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The Role of Autonomy Support and Autonomy Orientation in Prosocial Behavior Engagement[1]

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Two studies examined individual and environmental forces that affect engagement in prosocial behavior. Self-determination theory was used to derive a model in which autonomy orientation and autonomy support predicted satisfaction of three core psychological needs, which in turn led to engagement in prosocial activities. In Study 1, college students reported their engagement in various prosocial activities, and completed measures of autonomy orientation, parental autonomy support, and general need satisfaction. In Study 2, volunteer workers completed measures of autonomy orientation, work autonomy support and need satisfaction at work. The number of volunteered hours indicated the amount of prosocial engagement. Results across the studies showed that autonomy orientation was strongly related to engagement in prosocial behavior, while autonomy support was modestly related. Need satisfaction partially mediated the effect of autonomy orientation, and fully mediated the effect of autonomy support. Interestingly, autonomy support predicted lower volunteer turnover. Implications for how prosocial behavior can be motivated are discussed.

KEY WORDS: volunteering; prosocial behavior; need satisfaction; self-determination theory; autonomy support.

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If people are good only because they fear punishment, and hope for reward, then we are a sorry lot indeed

Einstein

There is no doubt, as Einstein implied, that good deeds are essential to the promotion of a healthy society. Perhaps for this reason, social psychologists have been interested in the questions of why and under what conditions people will act to benefit other people, actions that are called *prosocial* (Staub, 1978). Much social psychological research has examined the conditions that facilitate or inhibit helping behaviors, such as bystander intervention (Latané & Darley, 1970), volunteering (Batson et al., 1997), and giving (Cialdini & Kenrick, 1976). Some research also addresses people's motives for engaging in certain prosocial behaviors, such as volunteering (e.g., Clary et al., 1998). Some interesting findings have advanced our knowledge about the effects of these factors, but still much research is needed to uncover what motivates prosocial behavior.

In an attempt to increase likelihood of engagement in prosocial behavior, various writers have called for the use of incentives (Skinner, 1978), and for making prosocial behavior "mandatory" within certain settings (Sobus, 1995). Incentive systems would seem at first glance to provide an easy solution for increasing prosocial behavior. Indeed, such systems are already in wide use with, for example, benefactor plates, donor dinners, and gifts to people who contribute to charities. Unfortunately, research on the effects of tangible incentives on prosocial behavior has found that incentives may not be the most effective means of maintaining or increasing prosocial behavior and, under certain conditions, can even deter such behavior.

For example, Fabes, Fultz, Eisenberg, May-Plumlee, and Christopher (1989) found that rewarding children for helping sort pieces of paper for sick children undermined their subsequent helping behavior. This study showed that, although incentives might increase helping while they are in effect, they can decrease subsequent helping, perhaps because the enactment of helping behavior becomes contingent on these recently introduced incentives. A few studies showed that incentives can, in fact, alter people's perceptions of themselves as acting altruistically. Kunda and Schwartz (1983) found that payments undermined undergraduates' internalized sense of moral obligation to help a blind person upon request, and this in turn deterred helping behavior toward this person. Batson, Coke, Jasnoski, and Hanson (1978) similarly found that people who were paid to help an experimenter code data judged themselves to be less altruistic than people who were not paid for helping or who did not help. Parallel findings have been found in applied settings. Upton (1974) demonstrated that committed blood donors who received a reward were subsequently less likely to donate compared to committed donors who were not offered a reward. Finally, a study by Paulhus, Shaffer, and Downing (1977) showed that people's stated willingness to donate blood in the future was lower when blood-drive workers stressed selfbenefits from donating, as opposed to stressing the good will of donors.

Even some economists, whose theories mostly focus on human beings as being solely motivated by economic gains, are acknowledging that strict contingency systems can sometimes deter some forms of behavior, such as volunteering and giving blood. For instance, Frey (1993) reviewed research on the effectiveness of incentive and sanction systems on behaviors like environmental conservation and blood giving, concluding that such systems are ineffective for activities that most people would do for the value they find in them. He reported that people have generally negative attitudes about their blood being purchased and that the introduction of payments to regular donors decreased their donation rates.

In some cases, people have attempted to increase prosocial behavior through the use of other external contingencies without much success. In a compelling article on "mandatory volunteering" (which is an oxymoron), Sobus (1995) explored the effectiveness of high school programs that have for mission to develop adolescents' awareness of community needs and altruistic inclinations. Inherent in these programs is a lack of choice about participating, salient evaluations to meet school requirements, and deadlines for work completion. As will be discussed later, all of these factors have been shown to decrease enjoyment and engagement in certain activities (Amabile, DeJonc, & Lepper, 1976; Inagaki & Hatano, 1984; Zuckerman, Porac, Lathin, Smith, & Deci, 1978). Interviews with students revealed generally negative attitudes toward mandatory volunteering programs and found that forcing volunteer work defeated the purpose of fostering moral or prosocial behavior. Students felt that they were not giving anything through their behavior, because they were forced into it. Moreover, the general public did not hold a positive view of students' volunteering behavior, because they did not see it as altruistically motivated but instead as forced through social pressure. Sobus consequently argued that self-determination is essential for students to internalize the value of their citizenship behavior, and that forcing them to engage in such behavior robs them of this sense of self-determination. A recent study supports this argument by showing that students required to volunteer evidenced a decrease in future intentions to volunteer compared to students who were given a choice (Stukas, Snyder, & Clary, 1999).

Taken together, these studies indicate that prosocial behavior, be it helping others through volunteering or through giving blood, seems to be negatively affected when people feel obligated or controlled by external contingencies. The issue of acting prosocially either volitionally or through external forces can be examined with a theoretical framework that addresses how environmental forces and individual differences can affect motivation to engage in these behaviors. In the present analysis, I tested a model derived from self-determination theory (Deci & Ryan, 1991) that postulates that the satisfaction of a person's core psychological needs is a requirement to the motivation, especially long-term motivation, of activities that are prosocial.

SELF-DETERMINATION THEORY

Self-determination theory (Deci & Ryan, 1985a, 1991, 2000) proposes that human beings have basic psychological needs for autonomy, competence, and relatedness. Contexts that support the satisfaction of these needs will promote a person's enjoyment of activities and the autonomous self-regulation of behaviors. People are more likely to be intrinsically motivated, that is, to do an activity simply for the enjoyment they derive from it, when they can freely choose to pursue the activity (autonomy), when they master the activity (competence), and when they feel connected and supported by important people, such as a manager, a parent, a teacher, or team-mates (relatedness). Early research using this framework focused mostly on examining how decreases in experienced autonomy influenced intrinsic motivation. For example, research has shown that controlling rewards (Deci, 1971; Deci, Koestner, & Ryan, 1999), deadlines (Amabile et al., 1976), and evaluation (Amabile, 1979) can decrease the enjoyment of an activity, whereas choice (Zuckerman et al., 1978) and acknowledging people's feelings toward activities or rules regarding an activity (Koestner, Ryan, Bernieri, & Holt, 1984) can enhance it.

The assumption in the present research is that motivation for *prosocial* behavior can also be dampened by these controlling factors, and enriched by factors like choice and acceptance, because these factors affect the satisfaction of basic psychological needs. Although motivation is not directly measured in the present studies, I measured the satisfaction of the three psychological needs, which is theorized to promote volitional motivation (Deci & Ryan, 2000).

Ryan and Deci (2000) argued that we are naturally inclined to be prosocial animals, given proper nurturing. When we lack this nurturing, we are likely to substitute it by pursuing goals that might appear on the surface to satisfy basic psychological needs (e.g., acquiring status or financial success; Kasser & Ryan, 1993) but that do not promote prosocial behavior. This means that when our basic psychological needs are unfulfilled, we are more likely to engage in behaviors that have *ourselves* as the focus. One longitudinal study in particular found that adolescents with cold and controlling mothers were likely to value financial success over community values, compared to adolescents with warm and supportive mothers, even when controlling for the mothers' own values (Kasser, Ryan, Zax, & Sameroff, 1995). Kasser and Sheldon (2000) also found that participants induced to feel a general sense of insecurity acted more greedily and consumed more resources in a forest-management game. Thus, the rationale behind the present studies is that need satisfaction should orient people toward paying more attention to others, thus making them more likely to engage in prosocial behavior.

Another goal of the studies is to examine factors that would affect need satisfaction. In this regard, self-determination theory proposes that both individual differences in autonomy orientations and contextual supportiveness will influence need satisfaction. First, I will address the issue of individual differences in autonomy orientations.

Individual Differences in Autonomy Orientation

People's early social experiences can influence the development of their causality orientation, thus making people vary in terms of how they are oriented toward being autonomously self-regulated or being regulated by the environment (i.e., controlled). Autonomously regulated people feel agentic in their own behavior, whereas controllingly regulated people feel like pawns to external forces (deCharms, 1968). The General Causality Orientations Scale (Deci & Ryan, 1985b) assesses three different causality orientations to action: (1) an autonomous orientation representing a tendency towards volitional engagement in action (internal locus of causality); (2) a controlled orientation representing a tendency to orient toward and to be regulated by controls and contingencies (external locus of causality); and (3) an impersonal orientation representing a tendency not to engage in action, akin to helplessness (impersonal locus of causality). Independent of how supportive the context is, differences in causality orientations can lead people to have their basic needs differentially met, because people with different causality orientations may perceive the same context differently, and/or because people with different orientations may elicit different reactions during interpersonal interactions (Deci & Ryan, 1985a).

Autonomy orientation has been related to various positive outcomes. Williams, Grow, Freedman, Ryan, and Deci (1996) found that morbidly obese patients' causality orientations predicted the adoption of more autonomous motivation for following a diet, which in turn was related to the amount of weight they lost. Williams, Freedman, and Deci (1998) found similar results for diabetic patients' glucose control. Finally, Baard, Deci, and Ryan (in press) found that employees with a high autonomy orientation experienced higher need satisfaction at work, which in turn increased their performance evaluations and well-being. Because autonomy orientation has been shown to influence need satisfaction, it is likely to influence prosocial behavior engagement. Moreover, research on parenting has shown that the amount of nurturance a person receives early in life influences the development of empathic responding, and empathy has been related to engagement in prosocial behavior (Eisenberg-Berg, 1979; Hoffman, 1984; Koestner, Franz, & Weinberger, 1990).

The Support of Autonomy

As stated earlier, contextual factors can affect need satisfaction as well. Contexts that are described as autonomy supportive are characterized as giving people choice and encouragement for personal initiative and also support people's competence in a climate of relatedness (Deci et al., 2001) are predicted to promote autonomous motivation (e.g., intrinsic motivation) as opposed to controlled motivation (e.g., extrinsic motivation). Concretely speaking, the quality of

interaction with significant others, such as teachers, managers, or parents, can affect the degree to which an individual feels autonomous, competent, and related, and this can affect the degree to which he or she comes to value and even enjoy an initially uninteresting goal or activity. An autonomy supportive person (or a work environment) would typically provide a good rationale for asking someone to engage in an activity, give some choice to the person, acknowledge the person's feelings toward the activity, and encourage the person to take initiative and convey confidence in the person's abilities (Williams, Gagné, Ryan, & Deci, 2002).

A substantial body of research has confirmed the importance of autonomy support in promoting positive outcomes. For instance, autonomy support has been shown to lead to greater engagement in an initially uninteresting activity and increased positive feelings toward the activity (Deci, Eghrari, Patrick, & Leone, 1994). This effect was replicated in elementary schools, where teacher and parent autonomy support were shown to relate to better academic performance and school adjustment in children (Grolnick & Ryan, 1989; Ryan, Stiller, & Lynch, 1994). Williams and Deci (1996) found that supervisory autonomy support helped medical students' development of psychosocial values and fostered autonomy supportive behavior toward patients. In the work domain, Deci, Connell, and Ryan (1989) trained managers to be autonomy supportive with their subordinates and found that autonomy support predicted later trust in the organization, positive affect at work, and work satisfaction. Gagné, Koestner, and Zuckerman (2000) also found that management autonomy support predicted increased acceptance of organizational change over a 13-month period.

Some studies have shown that the link between autonomy support and positive outcomes is mediated by need satisfaction. Grolnick, Ryan, and Deci (1991) found that parental autonomy support was related to children's perceived competence and autonomy at school, which in turn was related to academic performance. Baard et al. (1999) and Deci et al. (2001) found support for a model where management autonomy support was related to the satisfaction of employees' needs, which was related in turn to higher performance evaluations, engagement in one's work, and well-being, in both Bulgarian and American samples. The results obtained in organizational studies might have some implications for the domain of volunteering, where work climate is likely to be an important source of need satisfaction.

Autonomy support may also help prevent negative outcomes, such as turnover. Vallerand, Fortier, and Guay (1997) found that students' perceptions of teacher, parent, and school administration autonomy support was related to greater feelings of competence and autonomy, which in turn promoted autonomous motivation. Autonomous motivation in turn was negatively related to intentions to drop out, and to actual drop out behavior. Parallel results were found in organizational studies on turnover. For example, Rhoades, Eisenberger, and Armeli (2001) found that perceived organizational support was negatively related to voluntary turnover, and Frone (2000) found that conflict with supervisors led to higher turnover intentions.

Overview of the Studies and Hypotheses

I conducted two studies to test a model derived from self-determination theory whereby autonomy support and autonomy orientation are directly related to need satisfaction, which in turn is directly related to engagement in prosocial activities. In Study 1, undergraduate students completed questionnaires on their habitual engagement in 10 different prosocial activities, and completed measures of parental autonomy support and need satisfaction. It was hypothesized that students with a high autonomy orientation and who perceive their parents as being autonomy supportive would report higher need satisfaction in their life, and this would be related to extent of their engagement in the prosocial activities. In Study 2, volunteer workers at an animal shelter completed a questionnaire on their perceptions of work autonomy support, need satisfaction, and psychological engagement in their work, and I obtained the number of hours subsequently worked for the subsequent 4 months, and whether volunteers quit or not. It was hypothesized that volunteers with a high autonomy orientation and who perceive the work environment to be autonomy supportive would report higher work need satisfaction, and this would predict the extent to which they are psychologically engaged in their volunteer work, and the number of hours they volunteer during the 4-month period. It was also hypothesized that an autonomy supportive work environment would reduce the likelihood of volunteer turnover, with the effect mediated by need satisfaction.

STUDY 1

The first study tested the self-determination model by asking college students to report on their prosocial activities, and to answer questionnaires pertaining to their level of autonomy orientation, their parents' autonomy support, and their need satisfaction. Autonomy orientation and autonomy support were hypothesized to have a positive influence on engagement in prosocial activities. General need satisfaction was predicted to mediate the relations of autonomy support and autonomy orientation on engagement.

Method

Participants and Procedure

One hundred twenty-one (77 women, 42 men, 2 unreported) undergraduate psychology students participated in a questionnaire study titled "preferences for social activities" for extra credit. One participant's data were not used because the questionnaire was not properly completed. Students completed the questionnaire in group sessions, following informed consent, and were fully debriefed after completion.

Measures

The measures were included in the following order. Table I presents the means and standard deviations for each variable.

Reports on Prosocial Activities. Respondents reported if they have ever, or currently engage, in the following behaviors, on a scale from 1 (*never*) to 7 (*very often*): volunteer for a nonprofit organization, donate money to a charitable organization, vote, sign petitions, recycle, give in food drives, help in emergency situations, actively support causes (activism), donate blood, and give away furniture and clothes. Although these are 10 very different forms of behavior requiring different levels of involvement and personal costs, and yielding different social rewards, it is assumed that the same psychological processes would be involved in motivating them. A reliability analysis showed that the reports of engagement in these different activities were internally consistent, $\alpha = .69$. Therefore, reports were averaged to form a single index of engagement in prosocial behavior.

General Causality Orientations Scale. This scale (Deci & Ryan, 1985b) measured students' general orientations toward being autonomous (Cronbach $\alpha = .82$), controlled ($\alpha = .73$), and amotivated (impersonal causation; $\alpha = .85$). Respondents read 12 hypothetical scenarios and rated the likelihood of having each of three possible reactions depicting autonomous, controlled, and impersonal orientations to each scenario on a 1 (*very unlikely*) to 7 (*very likely*) scale. The control and impersonal subscales were not used in this study.

General Need Satisfaction Scale. This scale was adapted from a measure of need satisfaction at work (Ilardi, Leone, Kasser, & Ryan, 1993). Respondents indicated on a scale from 1 (*not true at all*) to 7 (*definitely true*) the extent to which the psychological needs of autonomy (7 items, $\alpha = .69$), relatedness (6 items, $\alpha = .86$), and competence (8 items, $\alpha = .71$) are generally satisfied in their life. Examples of items are, "I feel like I can decide for myself how to live my life" (autonomy), "I really like the people I interact with" (relatedness), and "I often do not feel very capable" (competence, reversed). To test the model, the three subscales were averaged to form an index of general need satisfaction ($\alpha = .89$), as their correlations were between .61 and .66. This method has been used in many other studies (e.g., Deci et al., 2001), but correlations of each subscale with other variables are still reported in Table I.

Parental Autonomy Support Scale. Respondents rated this 9-item scale (Robbins, 1994) measuring mother's ($\alpha = .90$) and father's ($\alpha = .89$) autonomy support on a 1 (*not true at all*) to 7 (*definitely true*) scale. Examples of items are, "My mother tries to tell me how to run my life" (reversed), and "My father helps me choose my own direction." Scores for mother and father ($r[112] = .35$, $p < .001$, $\alpha = .89$) were averaged to form a parental autonomy-support index. Since the correlation between the subscales was not very high, correlations of other variables with the two subscales are presented separately in Table I.

Table I. Means, Standard Deviations, and Correlations for Variables in Study 1 ($N = 118$)

	Mean (*SD*)	1	2	3	4	5	6	7	8
1. Autonomy orientation	5.63 (0.75)								
2. Mother autonomy support	5.44 (1.15)	.17							
3. Father autonomy support	5.07 (1.30)	.22*	.48***						
4. Parental autonomy support	5.25 (1.05)	.23**	.84***	.88***					
5. Autonomy need	5.00 (0.80)	.27**	.27**	.51***	.46***				
6. Competence need	4.97 (0.93)	.35***	.32***	.46***	.45***	.66***			
7. Relatedness need	5.60 (1.20)	.51***	.35***	.54***	.53***	.61***	.64***		
8. Need satisfaction	5.19 (0.80)	.45***	.36***	.58***	.56***	.85***	.88***	.88***	
9. Prosocial engagement	3.30 (0.94)	.35***	.05	.22*	.16†	.19*	.40***	.26**	.34***

† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Results and Discussion

Complete data were obtained from 118 students who reported engaging in a median of 7 out of 10 activities. Mean engagement ranged from 2.03 to 5.46 across the 10 activities, with an overall average of 3.3. Correlations between the 10 individual activities and the other variables were rather low (between. 06 and .20) but considering individual activities ratings as the unit of analysis is like using single items. Correlations between the variables are presented in Table I, where it is shown that the composite of engagement in prosocial activities is more strongly correlated with the other variables than were the individual activities. Autonomy orientation and autonomy support were significantly, but not highly correlated. Autonomy orientation was strongly related to prosocial engagement. Interestingly, father autonomy support was more strongly correlated with engagement than mother autonomy support. This parallels Koestner et al.'s finding that paternal involvement in child care was a predictor of empathy development in a 26-year longitudinal study (Koestner et al., 1990). However, to keep in line with previous research (e.g., Vallerand et al., 1997), the combined measure of parental autonomy support was used, which means that the reported results are conservative estimates of the effect of autonomy support. As expected, each need satisfaction subscale was strongly correlated with autonomy orientation and parental autonomy support. They were also substantially correlated with prosocial engagement, with a stronger correlation for competence. Nonetheless, to be consistent with previous research (e.g., Deci et al., 2001), I used the composite of all three needs. Overall, correlations provide good initial support for the mediational model to be tested through path analysis, except for the low correlation of autonomy support with prosocial engagement.

Testing the Hypothesized Mediational Model

To test the postulated model, including a test of the mediating effects of need satisfaction, I conducted a series of path analyses with Amos 4 (Arbuckle, 1999) with maximum-likelihood estimation. Because the complete sample available to run the analysis was small ($N = 118$), scores on subscale items were averaged to create observed variables (represented by rectangles in the figures), and the variance of the error terms was fixed with the subscale reliabilities (Cronbach α's) and standard deviations (Bollen, 1989; Wang, Fisher, Siegal, Falck, & Carlson, 1995), thus creating the equivalent of latent variables (represented by ellipses in the figures). This reduced the maximum number of estimated parameters to 8, creating an adequate ratio of cases to parameter of 14.75 to 1.

To test for mediation, indirect effects were calculated for each predictor variable. The total effect of a predictor variable on an outcome variable is the sum of

the direct effect of the predictor on the outcome and its indirect effect through a mediator variable, so a significant indirect effect indicates that the mediator substantially reduced the direct effect of the predictor on the outcome variable. To calculate the indirect effect of the predictor on the outcome, one needs to subtract the direct effect from the total effect (Allison, 1999). Also, Baron and Kenny's method (Baron & Kenny 1986), adapted for structural equations modeling, was used (Hoyle & Smith, 1994).

The first model tested the direct paths from autonomy orientation and from parental autonomy support to prosocial engagement. Because the correlation between autonomy orientation and autonomy support was substantial (see Table I), which is not surprising considering they are measured at the same level (Vallerand, 1997), I freed the covariance between the two variables. However, this model was just identified, meaning there were no degrees of freedom left to assess its fit to the data. Fixing this covariance to 0 yielded a poor fit, as can be seen from these inconsistent fit indices, $\chi^2(1) = 6.49$, $p < .01$, GFI $= 0.97$, NNFI $= 0.15$, CFI $= 0.72$, RMSEA $= 0.22$. The unstandardized path coefficient from autonomy orientation to prosocial engagement was significant, $\gamma = 0.51$, $p < .01$, but the one from parental autonomy support to engagement was not, $\gamma = 0.08$, *ns*. The second model added need satisfaction as a partial mediator for both autonomy orientation and parental autonomy support leading to prosocial engagement (keeping the direct paths). Again, this model was just identified, so it was not possible to assess its fit. Fixing the covariance between autonomy orientation and autonomy support to 0 yielded a poor fit, $\chi^2(1) = 6.49$, $p < .01$, GFI $= 0.97$, NNFI $= 0.61$, CFI $= 0.93$, RMSEA $= 0.22$, and the direct path from autonomy support to engagement was close to 0, while the others were all significant.

After examining modification indices, the direct path from parental autonomy support to prosocial engagement was dropped, thus modeling full mediation of need satisfaction for this path. The unstandardized results of this final model are presented in Fig. 1. The goodness of fit of this model was excellent, $\chi^2(1) = 0.28$, *ns*, GFI $= 1.00$, NNFI $= 1.05$, CFI $= 1.00$, RMSEA $= 0.00$. All estimated paths were significant. Both parental autonomy support and having an autonomous orientation influenced general need satisfaction, and need satisfaction positively influenced engagement in prosocial activities. Autonomous orientation retained a direct path to engagement, but was also mediated through need satisfaction, as indicated in a significant indirect effect of .11, $p < .05$. The effect of parental autonomy support on engagement was fully mediated by need satisfaction, with an indirect effect of .10, $p < .05$. Thus, it appears that parental autonomy support had a small effect (partial $R^2 = .05$) on engagement, and this effect was fully mediated by need satisfaction. Having an autonomous orientation had substantial influences on engagement in prosocial activities, partly through increasing need satisfaction.

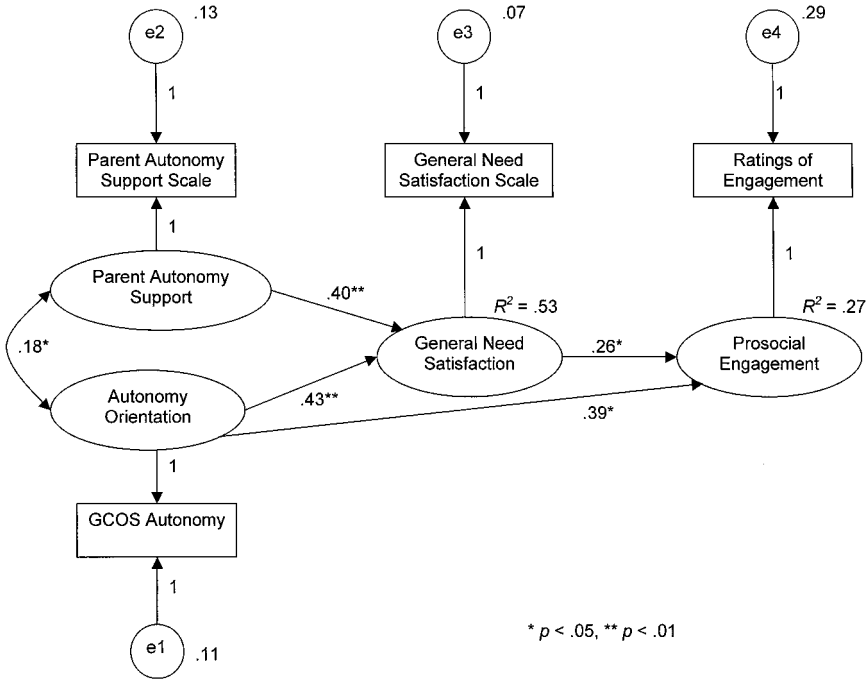

Fig. 1. Results of the final path analytic model tested in Study 1.

STUDY 2

The design of the first study was limited in at least two ways. First, prosocial behaviors were self-reported and retrospective. To remedy this, it would be necessary to observe actual prosocial behavior in order to provide some external validity for the model. Second, parental autonomy support is a relatively distal antecedent of prosocial motivation for adults, including undergraduate students. Although parental autonomy support is likely to have long-term and wide-ranging effects in many aspects of people's lives, more proximal sources of autonomy support might have greater effects on domain-specific behavior. For example, supervisor autonomy support might have potent effects on the motivation of workers. Moreover, parental autonomy support's influence on prosocial behavior might be confounded with the fact that autonomy-supportive parents could be the kind of people who engage in prosocial activities themselves. The effects of modeling such behavior for their children could influence their children's behavior, just as much as the effect of parents being generally supportive of their children's behavioral choices.

The second study addressed these two limitations. Volunteers working in an animal shelter were asked to complete a questionnaire. The volunteer coordinator

provided the number of hours worked by each volunteer during the 4 months that followed the administration of the questionnaire. Thus, the first limitation of Study 1 was addressed by observing actual prosocial behavior, that is, the number of hours spent at the shelter. Moreover, since assessment of prosocial behavior was done after volunteers completed the questionnaire, it was possible to look at the prospective correlations between perceived autonomy support and engagement in volunteer behavior. This is considered to be a measure of the quantity of engagement. A measure of the quality of the engagement was added with a scale measuring psychological engagement in work activities. Finally, I asked volunteers, after the collection of data, to report whether they were still volunteering at the shelter 4 months later. These data permitted to test the hypothesis that autonomy support might help curtail turnover.

The questionnaire contained scales assessing the autonomy supportiveness of the climate in this volunteer work setting, along with scales assessing individual differences in motivational orientations, need satisfaction at the workplace, and feelings of engagement in volunteer work. Thus, the second limitation of Study 1 was addressed by assessing the perceived autonomy supportiveness of the context in which the volunteer behavior occurs. These improvements permitted a more rigorous test of the model.

Method

Participants and Procedure

Two hundred twenty-seven volunteers, 42 men and 185 women, from a Humane Society for Animal Welfare situated in the Northeastern U.S. were recruited via mail to participate in a questionnaire study about their experience as volunteers. This animal shelter is a state-run nonprofit organization that serves to control domestic animal populations, enforce laws concerning animal abuse, and educate the community about animal welfare. Some workers at the shelter were paid employees and others were volunteers, but only the volunteers participated in this research. Their tasks varied greatly, ranging from cleaning cages and pens, to socializing animals, to greeting potential adopters, to participating in pet therapy programs.

An envelope containing a letter explaining the purpose and procedure of the study, a consent form, and the initial questionnaire, was mailed to each volunteer. After receiving the volunteers' consent and their completed questionnaires, the number of hours each participant had worked during the 4 months following the administration of the questionnaire was obtained from the volunteer coordinator. At the end of this period, volunteers were sent a short questionnaire to know if they were still volunteering and other questions not of interest to the present study. In order to ensure the confidentiality of the responses, volunteers were

given identification numbers to match their questionnaire to the list containing the number of hours that each volunteer worked. A technical report of the aggregated results was presented to the shelter.

Measures

The questionnaire started with questions concerning demographic characteristics, including age, gender, education level, income, and whether the respondents engaged in other volunteer activities in their lives. When sent the second short questionnaire, volunteers were asked to report on whether they were still volunteering, and also to approximate the number of hours they had worked in the last 4 months. If, for clerical reasons, number of hours could not be obtained for particular volunteers (e.g., some volunteers participated in a pet therapy program for which the coordinator did not record hours), self-reported hours spent volunteering was used as a behavioral measure of prosocial behavior. The correlation between self-reported and the number of hours reported by the shelter for the 58 volunteers for whom both measures were available was .80. Respondents were also asked to complete a series of measures in the following order, some of which were modified to pertain to volunteer work. All of the questions were phrased in terms of the volunteers' experiences at the shelter during the preceding 6 months.

General Causality Orientations Scale. This is the same scale used in Study 1. Again, only the autonomy orientation subscale was used, $\alpha = .82$.

Work Climate Survey. Items from the first two sections of this survey (Deci et al., 1989), which was modeled after the Job Diagnostic Survey (Hackman & Oldham, 1975), were used to assess the volunteers' perceptions of the work climate at the shelter. Thirteen items, consisting of five subscales, measured perceptions of autonomy support. The first three subscales consisted of statements that workers rated on a 1 (*very inaccurate*) to 7 (*very accurate*) scale. Three items concerned the immediate supervisors (e.g., The staff at the shelter give me a great deal of choice about how to do my volunteer work and how to handle problems I encounter; $\alpha = .73$), three items concerned the shelter management in general (e.g., The managers at the shelter consider carefully the impact of decisions on the volunteers' lives; $\alpha = .84$), and three items concerned the structure of the work environment (e.g., At the shelter, there are guidelines and regulations that let me know what to do in almost every situation; $\alpha = .68$). The environmental structure subscale is not always included in the autonomy support composite, but because of the nature of operations at the shelter, which require providing some structure to volunteers who are typically there only a few hours a week and need some direction to accomplish their work, it was included as an indicator of autonomy support in the present study. The other two subscales consisted of adjectives describing the work atmosphere rated on a 1 (*not at all*) to 7 (*extremely*) scale. The first one contained four adjectives describing the supportiveness of the work environment

(e.g., supportive; $\alpha = .89$), and the second contained seven adjectives describing how people feel in the environment (e.g., flexible; $\alpha = .91$). Items within each of the subscales were averaged, and then the five subscales were averaged to create a variable labeled work autonomy support, $\alpha = .85$. Correlations between the subscales ranged from .23 to .74.

Need Satisfaction Scale. Twenty items assessed participants' experiences of psychological need satisfaction at work (Ilardi et al., 1993). They indicated on a scale from 1 (*not true at all*) to 7 (*definitely true*) the extent to which they felt satisfaction of the needs for autonomy (7 items; $\alpha = .76$), relatedness (6 items; $\alpha = .81$), and competence (8 items; $\alpha = .60$). Examples of items are, "I feel like I can make a lot of input to deciding how my volunteer work gets done" (autonomy), "I really like the people I volunteer with" (relatedness), and "I do not feel very competent when I am volunteering" (competence, reversed). Items within each subscale were averaged, and the three subscales were then averaged to form a variable labeled need satisfaction at work ($\alpha = .88$). Correlations between the subscales ranged from .62 to .65.

Work Engagement Scale. This 12-item scale (Deci et al., 2001; $\alpha = .74$) measured self-reported behavioral and emotional engagement in volunteer work on a 1 (*completely disagree*) to 7 (*completely agree*) scale. Sample items are, "When I am volunteering, I work as hard as I can" (behavior) and "When I am volunteering, I often feel bored" (emotion, reversed). The 12 items were averaged to form a measure of psychological engagement.

Results and Discussion

One hundred volunteers, 22 men and 78 women, completed and returned the first questionnaire, which yielded a response rate of 44%. Another recent volunteer study obtained a response rate of 32% (Penner & Finkelstein, 1998), so the present response rate seems typical. The data from one volunteer were discarded because the questionnaire was not properly completed. Of the 99 volunteers who were sent the short questionnaire at the end of the 4-month period, 60 returned it, 2 reported continuing to volunteer but did not complete the questionnaire, 17 reported that they had stopped volunteering so did not complete the questionnaire, and 20 provided neither the questionnaire nor other information. Volunteers who completed both questionnaires or at least reported that they stopped volunteering were older and more educated than volunteers who completed only the first questionnaire. None of the demographic variables interacted with any of the variables in the model and they will therefore not be discussed further.

The average amount of time spent volunteering during the 4-month period was obtained by the coordinator for 144 volunteers, and the mean amount of volunteered time was 29.49 hr, or an average of 7.37 hr per month. Age, education level, income level, and tenure were unrelated to the amount of time volunteered.

A 2 (participated vs. did not) × 2 (gender) between-subjects analysis of variance was conducted in order to evaluate if there were differences in the amount of time volunteered. There was only a main effect for participation, such that volunteers who participated in at least the first assessment spent more time volunteering ($M = 34.77$ hr) than volunteers who did not participate in either assessment ($M = 22.31$ hr), $F(1, 140) = 4.12$, $p < .05$, $r = .17$. There was no significant difference in the number of hours between those who self-reported and those whose data were reported by the volunteer coordinator.

Table II presents the means and standard deviations of the study variables, as well as correlations between the variables. First, it is interesting to note that psychological engagement and the number of worked hours were not significantly correlated (although in the predicted positive direction), which may mean that quality and quantity of engagement are distinct constructs and could be differentially affected by predictor variables. Autonomy support was marginally related to the number of volunteered hours and was not related to psychological engagement. It was also positively related to need satisfaction. Autonomy orientation was not related to the number of volunteered hours, but was significantly related to psychological engagement. In other words, autonomy orientation influenced the quality of engagement, but not quantity. Autonomy orientation was also not strongly correlated with need satisfaction, a finding that was significant in Study 1. This could be explained by the fact that need satisfaction was assessed at a different level of analysis: In Study 1, a measure of general life need satisfaction was used, whereas in Study 2, it was a measure of work-specific need satisfaction. Nevertheless, need satisfaction was related to both quality and quantity of engagement. Looking at the separate correlations for each subscale, correlations with the competence subscale were stronger than for the other subscales, replicating findings in Study 1.

Testing the Hypothesized Mediational Model

A series of models similar to the ones in Study 1 was tested using path analysis with Amos 4 (Arbuckle, 1999) with maximum-likelihood estimation. Eighty-one cases had complete data for this analysis. As in Study 1, scores on subscale items were averaged to create observed variables, and variance of the error terms was fixed using subscale reliabilities and standard deviations, except for the number of hours, which was an observed variable without measurement error. This reduced the maximum number of estimated parameters to 10, creating an adequate ratio of cases to parameter of 8.1 to 1. Again, I started with a model with direct paths from autonomy orientation and autonomy support to psychological engagement and hours worked. This time, the covariance between the predictors was set to 0, as they were not correlated (see Table II), which is to be expected given that they are measured at different levels of analysis (Vallerand, 1997). This model yielded a modestly adequate fit, $\chi^2(2) = 3.23$, *ns*, GFI = 0.98,

Table II. Means, Standard Deviations, and Correlations for Variables in Study 2 ($N = 81$)

	Mean (*SD*)	1	2	3	4	5	6	7
1. Autonomy orientation	5.85 (0.67)							
2. Work autonomy support	4.96 (1.20)	.04						
3. Autonomy need	5.16 (1.05)	.08	.73***					
4. Competence need	5.44 (1.02)	.15	.60***	.65***				
5. Relatedness need	5.23 (1.13)	.11	.73***	.63***	.61***			
6. Need satisfaction	5.28 (0.93)	.13	.79***	.87***	.86***	.87***		
7. Psychological engagement	5.94 (0.74)	.35***	.16	.30**	.50***	.28*	.41***	
8. Number of hours	35.26 (35.32)	−.10	.20†	.17	.31**	.27*	.29**	.17

† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

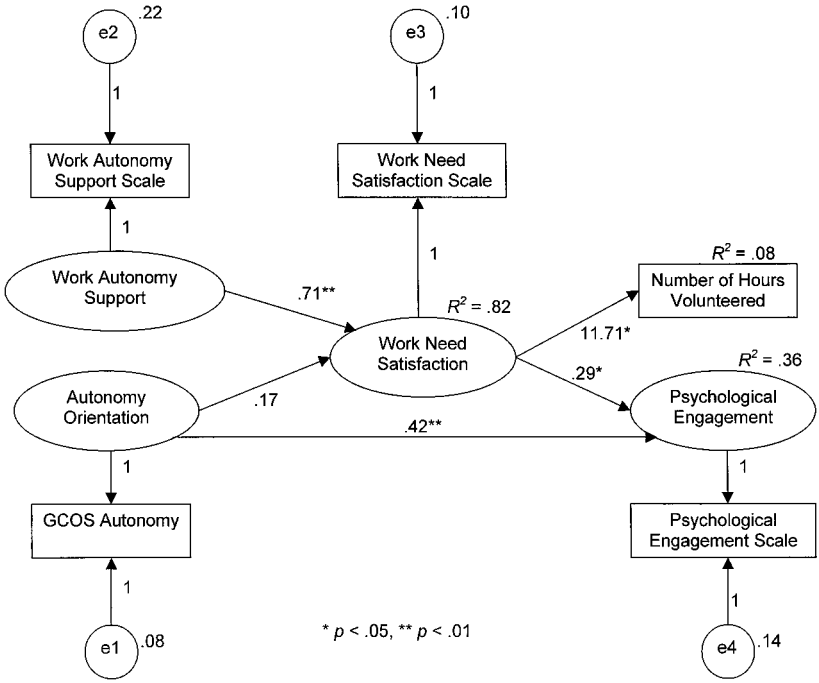

Fig. 2. Results of the final path analytic model tested in Study 2.

NNFI = 0.73, CFI = 0.91, RMSEA = 0.09. The path from autonomy orientation to psychological engagement was significant, $\gamma = 0.46$, $p < .01$, and the one to hours worked was not, $\gamma = 0.11$, *ns*. The path from autonomy support to hours worked was marginally significant, $\gamma = 7.31$, $p = .11$, while the one to psychological engagement was not, $\gamma = -6.02$, *ns*. Next, a model adding need satisfaction as a partial mediator, keeping the two direct paths that were significant, was tested. This model yielded a comparable fit to the first model, $\chi^2(4) = 10.14$, *ns*, GFI = 0.94, NNFI = 0.80, CFI = 0.92, RMSEA = 0.17. All paths were significant, except for the one from autonomy support to hours worked. So a final model was tested removing this path. Unstandardized results are presented in Fig. 2. The model achieved an acceptable fit, $\chi^2(5) = 10.30$, *ns*, GFI = 0.94, NNFI = 0.85, CFI = 0.93, RMSEA = 0.14.

In the final model, work autonomy support was positively related to need satisfaction at work, but autonomy orientation was not. Need satisfaction in turn predicted both psychological engagement and the number of volunteered hours. Work autonomy support had an effect on psychological engagement that was mediated by need satisfaction, as indicated by an indirect effect of .20, $p < .05$. However, since the correlation between autonomy support and engagement was

not significant, it is difficult to interpret this result. Perhaps this effect is caused by the high correlation between autonomy support and need satisfaction, in conjunction with the high correlation between need satisfaction and psychological engagement. Work autonomy support also positively influenced the number of volunteered hours through its effect on need satisfaction (indirect effect = 8.27, $p < .05$). Since there was a marginally significant correlation between autonomy support and worked hours, there is stronger support for a mediating effect. Autonomy orientation had a significant direct influence on psychological engagement, but did not have a significant indirect effect through need satisfaction, .05, *ns*. Autonomy orientation did not have any effect (direct or indirect) on worked hours. Thus, the hypothesized model was partially supported in that autonomy orientation predicted engagement, but not through need satisfaction, whereas autonomy support predicted engagement through need satisfaction.

Predicting Volunteer Turnover

To test the hypothesis that autonomy support would influence turnover, an independent-samples *t*-test was conducted in order to examine whether there were differences in work autonomy support between volunteers who reported quitting ($n = 17$) versus those who reported continuing to volunteer ($n = 62$). There was a significant difference in perceived work autonomy support, $t(75) = 2.04$, $p < .05$, $r = .23$,[4] such that those who quit perceived the work climate to be less autonomy supportive ($M = 4.39$) than those who did not ($M = 5.09$). The same analysis was conducted using the other variables in the model and demographic information as dependent variables, but all yielded nonsignificant results. These results suggest that volunteers who quit during the course of the study perceived the work environment to be less autonomy supportive than volunteers who continued to volunteer at the shelter. No other differences were found between quitters and nonquitters.

To examine if autonomy support predicted whether someone quit volunteering or not, a binary logistic regression analysis with quitting as the dependent variable was conducted, entering work autonomy support as a predictor. Work autonomy support significantly improved correct classification (76.62%) of quitters and nonquitters over no predictors, $\chi^2(1) = 3.93$, $p < 05$, and its nonstandardized beta coefficient was $-.43$, $pr = -.14$, indicating that lower perceived autonomy support predicted higher likelihood of quitting. Need satisfaction was entered next in the equation, but yielded no significant effect. Thus, the hypothesis was partially supported in that autonomy support was shown to predict turnover, but the effect was not mediated by need satisfaction.

[4]A measure of effect size, the Pearson r, was computed as, $r = \sqrt{\frac{F}{F+df_e}}$ (Rosenthal & Rosnow, 1984).

GENERAL DISCUSSION

Two studies were conducted to examine the tenability of a model delineating how individual differences in autonomy orientation and contextual autonomy support influence engagement in prosocial activities. Self-determination theory was used as the backbone of the model, and proposes that the satisfaction of psychological needs for competence, autonomy, and relatedness mediates the effect of these predictors on prosocial behavior. The first study used a cross-sectional design in which college students reported on their past and current engagement in prosocial behavior, and on other variables in the model. Results from a path analysis supported the hypothesized model, but showed that autonomy orientation was a stronger predictor of engagement than autonomy support was. Need satisfaction mediated the relation between these two predictors and engagement in prosocial activities.

The second study employed a prospective design where volunteers from an animal shelter reported on the autonomy supportiveness of the work environment, and their need satisfaction at work. They were also asked to report on their psychological engagement in volunteer activities, and the number of hours they volunteered during the 4-month period following the initial questionnaire. Results partially supported the model. Autonomy orientation directly influenced psychological engagement, while work autonomy support marginally predicted the number of volunteered hours. Deci et al. (2001) found that autonomy support was related to psychological engagement for paid workers from two different countries. Although these results were not replicated in the current study with volunteers, the number of volunteered hours was nonetheless affected by autonomy support. The number of volunteered hours is a good indication of how dedicated the volunteers were, as it is assumed that volunteers work because they want to, not because they have to. This fact, that people volunteer because they want to, not because external reasons push them to, may explain why autonomy orientation, an individual difference variable, may have overridden the effects of contextual autonomy support, as indicated by its stronger relation to engagement. Need satisfaction was also found to mediate the relation between autonomy support and quantitative engagement, but mediation between autonomy orientation and psychological engagement was not supported.

Finally, autonomy support predicted volunteer turnover, which is in line with previous results in education (Vallerand et al., 1997) and organizations (Rhoades et al., 2001). Even though volunteers in this study were drawn from the same workplace, they reported experiencing different levels of autonomy support. These differences may be caused by the fact that different volunteers tend to work during a particular time of the week, which may be more or less busy, work on different tasks, and with different staff. Work volume, the nature of the tasks, and the autonomy supportiveness of particular staff could all differentially affect the extent

to which volunteers perceived their work environment to be autonomy supportive. Information about the nature of the tasks most often completed by volunteers (e.g., cleaning cages, walking dogs, greeting visitors, conducting pet therapy, fund raising by phone) was examined, but did not predict retention. Other detailed information, such as the particular staff members with whom the volunteer worked, was not available. Thus, although all volunteers worked at the same shelter and thus within the same overall environment, there may have been other features of the task, personality factors, or differences in expectations and preferences that lead them to perceive a particular aspect of their volunteer experience differently.

The Role of Internalization in Motivating Prosocial Behavior

The results of the present studies are in agreement with previous studies examining the effects of inductive and authoritative parenting on self-regulation (Grusec & Goodnow, 1994). But how does this process function? Self-determination theory proposes that there is an internalization process (Deci & Ryan, 1991; Ryan, 1995) that is facilitated by autonomy support. As an extension to the current studies, future research could examine how internalization would promote the self-regulation of prosocial behavior. It would also be interesting to examine the role of autonomy support in the development of empathy, which has been shown to influence engagement in prosocial behavior (Eisenberg, Miller, Shell, McNalley, & Shea, 1991). An interesting question would be whether prosocial behavior is a function of internalization of the value of such behavior, or a direct outcome of need satisfaction. Some research has found a direct link between need satisfaction and community values, controlling for the influence of internalization of parental values (Kasser et al., 1995). But it is also likely that internalization also serves as the basis through which prosocial behavior is self-regulated and maintained.

Implications for Promoting Prosocial Behavior

Earlier, I discussed the effects of controlling environments (e.g., mandatory volunteering programs) on volitional engagement in prosocial behavior, and the results of the present studies suggest that making volunteering programs a requirement for high school graduation might not be the best means for promoting self-regulated prosocial behavior. These findings, coupled with findings on inductive parenting, suggest instead that using autonomy support would be more a more effective means of fostering the self-regulation of prosocial activities in young members of our societies. But the results of the present studies extend beyond volunteer behavior. They also have interesting implications for organizational behavior. Penner, Midili, and Kegelmeyer (1997) argued that psychological processes

involved in the motivation of volunteer behavior are applicable prosocial behaviors in organizations, which researchers call organizational citizenship behaviors (Organ, 1988). Future research could therefore examine the effects of autonomy support and need satisfaction on engagement in organizational citizenship behavior. If such research shows that autonomy support positively affects engagement in organizational citizenship behavior, implications for management will be to train managers to act in autonomy supportive ways with subordinates. Such training has been used before and has been found to have effects on the job satisfaction and organizational trust of subordinates (Deci et al., 1989).

Future Research

A limitation of this study is the possible problem of self-selection, whereby those who completed the questionnaires may have been more motivated than those who did not. This is reflected in the analysis comparing the number of hours worked by participants versus nonparticipants. Another limitation is the reliance on self-reports for measuring autonomy support. This measure essentially represents only perceived autonomy support. Future studies should try to obtain reports from other sources, such as parents and managers, or use observational methods to examine how supportive the environment is. Data from multiple sources would provide additional validity to this model. Moreover, one would need to examine the causal relation between autonomy support and increased engagement in prosocial behavior, perhaps through laboratory studies or well-crafted quasi-experimental field studies. For now, we can rely on evidence from past laboratory studies, such as the one by Fabes et al. (1989) and the one by Deci et al. (1994), which found support for a causal relation between autonomy support and increased behavioral engagement.

Despite these limitations, the current studies demonstrate that self-determination theory can be applied to the domain of prosocial motivation, and suggest new avenues for the study of this motivation. What the present results tentatively suggest is that if we want people to act prosocially, social structures that fulfill basic psychological needs should be encouraged. People who feel competent, volitional, and related to their peers may be more likely to be motivated to engage in behaviors that are more prosocial.

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