

# The Self- and Other-Interest Inventory

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Five studies develop and validate the Self- and Other-Interest Inventory, an individual-difference measure of the motivation to act in one's own interest and the motivation to act in another's interest that measures these motivations at the level of self-beliefs. Study 1 demonstrates that self- and other-interest can be measured reliably and validly, as independent constructs, with a self-report measure. Study 2 develops a version of the Self- and Other-Interest Inventory for use with a general population and demonstrates systematic changes in the relation between self- and other-interest scores with age. Study 3 shows that self- and other-interest scores vary independently, as a function of the accessibility of related values. Study 4 provides evidence that self-interest scores predict behaviors that benefit the self and that other-interest scores predict behaviors that benefit another person. Finally, Study 5 demonstrates that in situations that involve a trade-off between the pursuit of self-interest and the pursuit of other-interest, such as the prisoner's dilemma, self- and other-interest scores contribute independently to behavioral prediction.

**Keywords:** self-interest, self-construal, values, age differences

That self-interest exerts a powerful influence on behavior, no one doubts. People are more likely to act in ways that accord with their self-interest (Holmes, Miller, & Lerner, 2002; Ratner & Miller, 2001); they assume that others will act in line with self-interest (Miller & Ratner, 1998); and they explain their own behavior as driven by this motive (Miller, 1999). Scholars, likewise, assume that self-interest is an extremely important, if not singularly important, motivator of behavior. Other motives (e.g., altruism, conformity) are taken seriously if, and only if, they account for additional variance in behavior above and beyond self-interest. Moreover, when confronted with behavior that appears to violate the self-interest motive, scholars are more likely to expand the scope of this motive (e.g., by including feeling good about oneself or having one's worldview confirmed in the category of interests) than to question its influence (e.g., Cialdini, Brown, Lewis, Luce, & Neuberg, 1997; Omoto & Snyder, 1995). Indeed, confidence in the centrality of self-interest is so high that scholars rarely ask whether people are motivated by self-interest; instead, they ask whether people are motivated by anything else.

This article reports five studies designed to examine the meaning and centrality of the self-interest motive in people's everyday lives. We introduce a new, self-report measure, the *Self- and Other-Interest Inventory* (SOII), that assesses individual differ-

ences in the extent to which self-interest and other people's interests serve as guides for behavior. We show that the self- and other-interest subscales provide reliable and valid measures of the underlying constructs and that scores on these scales relate predictably to behavior. We also use the scales to probe the nature of self-interest and its relation to other-interest in student and adult samples. At the core of these studies is a set of hypotheses about the self-interest motive: that its strength varies systematically across individuals and contexts; that its meaning and relation to other-interest change over the lifespan; and, importantly, that people can report on the extent to which self-interest and other-interest guide their behavior. These hypotheses stand in contrast to the centrality, primacy, and invariance accorded to self-interest in many social science fields, although they find support in the psychological literature.

## Self-Interest

Current assumptions about the power of the self-interest motive owe much to European social theorists of the 17th and 18th centuries, who sought to fashion a political economy that was consonant with human nature (Hirschman, 1977). They seized upon self-interest as the human proclivity that could most easily be harnessed for the good of society. Self-interest was the deadly sin of avarice—the passion for gain—tamed by reason. It was seen as constant, predictable, and calm, at least in comparison to the more unruly passions. Although later theorists were to lament the repressed, one-dimensional personality produced by the cultivation of self-interest, in the 18th century, repression was seen as the good news. Self-interest was prized for its propensity to knit people together into a social fabric based on mutual need, exchange, and reciprocity. The relationships of mutual dependence established through the pursuit of self-interest were expected to wear down prejudices and soften and polish barbarian ways. The result would be a smoothly functioning society, populated by human actors seeking to maximize their gains within its confines.

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By the time Adam Smith articulated this vision in *The Wealth of Nations* (Smith, 1776/1994), the norm of self-interest was well established.

In the United States and other capitalist societies, the norm of self-interest holds considerable sway; however, human behavior does not always conform to its dictates. Instead, people act out of so many diverse motives, feelings, and predilections that self-interested behavior is often difficult to discern. Empirical researchers have therefore turned their attention to the task of identifying the conditions under which it is most likely to emerge. Their efforts have identified three enabling conditions: People are most likely to act on self-interest when the costs and benefits of a particular course of action are clear, when they are thinking about how those costs and benefits will affect them personally, and when they believe that the domain in question is one in which self-interest should prevail (see, e.g., Chong, Citrin, & Conley, 2001; Frank, Gilovich, & Regan, 1993; Liberman, Samuels, & Ross, 2004; Ratner & Miller, 2001; Sears & Lau, 1983; Young, Thomsen, Borgida, Sullivan, & Aldrich, 1991). One implication of this analysis is that self-interested behavior is highly mindful and deliberative. It requires an explicit analysis of how one's interests are served by different courses of action and a conscious decision to act on that analysis.

We maintain that this mindful and deliberative process is regulated by the extent to which individuals embrace self-interest as a guiding motive for their own behavior. We define self-interest as the pursuit of gains in socially valued domains, including material goods, social status, recognition, academic or occupational achievement, and happiness. Note that this definition of self-interest is intentionally broad; it goes beyond material success to include all of the major determinants of status in society. Previous research has documented systematic individual differences in the extent to which people identify the pursuit of societal markers of success as important in their lives (see, e.g., Carver & Baird, 1998; Kasser & Ryan, 1993, 1996; Srivastava, Locke, & Bartol, 2001). We seek to capture these individual differences in a measure that can be used to predict behavior.

### Other-Interest

The high regard in which 18th-century thinkers held self-interest was based, in part, on their assumption that it would produce a moral, as well as a material, economy (Hirschman, 1977). As individuals pursued their own personal gains, they would quickly realize that there was more to be had if they traded, collaborated, and formed partnerships with others; the establishment of these mutually dependent relationships would then give them a stake in others' outcomes and a reason to care about their interests. Although this theory has proven to be only partially valid in practice, the idea that interdependence gives people a motivation to act on behalf of others has remained a cornerstone of thinking about ethics in capitalist societies, from de Tocqueville's (1840/1994) discussion of enlightened self-interest to current debates about corporate social responsibility (see Crane, McWilliams, Matten, Moon, & Siegel, 2008).

Support for the link between interdependence and other-regarding motivation comes from research on behavior in strategic games. Consider, for example, the ultimatum game, in which an allocator proposes a two-way split of a sum of money to a recipient

who either accepts or rejects the proposal. Rejection leaves both players with a payoff of zero. Research using the ultimatum game has shown that the most frequent offer by allocators is a 50:50 split and that approximately half of recipients reject splits that give them 20% or less of the total (Bolton & Zwick, 1995; Camerer & Thaler, 1995; Güth, Schmittberger, & Schwarze, 1982; Roth, 1995; Thaler, 1988). Neither of these results is consistent with the pursuit of self-interest, narrowly defined; instead, it appears that both players are motivated by concerns with fairness and reciprocity, concerns that reflect an interest in their own outcomes and also the outcomes of the other player (Camerer & Thaler, 1995; Thaler, 1988). Economic theorists have identified several principles that capture the interplay of self- and other-interest in the ultimatum game. People like others to do well, but not better than they themselves do, and have a strong aversion to inequity. Models that include these sources of utility provide better and more parsimonious prediction of game behavior than do models based on efficiency alone (Bolton, 1991; Bolton & Ockenfels, 2000; Fehr & Schmidt, 1999, 2006).

Evolutionary biologists, too, have embraced the notion that people are motivated by others' interests. Prosocial behavior has traditionally posed a puzzle for evolutionary theory, as the provision of public goods to another at a cost to the self should decrease, not increase, one's fitness (Wilson, 2002). Early efforts to solve this puzzle focused on explaining away apparently prosocial behavior as selfishness in disguise (Dawkins, 1976; Hamilton, 1964). However, spurred by evidence that cooperation and other forms of prosocial behavior are rewarded socially (Fehr & Gächter, 2002) and stimulate activity in the reward circuitry of the brain (de Quervain et al., 2004; Rilling et al., 2002), evolutionary theorists have turned their attention to understanding how prosocial proclivities may have been adaptive. Current explanations highlight the survival advantages of cooperation and reciprocity in the small-scale, highly interdependent living groups that characterized most human societies (e.g., Nowak, 2006; Ohtsuki & Iwasa, 2004). These explanations provide a theoretical backstory for the existence of an other-interest motive and its roots in interdependence.

Psychologists, for their part, have focused on identifying the proximal determinants of prosocial behavior through empirical research (Batson, 1998; Penner, Dovidio, Piliavin, & Schroeder, 2005). This vast and heterogeneous literature highlights the multiplicity of factors that influence the tendency to act in ways that benefit another. Self-interest plays an important role: People are more likely to behave prosocially to the extent that the costs to them of engaging in the behavior are low and the benefits are high. However, self-interest is by no means the whole story. Norms matter: People are motivated to behave prosocially by norms of reciprocity and social responsibility, both of which increase in importance with age (Dovidio, 1984; Peterson, 1980). Dispositions matter: People who score high on the personality trait of agreeableness and those who score high on measures of prosocial personality are more likely to behave prosocially across a wide range of situations and over time (Graziano, Habashi, Sheese, & Tobin, 2007; Penner & Finkelstein, 1998). Values matter: People who have a prosocial social value orientation, those whose value priorities support helping, and those who define themselves as concerned with others are more likely to behave prosocially (Omoto & Snyder, 1995; Schwartz, 2010; Van Lange, Otten, De Bruin, & Joireman, 1997). Moreover, recent research on moral

judgment highlights the importance of moral emotions and intuitions, which arise spontaneously and automatically in response to the needs of others (see [Greene & Haidt, 2002](#), for a review). Taken together, these findings indicate that the motivation that underlies other-interested behavior is multifaceted and that its components differ from those that underlie self-interested behavior. However, in terms of how that motivation is realized in behavior, self- and other-interest appear to be similar: Both are regulated by a conscious and deliberative process, in which personal needs, values, feelings, and aspirations figure in the assessment of the costs and benefits of particular behaviors. This suggests that it may be possible to conceptualize and assess self- and other-interest on a common plane.

We propose that there is a motive to pursue others' interests that is analogous to the self-interest motive. We define other-interest as the pursuit of gains for others in socially valued domains, including material goods, social status, recognition, academic or occupational achievement, and happiness. We assume that the strength of the other-interest motive varies across individuals, as a function of characteristics that promote interdependence and an orientation to others. Note that we consider these two sources of other-interest in tandem. Previous research has often sought to disentangle them—to distinguish between egoistic and altruistic motives for prosocial behavior. That is not our project here. Instead, we seek to define other-interest at a level of analysis that facilitates the prediction of behavior.

### Assessing Self- and Other-Interest

The methodologies used in research on self-interest reflect the assumptions researchers have made about its power and ubiquity. These assumptions led early researchers to define self-interest "objectively," by using class or group interests as a proxy. According to this logic, women (but not men) have an interest in abortion policy; parents of school-age children have an interest in policies related to school busing; smokers have an interest in policies to ban smoking in public places; homosexuals have an interest in legal restrictions on gay marriage. Of course, this is a very crude way of operationalizing self-interest; it relies on the assumptions that individual members of the group in question all understand their interests in the same way and all care about those interests to the same extent. Neither of these assumptions is valid. Thus, it is not surprising that research that adopted this approach demonstrated weak effects of self-interest on policy preferences and stronger, but still modest, effects of self-interest on behavior. Recognizing that unmeasured individual differences may be responsible for these weak effects, some studies introduced manipulations designed to increase the salience of personal costs and benefits; these studies indeed produced larger effects of self-interest, though they did so by altering the phenomenon to suit the measure, rather than by altering the measure to suit the phenomenon ([Citrin & Green, 1990](#)).

More recent studies have assessed self-interest at the individual level, by measuring people's social value orientation (SVO; [Van Lange et al., 1997](#); see also [Messick & McClintock, 1968](#)). An SVO is a characteristic goal people pursue when making decisions that affect both self and others. SVOs are measured with decomposed game matrices. Respondents are asked to make a series of choices between options that allocate money to themselves and to

an unknown other and then are classified on the basis of their pattern of responses. Most individuals make predominantly prosocial (seeking largest joint outcome), individualistic (seeking largest outcome for self), or competitive (seeking largest difference favoring own over other's outcome) choices. However, in every study, there is a sizable minority of participants that cannot be classified. Note that this measure pits self-interest against other-interest; it does not allow individuals to be high on both motives.

In the present research, we measure self- and other-interest through respondents' own eyes. In particular, we ask respondents to indicate how much they agree with a series of statements that reflect the pursuit of their own and others' interests. We use their agreement ratings to assign them separate scores for their levels of self-interest and other-interest. We measure these constructs independently and make no assumptions about their degree of relatedness. Thus, an individual can be high in both, high in just one, or low in both. This measurement strategy is based on the assumption that self-regulation plays a key role in producing self-interested and other-interested behavior. People who believe themselves to be self-interested make an effort to act in their own interests, and, likewise, people who believe themselves to be other-interested act on those self-construals.

### Malleability and Age-Trends

Several important implications follow from this self-regulatory perspective on self- and other-interest. One concerns the malleability of these motives. If self-interest is not an invariant fact of human nature but instead a self-construal with motivational force, the nature of that belief and its power to influence behavior will vary as a function of contextual factors ([Gardner, Gabriel, & Lee, 1999](#); [Maio, Pakizeh, Cheung, & Rees, 2009](#)). Reminding people of their commitment to social justice or making salient their dependence on others should produce an increase in other-interest; reminding them of their bank balance or their percentile rank on a recent exam should produce an increase in self-interest. We would expect to pick up these momentary fluctuations in self- and other-interest with our measure. Similarly, situational cues regarding the relevance of these self-construals should influence their impact on behavior. For example, playing the Wall Street game should increase the salience of self-interest as a guide to behavior, whereas playing the Community game should increase the salience of other-interest as a guide to behavior (see [Lieberman et al., 2004](#)). This latter set of predictions is consistent with findings from the survey literature regarding the effects of making self-interest salient on its correlation with behavior (see [Citrin & Green, 1990](#)).

In addition, we would expect self- and other-interest and the relation between them to be shaped by one's life context and therefore to change over the lifespan. The transition from college to adulthood, in particular, is likely to lead to a significant shift in how people define and pursue these motives. In the college context, material self-interest is low for most people; interdependence is low; and social responsibility is low ([Sears, 1986](#)). This context is likely to foster a sharp distinction between self-interest, defined as personal achievement, status, and enjoyment, and other-interest, defined in terms of relationships with family and friends. With adulthood comes an increase in interdependence as well as a redefinition of one's interests. Personal success now depends, to a much greater extent, on collective outcomes; family needs are a

stimulus for personal achievement; and increasing status carries with it increasing social responsibility (Levinson, 1986). As a consequence, we would expect self- and other-interest to converge with age, both in their meaning and in the magnitude of their interrelation. Consistent with this expectation, research on SVO has shown an increase in the prevalence of prosocials and a decrease in the prevalence of individualists and competitors with age (Van Lange et al., 1997). In a similar vein, Grossmann et al. (2012) showed that as Americans get older, they are more likely to use reasoning strategies that take others' interests into account, such as perspective taking and compromise, to understand interpersonal and intergroup conflict. Interestingly, Japanese people do not show this age trend; they consistently use other-regarding strategies even when they are young (Grossmann et al., 2012). This cultural difference is entirely consistent with a view of self- and other-interest as rooted in self-construals.

### Present Research

Our goal in the present research was to develop and validate measures of self- and other-interest, defined in terms of an individual's self-beliefs. In Study 1, we developed the Self- and Other-Interest Inventory (SOII), an 18-item questionnaire that assesses the motivation to pursue one's own and others' interests, and validated that questionnaire on student samples. In Study 2, we validated the adult version of the SOII and used it to test for age-related differences in the relation between self- and other-interest. In Study 3, we tested the hypothesis that self- and other-interest scores could be rendered accessible and manipulated independently by priming relevant values. Study 4, we sought to demonstrate that self-interest scores would predict behaviors benefiting the self and that other-interest scores would predict behavior benefiting another person. Finally, in Study 5, we sought to demonstrate that self- and other-interest scores predict independent

variance in behavior even in situations in which the two interests are interdependent (e.g., in a prisoner's dilemma). Together, this set of studies suggests that self-interest and other-interest, as measured by the SOII, are distinct constructs and that they can be measured reliably and validly.

### Studies 1a–c: Scale Development

The aim in Studies 1a–c was to develop and validate the SOII. We created a 38-item inventory that probed the motivation to pursue social, academic, financial, and general success for the self and others. The inventory included 18 items designed to measure self-interest; these included “I look for opportunities to achieve higher social status” and “Success is important to me.” It also included 20 parallel items designed to measure other-interest; these items included “I look for opportunities to help people I know achieve higher social status” and “I look out for ways for my friends to have more money.” Participants responded to each item on a 7-point scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The number of items was subsequently reduced to a shortened form consisting of nine items in each subscale. (See Table 1 for a list of all items on the final form.)

### Method

**Participants and procedures.** A total of 322 individuals participated in the first set of studies. Participants in each sample were college students drawn from the psychology department's participant pool, and they received course credit for participation. In addition to completing the 38-item SOII, participants in each sample completed several other questionnaires intended to assess the convergent, divergent, and predictive validity of the SOII. Participants also indicated their gender, class year or age, and political orientation (on a 1–7 scale with *very conservative* and *very liberal* endpoints).

Table 1  
Factor Loadings for SOII Items, Studies 1a–c

Item	Other-interest factor	Self-interest factor
<b>Self-interest subscale</b>		
I look for opportunities to achieve higher social status.	.18	.71
I am constantly looking for ways to get ahead.	.19	.67
Hearing others praise me is something I look forward to.	.03	.66
I try to make sure others know about my successes.	.14	.59
Success is important to me.	.09	.58
I keep an eye out for my interests.	.08	.51
Having a lot of money is one of my goals in life.	-.02	.47
Getting good grades is near the top of my priorities.	.11	.45
I am constantly looking out for what will make me happy.	.08	.33
<b>Other-interest subscale</b>		
I am constantly looking for ways for my classmates to get ahead.	.82	.23
Hearing others praise my classmates is something I look forward to.	.74	.02
I look for opportunities to help people I know achieve higher social status.	.71	.33
I try to help my classmates by telling other people about their successes.	.70	.23
I want to help people I know to do well in their courses.	.68	.02
I keep an eye out for other's interests.	.60	.08
The success of my friends is important to me.	.58	.01
I look out for ways for my friends to have more money.	.55	.27
It is important to me that others are happy.	.47	.01

Note. SOII = Self- and Other-Interest Inventory.



**Study 1a.** Participants were 80 college undergraduates (51 female, 29 male). They completed the SOII, demographic questions, and the following additional measures.

**Social value orientation.** The SVO questionnaire (Van Lange et al., 1997) asks respondents to make nine outcome allocation decisions, in which they choose between a prosocial point distribution, an individualist point distribution, and a competitive point distribution. The prosocial distribution maximizes the total number of points given to self and other; the individualist distribution maximizes the points given to the self; and the competitive distribution maximizes the difference in points given to self and other. A respondent who chooses the prosocial distribution for at least six of the nine decisions is classified as having a prosocial SVO; a respondent who chooses the individualist distribution for at least six of the nine decisions is classified as having an individualist SVO; and a respondent who chooses the competitive distribution for at least six of the nine decisions is classified as having a competitive SVO. We combined the individualist and competitive orientations into a proself SVO (Van Lange & Liebrand, 1991), in line with previous research. In this sample, 32.5% of participants had a proself orientation, 52.5% had a prosocial orientation, and 15% could not be classified.

**Theories of self–other relations.** We created a new, 12-item questionnaire to assess participants' endorsement of four theories of the appropriate relationship between self- and other-interest. Three items assessed a *prosocial* relation (e.g., "It is the total amount of benefit that everyone receives that matters most"); three assessed a *self-prioritizing* relations (e.g., "I am happy to help others as long as I know that I am doing okay first"); three assessed a *self-comparative* relation (e.g., "I am concerned about doing as well as or better than those around me"); and three assessed a *self-maximizing* relation (e.g., "I look out for my own outcomes and don't concern myself with what happens to other people"; see the Appendix). Participants responded to each item on a 7-point scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). We averaged scores across the three items comprised by each subscale.

**Narcissism.** The Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988) measures subclinical levels of narcissism as a continuous personality trait. Participants rated each of the 40 items on a 6-point scale, ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). We averaged scores across all items to create an overall index of narcissistic personality.

**Self-construal.** The Self-Construal Scale (Singelis, 1994) measures the tendencies to view oneself as unique and distinct from other individuals (independent self-construal) and connected to other individuals (interdependent self-construal). It contains two 12-item subscales measuring each self-construal (e.g., independent: "I enjoy being unique and different from others in many respects"; interdependent: "It is important to me to respect decisions made by the group"). Participants rated each of the 24 items on a 5-point scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). We averaged scores within each subscale to create indices of each self-construal.

**Social desirability.** The Marlowe–Crowne Social Desirability scale (MCSD; Crowne & Marlowe, 1964) measures the tendency to provide responses perceived favorable by others. Participants responded to each of the 33 items with a true or false response. We calculated the proportion of socially desirable responses given.

**Study 1b.** Participants were 63 college undergraduates (43 female, 20 male). They completed the SOII and the following additional measures.

**Interpersonal reactivity index.** The Interpersonal Reactivity Index (IRI; Davis, 1983) is a 28-item questionnaire that assesses dispositional empathy. The questionnaire consists of four, 7-item subscales. The *fantasy* scale (FS) measures the tendency to imagine oneself in fictional situations (e.g., "I daydream and fantasize, with some regularity, about things that might happen to me"); the *empathic concern* scale (EC) measures the tendency to experience feelings of sympathy and compassion for others (e.g., "When I see someone being taken advantage of, I feel kind of protective towards them"); the *perspective taking* scale (PT) measures the tendency to adopt the psychological viewpoint of others (e.g., "When I'm upset at someone, I usually try to 'put myself in his shoes' for a while"); and the *personal distress* scale (PD) measures the tendency to experience distress and disorganization in response to others' distress (e.g., "When I see someone who badly needs help in an emergency, I go to pieces"). Participants responded to each item using a 5-point scale ranging from 1 (*does not describe me very well*) to 5 (*describes me very well*). We averaged scores across the seven items comprised by each subscale.

**Study 1c.** Participants were 136 college undergraduates (94 female, 38 male). They completed the SOII and the following additional measures.

**Values.** The Schwartz Value Survey (SVS; Schwartz & Bilsky, 1987) is a 57-item measure that assesses the relative importance individuals place on 10 value domains. Five of the domains represent individual values: *power* (e.g., social power), *achievement* (e.g., successful), *self-direction* (e.g., choosing own goals), *stimulation* (e.g., daring), and *hedonism* (e.g., enjoying life). The other five domains represent collective values: *benevolence* (e.g., loyal), *universalism* (e.g., a world at peace), *conformity* (e.g., obedient), *tradition* (e.g., humble), and *security* values (e.g., social order). Participants rated each of the 57 values on a 9-point scale ranging from (*completely opposed to my values*) to 9 (*of supreme importance to me*). Scores for each value domain were calculated in accordance with the guidelines provided by Schwartz (2009).

**Achievement motivation.** Participants completed a 12-item measure of achievement motivation (Elliot & McGregor, 2001; e.g., "I desire to completely master the material presented in this class"). They rated each item on a 7-point scale ranging from 1 (*not at all true of me*) to 7 (*very true of me*). We averaged scores across the 12 items to create an overall index of achievement motivation.

**Materialism.** Participants completed an 18-item measure of materialism (Richins & Dawson, 1992; e.g., "The things I own say a lot about how well I'm doing in life"). They rated each item on a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*). We averaged scores across the 18 items to create an overall index of materialism.

**Dishonesty in order to protect material gains.** Participants completed a 2-item measure that assessed their willingness to lie in order to conserve financial gains (see Frank et al., 1993). They responded to the following hypothetical situations: (a) A small business owner is shipped 10 computers, but only billed for nine. If you were the small business owner, how likely would you be to report the error to the computer company? (b) An envelope containing \$100 and with the owner's name and address is lost.

Imagine you find this envelope. How likely would you be to return it? Participants responded to each situation on a 7-point scale ranging from 1 (*extremely unlikely*) to 7 (*extremely likely*). We averaged their responses to form a composite score.

**Personality.** The NEO-FFI Inventory measures the Big Five traits of neuroticism, extraversion, openness, agreeableness, and conscientiousness (Costa & McCrae, 1992). It consists of 60 items, each a description of a behavior, with 12 items contributing to the measurement of each trait. Participants respond to each item using a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). We averaged responses across the 12 items relevant to each trait.

**Inclusion of other in self.** The Inclusion of the Other in Self scale (IOS; Aron, Aron, & Smollan, 1992) is a measure of the closeness of interpersonal relationships. Participants completed the IOS with regard to 15 relationships, including those with close friends and family members (father, mother, siblings, best friend, significant other), with casual friends and acquaintances (friends, Princeton students, classmates, members of your eating club, members of your residential college), and with distantly related others (acquaintances, Yale students, college students, people of your gender, people from your country). For each relationship, participants chose which of seven Venn diagrams that showed varying degrees of overlap between circles labeled self and other best described the relationship. Their choices were translated into ratings on a 1–7 scale and averaged to form an overall IOS score.

**Helping orientation questionnaire.** The helping orientation questionnaire is a 23-item, four-alternative, forced-choice measure (Romer, Gruder, & Lizzardo, 1986) that yields scores on altruistic, receptive giving, selfish, and inner-sustaining helping orientation subscales. Each item presents a description of a person in need and four possible responses that reflect the four different helping orientations. For example, one item reads, “You are on the second floor of a building and notice a man stumbling around and appearing to be in trouble.” The response options are to ignore him (the *inner-sustaining* choice); to call the police, fearing possible danger (the *selfish* choice); to go out to help only if you recognize him (the *receptive giving* choice); and to go out to assist him regardless of whether you know him (the *altruistic* choice). Participants responded to all 23 items, and we calculated their subscale scores as the proportion of times they made each type of choice.

Finally, participants completed a 10-item short form of the MSCD (Strahan & Gerbasi, 1972).

## Results and Discussion

The analyses of the data proceeded as follows: We first constructed the self-interest (SI) and other-interest (OI) subscales, using an exploratory factor analysis to identify the SI and OI item clusters followed by a confirmatory factor analysis to validate the two-factor model. We then tested the reliability and validity of the resulting subscales.

### Construction of the SI and OI subscales.

**Exploratory factor analysis.** We conducted a principal-components analysis on all 38 items in the SOII, using a direct oblimin rotation to allow the factors to correlate. The two strongest factors corresponded to our theoretical constructs: an other-interest factor (Factor 1, eigenvalue 8.90, accounting for 23% of the variance, with 19 of 20 OI items loading most strongly on this

factor) and a self-interest factor (Factor 2, eigenvalue 5.35, accounting for 14% of the variance, with 13 of 18 SI items loading most strongly on this factor). Although six additional factors had eigenvalues greater than 1, very few items loaded on each of those factors, and the factors were uninterpretable or uninteresting conceptually. For example, inspection of the items loading relatively highly on Factor 3 suggested that this factor measured valuing academic success over financial success for both self and other. In addition, examination of the scree plot supported a two-factor solution: Factor 3 accounted for only 6% of the variance, substantially less than Factor 2.

We used the results of this analysis to reduce the SOII to 18 items (9 SI and 9 OI), based on three considerations: the strength of the item loadings on the first two factors, the item–total correlations, and the desire to maintain broad definitions of interests.

**Confirmatory factor analysis.** Next, we conducted a confirmatory factor analysis (CFA) to test whether the two-factor model best fit the data. A compelling alternative would be a one-factor model. If other-interest and self-interest are in a zero-sum relation to one another, then we would expect a one-factor solution, in which self-interest items and other-interest items load in opposite directions on the same factor, to fit the data better than a two-factor solution.

The results validated the two-factor model. A comparison of the two-factor model to the one-factor model with a chi-square difference test (Bollen, 1989) revealed a significant improvement in fit with the addition of the second factor,  $\Delta\chi^2(1) = 472.26, p < .001$ . Likewise, adding the second factor improved both the goodness of fit index (GFI) and the adjusted GFI (AGFI) substantially (GFI: one-factor = .623, two-factor = .798; AGFI: one-factor = .523, two-factor = .743). The results revealed no evidence for a zero-sum relation between self- and other-interest; in fact, the correlation between the SI and OI factors was positive ( $r = .245$ ). Item loadings are reported in Table 1.

**Psychometric properties of the SI and OI subscales.** Means and standard deviations for the SI and OI subscales were similar across the three student-samples (SI:  $M_{1a} = 4.68, SD_{1a} = 0.82$ ;  $M_{1b} = 5.12, SD_{1b} = 0.86$ ;  $M_{1c} = 4.73, SD_{1c} = 0.82$ ; OI:  $M_{1a} = 4.81, SD_{1a} = 0.92$ ;  $M_{1b} = 4.44, SD_{1b} = 0.98$ ;  $M_{1c} = 4.56, SD_{1c} = 0.93$ ). To assess the reliabilities of the subscales, we calculated a Cronbach’s alpha for each subscale in each sample; these alphas ranged from .76 to .88, clearly in the acceptable range. Consistent with the CFA results, scores on the SI and OI were significantly correlated,  $r(322) = .20, p = .001$ .

The additional measures included in these studies were designed to assess the convergent, discriminant, and predictive validity of the SI and OI. Means, standard deviations and reliabilities for these measures and their bivariate correlations with the SI and OI subscales are shown in Table 2.

**Assessing alternative explanations for correlations with SI and OI.** There are two alternative explanations for correlations with SI and OI that we sought to rule out at the outset. One concerned social desirability. Both self- and other-interest may be influenced by the desire to appear well to others. That desire could lead people to pay lip service to a norm of self-interest or, alternatively, to express more concern for others than they privately feel. Participants in Study 1a completed the full MSCD scale, and participants in Study 1c completed the short form of the scale. In Study 1a, the MSCD correlated significantly with SI,  $r(80) = -.22, p = .048$ ,

Table 2  
Means, Standard Deviations, Reliabilities, and Correlations With SI and OI for All Measures  
Used for Scale Validation, Studies 1a–c

Measure	<i>M</i> ( <i>SD</i> )	Cronbach's $\alpha$	SI <i>r</i>	OI <i>r</i>
SVO prosocial	52.5% of sample			
SVO proself	32.5% of sample			
Self–other theories: Prosocial	4.85 (0.91)	.65	.02	.25*
Self-priority	3.24 (0.85)	.74	.48***	–.05
Self-relative	4.40 (1.03)	.71	.68***	.08
Self-maximization	2.78 (0.94)	.61	.24*	–.26*
NPI	3.66 (0.57)	.91	.46***	.25*
Independent self-construal	3.42 (0.42)	.54	.12	.28*
Interdependent self-construal	3.67 (0.42)	.67	.09	.58***
IRI fantasy	3.83 (0.76)	.79	.11	.04
IRI perspective taking	3.99 (0.63)	.81	.06	.24
IRI empathic concern	3.67(0.68)	.76	–.14	.29*
IRI personal distress	2.61 (0.69)	.75	.16	–.23
Values				
Achievement	5.44 (0.75)	.64	.31***	.21*
Benevolence	5.54 (0.74)	.76	–.04	.36***
Conformity	4.93 (0.85)	.66	.14	.28**
Hedonism	5.24 (1.04)	.76	.24**	.12
Power	3.82 (1.00)	.62	.49***	.23**
Security	4.84 (0.71)	.64	.17*	.30***
Self-direction	5.35 (0.83)	.73	.16	.26**
Stimulation	4.83 (1.14)	.84	.10	.21*
Tradition	4.02 (0.90)	.51	.03	.33***
Universalism	5.05 (0.84)	.81	–.02	.30***
Achievement motivation	4.79 (0.86)	.79	.37***	.21*
Materialism	2.75 (0.57)	.86	.48***	.06
Neuroticism	2.92 (0.65)	.86	.12	–.17*
Extraversion	3.48 (0.58)	.84	.09	.33***
Openness	3.39 (0.49)	.70	–.14	.11
Agreeableness	3.55 (0.41)	.64	–.17*	.13
Conscientiousness	3.41 (0.54)	.82	.22*	.18*
Honesty in the face of losses	4.98 (1.49)	.52	–.19*	.07
IOS	4.31 (0.81)	.83	.08	.20*
Helping orientation: Altruism	0.46 (0.16)	.66	–.29**	.14
Receptive giving	0.13 (0.08)	.39	.22**	>.01
Inner sustaining	0.26 (0.10)	.46	.18*	–.13
Selfish	0.16 (0.07)	.27	.11	–.15
MCSD (long form)	0.40 (0.15)	.71	–.22*	.09
MCSD (short form)	0.41 (0.23)	.68	.02	–.07

Note. SI = self-interest subscale of the Self- and Other-Interest Inventory (SOII); OI = other-interest subscale of the SOII; SVO = social value orientation questionnaire; NPI = Narcissistic Personality Inventory; IRI = Interpersonal Reactivity Index; IOS = Inclusion of the Other in Self scale; MCSD = Marlowe–Crowne Social Desirability scale.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

but not with OI,  $r(80) = .094$ ,  $p = .408$ . In Study 1c, the short form of the MCSD showed the same pattern of relationships, but neither correlation was significant: SI:  $r(136) = -.13$ ,  $p = .126$ ; OI:  $r(136) = .11$ ,  $p = .209$ . To the extent that the self-interest subscale was related to social desirability, the relationship ran against the norm of self-interest. Because self-interest and social desirability concerns were related in one sample, we conducted the remaining analyses both controlling for MCSD when available and without this control; because the results of these analyses were the same in all cases, we present the analyses without the social desirability control.

A second explanation we sought to rule out concerned the status of SI and OI as distinct constructs. Previous research has advanced the hypothesis that concern for others is entirely a function of the perceived overlap between the self and the other person (Cialdini

et al., 1997). That is, other-interest is simply self-interest expressed through relations with others. If this view of other-interest were valid, we would expect the magnitude of the relationship between SI and OI to reflect the degree of perceived overlap between self and others. We tested this hypothesis by examining whether the relationship between SI and OI was mediated by the degree of overlap between self and others, as measured by the Inclusion of Other in Self Scale (Aron et al., 1992). We conducted series of hierarchical regressions, in which SI was the dependent variable, OI was entered as a predictor at the first step, and IOS was entered at the second step. We conducted this analysis using the overall IOS score, as well as separate IOS scores calculated for close relations, friends and acquaintances, and distantly related others. If IOS accounted for the relationship between SI and OI, then the beta for OI should be reduced to nonsignificance with the addition

of IOS to the equation. In none of the equations was this the case,  $\beta_{\text{S}_{\text{OI}} \text{ at Step } 2} \geq .324$ ,  $p_{\text{S}_{\text{OI}} \text{ at Step } 2} < .001$ . Moreover, the addition of IOS scores in Step 2 did not improve the fit of the model in any case ( $\Delta R^2 \leq .006$ ). Thus, we conclude that the relationship between SI and OI is not determined by perceived overlap between self and others.

**Convergent and discriminant validity of the SOII.** To test the hypothesis that the SI and OI subscales measure two valid and distinct constructs, we performed hierarchical regression analyses using centered self-interest scores, centered other-interest scores, and their interaction as predictors of the dependent variables (which are shown in Table 2). We were interested both in the amount of unique variance that each independent variable accounted for in each dependent variable ( $\Delta R^2$ ) and the magnitude of the relationship ( $\beta$ ).

We hypothesized that the SI subscale, but not the OI subscale, would relate to measures that reflect the pursuit of gains for the self and efforts to avoid losses to the self in any domain. Thus, we predicted that SI scores would relate positively to materialism and negatively to honesty in the face of material losses, reflecting the pursuit of material goods. We predicted that SI scores would relate positively to narcissism and valuing power, reflecting the pursuit of social status and recognition. We predicted that SI scores would relate positively to hedonism and stimulation, reflecting the pursuit of pleasure. Finally, we predicted that SI scores would relate positively to achievement motivation and valuing achievement, reflecting the pursuit of academic and occupational success.

We hypothesized that the OI subscale, but not the SI subscale, would relate to measures that reflect attention to the needs, outcomes, and opinions of others. Thus, we predicted that interdependent self-construal, extraversion, the values of benevolence, tradition, conformity, and universalism, and inclusion of the other in self would relate positively to the OI subscale because they indicate a greater attention to others. We also predicted that the security value (valuing family security and national security) would relate to the OI subscale, given its emphasis on collective welfare.

We hypothesized that both the SI and the OI subscales would relate to measures that have implications for self and other outcomes. Only one dependent variable fell into that category: the personality domain of agreeableness. We expected agreeableness to relate negatively to the SI subscale and positively to the OI subscale, as agreeable people are defined as “fundamentally altruistic” (Costa & McCrae, 1992, p. 15) and are therefore willing to disengage from the pursuit of self-interest while engaging with the pursuit of other-interest.

With regard to discriminant validity, we hypothesized that neither the SI nor the OI subscale would relate to verbal, math, or writing SAT scores. In addition, we predicted that neither subscale would relate to the independent self-construal. The primary conceptual components of the independent self-construal, as measured by the Singelis (1994) scale, concern how the self is different from others and how the self is consistent across situations. This conceptualization is distinct from the focus of the SOII on the pursuit of resources (broadly defined) for self and for others (Hardin, Leong, & Bhagwat, 2004; Singelis, 1994). Thus, we should find a divergence between these measures.

The results confirmed most of the hypotheses (see Table 3). The SI subscale predicted materialism, honesty in the face of material

losses, narcissistic personality, and achievement motivation, as well as power, achievement, and hedonism values. In parallel, the OI subscale predicted interdependent self-construal, extraversion, IOS, benevolence, universalism, conformity, tradition, and security values. Both the SI and OI subscales predicted agreeableness.

There were two minor, though surprising, exceptions to our predictions. The OI rather than the SI subscale predicted scores on self-direction and stimulation values. Self-direction values, such as creativity (uniqueness, imagination) and curious (interested in everything, exploring), may be endorsed by individuals who view themselves as interested in all aspects of their environment, including other people. Similarly, stimulation values, such as a varied life (filled with challenge, novelty and change) and an exciting life (stimulating experiences), may require at least some focus on others for their fulfillment.

**Predictive validity of the SOII.** Additional measures assessed the predictive validity of the SOII. We hypothesized that the SI subscale would predict scores on measures that indicate a preference for distributing resources (of any kind) to the self. Thus, we expected the SI subscale to relate positively to endorsement of a self-maximizing mentality, a self-prioritizing mentality, and self-comparative mentality. We expected the SI subscale to relate negatively to a prosocial rather than proself SVO classification and altruistic helping orientation.

In parallel, we expected the OI subscale to predict scores on measures that indicate a preference for distributing resources (of any kind) to others. Thus, we expected the OI subscale to relate positively to the empathic-concern and perspective-taking subscales of the IRI, endorsement of a prosocial mentality, a prosocial rather than proself SVO classification, and altruistic helping orientation.

The subscales showed good predictive validity (see Table 4). As expected, the SI subscale predicted the endorsement of self-maximizing, self-comparative, and self-prioritizing relations with others. Also as expected, the OI subscale predicted perspective taking, empathic concern, and endorsement of a prosocial relation with others.

Two of the predicted relationships were qualified by an interaction between SI and OI. For altruistic helping orientation, we observed main effects of both SI and OI, with SI predicting less motivation to help due to altruism, and OI predicting more motivation to help. Over and above these main effects, we found a significant interaction between SI and OI. Simple slope analysis revealed that although increasing SI was associated with significantly less altruistic motivation to help, that relationship was weaker at higher levels of OI. Similarly, for the SVO measure, a logistic regression predicting the classification of individuals as proself versus prosocial revealed only a significant interaction between SI and OI. Simple slopes analysis showed an inverse relationship between SI and the likelihood of participants being classified as prosocial when OI was low,  $t(68) = 2.71$ ,  $p = .009$ , but no relationship when OI was high,  $t(68) = 0.78$ ,  $p = .435$ . This pattern of results suggests that other-interest may temper individuals' tendencies to view resources in zero-sum terms. Whereas those low in OI may focus on the trade-offs between gains to self and other that are inherent in these measures, individuals high in OI may evaluate the options differently. They may, for example, perceive there to be emotional benefits to helping that offset material losses. This perspective may enable them to find integra-



Table 3  
Indicators of Convergent and Discriminant Validity, Studies 1a–c

Measure	Self-interest		Other-interest	
	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$
Convergent with SI/discriminant with OI				
Materialism (c)	.510***	.232***	-.104	.010
Honesty in the face of losses (c)	-.221*	.042*	-.139	.017
NPI (a)	.431***	.165***	.145	.019
Achievement motivation (c)	.342***	.106***	.090	.007
Power value (c)	.456***	.185***	.112	.008
Achievement value (c)	.273**	.066**	.116	.012
Hedonism value (c)	.228*	.046*	.044	.002
Self-direction (c)	.084	.006	.223*	.044*
Stimulation (c)	.036	.001	.201*	.036*
Convergent with OI/discriminant with SI				
Collectivism (c)	.062	.003	0.392***	.133***
Interdependent self-construal (a)	.048	.002	.571***	.281***
Extraversion (c)	-.024	.001	.339***	.102***
IOS (c)	.017	<.001	.196*	.034*
Benevolence value (c)	-.147	.027	.413***	.151***
Universalism value (c)	-.120	.014	.335***	.099***
Conformity value (c)	.053	.002	.268**	.063**
Tradition value (c)	-.083	.006	.350***	.108***
Security value (c)	.075	.005	.284**	.071**
Convergent with SI and OI				
Agreeableness (c)	-.246**	.054**	.224*	.046*
Discriminant with both SI and OI				
SAT Verbal (c)	.166	.020	-.028	.001
SAT Math (c)	.002	<.001	-.016	<.001
SAT Writing (c)	.079	.004	.081	.006
Independent self-construal (a)	.056	.003	.223	.031

Note. Letters in parentheses indicate the study in which the data were collected. SI = self-interest subscale of the Self- and Other-Interest Inventory (SOII); OI = other-interest subscale of the SOII; NPI = Narcissistic Personality Inventory; IOS = Inclusion of the Other in Self scale.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

tive solutions that allow for the pursuit of gains to both self and other.

**Summary.** This set of studies provided strong initial evidence for the reliability and validity of the SOII. The results demon-

strated that SI and OI are distinct constructs and that these constructs account for independent variance, as expected, in a variety of convergent variables. The development of this inventory contributes to research on self- and other-interest in at least three

Table 4  
Indicators of Predictive Validity, Studies 1a–c

Measure	Self-interest		Other-interest		Self-Interest $\times$ Other-Interest	
	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$
OI should predict						
Perspective taking (b)	-.131	.017	.280*	.078*	.031	.001
Empathic concern (b)	.077	.006	.248*	.061*	-.132	.017
Prosocial relation (a)	.014	<.001	.255*	.059*	.209	.014
OI and SI should predict						
Proself vs. prosocial SVO <sup>a</sup> (a)	-.482 (.369)	.032	.202 (.364)	.006	.857* (.369)	.133*
Altruistic motivation (c)	-.369***	.121***	.280**	.070**	.197*	.039*
SI should predict						
Self-maximizing relation (a)	.244*	.053*	-.160	.023	.026	.001
Self-comparative relation (a)	.714***	.450***	-.082	.006	.044	.002
Self-prioritizing relation (a)	.513***	.232***	-.164	.024	<.001	<.001

Note. Letters in parentheses indicate the study in which the data were collected. SI = self-interest subscale of the Self- and Other-Interest Inventory (SOII); OI = other-interest subscale of the SOII; SVO = social value orientation questionnaire.

<sup>a</sup> For this variable,  $B$  values and standard errors (in parentheses) are given in lieu of  $\beta$  and Nagelkerke  $R$  squares are given in lieu of  $R$  squares, because a logistic rather than linear regression was performed on the dichotomous criterion variable.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

ways. First, it encourages researchers to move away from the default assumption that the pursuit of self-interest is necessarily contrary to the pursuit of other-interest. Although few, if any, psychologists would endorse that assumption, many default to it out of necessity or expediency. Second, the SOII has the potential to facilitate a better understanding of how self- and other-interest contribute, independently and jointly, to choices, decisions, judgments, and evaluations. Third, the existence of the SOII gives researchers a way to conceptualize and measure individual differences in these propensities. With these latter two goals in mind, we next turned to the development of an adult version of the inventory.

## Study 2: Adult Scale Validation

The purpose in Study 2 was to validate the SOII in an adult sample and to test specific hypotheses about how scores on the SI and OI subscales should relate to aspects of one's life context. Our main hypothesis concerned age trends in the relation between SI and OI: We predicted that that relation would increase monotonically with age. In particular, we expected college-age adults to show a weak correlation between SI and OI (Sears, 1986) and middle-aged and older adults to show a much stronger correlation (for similar findings, see Feather, 1975; Grossmann et al., 2012; Rokeach, 1973; Van Lange et al., 1997). Both the validation and the hypothesized age trends were supported by pilot research conducted with a smaller sample ( $n = 74$ ).

## Method

Participants were recruited online from Amazon.com's Mechanical Turk. They were 180 adults (96 female, 84 male; age:  $M = 36.2$  years,  $SD = 12.6$ ) and were compensated at the standard rate for the site. An additional 29 participants submitted responses to all questionnaires but failed an instructional manipulation check (Oppenheimer, Meyvis, & Davidenko, 2009); thus, their responses

were not included in the analysis. All participants were located within the United States.

Participants completed the final 18-item version of SOII, with modifications to the item wordings to make them appropriate for use with adults. In particular, mentions of classmates, grades, and other school-related terminology were removed or replaced (see Table 5 for the wordings of all items in the final adult form). In addition, they completed the SVS (Schwartz & Bilsky, 1989), the SVO questionnaire (Van Lange et al., 1997), and the short form of the MCSD (Strahan & Gerbasi, 1972), as in Study 1. They also completed the Aspects of Identity Questionnaire (AIQ-IV; Cheek, Smith, & Tropp, 2002), a 35-item measure of the relative importance people place on various aspects of their identities when constructing their self-definitions. The questionnaire consists of four subscales: The *personal identity orientation* measures the importance of goals, values, feelings and internal mental life (e.g., "My personal values and moral standards" and "My self-knowledge, my ideas about what kind of person I really am"). The *social identity orientation* measures the importance of external aspects of the self (e.g., "My reputation, what others think of me" and "My physical appearance: my height, my weight, and the shape of my body"). The *collective identity orientation* measures the importance of membership in groups and social categories (e.g., "Being a part of the many generations of my family" and "My sex, being a male or a female"). The *relational identity orientation* measures the importance of social relationships (e.g., "Being a good friend to those I really care about" and "Having close bonds with other people"). Participants rated each item on a 5-point scale ranging from 1 (*Not important to my sense of who I am*) to 5 (*Extremely important to my sense of who I am*). We averaged scores across the items within each subscale. Finally, participants indicated their age, gender, zip code, ethnicity, and political orientation.

Table 5  
Factor Loadings for SOII Items, Study 2

Item	Other-interest factor	Self-interest factor
<b>Self-interest subscale</b>		
I am constantly looking for ways to get ahead.	-.05	.85
Hearing others praise me is something I look forward to.	.11	.58
Doing well in my pursuits is near the top of my priorities.	.16	.68
I try to make sure others know about my successes.	.13	.61
I look for opportunities to achieve higher social status.	-.04	.79
Success is important to me.	.03	.83
Having a lot of money is one of my goals in life.	-.16	.66
I keep an eye out for my own interests.	-.10	.67
I am constantly looking out for what will make me happy.	.09	.63
<b>Other-interest subscale</b>		
I am constantly looking for ways for my acquaintances to get ahead.	.70	.11
Hearing others praise people I know is something I look forward to.	.76	.09
I want to help people I know to do well.	.80	.04
I try to help my acquaintances by telling other people about their successes.	.69	.05
I look for opportunities to help people I know achieve higher social status.	.63	.28
The success of my friends is important to me.	.80	-.07
I look out for ways for my friends to have more money	.66	.09
I keep an eye out for other's interests.	.83	-.09
It is important to me that others are happy.	.73	-.23

## Results and Discussion

**Psychometric properties of the adult SOII.** The adult form of the SOII had good psychometric properties. The reliabilities for the SOII subscales were acceptable, and descriptive statistics fit well with the results of Study 1 (SI:  $M = 4.90$ ,  $SD = 1.14$ , Cronbach's  $\alpha = .89$ ; OI:  $M = 4.86$ ,  $SD = 1.14$ , Cronbach's  $\alpha = .91$ ). As in Study 1, we conducted a CFA to examine the structure of the SOII. This analysis again yielded a solution with two correlated factors (two-factor: GFI = .79, AGFI = .73; one-factor: GFI = .47, AGFI = .32;  $\Delta\chi^2(1) = 601.87$ ,  $p < .001$ ;  $r = .32$ ; see Table 5 for the factor loadings for individual items). Consistent with the results of Study 1, the raw scores on the SI and OI subscales were significantly correlated,  $r(180) = .34$ ,  $p < .001$ .

Means, standard deviations, and reliabilities for all validity measures and their bivariate correlations with the SI and OI subscales are shown in Table 6. Again, self-interest was significantly correlated with social desirability,  $r(180) = -.16$ ,  $p = .031$ , whereas other-interest was not,  $r(180) = .08$ ,  $p = .28$ . We conducted all analyses both with and without social desirability as a control and found no significant differences. Thus, we report the results without the social desirability control here.

The SVS again served as a measure of convergent and discriminant validity. The analysis strategy was the same as in Study 1: We conducted hierarchical linear regressions to derive the amount of unique variance that each independent variable accounted for in an dependent variable ( $\Delta R^2$ ) and the magnitude of the relationship ( $\beta$ ). We expected the pattern of results to mirror the pattern observed in Study 1.

The results demonstrated good convergent and discriminant validity (see Table 7). Consistent with Study 1, the SI subscale

Table 7

*Hierarchical Regression  $\beta$  and  $\Delta R^2$  Values for Study 2*

Measure	Self-interest		Other-interest	
	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$
OI should predict				
Conformity	.089	.006	.244***	.052***
Benevolence	-.135	.015	.475***	.209***
Security	.315***	.081	.222**	.043**
Tradition	.095	.007	.270**	.090***
Universalism	-.008	<.001	.337***	.106***
Relational AIQ	-.011	<.001	.354***	.109***
SI should predict				
Achievement	.498***	.202***	.111	.011
Hedonism	.569***	.264***	-.174*	.026*
Power	.692***	.391***	-.087	.007
Self-direction	.280**	.064**	.103	.009
Stimulation	.508***	.210***	-.040	.001
Social AIQ	.429***	.150***	.095	.008
Both OI and SI should predict				
Personal AIQ	.237**	.046**	.185*	.030*
Collective AIQ	.201*	.033*	.167*	.024*

*Note.* SI = self-interest subscale of the Self- and Other-Interest Inventory (SOII); OI = other-interest subscale of the SOII; AIQ = Aspects of Identity Questionnaire.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

predicted achievement, hedonism, and power values, and the OI subscale predicted conformity, benevolence, security, tradition, and universalism values. In a divergence from the results of Study 1, OI negatively predicted hedonism, and SI positively predicted security. These findings suggest that adults may construe the

Table 6

*Means, Standard Deviations, Reliabilities, and Correlations With SI and OI for All Measures Used for Scale Validation, Study 2*

Measure	$M (SD)$	Cronbach's $\alpha$	SI $r$	OI $r$
SVO prosocial	62% of sample			
SVO proself	33% of sample			
Values				
Achievement	5.07 (0.91)	.75	.52***	.27***
Benevolence	5.57 (0.93)	.83	.04	.44***
Conformity	5.12 (1.05)	.79	.16*	.27***
Hedonism	5.15 (1.05)	.77	.47***	-.02
Power	3.62 (1.15)	.76	.65***	.14
Security	5.07 (0.93)	.71	.36***	.31***
Self-direction	5.61 (0.86)	.78	.30***	.19*
Stimulation	4.38 (1.22)	.83	.50***	.14
Tradition	4.49 (1.06)	.71	.15*	.28***
Universalism	5.24 (1.00)	.88	.14	.49***
AIQ: Collective	2.81 (0.89)	.72	.08	.32***
Personal	3.95 (0.59)	.79	.30***	.26***
Relational	4.03 (0.91)	.93	.12	.36***
Social	2.95 (0.78)	.87	.44***	.23**
MCSD short form	0.50 (0.22)	.71	-.16*	.08
Per capita income by zip code (dollars)	47,255.38 (18,092.81)		.21**	-.04
Age	36.21 (12.63)		-.31***	-.16*
Gender	96 female/84 male		-.09	.06

*Note.* SI = self-interest subscale of the Self- and Other-Interest Inventory (SOII); OI = other-interest subscale of the SOII; SVO = social value orientation questionnaire; AIQ = Aspects of Identity Questionnaire; MCSD = Marlowe-Crowne Social Desirability scale.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

meaning of these values slightly differently than do students, interpreting hedonism as selfish and security as a collective good.

The AIQ served as an additional measure of convergent and discriminant validity, new to Study 2. We predicted that the SI subscale, but not the OI subscale, would relate to social identity orientation, which is primarily concerned with one's status and recognition in the eyes of others. We predicted that the OI subscale, but not the SI subscale, would relate to relational identity orientation, which is primarily concerned with the quality of one's relations with others. We predicted that both the SI and the OI subscales would relate to personal identity orientation, with its emphasis on personal values, whether self- and other-oriented, and collective identity orientation, with its emphasis on group memberships, whether self- or other-oriented.

The results supported these expectations (see Table 7). The SI subscale predicted social identity orientation, personal identity orientation, and collective identity orientation; the OI subscale predicted relational identity orientation, personal identity orientation, and collective identity orientation.

The SVO questionnaire provided a measure of predictive validity. Participants were classified as either proself (33% of the sample) or prosocial (62% of the sample) if they gave at least six out of nine responses consistent with the category. Using a logistic regression analysis, we found that the likelihood of being prosocial was negatively predicted by SI ( $\beta = -.68$ ,  $SE = .22$ ,  $p = .002$ ) and positively predicted by OI ( $\beta = .60$ ,  $SE = .18$ ,  $p = .003$ ). In addition, a significant interaction qualified these effects ( $\beta = -.46$ ,  $SE = .18$ ,  $p = .012$ ). Simple slopes analysis showed an inverse relationship between SI and the likelihood of participants being classified as prosocial when OI was high,  $t(179) = 4.71$ ,  $p < .001$ , but no relationship when OI was low,  $t(179) = 0.72$ ,  $p = .46$ . Note that this interaction pattern differs from the interaction effect observed in Study 1, in which the negative relation between SI and prosocial orientation emerged at low, rather than high, levels of OI. We would speculate that the difference between the two samples lies in the normative status of self-interest: For college students, self-interested behavior is the norm; it is assumed and validated. High levels of other-interest complicate the unfettered pursuit of self-interest and thereby weaken the (negative) relationship between SI and prosocial SVO. For adults, self-interested behavior is not the norm; it is selfish and irresponsible. Thus, a high level of concern for others (e.g., family members, coworkers) may be needed to license the pursuit of self-interest. Of course, this is only speculation; the reasons for the different patterns of interaction across the student and adult samples deserve further examination.

**Age trends and other demographic differences.** A second goal in this study was to test the hypothesis that the correlation between SI and OI increases with age. We multiplied standardized SI and OI scores to create an index of their covariance and then correlated this index with respondent age. As predicted, this correlation was positive,  $r(180) = .19$ ,  $p = .010$ . To unpack this effect further, we correlated SI and OI in the younger half of the sample (ages 18–33,  $n = 94$ ) and found no relation between them,  $r(94) = .12$ ,  $p = .26$ . We correlated SI and OI in the older half of the sample (ages 34–73,  $n = 84$ ) and found a strong relation between them,  $r(84) = .42$ ,  $p < .001$ . These results confirm that SI and OI are more strongly related as age increases.

We also explored the correlations of SI and OI with selected demographic variables, controlling for age. We were particularly

interested in variables that might serve as proxies for roles or contexts that encourage the pursuit of resources for self or other and should therefore, in theory, correlate with the subscales. One such variable was the per capita income of a respondent's residence (based on the 2000 Census data for his or her zip code), which, we reasoned, might serve as a proxy for a context that encourages the pursuit of resources for the self. This variable showed a significant partial correlation with scores on the SI subscale controlling for age,  $pr(165) = .20$ ,  $p = .008$ . Another such variable was gender, as male and female gender roles vary in accepted normative levels of self-interest and concern for others. Consistent with these roles, women were more other-interested than men,  $pr(179) = .16$ ,  $p = .048$ , and within the older half of the sample, men were more self-interested than women,  $pr(83) = .22$ ,  $p = .048$ . Note that SI and OI scores did not vary with gender in the student samples, suggesting that gender differences emerge in adulthood as the life circumstances of women and men diverge.

**Summary.** Study 2 provided further support for the reliability and validity of the SOII by replicating the results of Study 1 on an adult sample. In addition, it provided evidence for systematic changes in the relation between SI and OI across the lifespan. This latter result is consistent with a view of SI and OI as self-construals that vary as a function of contextual factors. However, the results of this study are correlational and thus cannot be used to establish a causal relation between contextual variables and interests. To evaluate more rigorously how exposure to situations affects scores on the SOII, we conducted a laboratory study that manipulated the salience of values supporting self- and other-interest.

### Study 3: Accessibility

Study 3 examined the effects of increasing the accessibility of individual or collective values on SOII scores. Previous research has shown that behavior aligns with self-interest only when self-interest is salient. Likewise, research on self-construals suggests that accessibility is key to determining when these construals guide behavior. Thus, we predicted that situational manipulations that influence the accessibility of self- and other-interest should affect SI and OI subscale scores. In light of the consistent associations of self-interest with individual values and other-interest with collective values in Studies 1 and 2, we manipulated the salience of self- and other-interest by focusing participants' attention on individual or collective values.

An additional purpose in Study 3 was to evaluate the independence of self- and other-interest. The results of Studies 1 and 2 provided substantial evidence for that independence, but that evidence was correlational. In Study 3, we pursued causal evidence, predicting that a manipulation of the salience individual values should increase scores on the SI subscale but not the OI subscale. Similarly, a manipulation of the salience of collective values should increase scores on the OI subscale but not the SI subscale.

### Method

**Participants and design.** Eighty-eight college undergraduates (51 female, 37 male) participated in the study for course credit. The study had a 3 (prime: control prime, collective values prime, individual values prime)  $\times$  2 (interest: self, other)  $\times$  2 (order of interest measures) mixed design, with prime and order



manipulated between participants, and interest assessed within participants. Participants were randomly assigned to the prime  $\times$  order conditions.

**Procedure.** The priming manipulation was delivered in a 17-item questionnaire. All three versions of the questionnaire had similar instructions and used a similar rating scale. In the control condition, participants evaluated American landmarks for how important they were as symbols of America. Landmarks included the Lincoln Memorial, Hollywood Sign, the Alamo, the Grand Canyon, and the Statue of Liberty. Participants rated the importance of each landmark on a 7-point scale, ranging from 1 (*not at all important*) to 7 (*of supreme importance*). In the collective-values condition, intended to prime other-interest, participants evaluated 17 values from the SVS, assessing those values identified by Schwartz and Bilsky (1987) as collective values (benevolence, conformity, security, tradition, and universalism). They rated the importance of each value as a guiding principle in their life on a 7-point scale from 1 (*I am opposed*) to 7 (*of supreme importance*). In the individual-values condition, intended to prime self-interest, participants also evaluated 17 values from the SVS, assessing those values identified by Schwartz and Bilsky (1987) as individual values (achievement, hedonism, power, self-direction, and self-stimulation). They rated the importance of each value as a guiding principle in their life, again using a 7-point scale. Participants then completed the SOII, with the SI and OI subscales presented in counterbalanced order.

## Results and Discussion

**Descriptive statistics.** Means, standard deviations, and reliabilities for the SI and OI subscales were similar to those for the Study 1 samples (SI:  $M = 4.79$ ,  $SD = 0.76$ , Cronbach's  $\alpha = .80$ ; OI:  $M = 4.52$ ,  $SD = 0.70$ , Cronbach's  $\alpha = .84$ ).

**Primary results.** We predicted that the collective-values prime would increase OI relative to the control condition and would have no impact on SI. Similarly, the individual-values prime would increase SI relative to the control condition and would have no impact on OI. To test this prediction, we first standardized the interest variables to eliminate main effects of interest type and then conducted a 3 (prime: control, collective-values, individual-values)  $\times$  2 (interest: self or other)  $\times$  2 (order of interest measures) mixed-model analysis of variance (ANOVA) to assess the effects of the prime on self- and other-interest. The order of the interest measures had no significant effect on the results. As expected, the Prime  $\times$  Interest interaction was significant,  $F(1, 82) = 4.291$ ,  $p = .013$ ,  $\eta_p^2 = .10$  (see Figure 1).

To test our specific hypothesis, we followed up this significant interaction with planned contrasts. One contrast assessed the effects of prime on SI, testing whether the control and collective-values prime conditions (contrast coefficients  $-1$ ) differed from the individual-values prime condition (contrast coefficient  $2$ ). As expected, SI was higher in the individual-values condition than in the collective- and no-prime conditions,  $F(1, 82) = 6.84$ ,  $p = .011$ . The second contrast assessed the effects of prime on OI, testing whether the control and individual-values prime conditions (contrast coefficients  $-1$ ) differed from the collective-values prime condition (contrast coefficient  $2$ ). Again, as expected, other-interest was higher in the collective-values prime condition than in the other two conditions,  $F(1, 82) = 4.71$ ,  $p = .033$ . To test

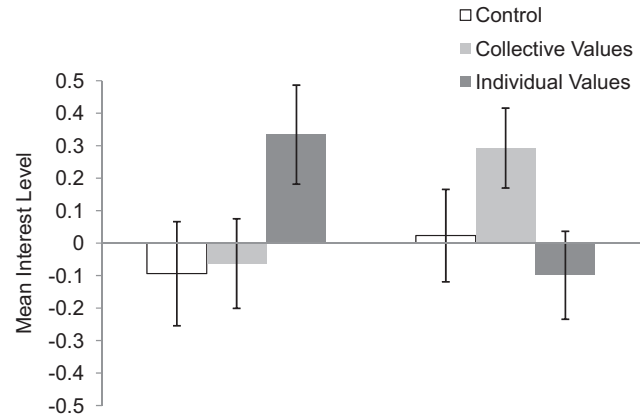


Figure 1. Influence of priming condition on levels of self-interest and other-interest in Study 3. Error bars represent standard errors.

whether these two contrasts explained the full canonical pattern of results, we tested the significance of the residual. Because the contrasts were nonorthogonal, the residual was calculated controlling for the main effects of interest and prime and the interactions of interest, prime, and order. The residual was not significant,  $F(5, 82) = 0.62$ ,  $p = .682$ , suggesting a canonical pattern of contrasts.

**Summary.** The results of this study support the claim that self- and other-interest are responsive to contextual factors. Indeed, a simple priming manipulation that heightened the accessibility of individual or collective values influenced SI and OI subscale scores. Moreover, the fact that the individual-values prime affected SI but not OI and the collective-values prime affected OI but not SI underscores the importance of treating self- and other-interest as independent constructs.

## Study 4: Behavioral Prediction

The ultimate test of our self-regulatory conceptualization of self- and other-interest is whether these constructs predict behavior. Previous research has produced weak and inconsistent evidence that measurable variation in self-interest relates systematically to behavior. The goal in Study 4 was to show that the SOII could provide stronger evidence. We hypothesized that scores on the SI subscale would correlate with self-interested behaviors and that scores on the OI subscale would correlate with other-interested behaviors. To test this hypothesis, we asked participants in Study 4 to perform a laborious and somewhat boring task that was construed either as beneficial to the self or as beneficial to others. Thus, participants performed the same behavior in each condition, but the beneficiary of the behavior, and thus whether the behavior served self- or other-interests, varied. The dependent measure was how much of the behavior (measured in trials) participants performed. We predicted that when the behavior benefited the self, perseverance on the task would correlate with scores on the SI subscale but not the OI subscale of the SOII; when the behavior benefited another person, perseverance on the task would correlate with scores on the OI subscale but not the SI subscale.

## Method

**Participants.** Forty-seven college undergraduates (29 female, 18 male) participated in the study for course credit. Each participant was randomly assigned to the self-beneficiary or the other-beneficiary condition.

**Perseverance task.** The perseverance task was based on a paradigm used by Williams and DeSteno (2008). On each trial, participants saw two representations of three-dimensional figures and were asked to indicate whether the figure on the right could be rotated any number of degrees such that it would be identical to the shape of the figure on the left. Participants were told that there were more trials than it was possible to complete, and, therefore, they should feel free to quit the task when they wanted. Thus, for each trial, they were given three choices: "Yes," the shape matches, "No," the shape doesn't match, and "Quit." In all of these respects, the task was identical to that used by Williams and DeSteno (2008).

**Beneficiary manipulation.** We used monetary incentives in manipulating whether participants' performance of the task was self- or other-interested. Participants were told that the time they spent on the task would be translated into entries into a raffle for \$50. Those entries would be placed into the raffle either in their name (self-beneficiary) or in the name of the participant who would complete the study immediately after them (other-beneficiary). The experimenter said one of the following:

"The time you spend doing the task will determine how many entries will be placed into the raffle for you." [self-beneficiary condition]

"The time you spend doing the task will determine how many entries will be placed into the raffle for the next participant in the study. What you do will not affect how many tickets are entered for you." [other-beneficiary condition]

In the other-beneficiary condition, the experimenter made no mention of any raffle entries for the participant him- or herself. That is, participants were not told about the behavior of any previous participants; nor were they prompted to think about how any previous participant may have performed on the task. After delivering the manipulation, the experimenter probed participants for their understanding of whether their actions would benefit themselves or the next participant. No participants in the other-beneficiary condition asked about the number of raffle entries that would be made on their behalf.

**Procedure.** Upon enrolling in the study, participants were prompted to complete the SOII and a demographic questionnaire, online, at least 24 hours before the study commenced. When they arrived at the laboratory, participants were introduced to the perseverance task and then the beneficiary manipulation. They worked independently and unobserved on the task until they chose to quit. For compensation, in addition to course credit, participants were entered into a \$50 raffle, with the number of entries in their name based on the number of trials they completed and the number completed by the most recent participant run in the other condition. Thus, a participant in the other-beneficiary condition was yoked to the most recent participant in the self-beneficiary condition and vice versa. However, participants did not learn of this compensation scheme until they had completed the study.

## Results and Discussion

Three participants failed to complete the SOII before arriving at the laboratory, and one failed to follow the instructions for the mental rotation task. The data from these four participants were discarded, leaving 43 participants in the sample.

**Descriptive statistics.** Means, standard deviations, and reliabilities for the SOII subscales were similar to the results of Studies 1–3 (SI:  $M = 5.05$ ,  $SD = 0.71$ , Cronbach's  $\alpha = .71$ ; OI:  $M = 4.74$ ,  $SD = 0.81$ , Cronbach's  $\alpha = .83$ ). Behavior in the perseverance task was highly variable. Participants completed an average of 123.65 trials ( $SD = 86.80$ ), with participants in the self-beneficiary condition completing more trials ( $M = 146.68$ ,  $SD = 96.47$ ) than participants in the other-beneficiary condition ( $M = 80.67$ ,  $SD = 40.27$ ),  $t(41) = 2.52$ ,  $p = .016$ .

**Primary results.** To test the hypothesis that SI scores would predict behavior in the self-beneficiary condition but not in the other-beneficiary condition and that OI scores would predict behavior in the other-beneficiary condition but not the self-beneficiary condition, we conducted separate hierarchical linear regressions for each condition. The dependent variable was the number of mental rotation trials completed. In Step 1, we entered demographic control variables. These terms did not show significant effects and will not be discussed further. In Step 2, we entered the scores on the SI and OI subscales.

Both analyses yielded the predicted results. In the analysis of the self-beneficiary condition, the SI subscale predicted behavior, whereas the OI subscale did not (SI:  $\beta = .46$ ,  $p = .038$ ; OI:  $\beta = -.07$ ,  $p = .731$ ,  $\Delta R^2_{\text{Step2}} = .17$ ). In the analysis of the other-beneficiary condition, the OI subscale predicted behavior, whereas the SI subscale did not (OI:  $\beta = .93$ ,  $p = .032$ ; SI:  $\beta = -.38$ ,  $p = .147$ ,  $\Delta R^2_{\text{Step2}} = .39$ ).

**Summary.** This study provided initial evidence that self- and other-interest, as measured by the SOII, predict behaviors that benefit self and others. It also provided further support for the independence of these motives. In Study 4, we intentionally created a situation in which participants believed that they were acting either solely to benefit themselves, with no implications for another person, or solely to benefit another person, with no implications for the self. In this situation, we found a divergence in the predictive power of self- and other-interest. However, in many situations, behavior has implications for both self and others; there, we would expect both self-interest and other-interest to predict the same behavior. We examined this hypothesis in Study 5, using a prisoner's dilemma game.

### Study 5: Behavior in a Social Dilemma

The goal in Study 5 was to examine whether self- and other-interest predict behavior when situational constraints force a trade-off between them. We used the prisoner's dilemma game to instantiate such a situation. In the prisoner's dilemma game, each of two players is asked to choose between a competitive and a cooperative action, with payoffs dependent not just on their own choice but also on the other player's choice. Moreover, it is always in each player's individual interest, given the payoff structure, to make the competitive choice, but it is in the joint interest of the players to make the cooperative choice. Thus, self-interest aligns with competitive choices, and other-interest aligns with cooperative choices. Given this structure, we anticipated that scores on

both the SI and OI subscales would predict behavior in the prisoner's dilemma game, in opposite directions. That is, SI would relate negatively to cooperative choices, whereas OI would relate positively to cooperative choices. Such a finding would be consistent with several earlier findings of opposing relations of SI and OI to other zero-sum and forced choice measures (e.g., altruistic motivation in Study 1, SVO scores in Study 2).

## Method

**Participants.** Fifty-six college undergraduates (30 female, 26 male) participated in the study for course credit in the context of a larger battery of studies in a 1-hr laboratory session.

**Procedure.** Upon enrolling in the study, participants were prompted to complete the SOII and a demographic questionnaire online at least 24 hours before arriving at the laboratory.

In the main study, pairs of participants were instructed that they would be playing 10 rounds of the prisoner's dilemma with each other. They learned that the points they received in the game would translate directly into entries into a raffle for \$50 among all participants in the study. The experimenter explained the logic of the prisoner's dilemma game verbally, emphasizing that both of the participants' choices would influence each other's outcomes, and then directed them to the computers where they would play the game via "an online interface." The point system for this study was explained in detail on the computer screen. When both chose A, the participant would receive 200 points and the other would receive 100 points. When the participant chose B and the other chose A, the participant would receive 400 points and the other would receive 0 points. When the participant chose A and the other chose B, the participant would receive 0 points and the other would receive 200 points. Finally, when both chose B, the participant would receive 100 points and the other would receive 50 points. Thus, A was the cooperative choice and B the competitive choice, though the choices were not presented as such to participants. After learning about the point structure, participants had to respond correctly to four questions that asked them to enter the point value corresponding to each possible combination of choices before being able to continue to the game.

Participants then played what they believed to be 10 rounds of the game on the computer. In fact, the participants did not play with each other. On each round, each participant chose option A or option B and then waited a variable period of time, between 2 and 21 s, while the screen displayed the phrase "Collecting both responses and tallying . . ." (This message was intended to indicate that the delay could be due to either the other participant making his or her choice or the computation of points.) The computer then moved to the next screen, which prompted the participant to choose A or B again. At no point in the game did the participant learn which option the other participant had chosen. No participant expressed any suspicion about the cover story; they all believed that they were truly playing the game with the participant with whom they had been paired during the game instructions.

## Results and Discussion

**Descriptive statistics.** Means, standard deviations, and reliabilities for the SOII subscales were similar to the results of

Studies 1–4 (SI:  $M = 5.11$ ,  $SD = 0.72$ , Cronbach's  $\alpha = .80$ ; OI:  $M = 4.73$ ,  $SD = 0.68$ , Cronbach's  $\alpha = .82$ ). Behavior in the prisoner's dilemma game was mainly competitive; the average number of cooperative (B) choices made across the 10 trials was 3.20 ( $SD = 3.22$ ).

**Primary results.** To test the hypothesis that both self-interest and other-interest, as measured by the SOII, would predict behavior in the prisoner's dilemma, we conducted a hierarchical linear regression in three steps. In Step 1, we entered the control variables, which included the conditions of previous experiments in the experimental session that participants completed, as well as demographic variables. These terms did not interact with the SOII variables and are therefore not discussed further. In Step 2, we entered scores on the SI and OI subscales. In Step 3, we entered the interaction between the subscales.

The results supported our hypothesis. Scores on the SI subscale related negatively to cooperative choices ( $\beta = -.32$ ,  $p = .022$ ), and scores on the OI subscale related positively to cooperative choices ( $\beta = .45$ ,  $p = .002$ ,  $\Delta R^2 = .23$ ,  $p = .001$ ). The addition of the interaction term in Step 3 did not change this pattern of results (SI:  $\beta = -.31$ ,  $p = .029$ ; OI:  $\beta = .49$ ,  $p = .003$ ,  $\Delta R^2 = .004$ ,  $p = .624$ ). Thus, we find further support for our conceptualization of self- and other-interest as independent constructs. Indeed, these results suggest that, even in situations in which the incentive structure pits self-interest against other-interest, it is advantageous to measure both motives.

## General Discussion

Self-interest has long been viewed as a cardinal motive, an invariant feature of human nature that is the proper starting point—and sometimes also ending point—of any analysis of why people do what they do. The present research takes a different view, relegating self-interest and its counterpart, other-interest, to the realm of ordinary motives, whose potency varies across individuals and contexts and whose influence on behavior is available to conscious awareness. The results of five studies supported this conceptualization of self- and other-interest. Study 1 demonstrated that self- and other-interest can be measured reliably and validly, as independent constructs, with a self-report measure. Study 2 developed a version of the SOII for use with a general population and demonstrated systematic changes in the relation between self- and other-interest scores with age. Study 3 showed that self- and other-interest scores vary independently, as a function of the accessibility of related values. Study 4 provided initial evidence that self-interest scores predict behaviors that benefit the self and that other-interest scores predict behaviors that benefit another person. Finally, Study 5 demonstrated that in situations that involve a trade-off between the pursuit of self-interest and the pursuit of other-interest, such as the prisoner's dilemma, self- and other-interest scores contribute independently to behavioral prediction.

## Theoretical Integration and Implications

Our conceptualization of self- and other-interest shares much with existing theories in the psychological literature, though it also contrasts with them in significant ways. For example, in its focus on individual differences in the potency of self- and other-interest,

our view overlaps considerably with theory and research on social value orientation (Messick & McClintock; Van Lange et al., 1997). Indeed, the results of Studies 1 and 2 demonstrated strong convergence between scores on the SI and OI subscales of the SOII and prosocial versus prosocial classifications on the SVO. The main difference between the two views concerns the relation between self- and other-interest. In particular, the SVO questionnaire requires respondents to make trade-offs between benefits to the self and benefits to another, thereby instantiating a zero-sum relation between the two. The SOII is agnostic on the relation between self- and other-interest; it measures the two dimensions independently, thereby allowing for the possibility of a positive relation, a negative relation, or no relation between them. Both the SVO and the SOII are useful for studying motivational dynamics in zero-sum situations, in which trade-offs between the pursuit of self- and other-interest are required. The SOII is a more flexible instrument that can be used in other situations as well.

A similar trade-off between self-interest and other-interest characterizes the interpersonal goals literature. Research on interpersonal goals differentiates between egosystem and ecosystem goals. Egosystem goals are associated with the desire to build and maintain positive public and private images of the self, whereas ecosystem goals are associated with the desire to support others and further their well-being (Crocker & Canevello, 2008). This distinction maps well onto our conceptualizations of self- and other-interest. When pursuing egosystem goals, individuals are self-interested and pursue their gains to the disregard of others. When pursuing ecosystem goals, individuals are genuinely other-oriented; they see themselves as part of a larger whole and prioritize the needs of others as a way of ensuring everyone's well-being (Crocker, 2008). Again, our divergence from this egosystem–ecosystem framework comes in the specification of the relation between the two motivational orientations. For Crocker and colleagues, although everyone is presumed to have egosystem and ecosystem goals and to shift between them with some frequency, at any given moment, only one or the other system is activated. We make no such assumption. In our view, the same action can be guided simultaneously by both self- and other-interest.

Another family of theories that overlaps with our conceptualization of self- and other-interest comes from the study of negotiations. In particular, the dual-concerns model of negotiations argues that negotiating parties benefit from considering both their own self-interest and the interests of other parties (Pruitt & Rubin, 1986). This model makes no assumptions about the relations between own and others' interests and, in that respect, is similar to our approach. However, it grounds concern for others' interests in a different set of motives than our model does. For the dual-concerns model, it is important to take into account others' interests, because this perspective-taking exercise facilitates the identification of a solution that will prove beneficial, or at least acceptable, to all parties. Thus, concern for others' interests need not emerge from an investment in their welfare; it serves self-interest as well (Pruitt & Rubin, 1986, p. 28). The dual-concerns model does not seek to disentangle self- and other-motives for concern with others' interests, and, indeed, in negotiation situations, these motives are often difficult to separate. Nevertheless, one hypothesis that we would advance is that the most effective negotiators may be those individuals who are high in both self- and other-interest. Such individuals may be especially practiced at

identifying solutions that serve both of these motives simultaneously.

Finally, the relation of the SOII to research on the norm of self-interest deserves comment. At first glance, the findings of our studies would seem to run contrary to the existence of such a norm. That is, to the extent that we found a relationship between self-interest and social desirability responding, that relationship was negative. However, we have reason to believe that the norm of self-interest is alive and well: Although our findings suggest that self-interest is not highly desirable, they do not invalidate its status as a norm. In addition, we have evidence from other studies, using the SOII, that supports the norm of self-interest formulation. Those studies have shown that people believe that other people are higher in self-interest and lower in other-interest than they themselves are (Gerbasí & Prentice, 2013). This pattern is entirely consistent with the normative status of the self-interest motive (see Miller, 1999; Miller & Ratner, 1998).

## Extensions

The ability to measure individual differences in self- and other-interest independently, provided by the SOII, has the potential to inform research on topics that range well beyond those typically associated with the study of self-interest. Several examples are suggested by the present studies.

**Adult development.** In Study 2, we began to explore how self- and other-interest change over the lifespan. We found that the correlation between the two increases with age, from a nonsignificant relationship among college-age adults to a strong, positive correlation among middle-aged and older adults. Much more research could be done to unpack the precise nature and meaning of this pattern. One possibility is that the increase in the SI–OI correlation signals the development of generativity in middle adulthood. Generativity is the seventh of Erikson's (1963) eight developmental stages; it is defined by increased interest in the enhancement of the well-being of others, particularly those in future generations. It contrasts with stagnation, or disengagement from others. One theme common to theories of generativity, as well as to narratives of generative individuals, is the importance of taking an interest in future generations, both to expand the self (an egoistic motive) and to benefit others (a benevolent motive; see Kotre, 1984; McAdams, 2001). The processes that lead to this convergence of self- and other-motives for some individuals, but not for others, are poorly understood. The SOII could contribute to a greater understanding in at least two ways. Longitudinal research could use the SOII to track changes in self- and other-interest over adulthood, identifying the trajectories that produce generativity in some individuals and stagnation in others. Experimental research could use the SOII to identify effective interventions for increasing the level and salience of other-interest and its convergence with self-interest in middle adulthood. Given the significant health benefits of generativity (Keyes & Ryff, 1998), this research agenda could have important practical, as well as theoretical, implications.

**Gender roles.** The SOII has the potential to contribute to a better understanding of the psychology of gender roles as well. Although we found scant evidence for gender differences in self- and other-interest in our studies, the overall pattern of results was intriguing. Older men in the adult sample had higher self-interest than women did, whereas women in the adult sample had higher



other-interest than men did; neither of these differences emerged in the student samples. Our tentative interpretation of this pattern is that it reflects the divergence of gender roles post-college and, in particular, the consistent socialization of women to care about others and of men to grow into a breadwinner role (see Eagly & Steffen, 1984; Haller & Hoellinger, 1994). However, this interpretation raises at least as many questions as it answers: What is it about the breadwinner role that promotes self-interest? Could the results reflect cohort differences, rather than (or in addition to) role differences? And, more generally, how do self- and other-interest change with role demands over time? Again, the SOII will prove an extremely useful tool for addressing these and related questions.

**Culture.** Finally, the parallels between the present research and research on culture-based self-construals raise the possibility that the SOII may inform the study of cultural differences. The norm of self-interest is a distinctly Western phenomenon; East Asian cultures do not accord the pursuit of one's personal interests the same primacy and invariance. Conversely, East Asian cultures have much more developed ideas about the collective as a source of meaning, motivation, and self-definition. Therefore, a straightforward hypothesis is that members of Western cultures are higher in self-interest and members of East Asian cultures are higher in other-interest (Markus & Kitayama, 1991). Beyond confirming the alignment of self-interest with Western values and other-interest with Eastern values, however, the SOII could shed light on the complex motivational dynamics that exist within cultures. In particular, an examination of the relationship between self- and other-interest within cultures, the stability of the two motives over time and contexts, and the situational and interpersonal cues that activate each motive would likely yield valuable insight into how cultural values and practices translate into motivation at the level of the individual. Although we would anticipate finding some cultural differences in such an investigation, we would also anticipate broad similarities. For example, we would expect the results of Studies 3, 4, and 5 regarding the malleability of self- and other-interest and their correlations with behavior to replicate across cultures.

## Concluding Remarks

Eighteenth-century social theorists were wise about many things (Hirschman, 1977). They understood that human nature is not invariant but instead is shaped by experience within societal structures. They understood that interests, unlike passions, are products of reason and are therefore subject to conscious awareness. They understood that rendering people interdependent, in the marketplace and elsewhere, increases the stakes people have in others' outcomes and thereby fosters the development of other-regarding motives. Indeed, their armchair insights into human psychology anticipated most of the results of the present studies. Over 200 years later, we finally have the psychometric tools and scientific know-how to test and refine their ideas.

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(Appendix follows)

### Appendix

#### Theories of Self-Relative-to-Other Behavior

Please indicate your level of agreement with the following statements:	Strongly disagree						Strongly agree
	1	2	3	4	5	6	7
I am concerned about doing as well or better than those around me. (SC)	1	2	3	4	5	6	7
It is the total amount of benefit that everyone receives that matters most. (PS)	1	2	3	4	5	6	7
I make sure that what I am getting is better than what other people are getting. (SC)	1	2	3	4	5	6	7
I am happy to help others as long as I know that I am doing okay first. (SP)	1	2	3	4	5	6	7
I look out for myself first, and then I try to make sure others are doing okay. (SP)	1	2	3	4	5	6	7
I try to make sure I stay ahead of the curve. (SC)	1	2	3	4	5	6	7
I am concerned with overall best interest for everyone. (PS)	1	2	3	4	5	6	7
When I'm not doing well, I can't be expected to try to take care of other people. (SP)	1	2	3	4	5	6	7
I think people should take care of themselves. (SM)	1	2	3	4	5	6	7
I look out for my own outcomes and don't concern myself with what happens to other people. (SM)	1	2	3	4	5	6	7
I only care about my interests. (SM)	1	2	3	4	5	6	7
I would be happy to give up a little of something that I wanted if it meant that everyone is better off in the long run. (PS)	1	2	3	4	5	6	7

*Note.* SC = self-comparative relation; PS = prosocial subscale; SM = self-maximizing relation; SP = self-prioritizing relation.

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