existing measures of prosocial orientation and predicts individuals' behaviors that benefit others beyond the measures of prosocial orientation.

To test this idea, we examined SEOS variables' relationships with citizenship behaviors (i.e., OCB-I and OCB-O), controlling for measures of prosocial orientation as well as creditor ideology, reciprocity wariness, NEO, and REO. OCB-I and OCB-O capture individuals' discretionary behaviors beyond assigned roles directed to other individuals and the organization, respectively (McNeely & Meglino, 1994). These constructs are widely used as outcome variables in the social exchange literature and are thus ideal to examine the incremental validity of SEOS on individual behaviors. Although SEOS concerns orientation in interactions with other individuals and therefore is more relevant to OCB-I than OCB-O, we also include OCB-O because we expect it to help differentiate the impact of NEO, REO, and GEO on individual behaviors, as we elaborate below.

First, we expected to find a negative relationship between NEO and both OCB-I and OCB-O because individuals with strong NEO would not go the extra mile—whether directed to other individuals or to the organization—without prior explicit agreement on rewards. Second, we did not

have directional expectations for the impact of REO on OCB-I and OCB-O, following the prior studies that theorized individual orientation to reciprocal exchange (e.g., exchange orientation) as moderating individuals' reactions to external stimuli (e.g., perceived organizational support) rather than having a main effect on individual behaviors (e.g., Eisenberger et al., 2001; Coyle-Shapiro, 2002). Given that REO concerns direct reciprocation with a particular individual, we expect individuals with strong REO tend to react differently to different individuals in accordance with the quality of interpersonal relationships. Prior studies on the employee-organization relationship report mixed results on the main effect of individual orientation on OCBs, including non-significant (e.g., Eisenberger et al., 2001) and even negative significant effects (e.g., Coyle-Shapiro, 2002; Ladd & Henry, 2000), whereas they consistently report the positive moderation effect of individual orientation to reciprocal exchange. Third, we expected to find a positive association between GEO and citizenship behaviors, because individuals with high levels of GEO are disposed to directly or indirectly benefit other individuals in the workplace, expecting indirect return from others. We expect a stronger relationship between GEO and OCB-I than between GEO and OCB-O, because OCB-O only indirectly benefits other individuals through directly benefiting the organization, and thus the association between GEO and OCB-O would be more distal than that between GEO and OCB-I.

We included five different measures reflecting prosocial orientation in different ways—prosocial motivation, unmitigated communion, social value orientation, belief in karma, and empathic concern. Prosocial motivation refers to the desire to expend efforts to benefit other people (Batson, 1987). Unmitigated communion also refers to an individual's focus on others, but to the neglect of self (Fritz & Helgeson, 1998). Social value orientation refers to individuals' preferences in distributing resources between the self and anonymous others (Murphy & Ackermann, 2014). Belief in karma taps individuals' belief that "the universe bestows rewards for doing right and exacts punishments for doing wrong" (Kulow & Kramer, 2016, 334), and those with a strong belief in karma demonstrate prosocial behaviors when self-gain through such behaviors is not likely (Kulow & Kramer, 2016). Empathic concern is defined as an emotional reaction characterized by feelings such as compassion, tenderness, softheartedness, and sympathy, which stem from perspective-taking (Cialdini et al., 1997). The empathy-altruism hypothesis (Baston et al., 1991) contends that empathic concerns for other

individuals leads to truly selfless motivation to help them. Through these measures, we intended to capture different meanings of prosocial orientation: Whereas prosocial motivation captures general concerns for others' welfare, other constructs capture more specific aspects of prosocial orientation that involve self-sacrifice (unmitigated communion), trade-offs between self and other interests (social value orientation), belief in the spiritual nature of the universe that transcends individuals and that rewards good deeds (belief in karma), and emotional reactions to particular individuals' situations (empathic concern).

Participants and Procedure

We conducted two-wave data collection through MTurk, inviting individuals who resided in the United States, were fluent in English, worked full time in organizations with 100 or more employees, and had frequent interactions with coworkers. We made sure that those who participated in prior phases did not participate in this phase and that each participant responded only once. The first-wave survey included SEOS, prosocial orientation scales, and demographic variables with four attention filters. The second-wave survey, which took place two weeks after the first, included self-report OCB-I and OCB-O scales. We did not include attention filters in the second wave, because it was short and targeted only those participants who completed the first wave. We used a 7-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*) unless otherwise specified. A total of 255 participants completed the first wave (completion rate = 96.2%, excluding 10 participants who failed to pass the attention filters). Among them, 205 completed the second wave (retention rate = 80.4%). Participants were rewarded US$1.25 and US$0.75 for completing the first and the second wave, respectively.

Measures

GEO, NEO, and REO were measured by the same items used in Phase 2 and showed acceptable levels of Cronbach's alpha (.80 for NEO; .90 for REO; .78 for GEO based on scores of PIF, RR, and UG). As summarized in Table 2, we used well-established measures for OCB-I, OCB-O, creditor ideology, reciprocity wariness, and prosocial orientations. We also included three demographic variables: age (in years), gender (1 = female, 0 = male), and tenure (in years). A meta-analysis found a significant relationship between age and OCB (Ng & Feldman, 2008), and multiple reviews suggest gender and tenure as potential predictors of OCB, whereas empirical evidence is not conclusive

(Podsakoff, MacKenzie, Paine, & Bachrach, 2000; Organ & Ryan, 1995).

Results

Discriminant validity. CFA shows an acceptable fit for a model with a second-order factor of GEO, and first-order factors of NEO, REO, creditor ideology, and reciprocity wariness (χ^2 = 686.33, *df* = 365, *p* = .00, *CFI* = .93, *TLI* = .92, *RMSEA* = .07, *SRMR* = .07). A four-factor model with four prosocial measures (prosocial motivation, unmitigated communion, belief in karma, and empathic concern; we did not include social value orientation, because it is not suitable for CFA) also shows an acceptable fit (χ^2 = 985.63, *df* = 449, *p* = .00, *CFI* = .91, *TLI* = .90, *RMSEA* = .08, *SRMR* = .06). To examine the distinctness of GEO from the four prosocial orientation measures, we conducted a series of CFAs (Table 7). The model with a second-order factor of GEO and first-order factors of NEO, REO, and the four prosocial scales shows a better fit than models that treated each of four prosocial orientation variables under the second-order GEO latent variable (*ps* < .05), suggesting GEO is distinct from the four prosocial orientation variables.

Table 8 shows descriptive statistics and a correlation matrix. As expected, the five prosocial variables are positively and significantly correlated with GEO, but the level of correlation is moderate (between *r* = .23 and *r* = .44). It is important to note that the correlation between social value orientation and GEO (*r* = .23) is smaller than the correlations between GEO and other four prosocial variables, indicating social value orientation and GEO are distinct from each other.

Insert Table 7 & 8 about here

Incremental validity. We examined the incremental validity of GEO over existing measures of prosocial orientation, creditor ideology, and reciprocity wariness by regression analyses. Table 9 summarizes the results. We first entered demographic variables, creditor ideology, reciprocity wariness, and prosocial orientation variables (Model 1 for OCB-I and Model 6 for OCB-O), and then entered GEO (Models 2 and 7), NEO (Models 3 and 8), and REO (Models 4 and 9), respectively. Finally, we included NEO, REO, and GEO altogether (Models 5 and 10) to examine the unique effect of GEO over NEO and REO. VIF scores are all smaller than 2.00, suggesting multicollinearity is not a

serious concern. As expected, two of the five prosocial orientation variables (prosocial motivation and empathic concern) show a significant positive effect on both OCB-I (Model 1, b = .12 and .17, ps < .01) and OCB-O (Model 6, b = .20 and .20, ps < .01). GEO shows a significant positive effect on OCB-I (Model 2, b = .20, p < .05). However, its effect on OCB-O is not significant (p = .09), although the direction of coefficient is consistent with our prediction (Model 7). NEO shows a significant negative effect on OCB-I (Model 3, b = -.16, p < .01) and OCB-O (Model 8, b = -.17, p < .05). REO shows no significant effect for either OCB-I or OCB-O (Models 4 and 9, ps > .10). When we included NEO, REO, and GEO together (Models 5 and 10), GEO shows non-significant effects on OCB-I (p = .07) and OCB-O (p > .10), while the signs of coefficients are consistent with our predictions.

We also conducted analyses including the set of demographic variables, the set of creditor ideology and reciprocity wariness, and the set of prosocial orientation variables separately to see if having different sets of variables in the analyses would have an impact on the effects of GEO, NEO, and REO. We obtained the same results regarding the effects of GEO (Model 2) and NEO (Model 3) on OCB-I in those alternative analyses. Their effects on OCB-O (Model 7 and Model 8, respectively) are slightly different across analyses in their significance, whereas the directions of effects are the same (i.e., NEO is negatively and GEO is positively related to OCB-O). The effects of REO on OCB-I and OCB-O (Models 4 and 9, respectively) are largely non-significant (consistent with what we reported above), whereas REO shows significant positive effects on both OCB-I and OCB-O when we included only demographic variables or no control variables in the analysis. Regarding the final models with all three SEOS variables (Models 5 and 10), the removal of creditor ideology / reciprocity wariness or the prosocial orientation variables result in stronger evidence for the unique effect of GEO over NEO and REO on both OCB-O and OCB-I (ps < .05), whereas the removal of demographic variables does not change the significance of GEO.

Overall, the results provide further support for the distinctness of GEO from existing prosocial orientation measures and its unique power in predicting individuals' citizenship behaviors. The results also show evidence that NEO and GEO predict individual behaviors beyond existing measures of social exchange orientation (i.e., creditor ideology and reciprocity wariness) and provide further

support for the distinctness of NEO, REO, and GEO by showing their differential relationships with individual citizenship behaviors.

Insert Table 9 about here

Phase 4: Cross-National Validation

In Phase 4, we examined the validity of the newly developed measure of GEO in another societal context, as we sought to ensure our newly developed scale could be applied to various cultural settings. We examined the validity of our scale in Japan, which has a more collectivistic culture than the United States (Hofstede, Hofstede, & Minkov, 2010). Researchers have argued a collectivistic culture can promote engagement in generalized exchange (Flynn, 2005).

We took two steps. First, we examined measurement invariance between the United States and Japan. Second, we constructively replicated the finding in Phase 3, by testing the incremental validity of GEO in predicting OCB-I beyond prosocial orientation, creditor ideology, reciprocity wariness, NEO, and REO in the Japanese context, using a multi-source dataset collected from employees and their supervisors in an organization.

Step 1: Measurement Invariance

Participants and procedure. We collected data through an internet-based survey provider in Japan. We translated the survey instrument in Japanese using the back-translation method (Brislin, 1970). We collected responses from individuals who had undergraduate or higher educational qualifications and who were working full time in an organization with 100 or more employees. A total of 486 individuals participated, and 321 completed the survey (completion rate = 66.0%).[7] The resulting sample was 56.1% male; participants had a mean age of 42.5 years (*SD* = 11.2) and a mean of 13.0 years of work experience (*SD* = 10.0). For the United States, we used the dataset we collected in Phase 2 (n = 300).

Measures. The survey included items on NEO, REO, GEO, creditor ideology, and reciprocity wariness (the same items used in Phase 2). Cronbach's alpha values were .81 (NEO), .91 (REO), .92 (PIF), .88 (UG), .91 (RR), .92 (creditor ideology), and .88 (reciprocity wariness).

Results. Using only this Japanese dataset, we first confirmed that the hypothesized model shows an acceptable fit (χ^2 = 473.5, *df* = 164, $p < .01$, *CFI* = .93, *TLI* = .92, *RMSEA* = .08, *SRMR* = .07), and examined alternative models, which suggested NEO, REO, and GEO are distinct from creditor ideology and reciprocity wariness in the Japanese context. Then, following Vandenberg and Lance (2000) and Chen, Sousa, and West (2005), we adopted a CFA-based approach to measurement invariance in four stages: (1) configural invariance (the same factor structure imposed across groups); (2) first-order metric invariance (equivalence of the factor loadings to the first-order factors); (3) second-order metric invariance (equivalence of the factor loadings to GEO); and (4) scalar invariance (the same intercept imposed for all items). The establishment of metric and scalar invariance allows for comparison of the scale correlations and the means between the groups, respectively. Significant differences in the χ^2 test between the models suggest a lack of invariance in the more restrictive model, whereas the ΔCFI below .01 suggests the invariance is still acceptable (Vandenberg & Lance, 2000).

Table 10 summarizes the results. All models show an acceptable fit. Regarding model differences, the first- and second-order metric invariance models are acceptable ($\Delta CFIs < .01$, whereas $p < .01$), but the scalar invariance model is not ($p < .01$, $\Delta CFIs > .01$). Hence, configural and metric invariance are supported, but scalar invariance is not. Overall, the analyses provide support for the validity of the SEOS measures across cultural groups.

Insert Table 10 about here

Step 2: Incremental Validity of GEO in Predicting OCB-I

To further examine the incremental validity of the GEO measure in the Japanese context, we tested the relationship between GEO and OCB-I using a multi-source design in which we collected data from employees and their supervisors in a Japanese company.

Participants and procedure. We collected data in a business unit of a professional service firm in Japan that provides HR-related services to organizations. The general manager of the business unit provided access, and its HR unit helped us distribute emails to invite front-line employees and

their supervisors who had worked together for at least three months at the time of data collection. All instruments were translated and reviewed in the same way as in the first step of this phase. We first invited 611 front-line employees to the survey, and received 306 responses (response rate = 50.1%). Then, two weeks later, we asked the supervisors of the 306 employees to answer the survey, and received 281 responses (response rate = 91.8%, total response rate = 46.0%). The sample included 72 supervisors, with an average of one supervisor for every 3.9 subordinates.

Measures. The employee survey included SEOS variables, measured by 20 items. Cronbach's alpha values were .79 (NEO), .86 (REO), and .81(GEO, based on scores of PIF, UG, and RR). The survey also included creditor ideology, reciprocity wariness, and prosocial orientation (see Table 2 for details) along with employee gender (1 = female, 0 = male) and tenure in the organization as demographic control variables. We did not include age, because it was strongly correlated with tenure (r = .81). Tenure is a proxy of knowledge and experience at work and thus is likely to have more information than age to explain behavior; in addition, it showed a stronger correlation with OCB (r = .23) than age (r = .17) in our sample. We also controlled for job grade (1 = professionals, 0 = associates), because the HR manager of the organization mentioned that individuals in the professional grade in the organization are expected to support colleagues and the organization beyond their own tasks, and thus we suspect job grade might affect OCB-I (cf. Coyle-Shapiro, Kessler, & Purcell, 2004). The supervisor survey included five items for OCB-I (see Table 2 for details).

Results.

Measurement model. The model with the second-order factor structure for GEO, NEO, REO, creditor ideology, reciprocity wariness, and prosocial values shows an acceptable fit (χ^2 = 845.49, df = 359, p = .00, *CFI* = .92, *TLI* = .91, *RMSEA* = .07, *SRMR* = .07). The alternative models collapsing either prosocial values, creditor ideology, or reciprocity wariness with one of five first-order SEOS variables show significantly worse fit ($\Delta\chi^2$ = 144.63 – 983.02, df = 5, p < .01), suggesting the distinctness of the constructs. Table 11 shows descriptive statistics and the correlation matrix of the variables.

Incremental validity. The supervisors rated the behavior of multiple individuals, so we used a random-intercept, mixed-model regression. We conducted this analysis using Stata (version 14.2).

ICC (1) for OCB-I is .33, supporting the use of multi-level analysis. VIF scores are all less than 2.00, suggesting multicollinearity is not a serious concern. Table 12 summarizes the results; we adopted a hierarchical regression approach, and Model 5 includes all variables. The final model (Model 5) shows GEO has a significant, positive effect on OCB-I (b = .25, p < .05), whereas NEO and REO do not (ps > .10).

We also conducted analyses including the set of demographic variables, the set of creditor ideology and reciprocity wariness, and the measure of prosocial values separately to see if having different sets of variables in the analyses would have an impact on the effects of GEO, NEO, and REO. In the final model, GEO maintained a significant effect when we removed prosocial values or reciprocity wariness (ps < .05), whereas it became non-significant when we removed creditor ideology (p = .06). NEO and REO remained non-significant across these analyses. However, when we removed demographic variables, GEO became non-significant (p > .10). Demographic variables can be meaningful in explaining OCB-I in a sample consisting of employees from the same organization, because they can reflect how people behave in a specific organizational context (cf. Ng and Feldman, 2008). In particular, because Japanese culture is notably characterized by high levels of power distance, masculinity (Hofstede et al., 2010) and cultural tightness (Triandis, 1999), it is likely to foster strong social role expectations according to the members' demographic characteristics. In such societal context, therefore, controlling for demographic variables when examining the effects of individual attributes (e.g., social exchange orientation) on OCB-I is desirable. Our results show largely consistent effects of GEO, NEO, and REO on OCB-I in alternative analyses including demographic variables, thus provide further support to the unique ability of GEO to explaining employees' OCB-I.

Overall, the results partially replicate our findings in Phase 3. We found GEO provides additional explanatory power for OCB-I beyond prosocial values, creditor ideology, reciprocity wariness, NEO, and REO, although we did not find a significant negative effect of NEO on OCB-I. We suspect the lack of significant effects of NEO on OCB-I in this study might be due to its research design and context. First, unlike in Phase 3 where we used self-report OCB-I, we used supervisor-reported OCB-I in this study, which is less prone to the effects of common method variance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Second, unlike in Phase 3, participants in this study

were all from the same organization. This setting might suppress the impact of individual differences (i.e. NEO) on their behaviors, as the situation-strength hypothesis suggests (Meyer, Dalal, & Hermida, 2010). Despite these differences in the design and the research setting, our findings, once again, show a significant effect of GEO on OCB-I, thus provide strong support for the distinct explanatory power of GEO on individual behaviors.

Insert Tables 11 & 12 about here

General Discussion

In this article, we highlight generalized social exchange in organizations by offering an individual-differences perspective on why some people engage more than others in generalized social exchange within organizations. We conceptualize generalized exchange orientation to refer to *differences in individuals' beliefs on following the rules of collective reciprocity in organizations.* Through four phases, we developed a scale measuring GEO, established its content, discriminant, nomological, and incremental validity, and demonstrated measurement invariance across cultures. Below, we elaborate on our study's implications for research on generalized social exchange in organizations and for the social exchange literature more generally. We then indicate future research avenues based on our proposed concepts of social exchange orientation.

Implications

First, we advance the generalized exchange literature by offering an individual-differences perspective. To date, relatively few studies have examined generalized social exchange in organizational settings, and those studies mainly adopted a structural perspective to understand structural patterns of generalized exchange interactions among individuals (Baker & Bulkley, 2012; Faraj & Johnson, 2011; Willer et al., 2012). We suggest that individuals vary in their beliefs regarding whether to follow the rules of collective reciprocity; thus, the structural perspective alone cannot explain employees' generalized exchange behaviors. As such, we offer a complementary, individual-

differences perspective to understand generalized social exchange at the individual level within organizational settings.

As the basis of the conceptual definition of GEO, we proposed the rule of collective reciprocity as the regulating mechanism of generalized exchange that underlies three types of individuals' behaviors in generalized exchange, namely, PIF, RR, and UG. These three types of behaviors were proposed in separate studies (Novak & Sigmund, 1995; Takahashi, 2000; Yamagishi et al., 1999) and were thus treated as three unique generalized exchange behaviors (e.g., Baker & Bulkley, 2013; Westphal et al., 2014). Our findings support our view using the rule of collective reciprocity to understand the three types of generalized exchange, because we found GEO can be specified as a second-order concept that incorporates orentiations toward PIF, RR, and UG, providing a parsimonious explanation for different forms of generalized exchange behaviors. Moreover, results from Phases 3 and 4 support the distinction between GEO and REO, suggesting the differences between collective reciprocity and the norm of reciprocity in a dyadic context. Furthermore, findings from Phase 4 indicate replicability of findings across two countries (the United States and Japan), suggesting the rule of collective reciprocity might also be universal in human society, as Gouldner (1960) argued for the norm of reciprocity, although the evidence is still too limited to make a conclusive judgement.

Second, more broadly, our research contributes to the social exchange literature by offering a set of scales measuring NEO, REO and GEO. Our approach has major key advantages over prior approaches for addressing individual differences in social exchange. Our focus on social exchange orientation is specific to the exchange rules in organizational settings. Hence, our construct of orientations is more proximal to the phenomenon in question (Cronbach, 1960; Hogan & Roberts, 1996), so it has the potential for better predictability than other, more general personality traits such as conscientiousness (Orvis, Dudley, & Cortina, 2008), extraversion (Bauer, Erdogan, Liden, & Wayne, 2006), empathy (Bettencourt, Gwinner, & Meuter, 2001), other orientation (Korsgaard, Meglino, Lester, & Jeong, 2010; Lester, Meglino, & Korsgaard, 2008), and individualism-collectivism (Zhong, Wayne, & Liden, 2016). In addition, our approach is more comprehensive as SEOS captures three forms of exchange, unlike the existing concepts of creditor ideology and reciprocity wariness

(Eisenberger, Cotterell, & Marvel, 1987), which only focus on reciprocal exchange and thus cannot capture the meaning of a negotiated and generalized exchange that operates with a unique process and structure (Flynn, 2005; Molm, 2003).

Third, our study has practical implications for organizations. An increasing number of organizations operate across conventional organizational and geographic boundaries, and the need for flexible flow of resources and collaboration among individuals is also increasing in tandem. Our findings generally suggest individuals with high degrees of GEO are likely to demonstrate behaviors that benefit colleagues without the expectation of direct reciprocation. Hence, organizations will benefit from attracting and selecting individuals with strong GEO, going beyond the traditional emphasis on a particular set of personality or prosocial orientation. We therefore suggest expanding the way we think about valuable employees to organizations, by including individuals who are inclined to engage in flexible collaboration.

Limitations and Future Research

This study has several limitations. We discuss them in detail, and also suggest how might future research efforts take the field of social exchange further. First, in the evaluation of the nomological network in Phase 2, we used cross-sectional surveys. Therefore, the results are not free from issues of common-method variance, which might account for some of the observed relationships between SEOS and the other variables. In addition, we cannot claim causal relationships between them, although validity is fundamentally a causal concept (Maynes & Podsakoff, 2014). However, we addressed these issues in Phase 3 by collecting data in two waves of surveys, whereas the use of a self-report measure of OCBs might have allowed self-serving bias to influence the results, and in Phases 4 by collecting information from separate sources at different points in time. We found support for the distinctness of NEO, REO, and GEO, discriminant validity of GEO from prosocial orientation, and GEO's predictive ability beyond existing measures and NEO and REO from these phases.

Second, we used MTurk and an internet-based survey provider to collect data for Phases 2, 3, and 4-1. Although some studies recognize these internet-based survey pools as a valid data-collection approach (e.g., Buhrmester, Kwang, & Gosling, 2011), others question the quality of data collected in this manner (Curran, 2016; Ford, 2017). However, we addressed the issue by collecting

data from members of an organizations in Phases 4-2, and obtained consistent support for the distinctness of GEO from NEO and REO as well as GEO's unique ability to explain individual behaviors beyond existing measures, NEO and REO.

Third, we focused on interpersonal relationships between peers in conceptualizing GEO, NEO, and REO, and developed items for the new measures accordingly, whereas generalized exchange and other forms of exchange might involve vertical social relationships such as leader-member and organization-employee relationships. Researchers who are interested in such relationships can utilize the newly developed measures by changing the targets to fit their needs.

Fourth, although we treated GEO as a second-order construct that underlies PIF, RR, and UG and received support for this speicifcation, more studies are needed to examine commonality and differences between the three different forms of generalized exchange. So far, PIF, RR, and UG have rarely been examined at the same time and in the same setting (see Baler & Bulkley, 2014; Westphal et al., 2012, for exceptions), investigating when and how these three generalized exchange processes might be different or similar is therefore desirable.

Fifth, researchers have argued culture has a profound impact on individual engagement in generalized exchange (Yamagishi & Cook, 1993; Flynn, 2005). To address this issue, we have collected data from the United States and Japan. Because the two countries in this study have distinct societal characteristics, we believe our results indicate the constructs have a certain level of robustness across societies. However, the generalizability and validity of SEOS will require further corroboration in other countries.

Finally, we encourage reserachers to adopt diverse research approaches to study the role of different social exchange orientations in shaping social exchange behaviors. For example, experimental settings could be used to examine the association between different social exchange orientations and social exchange behaviors if experimental conditons are created to allow researchers to observe different social exchange behaviors at the same time. On the other hand, social network design and analysis is ideal to differentiate between the three generalized exchange mechanisms and to examine the commonality and differences of PIF, RR, and UG in shaping generalized exchange behavior.

Conclusion

A lack of attention to generalized exchange has led researchers to overlook variations in individual engagement in various forms of social exchange behaviors. Generalized exchange is valuable to organizations because it helps them facilitate a flexible flow of resources between employees, which can cross conventional organizational boundaries. In this research, we have offered an individual-differences perspective that underpins generalized exchange in organizational settings. Thus our proposed concept generalized exchange orientation provides a research opportunity to empirically test whether or not individuals with strong GEO indeed exhibit prosocial behaviors toward colleagues who may not reciprocate directly.

Footnotes

[1] Following prior studies of different forms of social exchange (e.g., Flynn, 2005; Molm, Takahashi, & Peterson, 2000; Shibayama, Walsh, & Baba, 2012; Willer, Flynn, & Zak, 2012), we include negotiated exchange as a form of social exchange. Although negotiated exchange is often associated with economic relationships, it also takes place in social relationships that last for some length (e.g., colleagues negotiate a regular meeting schedule, Flynn, 2005).

[2] We label this as 'rule' rather than 'norm' because the evidence supporting the existence of a widely shared social norm that encourages individuals' engagement in collective reciprocity is insufficient, although some generalized exchange theorists, such as Takahashi (2000), Novak and Sigmund (1998), and Yamagishi et al. (1999), argue for the universality of generalized exchange in human society.

[3] We acknowledge that some researchers view the participants in generalized exchange to be primarily driven by altruistic motivation (Sahlins, 1974; Sparrowe & Liden, 1997).

[4] The substantive validity coefficient is calculated by the following formula: $C_{SV} = \frac{n_c - n_o}{N}$, where n_c denotes the number of respondents who assigned the item to the intended construct, n_o is the highest number of responses that assign the item to any other construct, and N represents the total number of respondents. Hence, C_{SV} represents the degree to which the respondents associated the item with the posited construct above any of the other constructs and can range from -1.0 to 1.0, with high scores suggesting good levels of content validity.

[5] We did not include exchange ideology (Eisenberger et al., 2001), because it is the concept similar to REO in our study but with an emphasis on the employee–organization relationship. Our measure of REO is thus more generic than exchange ideology in terms of context.

[6] Although one of reviewers raised concerns about the face validity of NEO's fourth item, we decided to keep the item in the measure for two reasons. First, the item describes an individual considering offering a concrete return in exchange for asking for a favor prior to resource transfers actually taking place. Thus, this item captures the key characteristics of negotiated exchange, whereby discussion of the concrete terms of exchange takes place in advance. Second, we conducted all the following analyses dropping the item from NEO and found the 3-item NEO scale showed weaker correlation with other variables, including OCB-I and OCB-O. This finding suggests removal of the fourth item reduces the predictive power of the scale.

[7] We suspect the low completion rate, compared to the U.S. sample on MTurk (Phase 2), is primarily a result of attention filters being less widely used in Japan than in the United States (Miura & Kobayashi, 2015); thus, more participants did not pay attention to the details of the questionnaire.

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Tables and Figures

Table 1
Exploratory factor analysis results, Phase 1

Item	1	2	3	4	5
UG5	**.92**	-.03	.01	-.07	-.01
UG3	**.87**	-.07	.00	-.03	.03
UG2	**.86**	.07	-.07	.09	.03
UG6	**.82**	.09	.03	-.10	.00
UG7	**.79**	.04	.07	.02	-.02
UG8	**.78**	.10	-.07	.09	-.01
UG4	**.78**	-.12	.05	-.03	.00
UG1	**.55**	-.11	.03	.19	.02
NEO4	.00	**.87**	.08	-.08	-.11
NEO2	.10	**.85**	.01	-.01	-.05
NEO6	.07	**.83**	-.07	.02	.11
NEO5	-.02	**.80**	.07	.02	-.14
NEO1	.05	**.79**	.06	-.11	-.12
NEO7	.03	**.76**	-.14	.04	.14
NEO3	-.04	**.74**	.01	.05	.02
NEO8	-.17	**.60**	-.07	.16	.11
PIF8	.03	.06	**.87**	-.08	.06
PIF7	-.02	-.02	**.82**	.00	.02
PIF4	.02	-.07	**.82**	.07	-.06
PIF3	.00	-.08	**.79**	.08	-.04
PIF5	.06	.07	**.79**	-.07	.06
PIF1	.04	-.12	**.78**	.09	-.11
PIF6	-.08	.11	**.76**	.00	.19
RR2	-.04	.06	-.02	**.95**	-.03
RR4	.05	-.05	-.04	**.85**	.01
RR8	.01	.03	.05	**.83**	-.01
RR3	-.01	-.06	.10	**.76**	-.03
RR1	.01	-.03	-.05	**.68**	.03
RR5	.06	.14	.08	**.52**	.07
REO6	-.03	-.14	-.01	-.09	**.97**
REO5	.01	.00	-.02	.02	**.88**
REO7	.00	.02	.07	.04	**.69**
REO4	.10	-.06	.01	.09	**.65**
REO8	-.03	.29	.13	.00	**.52**

Correlations between factors

1				
2	-.24			
3	.53	-.13		
4	.54	-.36	.58	
5	.16	.15	.44	.44

Loadings above .30 are presented in bold.

Table 2
Variables, Phases 2, 3, and 4 (Steps 1 and 2)

Measure	Source	Items	Sample item(s)	Response set	Phase (alpha)			
					2	3	4-1	4-2
Creditor ideology	Eisenberger et al. (1987)	4	"If someone does you a favor, you should do even more in return"	1 (*strongly disagree*) – 7 (strongly agree)	.94	.95	.92	.96[a]
Reciprocity wariness	Lynch et al. (1999)	5	"You should give help only when it benefits you"	Same as above	.96	.89	.88	.88[b]
Agreeableness	Thompson (2008)	5	"Sympathetic"	1 (*very inaccurate*) – 5 (very accurate)	.84			
Neuroticism	Same as above	5	"Envious"	Same as above	.76			
Machiavellianism	Jones & Paulhus (2014)	9	"Most people can be manipulated"	1 (*strongly disagree*) – 5 (strongly agree)	.90			
Trust to close colleagues	Molm et al. (2007)	4	"My close colleagues are trustworthy"	Same as above	.95			
Trust to organization members	Same as above	4	"People in this organization are trustworthy"	Same as above	.95			
Social desirability	Reynolds (1982)	13	"I'm always willing to admit it when I make a mistake"	0 (*disagree*) - 1 (*agree*) –	.80			
Prosocial motivation	Grant (2008)	4	"Because it is important to do good for others through my work."	1 (*strongly disagree*) – 7 (strongly agree)		.98		
Unmitigated communion	Fritz and Helgeson (1998)	7[b]	"I *always* place the needs of others above my own"	Same as above		.84		
Social value orientation	Murphy et al. (2011)	6	N/A[c]	N/A		N/A		
Belief in Karma	Kopalle et al. (2010)	5[d]	Good actions in the present lead to good outcomes in the future either in this life or in the hereafter	1 (*strongly disagree*) – 7 (strongly agree)		.85		
Empathetic concern[e]	Maner et al. (2002)	6	"Compassionate"	1 (Not at all) - 5 (Extremely)		.96		
OCB-I	Lee and Allen (2002)	7	"Help others who have been absent"	1 (Never) -6 (Always)		.87		
OCB-O	Same as above	7	"Keep up with developments in the organization"	Same as above		.94		

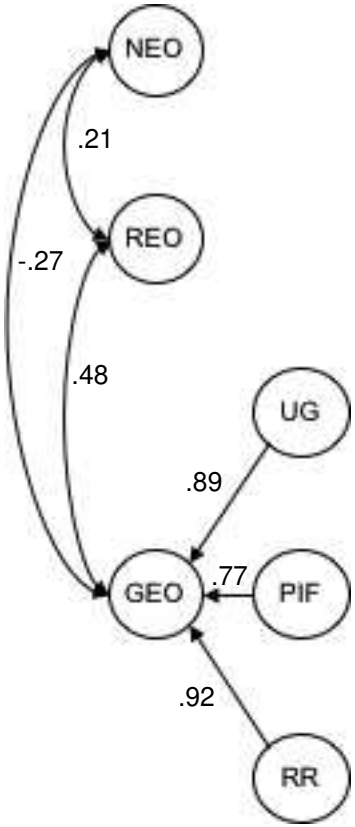
Prosocial values	Rioux and Penner (2001)	3[f]	"Because I want to help my co-workers in any way I can"	1 (*strongly disagree*) – 7 (strongly agree)	.86
OCB-I	Williams and Anderson (1991)	5[g]	"Helps others who have heavy work load"	Same as above	.92

a) In Phase 4 Step 2, we chose three items each that showed the highest loadings in Phase 3. b) We removed two reverse-coded items from the original 9-item measure.
c) This measure operationalizes the orientation on a continuum from competitive to individualistic to prosocial to altruistic, by asking participants to make distribution decisions upon six sliders, each of which displayed different sets of distribution options. The measure uses the arctangent function to transform the points participants distributed to the other and self into a radian score that spans from -16.26 (corresponds to perfect competitiveness) to 61.39 (perfect altruism). Although Cronbach's alpha is not available, Murphy et al. (2011) demonstrated good test-retest reliability (.92). d) We removed 2 items ("There is no beginning or end to the universe" and "The world was not formed by a one-time act of creation") due to low correlation with other items. e) Participants were guided to imagine a situation in which their close colleagues were experiencing a serious problem, and were asked to indicate on a 5-point Likert scale the extent to which they experienced emotions described by each item. f) We chose three items that specifically refer to co-workers ("Because I want to help my co-workers in any way I can," "Because I like interacting with my co-workers," and "To get to know my co-workers better."), because we were interested in behaviors toward co-workers. Participants were asked ""Why are you motivated to do your work?" g) We removed two items, "Helps others who have been absent" and "Assists supervisor with his/her work," to reduce the problem of fatigue among supervisors, who were expected to evaluate multiple subordinates. We decided that the two items are less relevant because, first, HR manager of the research site pointed out that personnel absence is quite rare in the organization, and the latter refers to individuals' behaviors toward supervisor, whereas GEO concerns individuals' interactions with other members of the workplace.

Table 3
Confirmatory factor analysis results, Phase 2

	Model fit							Model difference		
	χ2	df	p	CFI	TLI	RMSEA	SRMR	$\Delta\chi$2	Δdf	p
1. Hypothesized model	282.03	164	.00	.97	.97	.05	.05			
2. Alternative models to 1										
Five-factor model	261.85	160	.00	.98	.97	.05	.04	20.2	4	.00
Three-factor model	830.57	167	.00	.84	.82	.12	.07	548.5	3	.00
Single-factor model	1861.80	170	.00	.59	.54	.18	.14	1579.8	6	.00
3. Hypothesized model, creditor ideology, and reciprocity wariness	662.58	364	.00	.96	.95	.05	.06			
4. Alternative models to 3										
Creditor ideology collapsed with NEO, REO, PIF, UG or RR	1230.16 - 2086.10	368	.00 - .00	.76 - .88	.74 - .87	.09 - .13	.11 - .12	567.58 - 1423.53	4	.00 - .00
Reciprocity wariness collapsed with NEO, REO, PIF, UG or RR	1019.85 - 2088.35	368	.00 - .00	.76 - .91	.74 - .90	.08 - .13	.08 - .16	357.27 - 1423.53	4	.00 - .00

Table 4
Factor structure of SEOS, Phase 2

	Factor loading	Item	Alpha
	.72	At work, it generally pays to clarify rewards before making extra efforts for others.	.84
	.76	If I do not ask for something in return before doing something for others at work, I will be taken advantage of.	
	.80	When I ask someone to help me with work, I should ask him/her what he/she wants in return.	
	.74	I hesitate to ask colleagues to do something extra for me unless I can offer concrete benefits in exchange.	
	.78	When I receive support from a colleague, I should remember to give something back to him/her.	.90
	.88	If someone in the workplace does me a favor, I feel obliged to repay him/her in some way.	
	.89	If someone does something for me, I feel the need to do something for him/her.	
	.77	At work, I always repay someone who has done me a favor.	
	.81	I think kindness to others in the workplace will eventually come back to me in some way.	.88
	.86	It is right to help others at work, as I will receive help from someone in the future.	
	.77	My efforts for colleagues will be rewarded by someone at some point, if not immediately.	
	.79	I am happy to do favors for others at work, as I will someday need a favor from someone.	
	.82	When I receive support from a colleague, I should provide support to others in the workplace.	.92
	.89	When someone in the workplace makes extra efforts for me, I often start thinking what I can do for others.	
	.83	Receiving kindness from someone in the workplace makes me feel I should do something for others.	
	.91	When I receive someone's favor at work, I want to repay the debt by doing a favor for others.	
	.80	At work, I should be kind to those who are kind to others.	.91
	.81	I believe those who often go the extra mile for others at work deserve my effort to help them.	
	.87	When a colleague who often gives support to others is in trouble, I should do something for him/her.	
	.90	When I find someone in the workplace helping others, I feel I should offer help when he/she needs.	

Standardized estimates are reported. All correlations and loadings are significant at <.01.

Table 5
Descriptive statistics and correlation matrix, Phase 2

		Mean	S.D.	1	2	3	4	5	6	7	8	9	10
1	NEO	3.16	1.32		.19	-.17	.18	.47	-.31	.20	.47	-.27	-.27
2	REO	4.94	1.13	.18		.47	.34	-.08	.22	-.07	.15	.29	.22
3	GEO	5.38	.87	-.20	.46		.34	-.21	.45	-.09	-.12	.54	.48
4	Creditr ideology	4.40	1.27	.15	.34	.36		.16	.09	-.09	.15	.23	.26
5	Reciprocity wariness	2.69	1.42	.48	-.08	-.23	.14		-.36	.13	.44	-.32	-.15
6	Agreeableness	4.08	.74	-.35	.20	.48	.13	-.37		-.24	-.35	.39	.28
7	Neuroticism	2.25	.89	.24	-.06	-.15	-.13	.16	-.32		.09	-.15	-.15
8	Machiavellianism	2.94	.75	.50	.14	-.19	.09	.45	-.43	.22		-.23	-.17
9	Trust to close colleagues	5.72	.94	-.30	.28	.56	.26	-.33	.45	-.23	-.30		.64
10	Trust to organization members	5.21	1.16	-.30	.21	.50	.29	-.18	.34	-.22	-.26	.66	
11	Social desirability scale	1.50	.26	-.19	.00	.21	.13	-.12	.33	-.34	-.40	.26	.27

n = 300. Correlation coefficients larger than .11 are significant ($p < .05$).
Numbers below diagonal are correlations, and those above diagonal are partial correlations (controlling social desirability).

Table 6
Regression analysis results, Phase 2

	NEO			REO			GEO		
	Coef.	*S.E.*	*sig.*	*Coef.*	*S.E.*	*sig.*	*Coef.*	*S.E.*	*sig.*
Constant	1.52	.70	*	.40	.67		.92	.44	*
Creditr ideology	.17	.05	**	.23	.05	**	.15	.03	**
Reciprocity wariness	.25	.05	**	-.10	.05	*	-.04	.03	
Agreeableness	-.09	.10		.27	.10	**	.35	.06	**
Machiavellianism	.47	.10	**	.46	.09	**	.07	.06	
Neuroticism	.15	.07	*	.03	.07		.07	.05	
Trust to close colleagues	.00	.09		.20	.09	*	.25	.06	**
Trust to organization members	-.22	.07	**	.03	.07		.14	.04	**
R^2	.39			.46			.40		
Adjusted R^2	.38			.44			.38		

n=300. ** Significant at the .01 level. * Significant at the .05 level.

Table 7
Confirmatory factor analysis results, Phase 3

	Model fit							Model difference		
	χ^2	*df*	*p*	*CFI*	*TLI*	*RMSEA*	*SRMR*	*Δχ2*	*Δdf*	*p*
1. Hypothesized model	1516.13	795	0.00	0.90	0.90	0.07	0.07			
Alternative models										
2. Prosocial motivation under GEO	1584.77	800	0.00	0.90	0.89	0.07	0.09	68.63	5.00	0.00
3. Unmitigated communion under GEO	1578.03	800	0.00	0.90	0.89	0.07	0.08	61.89	5.00	0.00
4. Belief in karma under GEO	1529.32	800	0.00	0.90	0.90	0.07	0.07	13.19	5.00	0.02
5. Empathic concern under GEO	1581.67	800	0.00	0.90	0.89	0.07	0.09	65.53	5.00	0.00

Table 8
Descriptive statistics and correlation matrix, Phase 3

		Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Age	41.28	10.46														
2	Gender	1.50	.50	.11													
3	Tenure	8.90	7.12	.49	.08												
4	Creditor ideology	4.43	1.22	-.06	.02	-.03											
5	Reciprocity wariness	2.53	1.15	-.28	-.20	-.14	-.10										
6	Prosocial motive	4.84	1.67	.06	.05	-.03	.40	-.17									
7	Unmitigated communion	3.95	1.16	.01	.11	.02	.39	-.20	.59								
8	Social value orientation	22.88	13.60	.12	-.06	.00	.23	-.29	.21	.28							
9	Belief in karma	4.44	1.42	.10	.25	.05	.18	-.04	.28	.25	.02						
10	Empathic concern	4.88	1.43	.20	.14	.07	.30	-.32	.57	.51	.16	.25					
11	NEO	3.01	1.22	-.19	-.04	-.15	.04	.54	-.12	-.10	-.17	.03	-.26				
12	REO	5.18	1.08	-.01	-.01	-.02	.51	-.09	.27	.27	.18	.10	.16	.14			
13	GEO	5.53	.84	.10	.13	.05	.51	-.24	.44	.42	.23	.38	.41	-.24	.43		
14	OCB-I	4.20	.94	.13	.14	.03	.29	-.17	.45	.36	.19	.16	.46	-.25	.12	.39	
15	OCB-O	3.57	1.29	.18	.11	.18	.36	-.09	.48	.39	.11	.22	.46	-.17	.19	.40	.64

n = 205. Correlation coefficients larger than .13 are significant ($p < .05$).

Table 9
Regression analysis results, Phase 3

OCB-I	*Model 1*			*Model 2*			*Model 3*			*Model 4*			*Model 5*		
	Coef.	*S.E.*	*sig.*	*Coef.*	*S.E.*	*sig.*	*Coef.*	*S.E.*	*sig.*	*Coef.*	*S.E.*	*sig.*	*Coef.*	*S.E.*	*sig.*
Constant	1.64	.47	**	1.02	.54	+	1.86	.47	**	1.84	.51	**	1.46	.56	*
Age	.01	.01		.01	.01		.01	.01		.01	.01		.01	.01	
Gender	.19	.12		.18	.12		.21	.12	+	.18	.12		.20	.12	+
Tenure	.00	.01		.00	.01		-.01	.01		.00	.01		-.01	.01	
Creditor ideology	.08	.05		.03	.06		.10	.05	+	.11	.06	+	.08	.06	
Reciprocity wariness	.03	.06		.04	.06		.12	.06	+	.03	.06		.11	.06	+
Prosocial motive	.12	.05	**	.11	.05	*	.12	.05	*	.13	.05	**	.11	.05	*
Unmitigated communion	.03	.07		.02	.07		.04	.06		.03	.07		.03	.06	
Social value orientation	.01	.00		.00	.00		.00	.00		.01	.00		.00	.00	
Belief in Karma	-.02	.04		-.05	.04		-.01	.04		-.02	.04		-.04	.04	
Empathic concern	.17	.05	**	.16	.05	**	.15	.05	**	.17	.05	**	.14	.05	**
GEO				.20	.09	*							.18	.09	+
NEO							-.16	.06	**				-.13	.06	*
REO										-.06	.06		-.06	.06	
R2	.29			.31			.32			.30			.33		
Adjusted R2	.26			.27			.28			.26			.29		
F-value (model difference)				5.49			9.22			1.12			4.39		
p-value				.01	**		.00	**		.43			.01	*	

n = 205. ** Significant at the .01 level, * significant at the .05 level, + significant at the .10 level. Model comparisons are with Model 1.

Table 9
Regression analysis results, Phase 3 (cont.)

OCB-O	*Model 6*			*Model 7*			*Model 8*			*Model 9*			*Model 10*		
	Coef.	*S.E.*	*Sig.*	*Coef.*	*S.E.*	*Sig.*	*Coef.*	*S.E.*	*Sig.*	*Coef.*	*S.E.*	*Sig.*	*Coef.*	*S.E.*	*Sig.*
Age	.01	.01		.01	.01		.01	.01		.01	.01		.01	.01	
Gender	.13	.16		.12	.16		.15	.16		.12	.16		.15	.16	
Tenure	.03	.01	*	.03	.01	*	.02	.01	*	.03	.01	*	.02	.01	*
Creditor ideology	.20	.07	**	.15	.07	*	.22	.07	**	.20	.08	**	.18	.08	*
Reciprocity wariness	.12	.07		.13	.07	+	.21	.08	*	.12	.07		.21	.08	*
Prosocial motive	.20	.06	**	.19	.06	**	.20	.06	**	.20	.06	**	.19	.06	**
Unmitigated communion	.07	.09		.06	.09		.08	.09		.07	.09		.07	.09	
Social value orientation	.00	.01		.00	.01		.00	.01		.00	.01		.00	.01	
Belief in Karma	.02	.06		-.01	.06		.03	.06		.02	.06		.01	.06	
Empathic concern	.20	.07	**	.19	.07	**	.18	.07	*	.20	.07	**	.17	.07	*
GEO				.20	.12	+							.15	.13	
NEO							-.17	.07	*				-.14	.08	+
REO										-.01	.08		.00	.09	
Constant	-.69	.62		-1.31	.71	+	-.47	.62		-.65	.67		-.95	.75	
R2	.36			.37			.37			.36			.38		
Adjusted R2	.32			.33			.34			.32			.34		
F-value (model difference)				3.11			5.49			.03			2.34		
p-value				.04	*		.01	**		1.00			.09	+	

n = 205. ** Significant at the .01 level, * significant at the .05 level, + significant at the .10 level. Model comparisons are with Model 6.

Table 10
Measurement invariance test, Phase 4, Step 1

	Model fit							Comparison				
	χ2	*df*	*p*	*CFI*	*TLI*	*RM SEA*	*SR MR*	Model	*Δχ2*	*df*	*p*	*ΔCFI*
1. Configural invariance	555.89	328	<.01	.96	.96	.05	.06					
2. Metric invariance (1st-order)	601.43	343	<.01	.96	.95	.05	.06	1	49.34	15	.00	<.01
3. Metric invariance (2nd-order)	604.54	345	<.01	.96	.95	.05	.06	2	3.03	2	.22	<.01
4. Scalar invariance	743.43	365	<.01	.94	.94	.06	.08	3	219.43	37	.00	.02

Table 11
Descriptive statistics and correlation matrix, Phase 4, Step 2

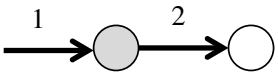
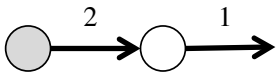
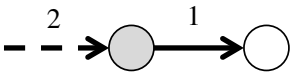
		Mean	*S.D.*	1	2	3	4	5	6	7	8	9
1	Gender	1.44	.50									
2	Tenure	4.51	4.99	.01								
3	Job grade	.28	.45	-.12	.44							
4	Prosocial values	6.04	.75	-.09	-.06	.03						
5	Creditor ideology	4.98	1.22	-.11	-.19	-.06	.35					
6	Reciprocity wariness	2.74	1.33	-.07	-.14	-.03	-.30	.04				
7	NEO	2.86	1.17	-.02	-.13	.02	-.14	.13	.59			
8	REO	5.36	.90	-.10	-.17	.04	.42	.63	-.14	.09		
9	GEO	5.65	.75	.01	-.13	-.04	.50	.57	-.24	-.06	.69	
10	OCB-I	3.93	1.10	-.13	.23	.29	.09	-.03	-.05	-.04	.09	.10

n = 281. Correlation coefficients larger than .12 are significant ($p < .05$).

Table 12
Random-intercept, mixed-model regression, Phase 4, Step 2

	Model 1			Model 2			Model 3			Model 4			Model 5		
	Coef.	*S.E.*	*Sig.*	*Coef.*	*S.E.*	*Sig.*	*Coef.*	*S.E.*	*Sig.*	*Coef.*	*S.E.*	*Sig.*	*Coef.*	*S.E.*	*Sig.*
Constant	3.62	.62	**	2.91	.67	**	3.64	.62	**	3.34	.65	**	2.91	.68	**
Gender	-.27	.12	*	-.29	.12	*	-.27	.12	*	-.26	.12	*	-.29	.12	*
Tenure	.02	.01	+	.02	.01	+	.02	.01		.03	.01	+	.02	.01	+
Job grade	.60	.15	**	.60	.15	**	.60	.15	**	.57	.15	**	.59	.15	**
Prosocial values	.10	.09		.03	.09		.10	.09		.08	.09		.02	.09	
Creditor identity	-.02	.05		-.09	.06		-.02	.05		-.07	.06		-.10	.07	
Reciprocity wariness	-.03	.05		-.01	.05		-.02	.06		-.02	.05		.01	.06	
GEO				.27	.11	*				.13	.09		.25	.12	*
NEO							-.02	.06					-.03	.06	
REO										.13	.09		.04	.10	
-2 x Log likelihood	799.60			793.23			799.47			797.63			792.90		
Δ-2 x Log likelihood				6.37			.12			1.97			.33		
p-value				.01	*		.72			.16			.85[a]		

n=281. ** significant at .01 level, * significant at .05 level, + significant at .10 level. a) compared with Model 2.

Paying it forward	Rewarding reputation	Unilateral giving with expectation for indirect reciprocation
		
The focal individual receives benefits from a person, and then give resources to someone else in the same social group.	The focal person gives resources to a person who has given resources to others in the same social group.	The focal person gives resources to a person in the same social group, expecting future indirect reciprocation from someone in the social group.

The arrows represent transfer of resources among individuals, and the numbers represent the temporal order of transfers. Dashed arrow represents a transfer that has not taken place.

Figure 1. Three manifestations of generalized exchange orientation