

Distributive Preferences in Social Dilemmas

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I dedicate this work to
my parents, Farideh and Mohsen,
my dear wife, Sheri,
my sister, Sougol,
and the memory of my grandparents.

Abstract

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In research on social dilemmas and in game theoretic research, it was for a long time assumed that the rational decision is to choose an option with the most beneficial economic outcome to oneself. Yet, in group situations, individuals' decisions have been shown to be influenced by non-economic motives. This dissertation starts from two premises: (i) in contrast to previous research positing maximization of economic benefits to oneself as the ultimate goal, it is argued that non-economic group goals (e.g., group performance, harmony, a sense of responsibility and social concern) favoring the collective interest are also important motives, and (ii) public good dilemmas can be decomposed into provision and allocation of the public good. Public good allocation has been largely neglected in previous research. Thus, the main question posed in this dissertation is whether people's preferred allocations of a public good are related to the particular goal that the group pursues. In Study I, Experiment 1 revealed that fairness was related to how participants allocated the public good. Equity and equal final outcomes were more preferred than equality in the allocation of the public good. Inducing group goal in Experiment 2 proved to be effective in differentiating between the preferences for equity and equal final outcomes. Specifically, the goal of economic productivity resulted in equitable public good allocations and the goal of harmony resulted in allocations according to equal final outcomes. Equality was also preferred but only when it was conducive to realizing the goal of social concern. Study II tested the prediction that fairness and salience of a group goal would promote unselfish allocations of a public good. In support of this, Experiment 1 revealed no significant effects of self-interest on perceived instrumentality of allocation principles in fulfilling a certain group goal. Instead, instrumentality was related to perceived fairness. In Experiment 2, the group goal of economic productivity increased fairness of equitable public good allocations and the group goals of harmony and social concern increased fairness of equal public good allocations. Self-interest had no effects. In contrast to Studies I and II, Study III used an asymmetric public good dilemma paradigm in which participants had unequal endowments but provided evidence for similar effects of group goal on allocation preferences. Self-interest had no significant effects. Furthermore, it was demonstrated that fairness mediates the effect of group goal on allocation preferences, indicating that perceived fairness explains why people pursuing a certain group goal tend to prefer a specific allocation. In Study IV, Experiment 1 posed the question as to whether group goal also would account for allocation of negative outcomes. A factor analysis revealed a two-factor structure splitting group goal into relationship-oriented and performance-oriented goals. The former correlated with preferences for equal allocations, the latter with equitable allocations. Effects of group goal on allocation preferences were similar for distribution of positive and negative outcomes. Experiment 1 also revealed larger deviations from all distributive principles in allocation of negative outcomes. Further investigation of this result in Experiment 2 showed that as hypothesized allocations of negative outcomes were perceived as more difficult than allocations of positive outcomes, suggesting that in allocating negative outcomes people may experience a lower level of confidence in their allocations.

Keywords: social dilemma, public good dilemma, cooperation, group goal, distributive fairness, self-interest, allocation preference.

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Preface

This dissertation includes an introductory summary and the following four empirical studies. The studies are referred to by their Roman numerals:

- I. Kazemi, A., Eek, D., & Gärling, T. (2006). *Do people prefer equity, equality, or equal final outcomes in public good allocations?* (Manuscript submitted for publication as a revised version of Kazemi, A., Eek, D., & Gärling, T. (2005). *Effects of fairness and distributive goal on preferred allocations in public good dilemmas* (Göteborg Psychological Reports, 35, No. 4). Sweden: Göteborg University, Department of Psychology.)
- II. Kazemi, A., Eek, D., & Gärling, T. (2006). *Fairness and group goals promote unselfish public good allocations.* (Manuscript submitted for publication as a revised version of Kazemi, A., Eek, D., & Gärling, T. (2005). *Effects of fairness, group goal, and self-interest on allocation preferences in step-level public good dilemmas* (Göteborg Psychological Reports, 35, No. 5). Sweden: Göteborg University, Department of Psychology.)
- III. Kazemi, A., Eek, D., & Gärling, T. (2006). *The interplay between greed, fairness, and group goal in allocation of public goods* (Göteborg Psychological Reports, 36, No. 2). Sweden: Göteborg University, Department of Psychology.
- IV. Kazemi, A., & Eek, D. (in press). Effects of group goal and resource valence on allocation preferences in public good dilemmas. *Social Behavior and Personality: An International Journal*.

“Believe those who seek the truth, doubt
those who find it.”

Andre Gide

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The present work is the result of four years of devoted and hard work. It is without any doubt the biggest accomplishment in my life thus far. However, this work would never have been realized without contributions of other people. Now comes the time for me to reciprocate the many kindnesses that I have received during the time I have been working on this doctoral thesis.

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Göteborg, November 2006
Ali Kazemi

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Introduction

In everyday life people often encounter situations where their personal interests are at odds with the welfare of a larger collective to which they belong. What seems to be an individually rational choice may have detrimental effects on the well-being of the group. Such conflicts of interest are referred to as social dilemmas (Dawes, 1980). They are formally defined as follows: (i) individual outcomes for non-cooperative behavior or defection are larger than outcomes for cooperative behavior (favoring the collective interest), regardless of how other members in a collective behave; but (ii) if all members adhere to this individually rational behavior, all members will acquire a lower payoff as compared to if all had chosen to cooperate in the first place.

The theoretical framework in research on decision making in social dilemmas was for a long time expected utility or rational choice theory (e.g., Camerer, 1990). According to this theory, people should choose the option with the largest expected utility. Thus, the rational (or dominant) decision in a social dilemma is always to defect (e.g., Dawes, 1980), that is, to benefit the own interest. However, the idea that economic incentives are the primary drivers of choice has been shown to be a too limited perspective (e.g., Dawes & Thaler, 1988). Instead, in order to understand decision making in social dilemmas, modern theorizing in psychology has adopted a multiple-motives approach in which both economic and non-economic motives are argued to influence choice (e.g., De Cremer, 2002; Kerr, 1995; Tyler & DeGoeij, 1995). The present thesis adopts this approach and focuses in particular on an important non-economic motive (i.e., group goal) that has received scarce and scattered attention in previous research, and addresses its role for resource allocation while simultaneously considering the roles of distributive fairness norms¹ and self-interest.

The proposal that group goal affects allocation preferences is derived from Deutsch (1975, 1985) who suggested that norms of allocation are not adopted because of an intrinsic justice value but because of the goals they realize. Thus, the equity principle functions to maintain group productivity, the equality principle functions to maintain harmony and solidarity, and the need principle functions to maintain personal welfare and social concern in a

¹ Theoretical and empirical research has focused on three potential allocation or distributive justice principles: equality, equity, and need (e.g., Deutsch, 1975, 1985). *Equality* refers to that individuals receive the same rewards regardless of possible individual differences. *Equity*, also referred to as the merit or proportionality rule, implies that the outcome received by the individual is proportional to his or her contribution of effort, ability, performance, etc. (e.g., Adams, 1965). The principle of *need* prescribes that the outcome is proportional to need.

group. In a related vein, Hochschild (1981) distinguished between three domains of life: the social domain of family, school, and neighborhood; the political domain of authority, rights, and taxes; and the economic domain of work, markets, and material goods. In her studies of a heterogeneous population in America, she concluded that Americans prefer to use equality when dealing with issues relevant to the social and political domains, whereas equity is used in the economic domain (for a similar line of reasoning, see Lane, 1986).

Furthermore, it has been found that equality is endorsed when maximal mutual satisfaction is in focus, whereas the need principle is endorsed when justice is in focus (e.g., Lamm & Schwinger, 1983). Leventhal, Michaels, and Sanford (1972) observed that instructions to prevent interpersonal conflicts and dissatisfaction within a group resulted in equal distributions to group members who had contributed different amounts to realize a monetary group reward. Similarly, an emphasis on partnership and team membership (or mutuality) led participants to overlook differences in inputs resulting in a preference for the equality principle in allocation of a group reward. This was true whether the participants were affected by the allocation or were third-party non-recipient allocators (Lerner, 1974). As is evident, there is some support for the proposition that goals affect resource allocation, but the evidence is indirect and scattered. Thus, the principal aim of the present thesis is to more systematically examine the effects of group goal on resource allocation.

Whereas previous social dilemma research has investigated the antecedents of cooperation in terms of public good provision, the present thesis focuses on antecedents of cooperation in terms of public good allocation. Thus, in effect, the present research conceptualizes cooperation broader than traditionally. Markóczy (2004) defined cooperation as joint behavior directed towards a goal in which members of a collective have a common interest. Similarly, Batson (1994) discussed cooperation in terms of “acting for the public good.” Kazemi and Eek (in press) posited that people realize different group goals by following appropriate norms of fairness for resource allocation. Viewed in this way, an allocation satisfying a certain group goal can be regarded as a cooperative behavior in the sense that the individual disregards own interests by helping the group to fulfill a certain collective goal.

In the following section previous theoretical work and empirical research on social dilemmas are outlined. Thereafter, research on social

justice² and the role of fairness in social dilemmas will be reviewed. Subsequently, a brief summary of the four studies on which the present thesis is based will be presented. Finally, in the last section the main results are considered with reference to the objectives of the thesis. Some attempts are also made to advance theoretical and practical implications of the present research.

Two-Party and N-Party Prisoner's Dilemmas

Conflicts are integral to all kinds of social interaction. A thorough understanding of conflicts is important because of its substantial impact on the welfare of individuals and societies (e.g., Deutsch, 1985; Levine & Thompson, 1996). In conflicts of interest inherent in mixed-motive situations, individuals are motivated both to cooperate and to compete with one another. As opposed to zero-sum games in which the sum of gains for the involved parties is fixed (i.e., the more one party acquires, the less the other party benefits) the sum of the gains for both parties is not constant in non-zero sum games. Thus, some outcomes are better for both than other outcomes. In addition, each person's individual outcomes are determined by the actions of other group members (Komorita & Parks, 1995).

The bulk of the early work on mixed-motive situations dealt with the two-person prisoner's dilemma game. The prisoner's dilemma game (PDG) derived its name from a hypothetical situation investigated by game theorists (Luce & Raiffa, 1957). Imagine that a district attorney has summoned two suspects. Although the attorney is certain that these two suspects are guilty of robbery, he cannot prove it. The two suspects are questioned in two separate rooms. They are then presented with two options: confess to the crime (i.e., defection, D) or remain silent (i.e., cooperation, C). According to the prisoner's dilemma payoff matrix, confessing is a dominant strategy for each suspect as it renders a better outcome than not confessing. Adopted by both (D/D), this strategy gives each a sentence of ten years. However, a better outcome, two years, arises if neither confesses (C/C). The former outcome is in equilibrium in the sense that no one has an incentive to change his or her behavior. It is however deficient because there is another outcome that leads to more benefits to all. The prisoner's dilemma is formally defined as such if two conditions are satisfied: (1) non-cooperation is more beneficial for each player than cooperation regardless of the other player's

² The following terms are used interchangeably throughout this thesis: (a) justice and fairness, and (b) distributive/distribution and outcome.

choice; (2) mutual cooperation is better than mutual non-cooperation (i.e., $D/C > C/C > D/D > C/D$).

Although in the past the two-person PDG was the most frequently used paradigm in mixed-motive interaction research, the attention has more recently turned to the N-person prisoner's dilemma or social dilemma (Komorita & Parks, 1995). A two-person prisoner's dilemma differs from a social dilemma in various respects. For instance, the negative effects resulting from defection in social dilemmas involve many people whereas defection in a two-person prisoner's dilemma only affects the other individual. Moreover, identifying defectors is more difficult in social dilemmas because many others are involved (Dawes, 1980).

Experimental Paradigms in Social Dilemma Research

Social dilemmas can be categorized in a number of ways (e.g., Komorita & Parks, 1994). A distinction is usually made with regard to the focus of the dilemma, whether harvesting from a common resource or contributing to a common good. *Resource dilemmas* refer to situations where each individual has to decide how much to harvest from a common resource that he or she has free access to. Since the resource is scarce, the harvests must be constrained in order to prevent depletion of the resource. In a typical resource dilemma experiment each individual is allowed to take from a collective resource once or on successive trials. Participants are informed that they can keep their harvests, usually points exchangeable to money, as long as the total amount harvested by the whole group does not exceed the size of the pool or the replenishment rate of the pool. Every individual has to use the common resource efficiently at the same time that he or she has to ensure personal payoff. The outcome structure reflects a social dilemma in the sense that it is in the interest of each individual to maximize his or her harvests but if all adopt this strategy the common resource will be depleted.

Public good dilemmas are situations where individuals through contributions can realize a common resource from which the whole group can benefit. Participants in experiments employing this paradigm are instructed to contribute some or all of their endowments (i.e., to cooperate) in order to establish a common resource or to keep them (i.e., to defect). The endowments contributed to the public good are multiplied by a constant larger than one. This means that the value of the contributed endowment is larger than the value of a non-contributed endowment. The risk that all contributing individuals take is that other members may free ride on their contributions. More specifically, once the common good is established, every group member can benefit, regardless of his or her contributions. The

temptation of non-cooperation stems from the impossibility of exclusion (Olson, 1965). Public goods are also characterized by the feature of non-rivalry, that is, one individual's use of the good does not reduce its availability to another individual (Cornes & Sandler, 1996).

A distinction is made between two different types of public goods (PG), that is, *continuous* or *step-level* PG dilemmas pertaining to the relation between input and outcome. In a step-level PG dilemma, where a specific threshold or provision point is set, contributions beyond it have no further impact on the final outcome. Thus, the outcome in such a dilemma is dichotomous in that the PG is either provided or not. Therefore, it is sometimes called a *binary* or *discrete* PG dilemma (Rapoport, 1987). In continuous PG dilemmas (Komorita & Parks, 1994), better collective outcomes are reached as a function of increased contributions. A similar distinction is made between dilemmas where the individual choice is either discrete or continuous. Thus, group members either choose between cooperation and defection or between defection and different degrees of cooperation.

Moreover, there is a distinction between *symmetric* and *asymmetric* social dilemmas. Symmetry or asymmetry may exist with regard to the number of endowments (i.e., initial assets) participants have in public good dilemmas or access to the common resource in resource dilemmas. Specifically, in symmetric public good dilemmas all participants have the same number of endowments and in symmetric resource dilemmas participants have equal access to the common resource. In asymmetric social dilemmas there is an initial inequality with regard to the participants' cooperation ability (i.e., endowments and access).

Furthermore, one can classify social dilemmas according to whether participants make their decisions simultaneously or in a sequence (Budescu, Rapoport, & Suleiman, 1992). In a *sequential protocol*, all participants are notified about their position in the contribution or harvest sequence as well as about earlier harvests or contributions. However, most experimental studies of social dilemmas have utilized a *simultaneous protocol*, where participants make their harvests or contributions simultaneously.

Finally, social dilemmas may be *one-shot* or *repeated* (multi-trial). In one-shot social dilemmas players contribute or harvest only once, whereas in multi-trial social dilemmas players make their choices repeatedly.

Promoting Cooperation in Social Dilemmas

Ever since the seminal work by Hardin (1968), social psychologists along with scientists from other disciplines (e.g., economics, sociology, and

political science) have investigated cognitions and behavior in social dilemmas. A great deal of research effort has been devoted to identifying and examining the factors influencing cooperation. The most important factors and their effects on cooperation are briefly outlined below.

Cooperation increases with decreasing *group size* (e.g., Brewer & Kramer, 1986; Hamburger, Guyer, & Fox, 1975; Van Lange et al., 1992). Differences in group size between small groups seem to be more crucial than corresponding size differences between large groups, largely due to the fact that psychological factors that impair cooperation reach a ceiling. A number of explanations have been offered for the group size effect. One explanation advanced by Jorgenson and Papciak (1981) is known as the efficacy-cooperation hypothesis according to which people are more prone to cooperate in smaller groups because they then believe that their cooperation will have a bearing on the outcome. In support of this hypothesis, Kerr (1989) found that perceived efficacy increased as group size decreased, even when objective efficacy was held constant. Another explanation that has been proposed, called the de-individuation hypothesis (Hamburger, Guyer, & Fox, 1975), suggests that anonymity is the mechanism through which group size affects cooperation rate. As the group size increases, individual actions become less salient, resulting in free riding that is not detected and punished.

Related to group size effects is the positive impact of *communication* (e.g., Dawes et al., 1977). Dawes et al. (1977) investigated the effects of four levels of communication (i.e., no communication vs. game-irrelevant communication vs. game-relevant communication vs. game-relevant communication along with non-binding public commitments prior to each trial) on cooperation. Cooperation rates reached 30 % and 32 % in the first two conditions, respectively, whereas the last two generated reliably higher rates of 72 % and 71 %, respectively. This was in support of the notion that relevant communication matters irrespective of public announcements that can be broken. The communication effect highlights the fact that it is the discussion of the dilemma (i.e., game-relevant communication) as such rather than getting acquainted with other group members that promotes cooperation. Several explanations have been advanced for the communication effect. However, research suggests that there are only two tenable accounts (Van Lange et al., 1992). First, communication promotes cooperation by triggering a sense of commitment to the group (Chen & Komorita, 1994; Kerr & Kaufman-Gilliland, 1994). Second, communication enhances cooperation by heightening group identity and solidarity among

group members (Brewer & Kramer, 1986; Orbell, Van de Kragt, & Dawes, 1988).

People's propensity to act in line with the collective interest is also influenced by *knowledge* of others' behavior (Dawes et al., 1977; Parks, Sanna, & Berel, 2001; Wit & Wilke, 1998). Messick, Allison, and Samuelson (1988) advanced the concepts of social and environmental uncertainty in the study of social dilemmas. *Social uncertainty* refers to the lack of knowledge about others' choices (i.e., cooperation or defection), while *environmental uncertainty* refers to the vagueness of the defining features of a specific dilemma. The notion of uncertainty in social dilemma research draws on Festinger's social comparison theory (e.g., Wit & Wilke, 1998). According to Festinger (1954a, 1954b) people are motivated to evaluate their opinions and abilities, because they want to have informed ideas about the world they live in. This is best accomplished by comparison against direct and physical standards. However, when such standards are not available, there is a strong tendency to compare oneself with similar others. Research suggests that people are less cooperative with increasing social and environmental uncertainty³ (e.g., Gustafsson, Biel, & Gärling, 1999; Rapoport, Budescu, Suleiman, & Weg, 1992; Sawyer, 1990; Sniezek, May, & Sawyer, 1990).

Finally, individual differences in how people evaluate outcomes for themselves and others in interdependent situations usually referred to as *social value orientations* affect cooperative behavior in social dilemmas (Eek & Gärling, 2006; McClintock, 1972; Messick & McClintock, 1968; Van Lange, 1999). Social value orientation refers to a stable personal characteristic that affects choices with interdependent outcomes. Specifically, social value orientation has been defined as preferences for distributions of resources between self and others. Three social value orientations are usually discussed in the literature. Cooperators try to achieve equal outcomes between the involved parties. Competitors maximize their relative advantage in outcome, while Individualists tend to maximize their own outcome regardless of outcomes to others. People with a cooperative social value orientation are referred to as *pro-socials*, whereas those having either a competitive or individualistic social value orientation are referred to as *pro-selves*. Individuals with individualistic or competitive social value orientations have been found to be less cooperative in social dilemma

³ However, there is some research showing that uncertainty does not always lead to less cooperation (e.g., Van Dijk et al., 1999).

experiments than individuals with a cooperative social value orientation (e.g., Liebrand, 1984; Van Lange & Liebrand, 1989).

Social Justice

Research on relative deprivation (Stouffer, Suchman, DeVinney, Star, & Williams, 1949) during the period following the World War II can be regarded as the starting point for more systematic inquiries of social justice in social psychology. According to the theory of relative deprivation (Crosby, 1976), a sense of satisfaction or dissatisfaction is socially regulated through comparison processes in which a subjectively perceived outcome is compared to some kind of external standard. In other words, the objective quality of the outcomes does not always decide the level of personal gratification. Crosby (1976) suggested that deprivation is related to feelings of resentment, and in order to feel resentment, five conditions must be fulfilled. The individual who lacks something (X) must: (1) perceive that another individual possesses X, (2) have a desire for possessing X, (3) feel entitled to possess X, (4) consider coming into possession of X as feasible, and (5) not feel responsible for lacking X.

One of the origins of social justice theory and research is to be found in the insights of relative deprivation theory insofar as justice studies aim at understanding people's subjective perception of justice and place the emphasis on social comparisons. Relative deprivation studies demonstrate that when people compare their outcomes with those of others, they usually employ standards of entitlement and deservingness⁴. Such criteria are closely related to what people think is fair. Thus, as we make justice judgments we are involved in comparison processes and the criteria of comparisons utilized are principles of justice. There are three general and widely agreed upon type of justice judgments: *distributive*, *procedural*, and *retributive* (Tyler & Smith, 1998). A fourth type has been proposed, referred to as *interactional* justice (Bies & Moag, 1986). Although the present thesis exclusively focuses on distributive justice, research and theory primarily related to other types of justice is described in order to provide the reader with a broader theoretical context in which this thesis can be placed.

The first framework guiding distributive justice research was equity theory (e.g., Adams, 1965), according to which people infer fairness by

⁴ Most scholars in the area make a distinction between relative deprivation and injustice in that the former results from a discrepancy between reality and preferences, while feelings of injustice result from a discrepancy between reality and perceived entitlements (Törnblom, 1992).

examining the ratio of their own inputs relevant to their outcomes and then comparing this ratio to the input-to-outcome ratio of a referent (i.e., similar) other. Put differently, for fairness to prevail, the equity principle demands outcomes to be proportional to contributions. However, as Deutsch (1975) and several others (e.g., Leventhal, 1976; Mikula, 1980; Reis, 1984) noted, the equity theory was too limited to encompass the variety of people's justice judgments. Deutsch (1975) suggested a multiple-principles approach to distributive justice assuming that eleven values define justice in different allocation situations. Deutsch then reduced these to the three general principles of equity, equality, and need. A large number of studies have been conducted to understand why people frequently disagree about which principle should represent justice in a given context, and why a person may define justice in terms of a certain principle in one situation at one point in time, while at another point in time and/or in another situation a different principle is viewed as the appropriate representation of justice. Several of the factors that have been shown to affect people's justice conceptions were grouped into six general categories in Törnblom (1992): (1) characteristics of the actor, (2) the contribution, (3) the social relationship, (4) the socio-cultural and historical context, (5) the outcome, and (6) the outcome allocation.

While distributive justice is concerned with perceived fairness of outcomes, procedural justice research is concerned with perceived fairness of the decision procedures leading to the outcomes. The latter line of research was initiated by the seminal work of Thibaut and Walker (1975) in which they compared the adversarial to the inquisitorial procedures for dispute resolution and investigated when and why people go to third-parties. Thibaut and Walker (1975) argued that distribution of control among disputants and third-party decision makers is the critical feature that influences people's perceived fairness of procedures. They proposed two types of control: process control and decision control. Process control refers to disputants' opportunity to present evidence and other case relevant information. Decision control refers to disputants' influence over the actual outcomes. According to the instrumental or control model of justice proposed by Thibaut and Walker (1975), people in general prefer having direct control over their outcomes (i.e., decision control) in interactions with others. However, such control is not feasible in many social situations. Therefore, in order to ensure fair outcomes, people pursue process control through which they can express their view to the deciding authority and thereby expect to influence the authority towards their own sense of what is right. However, the explanation of the instrumental model is confined to a

concern for outcomes. That is, process control is important to people insofar as it can lead to fair outcomes. Lind and Tyler (1988) developed the group-value model as an alternative to account for fair treatment effects. This model posits that people care about fair treatment because the fairness of procedures carries information about an individual's status as a member of the group. This account derives from the assumption that the group is fundamental to human life and that experiences from groups to which people belong shape the view they hold of themselves (e.g., self-worth). The group-value model was extended to the relational model of authority (Tyler & Lind, 1992) in which the antecedents of support for authorities and rules are addressed. Both the group-value model and the relational model of authority maintain that judgments of fair treatment are relational in character and that the issues of neutrality, trustworthiness, and status recognition are central to understanding fairness.

As opposed to the focus of procedural justice research on formal procedures, interactional justice (Bies and Moag, 1986) refers to fairness associated with the interpersonal treatment received during the enactment of decision making procedures. The criteria for deciding whether an individual perceives allocation events as interactionally fair are: politeness, niceness, respect, and adequate explanations. There is, however, some controversy concerning whether interactional justice should be subsumed under the broader concept of procedural justice (Lind & Tyler, 1988; Tyler & Bies, 1990).

Retributive justice (e.g., Brickman, 1977) is concerned with rule violation and the severity of sanctions for norm-breaking conduct. It is related to equity-based distributive justice in that victims of rule-breaking behavior are compensated for material losses in order for equity to be restored. However, retributive concerns cannot be equated with equity-restoration efforts. In support of this, Horai (1977) showed that those who intentionally had broken rules without causing any harm were punished more severely than those who unintentionally had caused some harm. Thus, the question is on what basis people decide whether someone should be punished for rule-breaking conduct. The most important criterion has been shown to be attribution of responsibility and blame (Shaver, 1985).

Fairness in Social Dilemmas

Social dilemma research has during the last four decades highlighted the role of cooperation for a functional society (e.g., Messick & Brewer,

1983). As a consequence, this research has been predominantly concerned with identifying factors that promote cooperation and thereby increase the welfare of the group or society at large (for an overview, see Komorita & Parks, 1994). Notions about the role of fairness as a crucial factor for cooperation in social dilemmas emerged early (Marwell & Ames, 1979). Although this still is a relatively unexplored area, some significant work has been done during the last two decades. Combining the two fields of social justice and social dilemmas has proven to be fruitful as both are concerned with the two important issues of interdependency and self-interest (cf. Tyler & Dawes, 1993; Tyler & DeGoey, 1995). More recently, De Cremer and Van Dijk (2003) and Schroeder, Steel, Woodell, and Bembenek (2003) emphasized the value of integrating research on justice, ethics, and decision making in research on social dilemmas. De Cremer and Van Dijk (2003) noted that research on decision making has increasingly taken into account the role of contextual factors, such as fairness, impacting on individual decision making. Similarly, Schroeder et al. (2003) argued that free riding awakes notions of fairness as it results in beneficial resource asymmetry for the free riders and sucker payoffs for the cooperators.

Distributive Fairness and Cooperation in Social Dilemmas

Kerr (1995) discussed the role of three general interaction norms for cooperation in social dilemmas: commitment, reciprocity, and equity. Commitment refers to accomplishing what one has promised to do. Reciprocity pertains to returning a benefit of equal worth to the person that provided a benefit. The equity norm prescribes that distribution of benefits or harms should be based on the inputs or costs of people. In the case of equal inputs or costs, the equity norm coincides with the equality norm in that equal distributions are accomplished. As noted previously, two major paradigms have been employed in social dilemma research: resource dilemmas which refer to situations in which each group member decides how much to harvest from a common resource that he or she has free access to, and public good dilemmas which refer to situations in which group members, through individual contributions, provide a common resource from which all can benefit. I begin by discussing the role of distributive fairness in resource dilemmas and continue with public good dilemmas, ending this section by considering research that compares the two dilemma types with regard to distributive fairness conceptions.

Fairness in Resource Dilemmas. Wilke, De Boer, and Liebrand (1986) reported that a majority of participants considered it fair that a person who had participated longer in an experiment should take more from the resource

than those who had participated shorter (i.e., equity). When no information was given about time invested by participants, no such effect was observed.

In the Greed-Efficiency-Fairness (GEF) hypothesis, Wilke (1991) drawing on the work of Samuelson et al. (1986) proposed that people facing resource dilemmas are by nature greedy in the sense that they prioritize their personal gains before the welfare of others. However, as decades of research have indicated, despite the lack of knowledge about others' choices or the size of the common pool, people do not make the dominant choice in social dilemmas (i.e., defection). In contrast, people often promote the collective interest at the expense of their own personal benefits. Wilke argued that although people are greedy, their greed is restrained by a motive to utilize the resource efficiently in preventing it from depleting and a desire to be fair in terms of ensuring that others have harvested an equal amount. Thus, a resource dilemma might be viewed as a coordination task in which individuals pursue outcome maximization within the constraints of not taking more than their fair share and that the common resource does not deplete.

Wade-Benzoni, Tenbrunsel, and Bazerman (1996) compared symmetric (where people have equal access to the resource) and asymmetric resource dilemmas (unequal access) with regard to interpretations of fairness and harvesting behavior. They argued and found that the equality rule was conceived as fair in symmetric settings, whereas it was more difficult to decide what a fair allocation would be in asymmetric settings. Overharvesting (i.e., non-cooperation) was more frequently found in asymmetric than in symmetric resource dilemmas, suggesting that asymmetric resource dilemmas are more complex and thus lead to ambiguity in deciding what is fair.

Fairness in Public Good Dilemmas. Marwell and Ames (1979) investigated people's investment decisions. Participants were instructed to invest a certain amount of tokens either in a private good, in a public good, or in both types of goods. Investments in private goods returned a fixed amount of money per invested token while the public good returned money to the whole group, and above a certain provision threshold, more money per token than did investments in the private good. The results showed that high-endowment participants, who were capable of providing the public good themselves without any contributions from low-endowment participants, contributed significantly more than did low-endowment participants (i.e., according to equity). Marwell and Ames interpreted this as participants behaved in a way they conceived as fair. Furthermore, a majority of participants considered investing half or more of their tokens as fair.

Joireman, Kuhlman, and Okuda (1994) investigated the role of internal versus external attributions of wealth for perceived fair contributions to self and others in an asymmetric step-level public good dilemma. They argued and found that people attributing resource asymmetries to internal factors thought that the poor should contribute a larger proportion of their assets than the rich. Those attributing differences in wealth to external factors considered equal contributions to be most fair. Own contributions and expectation about others' contributions were found to be positively associated with fairness conceptions.

Wit, Wilke, and Oppewal (1992) found that contributing in proportion to one's assets or interest (profit) position was conceived as fair. Specifically, the more assets participants possessed, the more they felt obliged to contribute. Accordingly, the higher the individual's profit position, the more he or she felt obliged to contribute. Wit et al. (1992) suggested that the relative cost of contributing one or more resource units is reduced the more assets one possesses, and that this was the basis of fairness concerns.

In a related vein, Van Dijk and Grodzka (1992) investigated choice behavior in an asymmetric public good dilemma and compared a situation in which participants had knowledge about the distribution of endowments across the group members with a situation in which no such information was provided. In contrast to Wit et al.'s (1992) focus on the relative costs of contribution, Van Dijk and Grodzka focused on the final states of wealth possession, that is, an equitable allocation of the outcomes. Corroborating previous research, they found that the reported fair contribution was larger for high-endowment than for low-endowment participants. The results also indicated that those who were informed about the asymmetry were more motivated to reduce inequity. Furthermore, those who were not informed about the asymmetry displayed a stronger preference for the equality rule as compared to those who were informed. Extending this line of research, Van Dijk and Wilke (1993) addressed the role of equity concerns for public good provision where members of a group had differential interests. The results indicated that participants were more reluctant to reduce differences in final outcomes when efforts were asymmetric (the justified condition) than when efforts were symmetric (the unjustified condition). Van Dijk and Wilke concluded that high-interest people do not contribute more to the public good than low-interest people unless the asymmetry of interest is considered to be unjustified. Similarly, Van Dijk and Wilke (1994) suggested that people may be prompted to redistribute wealth by means of public good provision. In support of equity theory (Adams, 1965), differences in final

outcomes diminished in the case of equal time investments (the asymmetry unjustified condition) as compared to unequal time investments (the asymmetry justified condition).

In another line of research, Biel, Eek, and Gärling (1997) found that parents' willingness to pay for municipality child care was related to how fair the distribution of quality of child care was perceived. The results indicated that equality was perceived as the fairest principle for distribution and that parents were willing to pay the most when equality was prevalent. Eek, Biel, and Gärling (1998) replicated and extended these results in experiments where participants rated how fair they considered distributions of a public good (i.e., child care) according to the principles of equity, equality, and need. They found that perceived fairness of the public good's distribution mediated the effect of allocation principle on contributions to the public good. Thus, fairness perceptions accounted for positive effects of endorsed allocation strategies on cooperation. Eek, Biel, and Gärling (2001) showed that the promoting impact of perceived fairness on cooperation extended to conditions where equity was considered as the fairest principle. Furthermore, equity was perceived as fairer for a privately provided child care, while equality was perceived as fairer under municipality child care.

Comparing Fairness Conceptions in Resource and Public Good Dilemmas. Van Dijk and Wilke (1995) regarded fairness norms as coordination rules. They found that participants in the public good dilemma based their choices on the equity rule, and that participants in the resource dilemma based their choices on the equal final outcomes rule even though the objective payoff structure in both types of dilemma was identical. Extending this line of research, Van Dijk and Wilke (2000) advanced the notion of decision-induced focusing in order to explain why public good dilemmas elicit different choice behaviors than do resource dilemmas. This notion suggests that it is the behavior that is focused (e.g., giving some or keeping some of the endowments in a public good dilemma) and not the dilemma type per se that affect people's fairness judgments and preferences. In order to test this notion, Van Dijk and Wilke (2000) introduced two dilemma types, that is, keep-some and leave-some dilemmas in addition to give-some and take-some dilemmas. Give-some and keep-some dilemmas were regarded as public good dilemmas, while take-some and leave-some dilemmas were regarded as resource dilemmas. Van Dijk and Wilke argued that if it is the dilemma type that elicits different choice behaviors, then one should expect a stronger preference for the equity rule in both give-some and keep-some dilemmas and a stronger preference for the equal final outcomes rule in take-some and leave-some dilemmas. However, in support of

decision-induced focusing, the give-some and leave-some dilemmas (i.e., low outcome focus) invoked a preference for the equity rule, whereas the keep-some and the take-some dilemmas (i.e., high outcome focus) invoked a stronger preference for the equal final outcomes rule.

Van Dijk et al. (1999) investigated the role of fairness in coordinating choice behavior under environmental uncertainty in asymmetric social dilemmas. They argued that environmental uncertainty affects choice of coordination rule and that people would base their decisions on aspects of the dilemma that they are certain of. Specifically, the public good dilemma led people having no information about others' endowments position (i.e., environmental uncertainty) to employ the equal contribution rule, while those having such information (i.e., environmental certainty) employed the equity rule. Fairness norms were regarded as coordination rules in that they tacitly coordinate choice behavior. Endorsement of these rules necessitated information about certain aspects of the situation. In a second experiment environmental uncertainty was induced by presenting a probability distribution to the participants. It was expected that people in the case of other tenable coordination rules would choose the coordination rule that was closest to the rule they prefer in a situation of environmental certainty. Thus, when information about resource size in a resource dilemma was certain, participants anchored their decisions on the equal final outcomes rule, whereas when the information about resource size was uncertain, participants anchored their decisions on the inverse proportionality rule. The inverse proportionality rule prescribed that members who received one-sixth of the bonus (i.e., low interest) should take twice as many chips as those who received one-third of the bonus (i.e., high interest).

Procedural Fairness and Cooperation in Social Dilemmas

Tyler and DeGoey (1995) examined the role of procedural fairness for willingness to empower authorities and willingness to accept their decisions in a naturally occurring resource dilemma, the California water shortage in 1991. Both empowerment of authorities and decision acceptance proved to be positively related to procedural fairness concerns. Effects of procedural fairness were mainly attributed to having benevolent relations with the authorities. In a related vein, De Cremer and Van Knippenberg (2002) reported that perceived procedural fairness of organizational leaders, as it appeals to relational concerns (Tyler & Lind, 1992), was positively correlated with participants' willingness to cooperate. De Cremer (2002) investigated the effects of respect received from fellow group members on one's willingness to contribute to provision of a public good. Derived from

the group-value model of justice (Lind and Tyler, 1988), it was suggested that respect conveys self-relevant relational information (i.e., being included and having status in the group). Respect was therefore assumed and found to strengthen people's motivation to promote the collective interest. In support of this, De Cremer (2003) showed that feelings of belongingness mediated the effects of respect on contributions to a public good.

Explaining the Importance of Fairness in Social Dilemmas

Three lines of research integrating social justice and social dilemma research may be discerned. One line (e.g., Van Dijk et al., 1999; Wit et al., 1992) initiated the idea of fairness as an important motive in social dilemmas, manifested through coordination rules such as equity and equality. In general, the effects of fairness on cooperation in this line of research are examined by first asking participants what they perceive as fair to take from or contribute to a collective resource, and then measure their actual harvests or contributions. Another line of research (e.g., Eek & Biel, 2003; Eek et al., 1998, 2001) investigated the validity of the GEF hypothesis to account for cooperation in public good dilemmas, and examined, in particular, how fair people perceived different distributions of the public good to be, and how much they were willing to contribute to its maintenance. A third line of research (e.g., De Cremer, 2002, 2003; Tyler & DeGoey, 1995) has investigated effects of procedural fairness on cooperation in social dilemmas. Thus, instead of targeting perceived fairness of final outcome distributions, this line of research examines the quality of the formal and informal aspects of the procedures enacted by authorities in making outcome decisions.

Taken together, this research suggests that fairness guides cooperation and downplays the role of self-interest in social dilemmas where individuals find themselves entrapped between cooperative choices benefiting collective interests on one hand and competitive choices benefiting individual interests on the other. The question is why fairness plays such a paramount role for how people choose in social dilemmas. One answer is that fairness is a strong social norm. Norms are often defined as socially anchored expectations about proper conduct “enforced by the threat of sanctions or the promise of reward” (Kerr, 1995, p. 33). Thus, norms are widely shared and internalized through the process of socialization (Scott, 1971; Sherif, 1966).

Fairness may also be important for self-presentational concerns. Distributions of scarce and positively valent resources confront involved parties with a motivational dilemma. On the one hand, they want to maximize their own gains. On the other hand, they strive for being perceived

as fair because fairness is seen as a moral virtue (cf. Folger, 1998). It has also been found that fair people are perceived as more trustworthy and reliable (Tyler, 1994; Tyler & Lind, 1992).

Tyler (2005) advanced the social value activation model positing that self-interest and outcome favorability have less impact on people's behavioral decisions when actions are viewed in terms of social values (e.g., justice, morality). An implication is that if a justice frame is activated, people will exhibit fairness considerations. When this happens, people display high levels of decision acceptance and satisfaction without too much attention to gains and losses. If a justice frame is not triggered, decisions will primarily be based on self-interest concerns, that is, in terms of gains and losses.

Moreover, to follow norms promotes collective action (e.g., Kerr, 1995), in particular, when communication is not possible, as often is the case in social dilemma research. Hence, actions of interdependent individuals can tacitly be coordinated in an efficient way (e.g., Van Dijk & Wilke, 1995) when others realize each other's motives, that is, by being fair they signal to others that they do not intend to take advantage of them.

Finally, fairness has also been proposed by recent theorizing in procedural justice to be instrumental in managing uncertainty in social encounters. Uncertainty management theory (Lind & Van den Bos, 2002) posits that activation of fairness processes is an indication of fairness judgments being utilized to settle some important social or psychological issues. Lind and Van den Bos (2002) suggested that fairness serves people in managing uncertain situations by giving them "confidence that they will ultimately receive good outcomes and because it makes the possibility of loss less anxiety-provoking" (p. 195).

Summary of Empirical Studies

Aims and Hypotheses

This thesis initiates a new line of research by extending the notion of collective interest in social dilemmas into a multiple collective goal notion (Deutsch, 1975, 1985). Specifically, it has generally been assumed that the primary goal in a social dilemma is to achieve the highest possible utility, often monetary in nature, for the individual or the collective (e.g., Kreps, 1990). However, in many cases other goals, relational in nature, may be equally or even more important. For instance, members of a group may strive to foster future enjoyable social relations, a sense of responsibility, or

concern for others in a group. Hence, the extent to which one believes that different group goals are achieved affect how benefits are allocated to members of a group or how different allocations are perceived in terms of fairness.

Deutsch (1975) argued that equity is associated with effectiveness and productivity. The rationale is that individuals performing better, contributing more, or possessing higher abilities will be entitled and legitimized to gain more of the collective's resources. For instance, it may be argued that the capability of high-skilled individuals will eventually lead to an enlargement of the common wealth. In contrast, whenever enjoyable social relations and harmony are salient in a social relationship, the equality rule is most likely to be employed because it does not differentiate between the members of the collective and, therefore, reduces outbreaks of possible conflicts resulting from differential treatments. Equity is believed to impair enjoyable social relations, since it may signal unequal status or unequal worth of the group members. The need principle is endorsed in situations in which individuals' welfare and a sense of social concern and responsibility for others are in focus. Since needs differ and needy individuals may have limited capabilities or opportunities to make contributions, allocations in accordance with equity would prove to be detrimental to the personal welfare and development of those in need.

It is thus argued that group goals define desired future states that frame the allocation decision or provide a reason as to why a collective resource should be distributed according to one principle rather than another (cf. Weber, Kopelman, & Messick, 2004). Pillutla and Chen (1999) showed that people cooperate more in social dilemmas involving non-economic decisions (i.e., contributing to a social event) than in those involving economic decisions (i.e., investing in a joint investment fund). Similarly, Tenbrunsel and Messick (1999) argued that the effect of sanctions on cooperation depends on the decision frame (i.e., business vs. ethical) invoked since it induces different processing. They found that a business frame triggers a calculative decision process whereby the strength of the sanction affects the extent to which people choose to cooperate, whereas an ethical frame triggers a non-calculative decision process leading to a cooperation heuristic that is unaffected by the strength of the sanction. Although these studies are relevant in that they are all concerned with decision frames and context-dependent decision making, they do not specifically address the issue of how allocation preferences vary with group goals.

The approach in the studies included in this thesis is more similar to Mannix, Neale, and Northcraft (1995) who asked participants to role-play as vice presidents of a private company and to distribute a number of instructional videos among three different company divisions that differed in terms of past performance. They systematically varied what they called culture (economically oriented, relationship oriented, and personal development oriented) by means of an extract from a speech by the company founder. The results partially supported Deutsch's theory in showing an effect of culture. Still, the role of fairness for preferred allocation of outcomes was not considered, although Deutsch (1975, 1985) stresses the link between distributive justice, group goals, and allocation preference.

The present research is based on two related observations. The first observation is that the problems of public good dilemmas are twofold. First, people must be motivated to contribute to provide or maintain public goods. Second, once provided, the way the benefits should be distributed between the members of the collective must be determined. While the first has gained considerable attention (e.g., Dawes, 1980; Dawes, McTavish, & Shaklee, 1977; Eek, Biel, & Gärling, 1998; Van Lange, Liebrand, Messick, & Wilke, 1992; Wilke, 1991), the second has been largely neglected. The second observation is that group goals may explain why people allocate public goods according to different principles. In a way the present thesis extends previous research on fairness in social dilemmas in that the hypothesis that people prefer to allocate public goods according to different principles is examined. These principles differ in terms of perceived fairness. It is proposed that the allocations and the perceived fairness of them depend on the particular goal that the group pursues. More specifically, in contrast to previous research (e.g., Van Dijk & Wilke, 1995, 2000) showing that the proportionality principle (i.e., equity) is perceived as fair in public good dilemmas, several studies in this thesis demonstrate that other principles (i.e., equal treatment, equal final outcomes, and need) are also perceived as fair in public good dilemmas insofar as they are conducive to achieving a certain induced group goal. In the following, a detailed summary of four empirical studies investigating distributive preferences in public good dilemmas is provided.

Study I: Kazemi, A., Eek, D., & Gärling, T. (2006). *Do people prefer equity, equality, or equal final outcomes in public good allocations?* Manuscript submitted for publication.

Study I investigated preferences (according to equity, equality, or equal final outcomes) for allocating a public good among group members who had contributed unequally in providing the good. In 5-person groups, all participants made an initial contribution to a successful provision of the public good, and were subsequently told that they randomly had been selected as the leader of their group. Their task as the leader was to allocate the public good among the other four group members. The question posed in Experiment 1 was whether the preferred allocation of the good was determined by what is considered to be a fair distribution. Previous research shows that the equality principle is chosen because it is considered to be fair if social comparison information (i.e., others' cooperative intentions and behavior) is lacking or uncertain (cf. Allison, McQueen, & Schaerfl, 1992). However, if such information is available, equity or need are perceived as fairest (Lamm & Schwinger, 1983; Schwinger & Lamm, 1981; Van Dijk & Wilke, 1995). In the study participants were provided with false feedback indicating that the other group members' had contributed unequally. Thus, compared to other principles, equality was expected to be perceived as unfair. Therefore, it was predicted that participants would prefer to use contribution-based allocation principles (i.e., equity and equal final outcomes) than equality in their allocations.

Twenty undergraduates participated. A within-group design was employed with allocation principle as a factor with three levels (i.e., equity, equality, and equal final outcomes). Participants' allocations constituted the main dependent variable referred to as allocation preference. Following the allocation task, participants' perceived fairness of the different principles was measured.

The results showed that participants took individual contributions to the public good into account and expressed a stronger preference for equity and equal final outcomes than equality in their allocation decisions. The predictions that equality would be perceived as less fair and that it would be endorsed less than equity and equal final outcomes were supported. As hypothesized, perceived fairness was a significant predictor of preference for the equity and equal final outcomes principles.

Experiment 1 thus provides evidence for the dominant preference of two contribution-based allocation principles (i.e., equity and equal final outcomes) over equality. When group goal was unspecified, fairness

perceptions determined the preferred distribution of the public good. Participants did not differentiate between the equity and equal final outcomes principles. In Experiment 2 the question of how group goal affects preference and perceived fairness of allocation principles was investigated. More specifically, by introducing group goal, it was expected that participants would differentiate between all principles. It was also expected that participants would adopt the equality principle when it was instrumental in achieving certain goals (i.e., harmony and enjoyable social relations). This implies that equality may be adopted in public good allocations even when individual contributions are unequal.

Sixty undergraduates were randomly assigned to three groups in which group goal was varied (economic productivity vs. social concern vs. harmony) as a between-groups factor. Apart from this, Experiment 2 was identical to Experiment 1. The manipulation of group goal was introduced after contributions had been made. In the *economic productivity* condition the instructions read (translated from the Swedish): “Your group has a long-term goal of economic productivity. Hence, economic profit is the primary driving force. The emphasis is on measuring achievements with precision.” In the *harmony* condition the instructions read: “Your group has a long-term goal of harmony. Hence, maintenance of enjoyable relations is the primary driving force. The emphasis is on enhancing the group spirit and fellowship.” In the *social concern* condition the instructions read: “Your group has a long-term goal of social concern. Hence, giving help and support to fellow group members is the primary driving force. The emphasis is on being considerate and taking responsibility for other members.”

The results showed that fairness and group goal had independent effects on allocation preferences. As predicted, group goal proved to be effective in differentiating between the preference for equity and equal final outcomes. Equity was preferred among participants who were motivated to realize economic productivity, and equal final outcomes among those who pursued harmony. Equality was found to be preferred when it was conducive to realizing the group goal of social concern. Thus, as hypothesized, when contributions are unequal, endorsement of equality may still occur if it is directed towards a given group goal. Moreover, Experiment 2 replicated the finding that equity and equal final outcomes are perceived as fairer than equality, and that their endorsement in allocations correlate with perceived fairness.

Study II: Kazemi, A., Eek, D., & Gärling, T. (2006). *Fairness and group goals promote unselfish public good allocations*. Manuscript submitted for publication.

In Study I participants allocated the public good between others which did not make possible an assessment of the role of self-interest. Self-interest concerns were addressed in Study II.

Major and Deaux (1982) distinguished between four different allocation paradigms: allocations to others only, allocations to self only, individual allocations to self and others, and group allocations to self and others. In Experiment 1 a paradigm where participants evaluated allocations made by a group leader was employed. The main dependent variable was allocation instrumentality, defined as the perception of the different distributive principles with regard to their potential in fulfilling certain group goals.

Data were collected for 180 participants in 5-person groups. Group goal (economic productivity vs. harmony vs. social concern) was manipulated between and allocation principle (equity vs. equality vs. equal final outcomes) within groups. In contrast to Study I, one of the other group members was appointed as the leader. Group goal was induced in the same way as in Study I. Thereafter, the public good dilemma was presented. Contribution decisions were followed by an announcement of a decision from the group leader regarding the allocation of the public good. Participants assessed perceived fairness and instrumentality (e.g., “To what extent do you perceive that employing allocation principle X will lead to a realization of goal X?”) of this first allocation decision and were informed that the experiment was over. Shortly after this, they learned that the leader had decided to change the first allocation decision and presented two alternative allocations. Participants were then asked to evaluate these alternative allocations in terms of fairness and instrumentality.

The results revealed no significant effects of group goals on perceived instrumentality of allocations. Instead, the data clearly indicated that fairness predicted instrumentality of allocations. These results may suggest that participants in the role of recipients were less concerned with whether or not the group goal was realized than participants in the role of leaders in Study I. Furthermore, as recipients, participants may not have seen it as their responsibility to realize the group goal (cf. Folger, Sheppard, & Buttram, 1995).

In Experiment 2 the allocation-to-self-and-others paradigm was employed (Major & Deaux, 1982) in which participants were co-recipient

allocators of the public good. The issue of responsibility was thus taken into account and the role of self-interest for allocations became possible to examine directly. Drawing on Deutsch (1975), the hypothesis was that preferred allocations and their fairness are affected by the group goal. In contrast, self-interest predicts that the allocations depend on the individual's outcome following the allocations (cf. De Dreu, 1996; Messick & Sentis, 1979). Thus, participants making no contribution (0 unit) or an equal share (30 units) contribution would benefit from and therefore prefer equality, while those contributing more (40 or 60 units) would benefit from and therefore prefer equity.

Data were collected according to a 4 (Contribution: 0 vs. 30 vs. 40 vs. 60) \times 3 (Group goal: economic productivity vs. harmony vs. social concern) \times 3 (Allocation principle: equity vs. equality vs. equal final outcomes) factorial design with repeated measures on the last two factors. Seventy-two participants were told that they belonged to a four-person group. The procedure was the same as in the previous experiments except that participants were instructed to make seven instead of one contribution choice. First, they chose the amount that they preferred most to contribute, the second time they chose the second most preferred contribution, and so forth. The seventh contribution was thus their least preferred contribution. They were told that one of the seven contribution choices would be randomly selected as their valid one. In this way the amount of contribution to the public good was manipulated between participants. Thereafter, participants were given a table with entries showing group members' initial endowments and their possessions after contributions as well as how much of the outcome each member would receive according to the three proposed allocation principles. Induced group goal was a within-groups factor. Following inducement of each goal, participants allocated 240 units between themselves and the other members. Subsequent to each allocation, participants rated the fairness of the allocation principles.

Own contribution to the public good (i.e., self-interest) had no significant effects on perceived fairness or allocation preferences. In support of the predictions, the group goal of economic productivity increased fairness of allocations according to equity, and the group goals of harmony and social concern increased fairness of allocations according to equality. These findings suggest that allocations in public good dilemmas may not primarily depend on self-interest but on group goals resulting in a specific allocation.

Study III: Kazemi, A., Eek, D., & Gärling, T. (2006). *The interplay between greed, fairness, and group goal in allocation of public goods* (Göteborg Psychological Reports, 36, No. 2). Sweden: Göteborg University, Department of Psychology.

One of the aims of Study III was to examine whether the relationship between group goals and allocation preferences extended to asymmetric public good dilemmas. As previous studies show that different goals lead to different allocation decisions, it was argued in Study III that differences in initial endowments should not be crucial for dividing the public good if a group goal is made salient. Thus, it was hypothesized that the relationship of group goals to allocation preferences generalizes to asymmetric public good dilemmas. More specifically, it is hypothesized that equity is preferred when the group goal is economic productivity, that equality is preferred when the group goal is harmony, and that need is preferred when the group goal is social concern.

Deutsch's hypothesis regarding the effect of group goal on endorsement of the need principle also remains to be validated in public good dilemmas. Studies I and II did not address preference for the need principle but compared equal final outcomes to equality and equity. By asking participants to indicate their need of money for purchasing course readings, the principle of need was in Study III operationalized independently of participants' contributions to the public good.

Another aim was to investigate to what extent participants were driven by self-interest by manipulating allocation information. Half of the participants learned that their allocations were public (i.e., revealed to others in their group), while the other half learned that their allocations would remain private. In contrast to the fairness-group goal hypothesis (Deutsch, 1975, 1985), an alternative self-interest hypothesis (cf. De Dreu, 1996; Messick & Sentis, 1979) stresses that people primarily are motivated by maximizing their own economic benefits. Thus, on the one hand, if the self-interest hypothesis is valid, private allocations should result in higher allocations to self as compared to public allocations. On the other hand, if the fairness-group goal hypothesis is valid, participants should make allocations that are instrumental in achieving a certain goal irrespective of whether the allocations are private or public.

The fairness-group goal hypothesis also implies a relationship between perceived fairness of allocations and group goals. Previous research (Study I; Study II; Mannix et al., 1995) has not provided any explanation for the observed relationship between group goals and preferred allocations. Thus, a

final purpose was to extend the earlier line of reasoning by examining why people striving for a certain goal prefer a specific allocation principle. Drawing on prior theoretical and empirical work (Lind & Van den Bos, 2002; Van Dijk et al., 1999; Wilke, 1991), fairness was assumed to reduce uncertainty in choice of allocation strategy to fulfill different goals. Different goals activate different fairness norms which in turn govern allocation of public goods. Thus, it is hypothesized that the effect of group goal on public good allocation is mediated by perceived fairness.

In 4-person groups, 72 participants were randomly assigned to one of four experimental conditions according to a 2 (Endowment position: SEK 60 [low] vs. SEK 120 [high]) \times 2 (Allocation: public vs. private). Participants were first asked to indicate their personal need for money to purchase course literature the current semester. They were further informed that this estimation would be used as a basis for working on the upcoming group tasks. This was aimed at providing a basis for the operationalization of the need principle, and thereby justifying the asymmetric distribution of endowments at the outset of the experiment. Thus, participants were bogusly told that those assigned to a high endowment position had indicated a greater need than those assigned to a low endowment position. Thus, half of them received SEK 60, while the other half received SEK 120. Participants were further informed that another group member had received the same amount of endowments as they themselves, whereas the other two members had received either a lower (i.e., SEK 60) or a higher (i.e., SEK 120) amount.

The public good dilemma was then presented. After their contribution decisions, participants were informed that the public good had been provided. A table was given to the participants showing group members' initial endowments, their contribution decisions, their post-contribution possessions, and how much each member would receive according to the equity, equality, and need principles. Subsequently, group goal was induced within groups in the same way as in the previous studies. For each goal, participants divided the public good and rated the fairness of each of the three principles.

The results clearly indicated that the relationship of group goal and preferred allocations previously observed also holds in asymmetric public good dilemmas. Thus, as expected, when the group goal was economic productivity, allocations corresponded to equity; when the group goal was harmony, allocations corresponded to equality; and when the group goal was social concern, allocations corresponded to need. The hypothesis that fairness mediates the effects of group goal on allocation preferences was also supported, suggesting that perceived fairness explains why people

pursuing a certain goal tend to prefer a specific allocation. This finding also lends support to the contention that fairness is instrumental in reducing uncertainty (cf. Lind & Van den Bos, 2002), pertaining to how to accomplish a realization of different group goals by distributing outcomes.

Study IV: Kazemi, A., & Eek, D. (in press). Effects of group goal and resource valence on allocation preferences in public good dilemmas. *Social Behavior and Personality: An International Journal*.

Social justice research has generated inconclusive results concerning the effects of resource valence on fairness perceptions and allocation preferences. Furthermore, the question of how to divide losses or negative outcomes has not received much attention in social dilemma research. Some previous studies show that people prefer equity for allocation of positive outcomes and equality for allocation of negative outcomes (e.g., Meeker & Elliot, 1987; Törnblom & Jonsson, 1985, 1987), while others show the reverse pattern (e.g., Lamm & Kayser, 1978; Mannix et al., 1995; Törnblom & Ahlin, 1998; Sondak, Neale, & Pinkley, 1995). In Study IV the issues of positive and negative outcome allocations and how people reason about their allocations were addressed by adopting the group goal approach. Thus, allocation preference variations within each level of resource valence was expected to be explained by the extent to which people think that their allocations help accomplish a certain group goal. Expressed differently, which allocation principle is preferred in the allocation of positive and negative outcomes is related to the group goal that the allocation promotes.

In Experiment 1 it was hypothesized that people bring implicit goals to interdependent group situations. Some are performance and productivity oriented, others are oriented towards harmony and solidarity, while yet others are focused on social responsibility and commitment to the group (Deutsch, 1975). The ways people allocate outcomes, positive as well as negative, are implicitly affected by the goals that they embrace. An aim was therefore to investigate whether the previous results generalize to allocation of negative outcomes.

In contrast to the previous studies, group goal was not manipulated but measured. Specifically, the extent to which participants believed that their allocations promoted realization of several different group goals was measured. Thus, by measuring several different group goals, factor analysis could be used to examine the dimensionality of the group goal construct,

hence testing the validity of the assumed three-dimensionality (Deutsch, 1975).

A total of 100 participants were randomly assigned to one of two groups where resource valence was either positive or negative. As in Study III, participants were instructed to indicate their personal need for money to purchase course literature the current semester and were bogusly told that those assigned to a high-endowment position had indicated a greater need than those assigned to a low-endowment position. In reality, all participants were assigned to the low-endowment position. After participants had made their contribution decisions, resource valence was manipulated. Half was told that the provision threshold was not reached (i.e., the deficit condition), whereas the other half was told that the provision threshold was outreached (i.e., the surplus condition). In both groups, the distance to the provision threshold was said to be SEK 600. Subsequently, all participants were asked to divide the deficit (or surplus) between themselves and fellow group members. In the surplus condition, participants were told that in spite of the initial information that contributions beyond the threshold would not be given back to group members, the experimenter had now decided to do so. In the deficit condition, participants were told the experimenter had decided to give the group another chance to provide the public good.

Subsequent to the allocation task, participants assessed perceived fairness of the allocation principles of equity, equality, and need as in previous studies. Following this, the extent to which participants believed that their allocations promoted realization of different group goals was measured.

Factor analysis showed that a two-factor solution of the group goal construct provided the most parsimonious description of the data. Furthermore, as predicted for allocation of positive outcomes (i.e., surplus), it was found that relationship-oriented goals predicted preferences for the allocation principle of equality, whereas performance-oriented goals predicted preferences for the allocation principle of equity. The same held true for allocation of negative outcomes. This lends support to Törnblom (1988) who suggested that under task-oriented group orientation, the equity principle is favored for distribution of both positive and negative outcomes, and under socio-emotional group orientation, the equality principle is favored for distribution of both positive and negative outcomes. This suggests that people implicitly have different orientations or goals in mind in group situations that influence the way they prefer to allocate positive as well as negative outcomes.

Experiment 1 also showed that participants allocating deficits deviated to a larger extent from the allocation principles of equity, equality, and need than did participants allocating surpluses. Experiment 2 further investigated this finding.

In Experiment 2 participants' own contribution was kept constant (equal share, SEK 500) in a scenario which yielded identical allotted shares to the participants. This was done to exclude a possible source of confounding in Experiment 1 (i.e., that participants gained differential shares from the presented allocation principles). Furthermore, it was hypothesized that participants dividing a deficit would conceive the division as more difficult than participants dividing a surplus (cf. Mannix et al., 1995; Sondak et al., 1995).

Eighty non-psychology undergraduates participated in Experiment 2. Equal numbers of participants were randomly assigned to one of two experimental conditions (resource valence: positive vs. negative). Responses to questionnaire items were solicited after regular class meetings. All participants were instructed to imagine that they belonged to a group consisting of four members. The public good dilemma was described in the same way as in Experiment 1 except for that participants were told that all group members were endowed with the same amount of money (i.e., symmetric endowment positions), and that participants were not informed about the level of the provision threshold. More specifically, they were told that the provision threshold would be randomly chosen within an interval of SEK 1400 and SEK 2600. The sum of contributions was kept constant (i.e., SEK 2000) across the resource valence conditions. Thus, participants in the negative resource valence condition imagined that the provision threshold was randomly chosen to be SEK 2600, resulting in a deficit of SEK 600, whereas participants in the positive resource valence condition imagined that the provision threshold was randomly chosen to be SEK 1400, resulting in a surplus of SEK 600. Subsequently, all participants were asked to divide SEK 600 between themselves and fellow group members. Thus, as in Experiment 1, one half divided a deficit while the other divided a surplus. All participants were also asked to imagine that they had contributed SEK 500. Subsequently, the relative easiness/difficulty of allocations with opposite sign was assessed.

The finding in Experiment 1 that participants deviated more from the principles of equity and equality in the negative than in the positive resource valence condition was replicated. Results also showed that allocation of positive outcomes was perceived as easier than allocation of negative outcomes, suggesting that people allocating negative outcomes may

experience a lower level of confidence in their allocations, thus the larger deviations from the allocation principles in negative outcome allocations.

Discussion and Conclusions

In Study I, the results of Experiment 1 clearly demonstrated that participants took individual contributions to the public good into account in determining what constitutes a fair distribution. Based on the observation that participants did not allocate the public good in accordance with the equality norm, it is concluded that individual contributions and post-contribution possessions are important for allocation decisions. It is also concluded that participants' allocation preferences were guided by fairness perceptions. In Experiment 2, participants' allocation preferences were affected by the induced group goal. Thus, preferred distribution of public goods may not primarily depend on what contributions have been made but on implied future goals such as harmony, justifying equal final outcomes.

One limitation of using the symmetric public good dilemma paradigm is that the principle of need becomes difficult to operationalize. In the experiments, need was defined on the basis of participants' post-contribution possessions. The need principle becomes in this way a hybrid of the equity principle (in the sense that people get more the more they contribute) and the equality principle (in the sense that people end up with the same amount of resources). Therefore, this might provide an alternative explanation of the data in that the principles of equality and need in their relation to the group goals of harmony and social concern crossed over relative to the predictions in Study I.

In Study II the effects of perceived fairness, group goal, and cooperation (i.e., self-interest) on choice of principles for distributing public goods were investigated. Two different allocation paradigms were used. Experiment 1, in which participants merely acted as recipients and evaluated allocations by a group leader, revealed only an effect of perceived fairness on allocation instrumentality. Group goal and cooperation had no effects. A plausible explanation for the observation that fairness affected perceived instrumentality of allocations, but not group goal, may be related to the fact that for participants in the role of recipients fairness was more salient and thus more important to achieve than group goals. Moreover, since participants only evaluated allocations by a group leader and thus had no control over the distributions in Experiment 1, it may be argued that they did not see as their responsibility to realize the group goals (e.g., Folger,

Sheppard, & Buttram, 1995). The issue of responsibility was taken into account in designing Experiment 2 in that an allocation-to-self-and-others paradigm was employed (Major & Deaux, 1982) to make participants responsible for group goal attainment, and to address the role of self-interest for allocations more directly. The results of Experiment 2 corroborated the line of reasoning in showing that self-interest had no significant effects on perceived fairness or allocation preferences. Lending support to the predictions, the group goal of economic productivity increased fairness of equitable allocations and the group goals of harmony and social concern increased fairness of equal allocations.

In a sense it can be argued that fairness concerns and group goal inducement promoted unselfish allocation of public goods in Study II (but also in Study III to be discussed in the following paragraphs). These findings support Wilke's (1991) GEF hypothesis implying that greed is restrained by fairness and efficiency motives. Efficiency generalized to allocation preferences in the present context may refer to that participants attempt to realize implied future group goals by choosing different strategies to distribute the public good among themselves.

An important question not addressed in Studies I and II concerned how endowment asymmetry may moderate the effects of group goal on preferred allocations. By using an asymmetric paradigm the need principle was operationalized based on initial asymmetric endowment positions instead of post-contribution possessions, which proved useful in disentangling the principle of need from the principle of equal final outcomes, thus addressing an important shortcoming in Studies I and II. Study III provided evidence for similar effects of group goal on preferred allocations in asymmetric public good dilemmas, suggesting that participants in the low-endowment position endorsed allocation strategies that were conducive to realizing a certain group goal in the same way that participants in the high-endowment position did. More importantly, it was demonstrated that fairness mediates the effect of group goal on allocation preferences, suggesting that perceived fairness explains why people pursuing a certain goal tend to prefer a specific allocation strategy.

Another important aspect of Study III is related to the observation that no significant effects of allocation information (i.e., self-interest) on preferred allocations were found. That is, being informed that allocations would remain private did not incur higher self-allocations than being informed that allocations would be public. This result replicates the findings of Study II, in which participants' contributions to a public good (i.e., self-interest) did not affect choice of allocation strategy. In Study III the

proposed relationship between group goal and allocation preference was not dependent on whether the allocations were said to be public or private. This implies that the group goal, not social desirability or self-presentational motives, affects the allocation preferences. Specifically, if a social desirability or self-presentational motive would underlie participants' allocation decisions, one should expect to observe a link between group goals and preferred allocations only when the allocations were said to be public.

In conclusion, the present results corroborate the theoretical reasoning that preferred allocations of common resources depend on group goal (Deutsch, 1975, 1985). This finding is consistent with previous research showing that decision frames influence the way people behave in social dilemmas (e.g., Pillutla & Chen, 1999; Tenbrunsel & Messick, 1999).

In Study IV, the effects of group goal on preferred allocations were generalized to distribution of negative outcomes. It was noted that previous research had generated inconclusive results on whether allocation of negative and positive outcomes are guided by the same or different allocation norms. Thus, in Experiment 1, it was argued that group goal accounts for variations in allocation preferences within each level of resource valence. In support of this, group goal accounted for preferred allocation of positive and negative outcomes in a similar way. In contrast to Studies I, II, and III, group goal was not manipulated but measured. Thus, the dimensionality of group goal was empirically assessed, but also potential effects of demand characteristic resulting from manipulation of group goal were reduced in this way. A two-dimensional structure of group goal was supported (i.e., performance- and relationship-oriented group goals). Larger deviations from all principles for allocating negative outcomes, which was observed in Experiment 1, were further investigated in Experiment 2. As hypothesized, Experiment 2 showed that allocations of negative outcomes are perceived as more difficult than allocations of positive outcomes. This lends support to Mannix et al. (1995) who suggested that people are less experienced and thus less confident in dividing losses and consequently find division of losses as more difficult than division of gains.

A methodological issue that applies to all four studies in this thesis concerns the measurement of fairness perceptions of allocation principles after participants' allocations and then using fairness perceptions as a predictor of preferred allocation. Thus, the temporal order between the dependent and the independent variable is reversed in this case. However, measurements of fairness perceptions after participants' allocations need not have any bearing on the conclusion that fairness affects public good

allocation. The argument for the employed strategy was to prevent making fairness perceptions salient to participants before they made their allocations (cf. Eek et al., 1998).

What are the implications and extensions of the present findings? In order to survive and prosper, every organized group must first adapt to the external environment surrounding it, and second, maintain cohesion and prevent the group from disintegration. Preventing disintegration is largely dependent on the extent to which the group manages to attain various collective goals. These goals have to do with retaining the members by attending to their personal welfare as well as maintaining harmonious relations among them to fulfill personal and group needs. However, to ensure its existence the group has to produce efficiently, otherwise it cannot compete and eventually it will be dissolved (Sheppard, Lewicki, & Minton, 1992). A basic proposition in this thesis has been that different group goals can be attained by using different principles of allocation (Deutsch, 1975, 1985). Allocation of resources takes place in all social settings. In an allocation event, the individual sometimes is the allocator. At other times, he or she is the recipient. The individual may also in certain cases be a co-recipient allocator of a particular resource. In any case, a number of psychological and situational factors affect the individual's decisions. In this thesis, the emphasis has been on investigating the role of group goal for allocators', recipients', and co-recipient allocators' distributive preferences in social dilemmas. Some goals are certainly more salient than others in certain contexts. Austin (1980) reported that whereas college roommates allocating a group resource disregarded individual differences in performance resulting in equal allocations, strangers focused on individual differences in performance resulting in equitable allocations. Similarly, Eek et al. (2001) showed that equitable distributions of child care were considered as fairer than equal distributions when it was provided by private institutes, whereas equal distributions were considered as fairer when child care was provided by the municipality. As collectives such as municipalities and a group of roommates probably are more concerned with promoting relationship-oriented than performance-oriented goals, these findings are consistent with those presented in this thesis concerning the relationship between group goal and allocation preference. An implication of these findings is that endorsement of a certain allocation principle is justified and accepted in one context or organizational culture but not in another (cf. Mannix et al., 1995).

Salience of different goals depends on a group's development phase or the social situation it is facing. For instance, sororities or fraternities, which

in Deutsch's (1975) terms are "solidarity-oriented groups," do not always prefer equal resource distributions or consider such distributions as fair. Goode (1978) challenged Deutsch's view that social groups, depending on their goal orientation, prefer a single dominant distributive justice principle. Instead, he suggested that different principles apply to different phases or occasions in a group's life rather than one principle always being dominant for a group. Highlighting the moderating role of social relationship, Törnblom (1992) objected to Deutsch's unconditional propositions by noting that "it seems gratuitous to claim that the shouldering of responsibility for a recipient's welfare would elicit need-oriented allocations. Of course this may depend on whose needs are recognized (e.g., those of a child or prisoner) and on the nature of the allocator's responsibilities (e.g., those of a parent or a prison guard)" (p. 214). This comment underscores the importance of type of social relationship between the interacting individuals in deciding whether a certain allocation principle is conducive to achieving a certain group goal. Thus, in real-life settings there is usually a mixture of different goals at some point in time which makes it difficult, if not impossible, to adhere to one principle only.

At this point, it is relevant to call attention to and summarize the contributions of the present thesis to social dilemma research. One contribution is that the present research highlights and remedies two limitations of the public good dilemma paradigm in previous research. In contrast to the traditional public good paradigm (e.g., Van Dijk & Wilke, 1995), degree of uncertainty about how the public good would be distributed is introduced here. Thus, when deciding how much to contribute, participants were not certain about how much they would benefit from the public good should it be provided. In real-life public good dilemmas, people are seldom certain about how public goods will be distributed. To exemplify, when citizens pay taxes they are uncertain about how the accumulated tax pool will be allocated. Thus, each citizen knows that he or she will receive something but not how much. Another real-life example is the so-called covered-dish supper where the guests are expected to bring their own food and then share it with the others. Again, how the food pool is going to be divided between the guests are not known. Despite the fact that the division of the public good is unknown in these cases there is room for self-interest. Furthermore, the public good dilemma paradigm was extended in Study I to allow other principles than equality to be applied in the allocation of public goods. Participants were told that they as leaders would not receive anything from the public good. Hence, non-excludability did not apply in the allocation of the public good. However, it is argued that this public good

simulation comes closer to real life than those used in previous research. For example, contributing to charities is often given as an example of a public good dilemma (e.g., Cornes & Sandler, 1996). Yet, it is clear that non-excludability does not apply in this case as there is usually a person or a group who determines how the charitable resources are allocated to others. Another aspect of non-excludability concerns whether public goods in real life are public in the sense that they are accessible to all people. As Foddy (2005) argues, excluding or restricting people's access to scarce public goods is a common structural solution that governmental agencies apply. That is, public goods are provided only for some "publics" or "groups" that in various ways meet some requirements for deriving benefits from the public good. Foddy concluded that the publics who contribute to the provision and the publics who benefit from its provision vary. Furthermore, as noted by Messick (1995), equal distributions of public goods are not always feasible as some resources cannot fully be divided equally. For instance, it is easier to accomplish an equal division of a continuous resource (e.g., money) than a non-continuous one (e.g., carpet). Thus, real-life public goods cannot always be allocated equally because "public" does not mean "accessible to all people" (Foddy, 2005) and because public goods differ with regard to the properties of the resource that constitutes them (Messick, 1995). Taken together, the present research contributes to experimental public good dilemma research in that a paradigm was developed which mimics real-life public goods in a way that has not been recognized in past research.

Besides the development of a new public good dilemma paradigm outlined above, the present research argued that public good dilemmas can be decomposed into provision and allocation of public goods. Stressing the latter, this thesis conceptualized cooperation broader than traditionally. Specifically, cooperation was studied in terms of allocating public goods to attain group goals favoring the collective interest. Introduction of the notion of group goal extended the notion of collective interest in social dilemmas. The group goal concept and multiple norms of fairness highlighted the role of non-economic incentives for allocation preferences, providing support for the notion that people's group behavior is not solely motivated by self-interest. Thus, the role of self-interest for allocation decisions when group goals are activated was addressed. Four- and five-person groups, as opposed to dyads in earlier research (e.g., Deutsch, 1985, 1987), in an experimental public good dilemma paradigm with a clear incentive structure, instead of a scenario method (e.g., Mannix et al., 1995), were used to study allocation preferences. This is clearly a more valid way of addressing the role of self-

interest. Moreover, two different operationalizations of the need principle (i.e., in terms of post-contribution possessions and in terms of lack of resource beyond the individual's control) were utilized. This is an important contribution of this thesis as the principle of need as compared to the principles of equity and equality has received scant attention in previous research (Deutsch, 1985; Eckhoff, 1974; Messick & Sentis, 1983; Törnblom, 1992). Furthermore, it was shown that the effects of group goal on public good allocations generalize to situations in which the interacting individuals have differential initial assets. This suggests that once people are motivated to attain collective goals, they pay less attention to how much each group member possesses initially or after contributions to the public good if such concerns are not perceived as conducive to realization of a particular goal (cf. Tyler, 2005). It was also shown that fairness may explain why pursuit of a certain group goal results in preference for a particular allocation principle. Additionally, it was demonstrated that group goal accounts for variations in allocation preferences for positive and negative outcomes, suggesting that negative and positive outcomes are allocated according to the same principles if they promote a specific group goal. Furthermore, effects of group goal on preferred allocations were validated using two different methodologies, that is, experimental manipulations and survey measurements. In conclusion, as group goals and resource allocation are integral parts of all social groups, knowledge in advance of how to distribute group resources to realize different collective goals are essential to an understanding of group functioning and effectiveness.

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