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Dear Penny

Simply -

Thank you

Love Brenda

Social cooperation: Re-defining the self in self-interest

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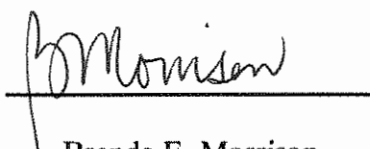
A thesis submitted for the degree of Doctor of Philosophy
of the Australian National University.

Division of Psychology, Australian National University. April 1997.

Certificate of Authorship

Aside from the normal intellectual debts inherent in all scientific endeavour, the research reported in this thesis was carried out by myself without the collaboration of others.

This work has not been submitted for a higher degree to any other university or institution.



Brenda E. Morrison

Acknowledgments

This thesis is dedicated to my dear friend Sarah and her two children, Alexandra and Elizabeth. As I submit the work of this thesis, my heart is with them in England, where they begin a new chapter of their lives together. I wish them all the very best.

My interest in social cooperation began when I was studying intergroup relations with Tom Pettigrew at the University of California, Santa Cruz during the time of the Gulf War. Tom Pettigrew, perhaps unknowingly, started me on this pursuit when I asked him what social psychologists knew about social cooperation. His answer provided me with the research question addressed in this thesis. I thank him for his inspired introduction.

My interest in group processes began before my days of formal study in this area, through my work as an instructor with Outward Bound Australia. In many ways I am still drawing on and learning from those experiences. Some remarkable and dedicated people came into my life during that time; their insightfulness, commitment and enthusiasm have always inspired me. This thesis would not have been complete without the integrity and compassion that they instilled in me. They have kept me on track and supported me in every way through this pursuit. My thanks and appreciation are also extended to the participants of Outward Bound and the AIDAB students from Papua New Guinea. I have learnt and grown with them as well, not only through their participation in my studies but through the stories and times that we have shared.

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Abstract

This thesis examines the social psychological process underlying social cooperation. Reviews are presented of (a) the interdependence account of social cooperation; and (b) the structure of and solutions to social dilemmas, the paradigm through which social cooperation is studied. Based on these reviews, two assumptions in this literature are then elaborated on: (i) the primacy of the individual self and (ii) the conceptualization of the group. Building on this critique, a theoretical review of the social identity account is then presented, through the development of social identity and self-categorization theories. While both the interdependence and social identity accounts grew from the work of the early interactionists -- Lewin, Asch and Sherif -- these accounts are now fundamentally distinct. Interdependence theorists understand social cooperation as a function of interdependence structure and transformational processes of individuals; while, social identity theorists understand social cooperation as a function of social context and categorization processes of individuals. While the latter approach does not discount the role that objective interdependence can play in social identification, it argues that interdependence, per se, can not account for the necessary and sufficient conditions underlying social cooperation.

The empirical work of this thesis aims to build support for the social identity approach to the understanding of social cooperation. Specifically, the hypothesis to be tested is that social cooperation is the product of a salient social identity. The empirical strategy is to build a systematic account of social cooperation from a self-categorization perspective while targeting the fundamental theoretical constructs of interdependence theory, specifically the role of objective interdependence and the transformational processes of social value orientations. The role of objective interdependence is examined in Experiment 1, 3, and 4, and social value orientations in Experiment 2. Finally, Experiment 5 directly tests the hypothesis that social cooperation is the product of a salient social identity through a manipulation of salience of social identification.

These findings are considered in relation to the theoretical approaches reviewed, with the conclusion being reached that interdependence, per se, can not account for the necessary and sufficient conditions underlying social cooperation. In contrast, the findings show general support for the self-categorization account of the social psychological mechanism underlying social cooperation. This theoretical analysis allows us to re-define the self in self-interest.

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- Chapter 1 -

Introduction: The social psychology of social cooperation

1.1 Introduction

The study of cooperation has long captured the interests of academics and laypersons alike. Broadly speaking, it can be defined as individuals working together to accomplish shared goals and tasks. It is the pursuit of mutual interests by individuals and is a pervasive and ubiquitous aspect of human nature. Indeed, we cooperate with others at many different levels of society: within our family and work life, as well as with an ever increasing expanse of regional, national and global communities. To briefly illustrate, consider a small rural village, called Tharwa, in the Australian Capital Territory. Residents of this community cooperate together in many ways, such as putting on the annual fair and participating in the volunteer bushfire brigade. As volunteers for the brigade, community members regularly take part in meetings and training sessions, and while Tharwa has been fortunate not to have experienced a major fire for a number of years, this brigade has helped to fight many different fires. For not only do these volunteer citizens help to fight bushfires within their own community, they also work together with other brigades to fight bushfires in other areas of Australia. A salient example would be the extensive bushfires of the summer of 1994 that raced through the greater Sydney area, attracting international attention. Thus, not only do we, as individuals, cooperate with our community, our community as a whole cooperates with other communities. We cooperate for a greater good than may be immediately apparent. Cooperation is the heart of many systems of collective life - legal, economic, humanitarian and otherwise. Further, individuals have a good sense of when they are cooperating, that is, pursuing mutual interests with others, and when they are not.

For social psychologists, the analysis of the pursuit of mutual interests, in other words the study of social cooperation, has been built on the assumption that individuals must sacrifice their personal self-interest for the good of the collective. This doctrine is

pervasive not only in social psychology but also in the social sciences in general and in other related disciplines. It is explicitly clear in the social dilemma paradigm, the paradigm through which social psychologists have studied social cooperation for nearly four decades. To highlight this, a recent definition states: "Borrowing terminology from game theory, we say that such behavior, intended to benefit the group at a cost to the individual, represents cooperation" (Boyd & Richardson, 1991, p. 111). Typically individuals' behavior in social dilemma situations is studied through the use of experimenter created laboratory situations in which two (or more) participants must decide separately on a course of action which jointly effects both (or all) of their outcomes. As a consequence of this methodological approach, social dilemmas are now defined as the "problem of interdependence," based on the finding that in these objectively defined situations of interdependence, levels of cooperation are particularly low between individuals. This has led researchers to find "solutions" to situations of interdependence, that is to identify variables that increase the level of cooperation in these situations.

All in all, insofar as cooperation is defined as the pursuit of mutual interests, from this perspective these mutual interests are viewed as being opposed to individual interests. As such individual self-sacrifice must be made when collective interests are pursued. This analysis of the relationship between the individual and the group is inherent in the meta-theory, theory and methodology that we use to study social cooperation. Yet, despite the plethora of research in this area, researchers are not satisfied for a number of reasons (see Grzelak, 1991, 1994) which include: lack of theory guiding this research, little understanding of the complex relationship between variables, and uncertainty regarding the applicability of simulated findings to the real world. Overall the paradox remains: given that individuals can and do cooperate to a remarkable degree, why is it that within these situations of objective interdependence, such low levels of cooperation are found.

Through coming to terms with these findings many researchers in this field have subsequently acknowledged that often there is not a conflict of interest between the self and collective (see Caporeal, Dawes, Orbell and van de Kragt, 1989; Grzelak, 1994). Often the interests of the individual and the collective are one and the same. This phenomenon has been accounted for in two different ways in the literature: intrapersonal transformational processes and an intergroup analysis of collective behavior through a cognitive re-definition of the self.

In line with the latter analysis, this thesis will challenge the assumption that conflict between individual interests and the interests of the group is an inherent aspect of social cooperation. To this end, the conceptual understanding of the self, as defined by self-categorization theory, will be used to re-define the self in self-interest. This analysis will provide a systematic descriptive and prescriptive functional mechanism that allows for the variable and adaptive differentiation of others in terms of “us” and “them,” respectively those we cooperate with and those we do not.

1.2 The issue: Defining the research problem

The aim of this thesis is to provide a systematic account of the social psychology of social cooperation. In essence this thesis will address a long standing problem of the social sciences; specifically, what are the explanatory constructs underlying conflicts of interest? That is, how can we explain the underlying construction of group affiliations that can define whose interest we are acting in terms of, and in whose interest we are not. Indeed this question goes beyond the boundaries of social psychology, as Luce and Raiffa (1957) point out:

In all of man's (sic)¹ written record there has been a preoccupation with conflict of interest; possibly only the topics of God, love, and inner struggle have received comparable attention. (p. 1)

Not only has this question been a central problem for social theorists, it has also become an increasingly urgent international problem. For it is evident that social change, highlighted by changing group affiliations and interests, looms in many nations -- ethnic groups, in many forms, are emerging and fighting to maintain the essence of themselves as a distinct people. The security of the identity, as a collective, seems to be the primary aim despite the high costs: Hutu and Tutsi face each other with murderous contempt in their eyes; Northern Irish Catholics mobilize themselves internationally against the British, as represented by the Northern Irish Protestants; the Quebecois rally for their self-determination in Canada with little concern for the loss of economic security. In each of these cases there is a clearly differentiated “us” and “them.” Yet differentiating “us” and “them” can also be variable, as witnessed in the ongoing conflicts within the former Yugoslavia. The striking reality is that Serbs and Croats, Serbs and Muslims, and

¹ In this thesis the use of non-sexist language is endorsed. However in the interest of readability the practice of noting such language will not be continued.

Croats and Muslims have each defined the conflict of interests at times. Clearly, the process of defining “us” and “them” has the adaptive capacity to be both specific and variable. Further, conflict and cooperation have a close affiliation with the understanding of the group -- cooperation with the ingroup; competition against the outgroup. What underlies this relationship? To understand this relationship, we must understand the functional mechanism that determines these respective conceptualizations. What theoretical and empirical evidence do we have that can systematically account for this variability and stability in perceived group membership? Further, through systematically accounting for this variability of group memberships, can this account for an effective understanding of cooperative behavior of individuals? These questions form the central core of this thesis.

Sumner (1906) was interested in these questions at the turn of the century when he coined the terms ethnocentrism, ingroup and outgroup -- terms that are now central to the social psychological study of conflicts of interest. Today, while there are numerous theoretical and methodological positions which aim to explain the underlying mechanism involved, a review of the social psychological literature reveals two general answers: functional interdependence, as explained by interdependence theory (Kelley & Thibaut, 1978; Thibaut & Kelley, 1959) and the behavioural interaction model (Rabbie, Schot & Visser, 1989), and social identity, as explained by social identity theory (Tajfel & Turner, 1979; 1986) and, more recently, by self-categorization theory (Turner, Hogg, Oakes, Reicher & Wetherell, 1987). Both these approaches emerged from the interactionist perspective of the 1950's, through the work of Asch, Lewin and Sherif -- gestalt theorists who acknowledged both the individual and social elements of psychology. And while both emerged from this body of literature there are fundamental differences in the assumptions and meta-theoretical principles that each of these approaches brings to the study of social cooperation.

Following on from the work of Lewin (1939, 1951), Deutsch's (1949) theory of cooperation and competition remains a benchmark in the field and clearly takes a functional interdependence approach, in line with interdependence theory which has systematically been developed by Thibaut and Kelley (1959; Kelley & Thibaut, 1978). This work provides the theoretical platform for the social dilemma paradigm which subsequently adopted a game theoretical perspective to the analysis of conflict of interest. In contrast, social identity theory, formalized by Tajfel and Turner (1979, 1986), and now self-categorization theory (Turner et al., 1987) carried on from Sherif's

intergroup studies (see Sherif, 1967, for review). However, as this thesis will reveal, there is a certain irony to the contrast outlined, for today it is self-categorization theory that most clearly embodies the field theory that Lewin (1952, for review) argued for (see Turner & Bourhis, 1996).

The paradigms that grew from each of these approaches are now fundamentally distinct. Interdependence theorists understand cooperation in terms of the outcome interdependence structure and transformational processes of individuals (see Kelley, 1991; Rusbult & van Lange, 1996, for review). Self-categorization theorists understand cooperation in terms of the normative and comparative aspects of social context and categorization processes of individuals (see Turner et al., 1987; Turner, Oakes, Haslam & McGarty, 1994, for review). And while both are social cognitive theories, the former emphasizes individual processes that are constrained by the interdependence structure of the social world, while the later emphasizes the relevant social structural variables that influence individual cognition. Simply put, the emphasis turns from understanding an individual within a social system to understanding how the social system transforms the individual. The following brief history of the study of social cooperation from these two perspectives aims to illuminate and clarify the distinctions between these approaches.

1.3 A historical overview of the social psychology of social cooperation

In 1906, William Sumner, a sociologist, articulated a functionalist approach to the nature of intergroup relations. This work has had a longstanding influence in social psychology, through Sumner's exposition of the concepts of ethnocentrism, ingroups and outgroups. His grounding premise was that society is made up of groups that have some relation to one another, and that these groups are psychologically relevant to individuals. Group affiliations form the basis for individuals to perceive "us" and "them" -- the basic building blocks of intragroup cooperation and intergroup competition. In other words, it has now long been understood that we cooperate with ingroup members and compete against outgroups. As Sumner (1906) states:

differentiation arises between ourselves, the we-group, or in-group, and everybody else, or the others-group, out-groups. The insiders in a we-group are in relations of peace, order, law, government, and industry, to each other. Their relation to all outsiders, or other-groups, is one of war and plunder, except so as agreements have modified it. (p. 12)

Further, sentiments within and between the groups are correlative, in that there is:

loyalty of the group, sacrifice for it, hatred and contempt for outsiders, brotherhood within, warlikeness without -- all groups together, common products of the same situation. (p. 12)

Sumner understood this process as a universal syndrome of ethnocentrism -- a "view of things in which one's own group is the center of everything, and all are scaled and related with reference to it" (p. 13). These terms -- ingroup, outgroup and ethnocentrism -- have remained central elements in the study of social psychology.

The social psychological study of conflict emerged at the turn of the century and was influenced by the writing of key figures in social theory -- Darwin, Marx, Freud, and Hobbes before them -- each of whom, in their own way wrote about the struggle in life for existence. It was commonly assumed that survival in the hostile environment to which we are born can only be afforded through functional competition. This intellectual work, with the prevailing social conditions of that time, such as economic depression and world wars, influenced the thinking of many disciplines. Their work continues to be influential (see Granovetter, 1985; Lynn & Oldenquist, 1984, 1986; Mansbridge, 1990).

Since this time, the social psychological understanding of the relationship between the individual and the group has had a varied history, moving from the group mind theorists of the early century, as seen in the work of the pre-experimentalist LeBon, McDougall and Freud, to the behaviorists, of whom F. Allport is notable, through to the interactionists or gestalt theorists, of whom Lewin, Asch and Sherif were the early pioneers. Yet despite the obvious significance of clearly defining the conceptual nexus between the individual and the group, in order to further develop our understanding of group functioning such as social cooperation, this literature has had a short and iterated history of failed theoretical development. In 1937, May and Doob said: "It is quite plain that existing research on competition and cooperation is scattered, spotty, and even chaotic" (p. 141). And in 1949 (see also 1968), Deutsch reiterated: "There has been little in the way of explicit theorizing and virtually no experimental work with respect to the effects of co-operation and competition upon social process" (p. 129). More recently, Pruitt and Kimmell (1977) as well as Grzelak (1991) have made similar comments.

In 1937 two reviews of the early work on cooperation were published, one by May and Doob (1937), the other by Murphy, Murphy and Newcomb (1937). The latter defined social psychology as "the study of the way in which the individual becomes a member of, and functions in, a social group" (p. 16). In other words, understanding the

way individuals cooperate with, or act in terms of, social groups is a fundamental question of social psychology. This early work was, in part, a reaction to the instinctivist doctrines of that time and will not be reviewed here as it is generally accepted that it lacked empirical rigour and conceptual clarity and breadth (see Deutsch, 1980). However, it is interesting to note that to a large extent the focus of the research was on the effect of competition and cooperation on task output. Researchers were interested in testing the hypothesis that competition fostered greater productivity, an inherent aspect of American ideology and ethos. May and Doob (1937) were primarily interested in the social and psychological factors initiating cooperation and competition and also had a goal orientation approach to explaining these influences.

Subsequently, social psychologists have taken up an interactionist perspective; in other words, a dynamic approach to the study of group life. Lewin, in particular, has been very influential in the field of social psychology and group dynamics (see also Festinger 1950, 1954). Lewin was convinced that a better understanding of human groups could help solve some of the world's serious social problems and he was the first to study complex social phenomena in the laboratory. For this reason, he is often called the father of modern experimental social psychology. For Lewin a group was defined by its interdependence of members. He stated that it is: "[n]ot similarity, but a certain interdependence of members that constitutes a group" (1939, p. 147, 1952). It was Deutsch (1949), one of Lewin's graduate students, who extended Lewin's reasoning about social interdependence and formulated a theory of cooperation and competition (Deutsch, 1949, 1962) that remains a benchmark today.

Deutsch (1980) describes his "theorizing and research [as] concerned not only with the individual and group outcomes of cooperation and competition but also with the social psychological processes which would give rise to these outcomes" (p. 58). As with previous research the focus is again on objective outcomes and goals; however, Deutsch's further aim was to account for underlying processes as well. Two basic ideas are central to his theory: goal interdependence and individual action towards goals. Deutsch understood these two aspects to be reciprocal processes. Interdependence between individuals is defined as either promotive (positive) or contrient (negative), and actions are defined as either effective (positive) or bungling (negative) to achieving goals. Together these aspects of social interaction are said to affect three basic social psychological process: substitutability, cathexis and inducibility. Deutsch argued that these processes affect many levels of social dynamics: intrapersonal, interpersonal,

intragroup and intergroup relationships. He later drew strong parallels between his work and the classic field experiments of the Sherifs (see 1967 for review), concluding that “[there] is a marked parallel in the results of the research on both cooperation and competition within groups and between groups; the same theory appears to be applicable to the relations between individuals and the relations between groups” (Deutsch, 1980, p. 61).

In a recent tribute to his work it is stated that “Deutsch’s theory has served as a major conceptual structure for this area of inquiry for the past forty-five years” (Bunker & Rubin, 1995, p.208). And, as Johnston and Johnston (1989, 1995) have pointed out, Deutsch’s theory has yet to be challenged. The interaction of interdependence structures and individual actions (or orientations) remains the predominant approach to the study of social cooperation.

In the 1950’s Deutsch became excited by the work of Luce and Raiffa and game theory. As Deutsch (1981) states: “Game theory has made a major contribution to social scientists by formulating in mathematical terms a problem which is central to the various social sciences: the problem of conflict of interest” (p.61). Game theory intrigued Deutsch both theoretically and methodologically. Theoretically, it buttressed his developing view that conflict was a mixture of both cooperative and competitive elements -- thus, the notion of a mixed motive game, as exemplified by the prisoner dilemma game. Methodologically, the matrix structures lent themselves easily to experimental research, as the structure and the outcomes could be systematically manipulated.

Game matrices have now become the dominant experimental device for examining conflict and cooperation. In 1977, Pruitt and Kimmel estimated that well over 1,000 studies had been published based on experimental games. However, even Deutsch (1981) concurs that much of this work has been “mindless -- being done because a convenient experimental format was readily available” (p. 63). Withstanding some early critiques, game theory remains a dominant force in the study of social conflict and cooperation. Game theory, through the social dilemma paradigm, by and large, now defines cooperation, as seen in the recent definition by Boyd and Richardson (1991) presented in the introduction to this chapter. The continuing thrust in the study of cooperation has been on the outcome or goal interdependence of individuals. The group has been reduced to the default status of a mere aggregate of individuals pursuing a common goal.

As Turner (1987) notes, in the introduction of self-categorization theory, by the 1970's the gestalt interdependence perspective that Lewin argued for had been re-structured. Rather than groups being characterized as a functional whole, different from the sum of its parts, groups had come to be conceptualized objectively as an aggregate of individuals pursuing a common goal or outcome.

The work on self-categorization theory (Turner et al., 1987) grew from social identity theory (Tajfel & Turner, 1979, 1986). Together, these theories define an intergroup perspective of the analysis of group life and processes, wherein social cooperation is understood as a function of group level processing in a truly gestalt sense. Hence, it is argued that the group is more than the sum of its objectively defined interdependent individuals. Building on the work of Sherif, the evidence implied that identification with the group was the key intervening factor that allowed group level processes, such as cooperation, to emerge. For while Sherif conceptualized groups in terms of their common fate, creating superordinate goals to resolve conflict in his famous intergroup field studies, he also said: "Whenever individuals belonging to one group interact, collectively or individually, with another group or its members in terms of their group identification, we have an instance of intergroup behavior" (1967, p.12). This observation lay the ground work for re-conceptualizing the group. Instead of the group being defined by macro social goals through objective interdependence, the group is reconceptualized in predominantly cognitive terms as a "collection of individuals who perceive themselves to be members of the same social category" (Tajfel & Turner, 1986, p. 15). The importance of social identity and the process of identification through self-categorization is stressed. This analysis reconceptualizes the self and thus has implications for the understanding of self-interest and therefore the conceptual underpinnings of the analysis of conflicts of interest.

As Turner (1984) states, the social identity perspective "reinstates the group as a psychological reality and not merely a convenient label for describing the outcome of interpersonal processes and relations" (p. 535). Early in this line of reasoning it was hypothesized that group formation may be the basis for perceived cooperative and competitive interdependence (Turner, 1981, pp. 97 - 98). In other words, self-categorization theory hypothesizes that psychological group formation is the intervening mechanism that allows social cooperation, as a form of collective behavior, to emerge. Put simply, social cooperation is the product of a salient social identity. In this light, inclusive self-categorizations with others, in terms of higher order group memberships,

qualitatively transform the self and social behavior of individuals. Self-interest becomes collective interest through a transformation of the self. Through the process of self-transformation, social cooperation can be explained as a product of a salient social identity, as this thesis aims to show. In terms of this conceptual analysis, there is no longer a conflict of interests between the individual and collective. The interests of the individual and the collective are one and the same. As such, cooperation is no longer defined as self-sacrifice. In contrast, social cooperation is defined as the product of a salient social identity, wherein self-categorizations vary systematically in terms of levels of inclusiveness with others, as well as degree of salience of group membership. In summary, social cooperation is re-conceptualized as a product of identification processes with other individuals and broadens the conceptual umbrella to include other prosocial acts such as helping behavior and altruism.

1.4 Aims of the Present Work and an Overview of the Chapters

As suggested in the historical overview above, two main approaches to the study of social cooperation have emerged since the interactionist approach to the study of social behaviour was introduced: functional interdependence and social identity. The functional interdependence approach which understands social cooperation as a product of interdependence structure and transformational processes of individuals will be reviewed in Chapter 2. This Chapter will begin with the work of Deutsch, who conceptualized the dynamic relationship between the typology of interdependence and psychological orientations, through Deutsch's Crude Law of social relations. Game theory will then be reviewed as it was quickly adopted by interdependence theorists as a significant methodological tool for conceptualizing interdependence structurally, such that the reward structure could be modified systematically. This will lead to an overview of the development of interdependence theory (Kelley & Thibaut, 1978; Thibaut & Kelley, 1959). The basic premise of interdependence theory is that the way interdependence among goals is structured determines how individuals interact, which in turn largely determines individuals' outcomes (see Johnson & Johnson, 1998).

Chapter 3 will review the findings of the social dilemma literature, as this paradigm directly tests the interdependence approach to the study of social cooperation. Social dilemmas are defined as situations of outcome interdependence in which individuals are better off acting in their own self-interest, regardless of what other

interdependent individuals do. However, each self-interested action creates a negative outcome or cost to the others involved. In the end, pervasive self-interested action of individual group members results in an accumulation of negative outcomes and everyone gets less. Within this literature, the general finding has been that individuals fail to cooperate to any significant extent in simulated situations of objective interdependence. This analysis has been defined as the “problem of interdependence” and a plethora of research has provided “solutions” to this problem. At the same time, there is a certain level of ambivalence about the thrust and direction that this research is taking and, as a consequence, researchers are seeking further understanding and development in a variety of conceptual areas (see Kelley, 1995; Kormorita & Parks, 1995; Liebrand, 1992; Rusbult & van Lange, 1996).

It is then argued that this ambivalence reflects two trends that emerged in the 1960's and which continue to this day in social dilemma research; (1) a decline in interest in group process and a move to a more individual level of analysis and (2) the interpretation of interdependence as a function of utilitarian social interdependence of self-interested individuals (see also Festinger, 1980; Turner, 1987). In this light, two fundamental assumptions in this body of literature will be examined in Chapter 4: the nature of self-interest, narrowly conceived in terms of individual interests and, leading on from this, the nature of the psychological reality of the group. The overall analysis will argue that whilst game theory has provided a paradigm which enables social dilemmas to be recognized, theoretically it has been only moderately successful in explaining people's behavior in objectively defined situations. This suggests that the strongly individualistic model may be usefully modified to a more social model or theory. Interestingly, Dawes (1975, 1980), the researcher responsible for defining social dilemmas, has reported one key conclusion after working in the field for over 25 years: “findings suggest that developing a group's identity is central to willingness to act in the group's interest rather than one's own” (Tyler & Dawes, 1993, p. 93).

The identity perspective developed in social identity theory (Tajfel & Turner, 1979; 1986) and self-categorization theory (Turner et al., 1987) will be outlined in Chapter 5. Following Turner (1975, 1981), it is argued that outcome interdependence of individuals is neither necessary nor sufficient to account for cooperative behavior. An alternative account of group level processes, such as social cooperation, can be found in social identity theory and self-categorization theory. This analysis begins by acknowledging that groups have both social and psychological reality; however, it is

psychological group membership, based on self-identification as a group member, that transforms individual behavior into collective behavior. In light of this theoretical perspective, this thesis argues that self-categorization transforms the nature of self-interest, such that, as social identities become salient, individual self-interest becomes collective self-interest, through a transformation of the perception of self. Our needs and interdependencies are variable, changing as a function of the self, which is conceptualized as a fluid and adaptable process and product that responds to contextual variables. More simply, on the basis of self-categorization theory, the process of social identification redefines self-interest at variable levels of inclusiveness with others.

There is now growing evidence for the social identity perspective in the study of intergroup relations (see Spears, Oakes, Ellemers & Haslam, 1996) and Chapter 6 will review the evidence that supports a social identity analysis of social cooperation. In particular the work of Brewer, Gaertner and their respective colleagues will be reviewed (see Brewer, 1991; Anastasio, Bachman, Gaertner & Dovidio, 1996) as they provide the most systematic program of research in this area. Interestingly, Rabbie and colleagues have been the only interdependence theorists to directly challenge the social identity or self-categorization approach. Their critique, as well the work of Rabbie's student, Pawel Mlicki, will also be outline in this chapter.

The empirical work, which begins in Chapter 7, has two broad aims: (a) to compare the social identity and interdependence analysis of social cooperation in terms of broad theoretical constructs; (b) develop a self-categorization theory analysis of social cooperation. The latter aim will be the predominant focus.

The initial experiment will respond to Rabbie's critique of the social identity analysis and will extend and replicate a study by Gagnon and Bourhis (1996). While this study does not directly examine social cooperation, it is important to the development of this thesis as it addresses the fundamental distinctions between the interdependence and social identity analysis of group life.

Chapters 8 to 11 present the formal empirical analysis of self-categorization theory's explanation of social cooperation. The first two studies empirically address the two underlying constructs of the interdependence approach: social value orientations and outcome interdependence, while the final two studies examine the context specific nature of self-categorization processes that underlie identity formation and cooperative behavior. The second to last study will examine how comparative context, or frame of reference, effects cooperative behavior. The final study examines both normative and

comparative aspects of self-categorization, identity formation and cooperative behavior. Each of the final four studies aims to illustrate the dynamic active process of identity formation that is argued to be the basis for social cooperation.

The first of these studies, in Chapter 8, tests the stability of social value orientations, that is the general intrapersonal qualities of cooperativeness or competitiveness that are said to be predictive of levels of social cooperation within any given interdependence structure. Social value orientations are the most rigorously tested transformational process of individuals within the interdependence perspective, and systematically account for most of the variation found in levels of social cooperation. This theoretical account argues that not all individuals are indifferent to the outcomes of others in much the same way that Deutsch argued in his initial studies. Social value theory states: "Recent evidence indicates that the expression of a particular value orientation within a given context remains relatively stable over time" (McClintock & Liebrand, 1988, p. 398). This initial field study will test this assumption within a stable objective interdependence structure. The question addressed is: Do levels of cooperative behavior amongst individuals, within an objective situation of outcome interdependence, remain stable across individuals over time; or will cooperation reflect emergent properties of psychological group formation, such as the extent to which individuals represent group norms?

The study that follows in Chapter 9 examines the gestalt indices of common fate and similarity to examine the relationship between interdependence and social cooperation. Interdependence theorists take the functional approach to the definition of group membership, wherein objective common fate of individuals produces the outcome interdependence of players and subsequent cooperative behavior of individuals. In contrast, self-categorization theory argues that perceived similarity is the basis for self-categorization and psychological group formation, which subsequently predicts cooperative behavior. This study will examine if the process of social identification with superordinate others, who are not defined within the immediate outcome interdependence structure, can account for the cooperative behavior of these individuals.

In Chapter 10, the hypothesis that social cooperation is the product of a salient social identity is directly tested in a study that manipulates the variable social identities of participants within comparable objectively defined situations of interdependence in a resource dilemma. This study highlights the interplay between psychological group formation, perceived interdependence and social cooperation.

Following on from the work of Oakes on the salience of category membership (1987), it is argued, in Chapter 11, that variability in cooperation reflects identity salience. In line with the “accessibility x fit” hypothesis (Oakes, 1987; Oakes, Turner & Haslam, 1991) salience is argued to be a function of both normative and comparative fit. It is thus hypothesized that levels of social cooperation will vary with perceived fit.

Finally, Chapter 12 will examine the principle findings to emerge from the empirical work of this thesis. The aim is to examine the extent to which self-categorization theory makes a distinct explanatory contribution in contrast to interdependence theory. Broader theoretical and metatheoretical implications of the thesis are then examined, and final comments presented.

In summary, this thesis will begin with a presentation of the contemporary approach to the study of social cooperation, as explained by interdependence theory and studies through the social dilemma paradigm. This theory and paradigm will then be examined from the broader perspective of the history of our conceptual understanding of the social group and self-interest. Picking up on other developments within this history, social identity theory and self-categorization theory will then be presented. Following this theoretical overview, work that has challenged and developed the theoretical premises of the social identity approach will then be presented. The empirical work of this thesis will then follow.

- Chapter 2 -

Social cooperation: The history and theoretical development of the analysis of individuals' outcome interdependence

2.1 Introduction

This chapter outlines the development of the most influential theoretical approach to the study of social cooperation, namely the functional or outcome interdependence approach. The development of this theoretical framework will begin with the work of May and Doob (1937) and then moves onto Deutsch's (1949) influential, and uncontested, theoretical developments. Game theory (Luce & Raiffa, 1957) is then introduced, as it provided the means through which a formalized paradigm was developed to study cooperation, competition and conflict resolution. Deutsch (1958) was instrumental in the process of establishing the paradigm. Finally, interdependence theory (Kelley & Thibaut, 1978; Thibaut & Kelley, 1959) is presented -- a theory that has influenced an entire generation of social psychologists and underlies research areas from stereotyping, to interpersonal and intergroup relationships. Indeed, these theoretical developments outlined above represent our current conceptual understanding of the topic of this thesis -- social cooperation.

A continuing theme of this approach has been the emphasis on outcome (or goal) interdependence of individuals. Predominantly, this approach rests on the seminal work of Lewin (see 1952 for review). Specifically, this work builds on Lewin's (1939, 1951) conceptualization of a group, that emphasizes the interdependence of members, and has greatly influenced the field of social psychology. Building on Lewin's formula - $B = f(PE)$ - cooperative behavior (B) is understood as a function of an intrapersonal variable (P), such as social value orientation, and the situational environment (E), as specified through the outcome interdependence structure that defines the social group.

The literature to be reviewed has only emerged within this last century. However it is worth noting that it has been influenced by key figures in the social sciences at the turn of the century, such as Darwin, Marx and Freud. Interestingly each of these figures, in their own way, emphasized individuals' struggle for existence and

prosperity. The harsh reality of individual survival remains a key theme in contemporary social psychology. Further, through the course of this last century other social ideology that has been influential includes the rise of capitalistic market systems and the strategic analysis of deterrence and security to protect the rising nation states.

2.2 May and Doob's early theoretical account of cooperation and competition

The work of May and Doob (1937) provides the best theoretical summary of the early literature of this century. Their approach was strongly eclectic, drawing on a number of the social sciences. The theory states 8 postulates, inductively deriving 24 propositions and draws out 68 problems, involving cooperation and competition, to be addressed. The approach was influenced by the work of Gordon Allport, who along with Gardner Murphy, was a "personologist" reacting to what he viewed as a mechanistic-behaviouristic tradition that was growing in America.

In this same vein, May and Doob (1937) provided a multidisciplinary review of the literature culminating at that time on cooperation and competition, which includes a small amount of social psychological experimental research. While they emphasised that cooperation and competition must be understood in terms of their psychological determinants, the theory is far from a psychological account of social cooperation. Rather, it was a descriptive account of the conditions for and the forms of cooperation. Building on the Latin derivation of the terms cooperation (working together) and competition (striving together), the terms are defined as follows:

Competition or cooperation is behavior directed toward the same social end by at least two individuals. In competition, moreover, the end sought can be achieved in equal amounts by some and not by all of the individual thus behaving; whereas in cooperation it can be achieved by all or almost all of the individuals concerned. (p. 6)

In their introduction they state "the fundamental problem of personality and culture is to determine the process by which the individual, with its basic equipment of undifferentiated organic drives, becomes socialized in a culture and thereby achieves a personality" (p. 1). Thus, the emphasis is on how the individual internalizes culture in developing a personality. Similarly, the group is understood in terms of its external cultural influence on individual personality.

The theory states that the individual competes and cooperates in "order to close the gap between his level of achievement and that of his aspirations by achieving certain goals" (p. 9). If there is no discrepancy between these levels then competition

and cooperation will not ensue. The theory also makes a distinction between social and psychological levels of cooperation:

On a social level, individuals cooperate with one another when: (1) they are striving to achieve the same or complementary goals that can be shared; (2) they are required by the roles of the situation to achieve this goal in nearly equal amounts; (3) they perform better when the goal can be achieved in equal amounts; and (4) they have relatively many psychologically affiliative contacts with one another. (p. 17)

On a psychological level, an individual cooperates with others when: (1) there is a discrepancy between his level of achievement and his level of aspiration; (2) his knowledge of the goal that he seeks indicates that it can be reached by striving with others; (3) his attitudes produce within him a state in which his attitudes toward cooperating overbalances possible conflicting attitudes toward potential cooperators, toward the rules of the situation, toward competing rather than cooperating, etc.; and (4) his skill is of such a nature that under the roles of the situation he has a reasonable chance of success by cooperating. (p. 18)

The early experiments on groups reviewed by May and Doob examined different effects of group structure on the functioning of groups: group size (South, 1927; Watson, 1928); sex-composition (South, 1927); degree of participation (Belyaeff, 1930; Jenness, 1932a; 1932b; Shaw, 1932; Watson, 1928). However, the evidence is mixed and far from conclusive. Deutsch (1981) was critical of these early studies, citing lack of methodological rigor and conceptual clarity. He stated that: "They focused almost exclusively on the effects of "competition" versus "cooperation" on individual task output; individuals worked separately and had no interaction and no interdependence with one another in terms of their activities" (p. 53). In summary, he stated that the studies lacked an understanding of the social and psychological processes underlying these behaviors, as the researchers simply assumed that output is directly related to the motivation that cooperation, versus competition, induces. By and large these early studies aimed to support, or reject, the growing American work ethic of building prosperity through a competitive free market.

The theory never evolved from this point but its first proposition, and its corollary, are still explicit in the literature today:

Human beings by original nature strive for goals, but striving with others (cooperation) or against others (competition) are learned forms of behavior. (May & Doob, 1937, p. 23)

Since the tendencies to strive with others, or against others, for desired goals are not represented in original nature by specific instincts or drives, neither one nor the other can be said to be the more genetically basic, fundamental, or primordial. (May and Doob, 1937, p.25)

In reviewing this early work, as well as the work of Barnard (1938), Lewis (1944), Maller (1929) and Mead (1937), Deutsch (1949) concluded that: "Implicit in most of these conceptualizations has been the notion that the crux of the difference between co-

operation and competition lies in the difference in the nature of the goal-regions in the two social situations” (p.131). Deutsch’s own conceptualization of cooperation and competition follows these goal distinctions. However, for Deutsch it was the interdependence of group members that was an essential aspect of cooperation and competition, and it was this conceptual framework of functional interdependence that Deutsch introduced to the study of social cooperation.

2.3 Deutsch’s theory of cooperation and competition

Deutsch (1949a, 1949b) worked with Lewin’s ideas of group dynamics and interdependence in his analysis of the effects of cooperation and competition on group processes. Like the theories of other students of Lewin (e.g. Festinger, 1957; Thibaut & Kelley, 1959), Deutsch’s theory of cooperation and competition has been highly influential; however, at the same time Johnson and Johnson (1989) conclude:

Despite the hundreds of research studies that have been conducted on social interdependence, Deutsch’s theory has not been refined, enriched, or crossbred with other theories. A rival theory of similar magnitude and quality has not been formulated, and the area of inquiry has suffered as a consequence. (p. 8)

Given this, it is important to assess critically the essence of Deutsch’s work. Deutsch’s (1949) aim was to “sketch out a theory of the effect of co-operation and competition upon small (face-to-face) group functioning” (p. 129). Deutsch made a distinction between cooperative and competitive situations. Cooperative social situations were characterized by the situational ability of individuals to work towards a common goal. These are called promotively interdependent goals. Competitive social situations are characterized by contritely interdependent goals. Deutsch (1949, p. 132) noted that the nature of goal relations is complex and seldom pure; further, he noted that individuals can be interdependent with others “without that individual in any sense being aware of, or psychologically affected by, this interdependence” (p. 132). Overall, the crux of Deutsch’s work emphasizes the impact of cooperative or competitive situations on groups of individuals that are either promotively or contritely interdependent.

Deutsch’s thesis of cooperation and competition capitalized on Lewin’s concept of locomotion -- basically, a change in a person’s position in reference to the group. The logical implication of locomotion, for Deutsch (1949), was that: “Any person X who has promotively interdependent goals with persons A, B, C, etc., will come to have

promotively interdependent locomotions in the direction of his goal with persons A, B, C, etc.” (p. 133). As Deutsch points out these locomotion occur within “objective social space, not to locomotion in the individual’s life space. That is ... no inference should be drawn as to whether the individual is aware of, or even affected by, his locomotion in the objective social space.” (p. 133). Thus, the key factor that Deutsch has capitalized on is the objective situational locomotion of an individual and the implications of this behavior in situations of interdependence.

Deutsch outlines three psychological effects that are assumed as products of locomotion in promotively interdependent situations: (1) substitutability - a willingness to allow someone else’s action to be substituted for one’s own, thus encouraging specialization; (2) cathexis - the development of positive attitudes towards other individuals, such as trust and openness; (3) inducibility - the readiness to be influenced positively by another. These three principle assumptions are used to explain the psychological impact of a number of situational variables in cooperative and competitive situations. However, Deutsch (1973) later warned that these same dynamics that are necessary for cooperation also have the potential to cause the deterioration of cooperation through their reciprocal influences.

Deutsch’s early theorizing on cooperation (1949a, 1962) involved the simple ideas of interdependence and interpersonal attraction that arise from positive cathexis within the group. The basic tenet was to explain the effect of positive and negative interaction on individual’s pursuit of goal attainment. Within a given situation of interdependence, if the actions of the other person facilitate the advancement of one’s own goal, liking (or interpersonal attraction) for that person is increased; however, if the actions of another person deterred the advancement of one’s own goal, liking for that person is decreased. As such, the actions of others could be effective (positive) or bungling (negative) to achieving any one individual’s goal. Thus, two basic ideas are central to his theory: goal interdependence of individuals and individual action towards goals. Deutsch (1973) understood these two aspects to be reciprocal processes through “Deutsch’s crude law of social relations” which states that “the characteristic processes and effects elicited by a given type of relationship tend also to elicit that type of social relationship” (p.365). This approach became the basis for the predominant analysis of cooperative behavior, specifically the approach examines the relationship between interdependence structures and interpersonal relations (orientations). Deutsch argued that these processes affect many levels of social dynamics: intrapersonal, interpersonal, intragroup and intergroup relationships.

Deutsch was influenced by the work of the gestalt theorists Koffka (1935) and Lewin (1935). He built on Lewin's definition of a group which emphasised the interdependence of group members. Deutsch makes a distinction between a psychological group and a social group. The basic definition being (Deutsch, 1949, p. 150):

1. A sociological group exists (has unity) to the extent that the individuals or sub-units composing it are pursuing promotively interdependent goals.
2. A psychological group exists (has unity) to the extent that the individuals composing it perceive themselves as pursuing promotively interdependent goals.
3. A psychological group has cohesiveness as a direct function of the strength of goals perceived to be promotively interdependent and of the degree of perceived interdependence.

In each of the three definitions there is an emphasis on goal interdependence between individuals, and it is interesting to note that the conceptualization of the social group and the cooperative situation are identical. Deutsch argued that it was then logical to draw the conclusion that individuals in a cooperative situation will "possess more unity as a sociological group" than will individuals in a competitive situation. He goes on to propose, based on his hypothesized psychological impingements of group membership - substitutability, cathexis and inducibility -- that the same will be true for a psychological group; that is, that individuals who are promotively interdependent will have more unity as a psychological group than individuals who are contritely interdependent. In other words, promotive (cooperative) interdependence produces perceived, or psychological, group membership. Thus the psychological group is situationally imposed through the functional nature of the interdependence structure that facilitates or inhibits individual's goal attainment. This interdependence analysis of cooperation remains dominant in the literature. Deutsch (1949) concludes: "through creation of a co-operative and a competitive situation it becomes possible to test empirically the effect of variation in degree of unity or strength of membership motive of a psychological group upon the functioning of the group" (p. 151). In other words, cooperation is understood as social action, the means through which a group emerges. The essence of cooperation is co-action towards a common goal: "No individual, by his choice alone, can successfully initiate cooperation. Cooperation is a mutual endeavour, and for cooperative interaction to occur, the choice to cooperate must be reciprocated" (Deutsch, 1985, p. 54).

Deutsch's first study examined the effects of cooperation and competition upon group process. The aim of the study was to: (1) provide evidence for his theoretical

hypothesis; and (2) apply the experimental method to the study group dynamics. The design involved two experimental groups, cooperative and competitive, each being represented through their respective outcome interdependence structures. For example, the reward for groups in the cooperative condition was based on the performance of the group as a whole, with the best performing group being exempt from one assessment item. In contrast, performance in the competitive condition was assessed individually, with one individual within each group receiving exemption from one assessment item. Ten groups of five students took part. For comparability of results, trained observers were used to pair the groups on the basis of their performance as a group on solving a human relations problem. The rationale of group matching, rather than individual matching, was that “if we accept the notion that a group is not merely the sum of its parts, it is evident that matching individuals (parts) is not a sufficient basis for matching groups -- groups have to be matched as functional entities” (p.201). The experiment ran for five weeks. Each week groups representing both experimental conditions were given a puzzle problem and human resource problem to solve, as well as a series of questionnaires. As expected, perceived promotive interdependence was greater in the cooperative groups than the competitive group. The hypotheses of substitutability, cathexis and inducibility, in the cooperative situation, were also supported. It was observed that cooperative groups were more helpful to each other, while competitive groups were more obstructive to other individuals’ goal attainment. The theory of the effects of cooperation and competition put forward by Deutsch received general support in the early literature (see Back, 1951; Berkowitz, 1957; Gerard, 1953; Gottheil, 1955; Grossack, 1954; Mintz, 1951; Mizuhara & Tamai, 1952; Raven & Eacbus, 1963; Thomas, 1957).

Deutsch (1958) then became interested in motivational orientations of individuals and he explained these orientations through his conceptualization of trust. He made the “customary assumptions about individual motivation” (Deutsch, 1960, p. 123). Specifically, he assumed that when each individual is individually oriented, each “is out to obtain the best outcome for himself” (p. 123). For Deutsch, it was then difficult to understand why, and how, cooperation arises in certain instances. He used the example of a group of five men taking turns building each other’s houses. Who could be trusted to help build the last house? He argued that the initiation of cooperation required “mutual trust” and the inducement of trust was understood both as a “situational” as well as a “personality” characteristic.

Deutsch studied the effects of three motivational orientations on trusting (and suspicious) behaviour: (1) cooperative - wherein mutual welfare and concern for each other was induced; (2) individualistic - wherein mutual concern for only the individual person was induced; (3) competitive - wherein mutual concern for defeating the other was induced. Two hypotheses are developed: the simultaneity and commitment hypotheses. The former hypothesis suggests that “mutual exchange can develop that is profitable to both parties, even when there is no socialized basis for trust and the participants are solely interested in their own welfare” (p. 127). But this requires “psychological simultaneity - the mutual awareness of what the other is doing as one decides what to do” (p. 127). The latter hypothesis suggests that socialization processes induce individuals to make social commitments, whereby there is the ability to undertake the committed behavior and the individual will “experience a greater gain (or lesser loss) by doing it than by not doing it” (p. 128). It was thus expected that communication would give participants an opportunity to make commitments, and cooperation would increase particularly for individualistic oriented individuals. To test these hypotheses a 3 x 2 x 2 design was developed: 3 (cooperative, competitive, and individualistic orientation) x 2 (simultaneous/nonsimultaneous choice) x 2 (communication/no communication). A two-person matrix game was used (to be explained further in the following section on game theory), wherein each individual can make either a cooperative or competitive choice. The general findings were that cooperative orientations led individuals to trust the other and induced more cooperative behavior, while competitive orientations had the inverse effect. Individualistic orientation was variable across experimental conditions, with communication and simultaneous choices increasing cooperation. Thus there was support for the hypothesis. This early study was important in setting a precedent for future research of social cooperation. Specifically, this study set the experimental parameters as an interaction between intrapersonal differences (through individuals’ social value orientations) and interdependence structure. As will be seen this approach, while now more refined, is still dominant today.

Deutsch, and others, have continued to emphasize the interplay between intrapersonal psychological processes and wider social system of interdependence. The psychological aspects included the perceptions, beliefs and values of the conflicting parties (which may or may not correspond) and the social system is defined in terms of different types of interdependence. Deutsch specified this functional relationship through his Crude Law. Further, Deutsch recognized that there may be a discrepancy

between objective reality and subjective (or perceived) reality, and thus suggested a typology of conflict (Deutsch, 1973, Chapter 1) to map the objective possibilities of interdependence, from which the perceived realities would emerge.

Building on this analysis, Wish, Deutsch and Kaplan (1976) specified five fundamental dimensions of interpersonal relationships and devised a taxonomy of sixteen types of social relations of interdependence. Specifically, a set of 4 bi-polar situational dimensions, each of which could vary in intensity (the fifth dimension). The first dimension is based on Deutsch's (1949) original conceptualization of cooperative (promotive) and competitive (contrient) interdependence. Interestingly, other researchers have made similar distinctions: correspondence - noncorrespondence of outcomes (Kelley & Thibaut, 1978); association - disassociation (Triandis; 1972); negative - positive interdependence (Johnson & Johnson, 1991). Second, a power distribution dimension (equal versus unequal) is emphasized, which is similar to what Kelley (1979) conceptualizes as a continuum of mutuality of interdependence, and Triandis (1972) as superordination - subordination. Third, is a task-oriented versus social-emotional dimension, as per Deutsch's (1949) initial differentiation between task functions and group maintenance functions. Kelley (1979) understands this as a personal dimension, while Triandis (1972) and Marwell and Hage (1970) conceptualize this as an intimacy dimension. The fourth dimension is characterized as a formal versus informal dimension, just as in Marwell and Hage (1970) and Wish and Kaplan (1977). Lastly, the intensity or importance dimension relates to and extends each of the previous dimensions. Kelley (1979) characterizes this as reflecting the degree of interdependence in the relationship. Taken together, many different types of relationships can be placed in this taxonomy. For example, a caring mother-child relationship involved in a nursing activity is characterized in terms of the taxonomy as cooperative, unequal, social-emotional and informal. In contrast, a police officer helping a child would be characterized as cooperative, unequal, social-emotional but formal. While Deutsch regretted the simplicity of the dichotomies that make up the taxonomy, he believed that it was a good starting point to begin to determine the relationship between situation and the individual. Thus, together with typologies of individual differences, taxonomies of interdependence structures now underpin the interdependence approach to the understanding of social cooperation.

Individual differences are acknowledged through what Deutsch conceptualizes as psychological orientations. He does not believe that these orientations are personality traits or character orientations; moreover, his emphasis is on the

situationally induced nature of temporal predispositions. He assumed that a “causal arrow concerning psychological orientation and types of interdependence is bi-directional: a psychological orientation can induce or be induced by a given type of interdependence” (1985, p. 74). The relationship can also be seen as follows, in that: “people orient themselves differently to different types of social relations and that the different orientations reflect and are reflected in different cognitive processes, motivational tendencies, and moral dispositions” (1985, p. 79). Following Neisser’s (1976) conception of the perceptual cycle, Deutsch (1982) drew out a model of the cyclical relations between psychological orientations and social relations. Orientation involved cognitive, motivational and moral aspects. The cognitive aspect involves the development of basic cognitive schemata of cooperation and competition, through individual life experiences within different social relations. The motivational aspect is more dynamic: it “gives rise to the cathexis of certain regions of the cognitive landscapes, making them positively or negatively valiant, and highlights the pathways to and from valiant regions. It gives the cognitive map a dynamic character” (1982, p. 26). Thus, through cathexis individuals move towards, or away from, cooperation. The moral orientation implies that social relationships have both a person and social perspective. In terms of cooperation and competition - a moral orientation fosters either mutual respect or equality (cooperation) or sanctions in-equality (competition), legitimating a win-lose struggle.

Through Deutsch’s crude law of social relations the two aspects of cooperative and competitive behavior merge, that is the nature of the interdependence relationship and the psychological orientation of the individual. Through this law Deutsch emphasizes the dynamic nature of the person and the environment in a Lewinian style -- behaviour is explained as a function of the person and the environment ($B = f(PE)$).

Deutsch (1980) summarized his research work as follows:

A good deal of our early research on the conditions affecting the course of conflict was done on an ad hoc basis. We selected independent variables to manipulate on the basis of our intuitive sense of what would give rise to a cooperative or competitive process. (p. 69)

These variables included: motivational orientation; communication; perceived similarity of opinions and beliefs; size of conflict; threats; power differences; third-party interventions; etc. Over time this research vein came to be described as one of conflict resolution. And, Deutsch’s crude law of social relations seemed to be the assumption that each of these future studies rested on (see Deutsch, 1980). This law

became his baseline of his understanding of group dynamics. Deutsch reasoned that while his early theory is one that examine the effects of cooperative and competitive processes, through emphasizing the reciprocal hypothesis underlying the crude law of social relations, this relational emphasis could provide insights into the condition that give rise to cooperative and competitive processes.

It was Judd (1978) who looked more critically at the relationship between types of interdependence and psychological orientation. He came to the conclusion that the perceptions of similarity/dissimilarity of positions induced by one's orientation (competitive or cooperative) to a conflict will be mediated by conceptual changes in the way we look at the issue under dispute. Deutsch (1985) believes that this conclusion can be deduced from his crude law of social relations. He concludes: "Thus, cooperation induces and is induced by a perceived similarity in beliefs and attitudes, a readiness to be helpful, openness in communication, trusting and friendly attitudes, sensitivity to common interests and de-emphasis of opposed interests, and orientation toward enhancing mutual power rather than power differences, and so on." (p. 69 -70).

The key question is: psychologically, why is this so? While Deutsch began with an emphasis on the psychological and social forces underlying cooperative and competitive behavior, he became more and more focused on initiating situated conditions of cooperation, especially through his work on conflict resolution and systems of distributive justice. His concepts of cathexis, inducibility and substitutability were never further developed beyond the initial 1949 paper. Rather the focus turned to the dynamic relationship between the intrapersonal orientations and situations of interdependence.

In summary Deutsch's work picked up on Lewin's emphasis on interdependence of group members in his definition of a group. In his work, Deutsch developed a structural analysis of interdependence through which different interdependent situations could be described, the basic foundation being promotive (positive) and contrient (negative) interdependence. These situations were said to induce specific intrapersonal orientations for individuals, which describes an individuals psychological orientation in that instance. Thus, by and large, the real value of Deutsch's analysis is a descriptive account of individual's pursuit of goals and outcomes, which defines a number of taxonomies of interdependence and typologies of individuals. Interdependence of individuals remained the key foundation of his work. Deutsch's work, like others, was further influenced by game theory, the strategic analysis of outcome interdependence, which will be reviewed in the next section.

2.4 Game theory and interdependence

While at the New York University, Deutsch was influenced by Raiffa and Luce (1957), who were working on game theory. Initially, through Deutsch's work on trust, he was intrigued by the prisoner dilemma game. The influence of game theory on what came to be known as the social dilemma paradigm will be discussed in this section, as it has had a significant impact on this field of research. As Deutsch states:

Game theory has made a major contribution to social scientists by formulating in mathematical terms a problem which is central to the various social sciences: the problem of conflict of interests. ... its core emphasis [being] that the parties in conflict have interdependent interest, that their fates are woven together. (1980, p. 61)

For interdependence theorists game theory represented a formal and systematic approach to the study of conflict of interests, wherein individuals are instrumentally outcome interdependent, and this structure can be systematically specified and manipulated.

Game theory was developed to address the problem of conflicts of interest, particularly in the areas of economics, sociology and political science (see Luce & Raiffa, 1957, p. 1). However, given its breadth of appeal and psychologists' long interest in conflicts of interest (see Sumner, 1906), it was subsequently adopted by psychologists. Today game theory underlies the contemporary understanding of social cooperation, as highlighted in that first quote presented in Chapter 1 (Boyd and Richardson, 1991, p. 111), wherein cooperation is explicitly defined in terms of game theory, specifically as cost benefit analysis for individuals.

Game theory intrigued Deutsch and others both methodologically and theoretically. Methodologically, the matrices the theory specified became a very useful tool for studying the interdependence properties of dyadic relationships. Theoretically, it buttressed Deutsch's view that cooperative and competitive relations often co-existed -- seldom would one find an instance of pure competition or cooperation. With the similar theoretical focus on outcome interdependence, the gaming matrices became an influential experimental device as they facilitated a precise definition of the reward structure that accrued to the individuals and thus the nature of the interdependence. Deutsch (1969) was quick to argue that not only could gaming research contribute to our understanding of dyadic relationships but also intergroup relations at the international level.

Game theory is based on the observation that individuals are often in situations of interdependence, wherein their outcome preferences are controlled not only by each

individual, but also by interdependent others. Thus, conflicts of interest are inevitable, as individuals seldom have consistent unilateral control over their own outcomes and must compete with others to sustain and develop their interests. It was the authors' aim to devise a theory to account for this long standing social problem.

Their work was guided by a mathematical approach introduced by von Neumann (1928) which led to the classic book: Theory of Games and Economic Behavior (von Neuman & Morgenstern, 1944). The grounding premise of this theoretical approach is the minmax theorem, wherein von Neuman demonstrates mathematically that within any one situation there is always a rational course of action for games of two players, assuming that each individual is motivated to maximize their own outcomes. Given this, the principle then is that each rational player will act to maximize the minimum (hence the minmax principle) payoff she or he would accrue, assuming the other player would be acting rationally and be doing the same. In other words, each player expects the worst from the other and, as such, is then motivated to maximize what they are left with. The solution to these games has been called the saddlepoint (Rapoport, 1966) -- the point where risk to the individual is minimized.

Like other theories of social exchange, game theory is based on the underlying assumption that individuals are motivated to maximize their expected utility. As such not only is the outcome, per se, taken into account but the expected utility of that outcome as well. In other words, each outcome is assigned a probability. Taken together, game theory is based on a number of specific assumptions, derived from the mathematical theorem that underlies it; specifically, the assumptions are: (1) that each individual is striving to maximize their respective utility, (2) in a known (specified) situation, (3) where each individual's preference is constant, and (4) the precise value of each player's preference is known by all players. There are of course many instances where the precise value of each player's outcomes are not known by all players. Thus, as the authors correctly point out, this analysis accounts for only "one formulation of a class of conflicts of interest" (Luce & Raiffa, 1957, p. 5); more precisely, the theorem on which the theory is based only applies to zero-sum games, that is situations of pure competition where players' interests are completely opposed. This coincides with Borel's papers of the 1920's, which pre-dated von Neuman's work. Borel, a mathematician, understood the minmax theorem only as a special case; in general, he believed it to be false. Despite this, as von Neuman intended, the theorem became the cornerstone of a theory of human conflict, its aim to explain any type of conflict of interest, and it was first applied to the

field of economics -- situations of zero-sum. In the context of the strategic ideology of the atomic age, the theoretical premises of game theory took root in a deluge of research and practice (see Poundstone, 1993). It was hailed as “one of the major scientific achievements of the first half of the twentieth century” (see Poundstone, 1993, p. 33) and lay the foundation for thousands of future studies using the gaming matrices. At the same time, the work of Nash can not be forgotten, for it was the establishment of Nash equilibrium that opened up the theory from its restriction to zero-sum games (see Poundstone, 1993). In a series of remarkable papers, Nash was able to mathematically establish the conditions under which equilibrium arises in the game, that is when each player’s strategy choice is a best reply to the strategy choice of the other players. In other words, any pair of strategies with the property that each player maximizes his or her payoff given what the other player does is called a Nash equilibrium. Thus, all solutions are necessarily Nash equilibriums.

These mathematical premises now underlies a large body of work in the social sciences. Interestingly, Luce and Raiffa (1957, p.3) thought it was worth emphasizing that the theory is a product of mathematics and not the empirical sciences, noting that:

Game theory does not, and probably no mathematical theory could, encompass all the diverse problems which are included in our brief characterization of conflict of interest. (p. 3)

The matrices, despite this, are now well established in the literature, defining the situational properties of interdependence and subsequently the development of transformational analysis (as will be seen in the following section). The individual payoff structure is the primary unit of analysis, with collusion and conciliation between individuals being the two principle modes of resolving conflicts of interest (see Luce and Raiffa, Chapter 1). Many different structural matrices were developed to define a taxonomy of situations that ran from situations of pure cooperation to pure competition, accounting for a large class of what are now called mixed-motive games.

Schelling (1960), an economist, first introduced the term “mixed-motive game” to define a situation in which there is a clear motive to compete (defect) and a clear motive to cooperate, hence the phrase “mixed-motive.” The essence of the choice is to either act in term of individual self-interest (defect) or in terms of collective interest (cooperate). The dilemma is based on the fact that individual rationality leads to collective irrational behavior, and vice versa. If each could trust the other to cooperate, both would be better off; however, it is taken as a given that individuals will maximize their utility gains and, as a general principle, can not be trusted. Thus, the social dilemma

is conceptualized. It was this situational dilemma, specifically the prisoner's dilemma, through which Deutsch (1960) initially studied trust and motivation. Discussion of the specific properties of some of the prominent situational gaming matrices will now follow. Besides these matrix games, other games were developed in this tradition: Vinacke and Arkoff (1957) developed a three-person coalition game; Siegel and Fouraker's (1960) "buyer-seller" negotiation game; Deutsch and Krauss's (1960) "Acme-Bolt trucking game" has become well known; as well as, Deutsch's (1973) "allocation" game. Together they define an entire genre of research into the strategic analysis of social relations.

2.4.A Situational matrices of game theory

Each matrix game represents a situation in which two players make one of two choices; hence a two-by-two matrix (see Figure 2.1). The two horizontal rows represent the two strategies available to one of the players, while the two vertical columns represent the two strategies that are available to the other player. Thus, two players, making two choices, results in a matrix of four cells in which the outcomes to each player are represented. By convention, the row player's payoff is given first in each of the four cells.

Rapoport and Guyer (1966; see also Rapoport, 1974; Rapoport, Guyer & David, 1976; for a full classification of these games) catalogued all the simple games, in terms of their respective ordinal rankings of the four outcome cells, determining 78 distinct 2 x 2 games, believing, as others continue to, that the 2 x 2 dyad is the most important and common form of individuals' interaction with others. James (1953) argued that 73% of naturally formed groups are dyads (see also Rusbult and Van Lange, 1996). There have been a number of conceptually dominant objective interdependence structures used to elicit a particular social decision-making environment. Rapoport has distinguished four archetypal games: prisoner's dilemma, chicken, leader and hero games.

Below are the ordinal outcome matrices for the first three of the four games that Rapoport highlighted. These three games are also the most established games in the literature. The trust game - a so called "trivial" but nonetheless well established game (see McClintock & Liebrand, 1988) is also outlined. It should be noted that one defining feature of these classic games is that each of them is symmetrical in structure, in other words the outcome contingencies for both players are the same. There are of course

many situations in which outcomes would not be symmetrical for each player. In the ordinal rankings below, “1” denotes the least preferred outcome and “4” the most preferred outcome. Beside each ordinal matrix, a typical example of an outcome matrix, which specifies the absolute outcome values, is also given.

Below (Figure 2.1) is the structure for the Chicken game. In this case, for Player one (the row player) the preferential ranking order is: $DC > CC > CD > DD$. Liebrand (1983) uses the following analogy: two teenagers are in a fast car, moving along but with no hands on the steering wheel. The chicken is the person who first takes the steering wheel. Both prefer not to be the chicken (2, 4 and 4, 2); however, if they both chose not to grab the wheel, both are worse off (1, 1) than if both simultaneously took the wheel (3, 3). Thus, either player must unilaterally shift towards loss to win. This dilemma has also been used to characterize the nuclear stalemate of the cold war; as, temporally, the dilemma increases over time and is often only solved at the last possible moment.

<u>A: Chicken game</u>		<u>Player two</u> Column player			
		<u>Choice C</u>	<u>Choice D</u>		
<u>Player one</u> Row player	<u>Choice C</u>	3, 3	2, 4	40, 40	20, 50
	<u>Choice D</u>	4, 2	1, 1	50, 20	0, 0

Figure 2.1. Ordinal payoff structure and example for a chicken game

In a Leadership game (Figure 2.2) the preferences are ranked for Player one such that: $DC > CD > CC > DD$. The game can be characterized simply as follows: two canoeists are paddling down stream in heavy water enjoying the negotiation of the rapids (2, 2), when a jagged submerged rock appears just below the surface. One paddler quickly negotiates the obstruction and they continue down stream, excited by their success (4, 3; 3, 4); however, if they both suddenly corrected for the rock, they would have swung too wide and capsized (1, 1). This dilemma has been used to characterize the importance of leader-follower relationships.

<u>B: Leader game</u>		<u>Player two</u> Column player			
		<u>Choice C</u>	<u>Choice D</u>		
<u>Player one</u> Row player	<u>Choice C</u>	2, 2	3, 4	20, 20	40, 50
	<u>Choice D</u>	4, 3	1, 1	50, 40	0, 0

Figure 2.2. Ordinal payoff structure and example for a leader game

This classic game, the trust game (Figure 2.3), has the following preference ranking: $CC > DC > DD > CD$. Liebrand (1983) again provides an anecdote: Two long distance runners are competing to win a prestigious marathon. While both would prefer an honest race (4, 4), one would take a stimulatory drug if the other did (3, 1; 1, 3), so not to decrease their chances of winning. However, if they both take it, both are worse off (2, 2) than if they chose not to take it. Thus, as the name of the dilemma denotes, a conceptual understanding of trust is developed.

<u>C: Trust game</u>		<u>Player two</u> Column player			
		<u>Choice C</u>	<u>Choice D</u>		
<u>Player one</u> Row player	<u>Choice C</u>	4, 4	1, 3	50, 50	0, 40
	<u>Choice D</u>	3, 1	2, 2	40, 0	20, 20

Figure 2.3. Ordinal payoff structure and example for a trust game

Finally, in a prisoner's dilemma game (Figure 2.4) the payoffs are symmetrical and for Player one the preferential ranking order is: $DC > CC > DD > CD$. The anecdote typically used to describe this situation is the classic case of the district attorney, who has two well known felons in custody for a minor crime and is tempting them to confess to a major crime. If neither confesses both will get a lighter sentence (2, 2 above). If one confesses, and the other doesn't, the one that confesses will get off for turning state's evidence while the other will get a heavy sentence (1, 4; 4, 1). However if

they both confess the payoff is worse (3, 3) than if they both kept quiet (2, 2). It was Albert Tucker of the RAND corporation who dubbed this the prisoner's dilemma game, using this anecdote to explain the situation. This is also explained in terms of the classic example of a replenishable resource dilemma (see Chapter 3).

<u>D: Prisoner's dilemma game</u>		<u>Player two</u> Column player			
		<u>Choice C</u>	<u>Choice D</u>	<u>Example</u>	
<u>Player one</u> Row player	<u>Choice C</u>	3, 3	1, 4	40, 40	20, 50
	<u>Choice D</u>	4, 1	2, 2	50, 20	20, 20

Figure 2.4. Ordinal payoff structure and example for a prisoner's dilemma game

The first three games - chicken, leader and trust - are characterized by the fact that a player achieves a greater individual payoff by unilaterally shifting to another strategy when both have been playing the joint minmax strategy; however, if both shift simultaneously both suffer considerable loss in outcomes. The opposite is the case in the prisoner's dilemma game: a single unilateral shift decreases one's own outcome (and increases that of the other player), while a simultaneous shift increases the gains for both. The prisoner's dilemma game defines the most intense situation of the mixed motive games and has received the most attention in the literature (see Komorita & Barth, 1985; Orbell & Dawes, 1981).

Game theory is a theory of social exchange, the basic assumption being that "all social interaction involves a bargaining relationship in which people exchange rewards and cost (punishment)" (Komorita and Parks, 1994, p. 3). The most well developed and influential theory of social exchange in social psychology has been interdependence theory (Kelley 1991; Kelley & Thibaut, 1978; Thibaut & Kelley, 1959). As Horwitz and Rabbie (1982) state: "Kelley and Thibaut have undertaken the most systematic effort to date to develop a theory of social interdependence" (p. 262). This is still true in 1997. For these interdependence theorists, just as in game theory, social interaction is conceptualized and operationalized as a matrix of outcomes and is based on the assumption that individuals are motivated to maximize their own outcomes or utility,

which may also include the outcomes of others. However, given that individuals are socially, and thus functionally, interdependent the amount of control an individual has over their own outcome varies.

2.5 Kelley and Thibaut's interdependence theory

Kelley and Thibaut's interdependence theory is based on the structure and properties of a 2 x 2 ANOVA model, which is said to define the nature of interpersonal dyadic relationships. Further, the dyad is believed to be the predominant form of individuals' social interactions and relationships (see James, 1953), acting as a cornerstone through which other forms of social relationships are understood. Thus, while the theory is formally based on this simple 2 x 2 model, its principles are applied to interactions within larger groups of interdependent individuals, as well as to intergroup behaviour. By and large, this is based on the work of Hamburger (1979), who has shown through formal mathematics that the logic of dyadic relationships can be applied to groups, specifically aggregates of individuals. In summary, the theory defines an interaction between individuals, in which they pursue control over the maximization of their own outcomes (or payoffs) within the structure and function of interdependence.

Thibaut and Kelley (1959; Kelley & Thibaut, 1978) have put much of their work into defining a theory of interdependence processes: first in their book The psychology of groups (1959); and then in the revised conceptualization Interpersonal relations: A theory of interdependence (1978). Working from a Lewinian tradition, they endeavoured to distil the essence of interdependence from Lewin's work. Today, many would argue for their success in this endeavour, as this theoretical position now defines the dominant position in the representation of the situation in social psychology, influencing research on topics from stereotyping to social cooperation. Indeed their analysis has now influenced an entire tradition in psychology.

Thibaut and Kelley's (1959) first book outlines a theory of the nature of interpersonal situations, presenting a structure for understanding patterns of interdependence in the form of 2 x 2 matrices. The book develops a theoretical taxonomy of situations of interdependence, classifying the nature of interdependence in terms of four underlying properties -- degree of dependence, mutuality of dependence, correspondence of outcomes, and basis for dependence (to be reviewed in the next

section). The subsequent revision of the theory (Kelley & Thibaut, 1978) outlines how this objective structure of interdependence, as defined by the given outcome matrix, is transformed into an effective, or subjective, matrix through transformational processes of individual motivational dispositions. Transformational processes are understood as intrapersonal aspects of the individual that transform the nature of the perceived interdependence structure. Kelley (1984) describes the development of these two domains of analysis as shift to include the domain of the individual within the domain of the situation. Thus, to account for the subjective understanding of the given interdependence structure they “explicitly moved the boundary of [the] analysis back into the realm of individual psychology” (Kelley, 1984, p. 5). This is similar to Deutsch’s development of social value orientations. As Kelley (1984, p. 6; see Figure 2.5 below) outlines the early theory focused on the outcome matrix to examine interdependence structure of interpersonal interaction (which occurred through some unspecified individual antecedents); while the later theory included transformation processes that arose from an interpersonal motivational disposition. These transformational processes turn a given matrix into a subjective (or effective) matrix and again the interaction pattern is the unit of analysis.

<u>Year</u>	<u>Individual</u>		<u>Interpersonal</u>	
1959	(Antecedents)	-----	Outcome Matrix	--- Interaction
1978	Given Matrix	--- Transformation (Interpersonal Disposition)	Effective Matrix	--- Interaction

Figure 2.5. Description of the developments of the domains of interdependence theory, to include the domain of the person and the domain of the situation.

Thus, like Deutsch’s theory, Kelley and Thibaut’s interdependence theory emphasizes two underlying aspects of social behaviour: outcome interdependence and interpersonal dispositions. Kelley and Thibaut’s analysis of the structural properties of interdependence, which interestingly also includes the matrices of game theory, will now be reviewed. A review of transformational process of individuals will then follow.

2.5.A Structural properties of interdependence

Thibaut and Kelley (1959) state:

The theory that we propose seems on balance to be primarily a functionalistic one. The central concern is with the solutions that must be found to problems created by interdependency ... [assuming] that if we can achieve a clear understanding of the dyad we can subsequently extend our understanding to encompass the problems of larger and more complex social relationships (p. 5-6).

The structural properties of the matrix that they develop provide a technical instrument for the strategic analysis of outcome interdependence. They argued that the 2 x 2 matrix simplified the awkwardness of Lewin's conceptualization of interdependence by decomposing the sources of influence over an individual's outcome into systematic structural components. Fundamentally, interdependence theory is a theory of power and control over quality of outcomes to an individual, with the central assumption being that individuals are motivated to maximize rewards and minimize costs. Thus, as with game theory, it is a theory of utility maximization by individuals.

Game theory's influence is apparent; however, it should be noted that there were some differences in the early conceptions of game theory and interdependence theory. Generally, Thibaut and Kelley (1959, p. 24 - 30) argued that their matrices were more dynamic and less static than the game theorists'. Specifically, Thibaut and Kelley (1959) were inspired by the fact that their given matrices could be systematically constructed to reflect relevant social influences in instances of social exchange, while game theoretical matrices were theoretically determined. In fact the theory's initial development was influenced more by the structural properties of the analysis of variance model than game theoretical models. The constructive process of the matrices will be discussed below.

However, before going on, it is important to outline interdependence theory's conceptual understanding of how group goals relate to individual goals and outcomes, which will thus provide a basis for their understanding of cooperative behaviour (see Thibaut and Kelley, 1959, Chapter 14). Basically the ontology of perceived group membership develops as follows: (1) individual acceptance of a group goal; (2) perceptions of positive interdependence (or common dependence/predicament) to increase individual outcomes; (3) motivation to cooperate; (4) perception of group membership through common locomotion towards the group goal. The parallels with Deutsch's theoretical understanding of cooperation (see Chapter 2) are evident in this conceptual analysis. The crux of this line of argument is: As individuals' fates in society

are interwoven, individuals pursuing common goals will perceive positive interdependence with others, and thus cooperate. It is because individuals cooperate in pursuit of common goals that group membership is perceived. The individual is primary, the group secondary, to this conceptual analysis of interdependence and cooperation. Specific defining elements of interdependence will now be reviewed, beginning with the structural components of interdependence and followed by the elements that define the classification of patterns of interdependence.

2.5.A.1 Components of interdependence: Power over outcomes

Interdependence theory, as stated above, is a theory of power and control over the outcomes that accrue to individuals. Thibaut and Kelley (1959) conceptualized the power dynamic of individuals as follows: “Generally, we can say that the power of A over B increases with A’s ability to affect the quality of outcomes attained by B” (p.101). In developing this theoretical line: “The approach ... takes as its independent variables that possibilities for reciprocal control possessed by the members of a collectivity. [Such that] only that control mediated by the ability to affect another person’s outcomes is considered” (p. 4, emphasis mine). Three components of control (power over outcomes) are conceptualized, paralleling the main and interaction effects of a 2 x 2 analysis of variance: (1) reflexive control -- RC; (2) fate control -- FC; and (3) behavior control -- BC. The figure and discussion below aims to illustrate the relationship between these constructs.

		<u>Player two</u> Column player		
		<u>Choice C</u>	<u>Choice D</u>	<i>Row Means</i>
<u>Player one</u> Row player	<u>Choice C</u>	20, *	8, *	14.0
	<u>Choice D</u>	15, *	-2, *	6.5
<i>Column Means</i>		17.5	3.0	

Figure 2.6. A 2 x 2 outcome matrix: two players making one of two choices. The outcomes of player one are displayed, as are the row and column means.

The 2 x 2 matrix presents the following (see Figure 2.6): two players (one and two) making two choices ("C" or "D"), resulting in four cells in which the outcomes to each player are represented. By convention, the row player's payoff is given first in each cell. Note the parallels with the game theoretical model. This example is taken from Rapoport and Guyer (1970) and is called a threat game. For the sake of simplicity only the row player's outcomes are illustrated; the same pattern would follow for the column player.

Using the outcomes specified in Figure 2.6, each of the three types of control can be defined by a matrix derivative (as seen in Figure 2.7, below). Reflexive control reflects the degree of control an individual has over their own outcome (i.e., the main effect of the row players action - choice "C" or "D" - on their own outcome); player 1's $RC = 7.5$ (difference of the row means: $14.0 - 6.5$). Fate control reflects the degree of control the partner has over the outcome of the other (i.e. the main effect of the column player's actions on the outcome of the row player); player 1's $FC = 14.5$ (difference in the column means: $17.5 - 3.0$). Behavior control reflects the joint influence of both players acting together (i.e. the interaction effect of both players on the row player's actions); player 1's $BC = -2.5$ (essentially the variance not accounted for in each cell: $20 - 7.5 - 14.5$, for the top left cell). These numbers, parameters of control, are of course not absolutes but are relative to each other and to the other player's levels of control. For example, if Player 2's levels of controls were: $RC = -6.5$, $FC = 15.5$ and $BC = 1.5$ (compared respectively to 7.5, 14.5, -2.5 for Player 1), both players would have more control over each other's outcomes than they do over their own. At the same time, Player 1 does have more control over their outcome than player two; while, Player 2 has more behavior control.

<u>Reflexive control</u>		<u>Fate control</u>		<u>Behavior control</u>	
7.5, *	7.5, *	14.5, *	0, *	-2.0, *	0.5, *
0, *	0, *	14.5, *	0, *	0.5, *	-2.0, *

Figure 2.7. Analysis of variance for the components of reflexive, fate and behavior control for player one's outcomes.

This analysis is the basis for outlining a number of power strategies to gain control over an individual's outcome. Thus, through the use of these three components, interdependence theory is able to provide a unique analysis for each pattern of

interdependence. The resultant pattern of each matrix describes the correspondence (Do each person's outcomes correlate positively?) and concordance (How well do the three components of control mesh together to achieve favourable outcomes?) of outcomes in terms of their relative magnitudes. For a situation to be characterized as one of interdependence, both players must have some sort of control over the other's outcomes, such that there is mutual dependence -- *interdependence* -- rather than unilateral dependence -- dependence. Interdependence exists *only* when there is a mutual basis of fate and/or behavioral control, and that the control evaluations are differential for the two players.

2.5.A.2 Classification of patterns of interdependence

Four properties are used to classify patterns of interdependence within the domain of simple 2 x 2 relationships: (1) mutuality of dependence; (2) degree of dependence; (3) basis of dependence and; (4) correspondence of outcomes. Thus, while the components of interdependence determine the pattern of interdependence - in essence construct the composition of the matrix - the properties are used to classify and understand the nature of the relationship of interdependence. The properties, and how they relate to the components of interdependence, are presented in the revised version of interdependence theory (Kelley & Thibaut, 1978) and provide a comprehensive typology of the domain of interdependent relationships. The property of correspondence of outcomes relates directly to whether there is commonality or conflict of interest to individuals in situations of interdependence, and this property relates directly back to combinations of the three components of control (see Chapter 4 and 5, Kelley & Thibaut, 1978). Kelley and Thibaut (1978) argue that mapping the domain of matrix games in terms of these four properties is a practical strategy for tapping into patterns of a potentially infinite array of interdependent relationships, particularly as the matrices vary continuously rather than discretely. In their words:

[The] approach is to consider the domain of all possible patterns as a large terrain to be explored while the salient features and landmarks along the particular trails followed are noted. Because we can select these trails in a systematic manner and because the terrain has regular features, we can more or less fill in the unexplored portions of the map by extrapolation from our limited observations. (p. 78)

To this end, a taxonomy of situations of interdependence is derived in terms of four properties: Mutuality of dependence - are actors mutually or unilaterally dependent?;

Degree of dependence - to what degree are each of the actors dependent on one another?; Bases of dependence: is the dependence based on fate and/or behavior control?; Correspondence of outcomes: the degree to which the outcomes of the two actors correspond. Rusbult and Van Lange (1996) provide a recent review of the empirical support for these properties, largely in terms of interpersonal relationships; however, a review of the literature related to correspondence of outcomes will now be included, as this property relates specifically to Deutsch's (1949a, 1949b) work on cooperation and competition.

The degree of correspondence is defined by a continuum of correspondence, ranging from perfectly correspondent outcomes -- situations of pure coordination -- to perfectly noncorrespondent (conflicting) outcomes -- situations of pure conflict, as in zero sum games. This distinction is congruent with Deutsch's (1949a) conceptualization of promotive (cooperative) versus contrient (competitive) interdependence. As it has been recognized that situations of pure cooperation and competition are rare (Deutsch, 1949; Rapoport et al., 1976), the vast majority of research using outcome matrices has incorporated mixed motives games; that is, situations in which the interests of players partially coincide, such as in the classic prisoner's dilemma. Deutsch (1982) posits that this mixed-motive dimension of social structure is "so fundamental to social life that one would assume a well-developed innate predisposition to develop abstract cognitive orientations to help an individual define quickly whether 'what's going on here?' is 'good' for him or 'bad' for him" (p. 27). This observation relates to the development of interpersonal orientations that will be discussed shortly. For Kelley and Thibaut, it is the perceived correspondence of outcomes within the situation that defines the positive or negative structure of interdependence, which will thus determine if the relationship will be one of congeniality or conflict, that is one of working with or against another individual. For example, non-correspondence has been shown to elicit distrust and hostile attitudes towards the other (e.g., Gottman & Krokoff, 1989; Surra & Longstreth, 1990) and Kelley and Grzelak (1972) have shown that correspondence of outcomes and cooperation are positively correlated.

Interdependence theory can be summarized up to the 1978 book in the following way. The objective structure of the situation is conceptualized as a matrix, constructed from three components of control that each actor has over their respective outcomes: reflexive, fate, and behavioral control. Through the matrix, the correspondence and concordance of outcomes to each individuals is defined, thus providing a basis for

understanding the nature of interdependent relationships. The theory classifies patterns of interdependence in terms of four properties: (1) mutuality, (2) degree and (3) basis of dependence, and (4) correspondence of outcomes. On this basis interdependence theory systematically defines a taxonomy of dyadic interdependent relationships.

Kelley (1984b, p. 10) set out three further goals for interdependence theory. The first was to develop a taxonomy of interaction scenarios, generated through mapping the taxonomy of situations onto the taxonomy of interpersonal dispositions (transformational analysis, reviewed below). By an interaction scenario Kelley means: “a particular sequence of interaction between two persons” (p. 10). The aim is to build an “atlas of scenarios.”

The second goal is to develop transition lists, such that “there is a blending of game theoretic description with Lewinian topological description. [The result being that] two persons’ interdependence in their locomotion through the topological structure is clearly specified by the list method, something that Lewin’s life space analysis had not accomplished” (Kelley, 1984b, p.11). Kelley’s (1984a) work on transition lists essentially replaces the outcome matrix with a set of lists that read like a set of if-then commands.

The list method substitutes for the outcome matrix a set of lists, each of which specifies each person’s options ... and the consequence for each person of each combination of their respective selection among their options. (p. 960)

The lists specify how individual’s actions (choices) (a) effect subsequent outcomes; thus, a temporal dimension is added, such that different sequences of choices and their respective outcomes (and consequences) for each individual can be compared. This development was to overcome the static nature of the theory, given that patterns of interdependence would constantly be changing and evolving. However, it is assumed that interdependence is maintained in this sequencing of events. As Kelley (1984) states:

The method assumes that people are interdependent not only in how they control their own and each other’s immediate outcomes, but also in their movement through a network of interdependence situations. ... [T]he list method retains the analysis of outcome control made possible by matrix analysis and combines it with analysis of control over the sequential and temporal course of action. (p. 960)

The third goal was to develop the total set of human tendencies; that is, for example, tendencies towards balance and dissonance reduction as originally outlined in Kelley and Thibaut (1978, p. 327-328).

Throughout these further developments, the conceptual emphasis on the situation is increasingly apparent (see Kelley, 1983, 1984a, 1984b, 1991, 1995) for Kelley asserts that: "Interdependence theory is ... a type of theory that is essential if social psychology is to be truly "social" and focus on interpersonal process" (1994, abstract, p.17). Thus the theory now emphasizes the social over the psychological aspects of social psychology, becoming a theory of the situational dynamics of individuals. For example, Kelley (1991) proposes that the person (P) interacts with what is now called a "geo-behavioral" environment -- previously called the objective matrix. Kelley then restricts his analysis to this "geo-behavioral" domain, as it is asserted that we can assess the achievements of dyadic relationships through observing the adequacy of each set of behavior as solutions to the problems posed by the geo-behavioral environment (as first denoted by Koffka, 1935, see Leeper, 1943). Kelley (1991) now states that "Thibaut and I obviously departed in a major way from Lewin's use of the life space" (1991, p. 220). However, he believes that this work contributes to and builds on the work of Lewin through his (and Thibaut's) analysis of the geo-behavioral environment, while Lewin proposed the analysis of the person. Thus, the situation has become the cornerstone of Kelley's (and Thibaut's) approach to the analysis of group life.

Kelley (1995) maintains this view in his recent address advising a "return to the 'situation' as the core concept of social psychology" (p. KN2), and hence proposes a *theory of situations*. In keeping with the three components that Lewin specified - the person, the situation and the behavior - the analysis now focuses on the interaction between the environment (E) and each person (P1), (P2), etc. The analysis is one of abstract individuals interacting within a common geographic environment. It is Kelley's hope that his comprehensive framework is able to define "all possible" situations, "all possible" scenarios and thus account for all success and failures of interpersonal behavior. For he believes that this ANOVA model of interdependence "has implications for how people "should" process the information, i.e., for how the complete patterns should logically be analyzed to get their inherent, distal meanings" (p. KN12), and thus bring understanding and practice to the social world of interdependence. Thus, the early working assumption of Kelley and Thibaut (1978) continues to hold:

It is our working assumption, then, that the total set of outcome matrices -- those correctly and those incorrectly understood -- account for all of social behavior. They account for everything that is or can be learned about social interdependence. Thus, in their total effect they are responsible for both the successes and the failures in social interaction. (p. 5)

In summary, interdependence theory takes a strategic problem solving approach to the domain of interdependent relationships between individuals, producing a conceptual taxonomy of interpersonal relationships to provide answers to the problem of interdependence. The unit of analysis is the individual, and the individual solves his or her problems through coordinated or joint solutions (see Kelley & Thibaut, 1978). As a theory of social exchange, solutions are based on exchanges between *individuals* or coordination of *individual* activity. It is a functional analysis of the adaptation of *individuals* to situations, through which all social phenomena can be understood. As Kelley and Thibaut state:

Adaptation to situations of social interdependence is viewed as the source of both social norms and individual rules. Adaptation is seen to result from multiple processes. In his own direct experience in interdependent relationships each individual has opportunities to learn useful rules, including both the prosocial, moral concepts and the more egocentric, practical rules of thumb for "getting along with people." This experience is often preceded by and accompanied by social instruction in the moral and practical aspects of social relationships, which involve both explicit teaching and the provision of exemplars of social behavior. (p. 319)

Kelley and Thibaut (1978) mapped the domain of the situational taxonomy of interdependence and identify 22 distinctive situational matrices, as defined by unique combinations of the components and properties of interdependence. Interestingly, this list includes a few of the classic gaming matrices, such as chicken, hero, threat, maximizing difference, battle of the sexes and the prisoner's dilemma. For, despite the conceptual richness of the interdependence approach as a systematic research tool, game theory maintained an influential stance, both in terms of its influence on interdependence theory itself (see Kelley, 1991), but more particularly on the developments of social dilemma research (see Kormorita & Parks, 1994, for review) which will be developed in the next chapter.

Despite the fact that interdependence represents the cornerstone of this approach, it was only moderately successful in predicting individuals' behavior. To address this, it was necessary for Kelley and Thibaut to develop a further explanatory construct, specifically transformational processes, to deal with the growing body of contentious work that questioned the strict rational actor model of strategic interdependence of individuals. Thus, taken together, interdependence theory, like Deutsch's understanding of cooperative behavior, understands behavior as a function of interdependence structures and transformational processes of individuals. The role of these processes in the theory will now be reviewed.

2.5.B Transformational processes of interdependent individuals

Kelley and Thibaut (1978) understood the person as the causal agent through which transformation of the given matrix to the effective matrix occurs. Their analysis of transformational processes “examines the shifts in matrix pattern generated by applying various mathematical operations and sequential rules to certain *given* patterns” (p. 26). Again the analysis, like the situational determinants, is mathematically derived. However, this analysis of transformational process has always been secondary to the analysis of interdependence of individuals, but was deemed to be necessary to introduce as it was found that that: “There is no close causal nexus between the *given* matrix and the behavior it elicits” (Kelley & Thibaut, 1978, p. 17). However, Kelley and Thibaut (1978) make explicit that their interest lies with the matrices, which were thought to provide a “conceptual device for moving from the psychological and situational bases of interpersonal relations to the processes and structures characteristic of successful relationships and the conflict and disruption in the unsuccessful” (p.3). And it is argued that for any transformation of an individual's own outcomes, in terms of the *given* matrix, is represented and accounted for in the transformation.

In general, it seems likely to us that the untransformed outcomes in the given matrix have, in some final or ultimate way, an impact on the interaction. They cannot, forever and completely, be disregarded even if only because certain of them are basic to the individual's biological survival. ... We find it difficult not to believe that at some level he keeps an account of the consequences of such action for his own personal welfare (p. 23).

Kelley and Thibaut's conceptual analysis of transformation was influenced by the work of McClintock and Messick (McClintock & McNeel, 1967; Messick & Thorngate, 1967). Their transformational analysis assumes “that the person learns a repertory of transformational tendencies and their conditional application” (Kelley & Thibaut, 1978, p. 23); however, they continued to have misgivings about the value of this approach. This is reflected in Kelley's (1984) later work where he wondered “whether there might not be some more logical way to derive a list of transformations or dispositions” (p. 8). Kelley (1984) brings the analysis back to the taxonomy of situations, arguing that a “person reveals an interpersonal disposition by responding to the specific [given] situation “as if” it were a different one [given situation]” (p. 8). Given this, Kelley then argues that as the situational taxonomy accounts for all situations, “dispositions can only refer to shifts from one pattern to another. ... [Thus], the taxonomy of interpersonal dispositions is fully specified by the features of the taxonomy of interdependence

situations” (p. 9). Having noted this emphasis on the situational constraints on individual behaviour, the analysis of transformational processes will now be reviewed, as the analysis remains important to the social dilemma literature, specifically through its relation to game theory.

Within the gaming research, Rapoport and Orwant (1962) and Rapoport and Chammah (1965) provided the first reviews of experimental games and conclude that game theory itself could not account for the findings of the research in this area (e.g., Deutsch, 1960; see Rapoport, 1966; Colman, 1982). They point out that while game theory provides insight into the logical analysis of social interdependence and into rationality, given individual differences there was no room for the “psychological make-up of the participants” (Rapoport, 1966, p. 206). It was believed that the transformational properties of individuals would account for the findings that game theory formally could not.

It seemed evident that partners not only consider their individual outcomes, but also the outcomes of others -- in other words individuals do not always act in their immediate self interest (see Campbell, 1965; Caporeal et al., 1989; Griesinger & Livingston, 1973; MacCrimmon & Messick, 1976; McClintock & McNeel, 1967; Messick & Thorngate, 1967). Theoretically, an infinite number of transformations can be conceived; however, there exists a growing body of literature that accounts systematically for how different individuals process patterns of interdependence.

Recall that, early in his work, Deutsch (1949b) argued that not all individuals are indifferent to the outcomes of others. He argued that the attitude that an individual has toward another would influence their response. Deutsch found support for his claim by inducing cooperative, competitive and individualistic orientations in subjects and, not surprisingly, subjects behaved as they were instructed to.

Messick and McClintock (1968) proposed a motivational basis for choice behavior in experimental games. The point that they argued was that while it is assumed that subjects' aim is to maximize payoffs as defined by the given matrix, the findings clearly show that this has not been the case. Often the emphasis has been to gain more relative points (McClintock & McNeel, 1966a, 1966b, 1966c, 1967; Messick & Thorngate, 1967). McClintock and Messick (1965) assumed three motivational orientations: joint gain -- cooperation ; relative gain -- competition ; and own gain -- individualism. As Messick and McClintock (1968) state:

Although there have been numerous conceptual departures from the theoretical considerations that gave rise to game research, comparable changes have not been evident in the experimental methods employed to study this behavior. The traditional method of displaying the interdependence of outcomes in the form of a payoff matrix is not dictated by any psychological theory and would seem to be widely in use either because there are no alternative procedure for displaying such information or because of historical inertia. (p. 7)

Decomposed games were thus conceptualized, using a methodology that maintained the properties of the payoff matrix, while ascertaining interpersonal motives (see also Pruitt, 1967). Their aim was to differentiate clearly between motivation (goals) and strategy (instrumental acts). Using decomposed games (explained below), Messick and McClintock (1968) developed the first measures of these three orientations that Deutsch identified. In line with McClintock and Messick (1965) it was assumed “that subjects have motivational orientations to maximize the sum of the payoffs to both players (joint gain), the difference between their gain and that of the other (relative gain), and their own payoffs (own gain). These goals can be identified as cooperation, competition, and individualism, respectively” (p. 2). Many techniques have been used to differentiate between strategies and goals (see Kormorita & Parks, 1994, for a recent review). Decomposed games have been the dominant method used to determine goals of individuals (two are featured below in Figure 2.8). While there is still a choice between outcomes received by the players involved, there is no situational interdependence. In other words, players’ choices are independent.

<u>Example 1: Choices (2)</u>				<u>Example 2: Choices (3)</u>				
		<u>X</u>	<u>Y</u>			<u>X</u>	<u>Y</u>	<u>Z</u>
<u>Payoffs</u>	Own	5	8	<u>Payoffs</u>	Own	6	5	7
	Other	2	6		Other	6	1	4

Figure 2.8. Two types of decomposed matrices used to discriminate between the motivational goals used by players.

In Example 1, the player will choose “Y” both if the goal is to maximize own payoff ($8 > 5$) or maximize joint payoff ($8 + 6 > 5 + 2$), but will choose “X” if the goal is to maximize relative gain ($5 - 2 > 8 - 6$). In Example 2, a decomposed prisoner's dilemma (DPD) can discriminate more finally between the different social value orientations: a cooperator (joint gain) would choose “X” ($6 + 6 > 7 + 4 > 5 + 1$), a

competitor (relative gain) would choose “Y” ($5 - 1 > 7 - 4 > 6 - 6$), and a individualist (own gain) would choose “Z” ($7 > 6 > 5$). It is important to note that within each of the three goal specified categories the underlying premise remains in line with the game theoretical principle of outcome maximization.

McClintock (1972) concluded that players do not assess the value of their outcome in absolute terms, but in relative terms, through comparing own self and other's outcomes. The empirical evidence suggested four outcome orientations: maximization of own gain (MaxOwn, or individualism); joint gain (MaxJoint, or cooperation); relative gain (MaxRel, or competition); and others gain (MaxOther, or altruism). From this point the question became: are there perhaps more than four social value orientations? In response, Griesinger and Livingston (1973) developed a model of eight archetypal orientations through completing the circle of the self-other outcome matrix. As can be seen in this diagram (Figure 2.9) own and other's outcomes are orthogonally opposed.

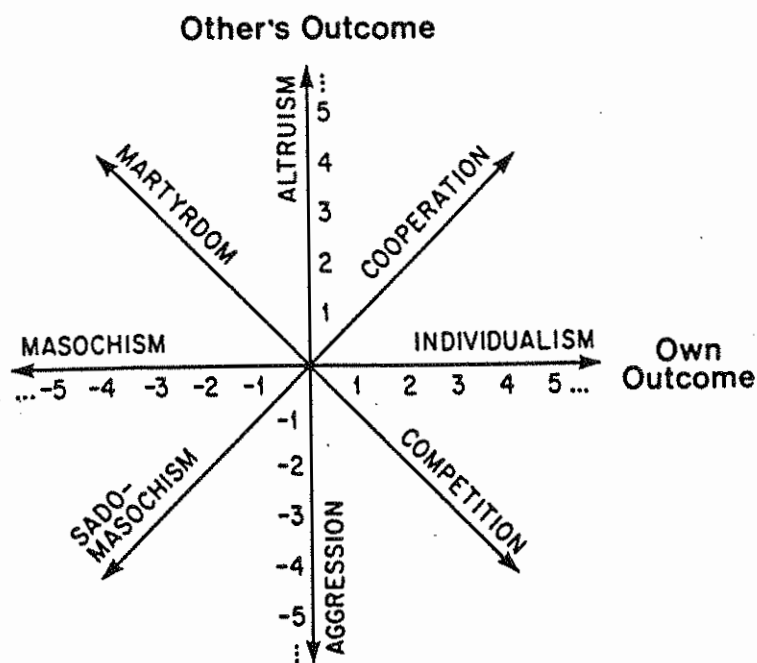


Figure 2.9. A typology of outcome transformations (McClintock, 1978, p. 122, Fig.1).

The three original social value orientations are situated on the vector plane, with cooperation and competition set on either side of individualism, the only orientation consistent with game theory's (and interdependence theory's) grounding assumption. With this development, social value orientations became a vector point on a continuum of possible orientations. Liebrand (1984; Liebrand & McClintock, 1988) developed the ring measure to substantiate this model, using a measure that consisted of a series of 24 decomposed games. Using this instrument, a vector value is computed for each player

which places each individual on the self-other outcome plane, which subsequently relates to one of the eight orientations specified by this typology. Within this continuum of possible orientations, it is interesting to note that the majority of subjects are classified into the three original orientations that Deutsch began with (Kuhlman & Marshello, 1975; Liebrand & McClintock, 1988; McClintock, 1978; McClintock & Liebrand, 1988; McClintock & van Avermaet, 1982; Messick & McClintock, 1968; Van Lange & Liebrand, 1991). The measurement of social value orientations is now a dominant tool in the literature, the evidence indicating that, within any given context, the expression of a particular value orientation remains relatively stable over time (Kuhlman, Camac & Cunha, 1986; McClintock & Allison, 1989). This typology of transformational processes is applied in the same manner to the interdependence matrices. Taking, for example, the classic prisoner's dilemma game, Kelley and Thibaut (1978) proposed that the different transformational process act on the given matrices as follows:

<u>Prisoner's dilemma</u>		<u>Player two (Column)</u>	
		<u>Choice C</u>	<u>Choice D</u>
<u>Player one</u> (Row)	<u>Choice C</u>	40, 40	0, 50
	<u>Choice D</u>	50, 0	20, 20

<u>MaxOwn</u>	<u>MaxDiff</u>	<u>MaxJoint</u>	<u>MaxOther</u>
40, 40 0, 50	0, 0 -50, 50	80, 80 50, 50	40, 40 50, 0
50, 0 20, 20	50, -50 0, 0	50, 50 40, 40	0, 50 20, 20

Figure 2.10. Four transformational processes of the given prisoner's dilemma matrix. For each case, the resulting effective matrices results from the assumption that both players use the same transformation.

Other transformational strategies have been suggested: minimize difference between outcomes (MinDiff); minimize other's outcomes (MinOther); minimize joint outcomes (MinJoint); minimize own outcomes (MinOwn). However, these strategies have been found to be less prevalent in the populations studied (see MacCrimmon and Messick, 1978).

A recent model (see Figure 2.11) shows the ontology of the transformational process involved as they relate to the matrices: the given, or objective, matrix being changed through transformational processes into an effective, or subjective, matrix -- which then predicts behavior. Recall that transformational process were introduced insofar as the outcome interdependence structure alone was only moderately successful in predicting individuals' behavior. Transformational processes of individuals account for the variance in behavior that the outcome structure could not. While social value orientations represent the most systematic development of transformational processes, and account for a large amount of variance within situations of interdependence, there are other transformational processes that have been developed in the literature as well.

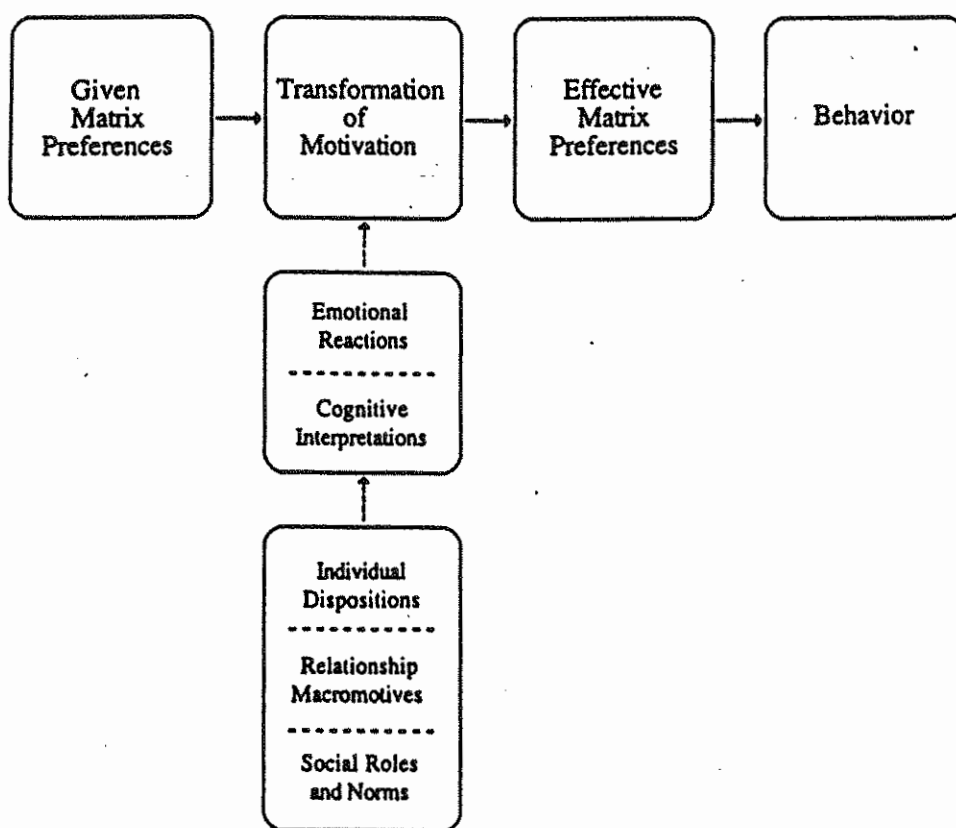


Figure 2.11. The proximal and distal determinants of transformation of motivation as they relate to the given and effective matrices. (Rusbult and van Lange, 1996, figure 5)

As can be seen, as well as social value orientations there are a list of other factors and antecedents that influence transformational processes. Rusbult and van Lange (1996) have proposed two motivational categories of transformational tendencies: distal and proximal. Distal determinants - interpersonal dispositions, relationship macromotives and social norms - are “embodied in stable interpersonal orientations” (p.

41) and mirror earlier proposed distinctions (see Deutsch, 1982; Kelley & Thibaut, 1978). Proximal determinants are understood as cognitive interpretations, emotional reactions and self-presentation.

2.5.B.1 Distal determinants of transformational processes

Interpersonal Dispositions: The research on social value orientations represents the bulk of the research in this area. In terms of the three dominant social value orientations, on average, the empirical research finds that for a given sample: 30 - 40 % are individualists; 45 - 55 % are cooperators; and 10 - 20 % are competitors (see Liebrand & van Run, 1985). And again, these interpersonal dispositions (orientations) are found to be relatively stable over time (Kuhlman, Camac & Cunha, 1986; McClintock & Allison, 1989; McClintock & Liebrand, 1988). In this same line, these dispositions have also been found to be predictive of the probability of a particular response (Kuhlman & Marshello, 1975; McClintock & Liebrand, 1988). It has also been found that these orientations shape perceptual processes: cooperators expect cooperation from others; competitors expect competition from others; etc. Further, when these responses are not found in another player they are often viewed or looked upon with derogation and distrust. For example, competitors often view responses of cooperation as “stupid” or “sneaky”. (e.g., Kelley & Stahelsk, 1970; van Lange & Kuhlman, 1994).

A number of further distinctions have been made between what can broadly be called instrumental (task-focused) and social-emotional (interpersonal) orientations: idiocentrics and allocentrics (Triandis, 1989); psychological masculinity and femininity (Bem, 1974); exchange and communal orientations (Murstein, Cerreto & MacDonald, 1977). Other orientations that have been found to influence choice behavior have been trust and Machiavellianism (see Christie & Geis, 1970; Gurtman, 1992; Yamagishi, 1992).

Relationship-Specific Macromotives: As the classification denotes, these macromotives are relationship-specific interpersonal orientations (Holmes, 1981). Commitment level within a given situation is said to reflect possible underlying macromotives that represents three key features of the interdependent relationship: satisfaction level; quality of alternatives; and investment size (Rusbult, 1983). Commitment level has been found to be the strongest predictor of relationship stability and maintenance (Rusbult, 1983). In other words a broader macromotive links a person

to a particular relationship, such as the case in intimate, vocational and professional relationships. In these relationships, the evidence from the empirical work at the dyadic level has found that maintenance mechanisms are promoted (Johnson & Rusbult, 1989); poor behavior of a partner is accommodated rather than retaliated against (Rusbult et al., 1991); and there is a willingness to make sacrifices (Van Lange, Rusbult, Drigotas & Arriaga, 1994).

Social Norms: This is a third type of orientation that is influential at a social or group level. Thibaut and Kelley (1959) have acknowledged the importance of social norms in situations of interdependence. Norms are understood as “... a uniform set of directions which the group induces on the forces which act on the members of the group” (Festinger, Schachter & Back, 1950, p. 166). Norms are thought to be influential because there is observed regularity in behavior; appealing to norms can regulate behavior; and normative inconsistent behavior (norm-breaking) often is found to induce guilt. Many studies have examined the formal and informal normative systems that govern reward and resource distribution to group members (see Greenberg and Cohen, 1982; Insko et al., 1980; Lerner, 1980; McClintock & Keil, 1982; Mikula, 1983). Further, it has been found that norms govern situational procedural justice, specifically that normative social process is often as important as outcome distribution, per se, in social dilemmas of resource and reward allocations (Lind & Tyler, 1988; Thibaut & Walker, 1975; Tyler & Degoe, 1994).

In summary, the distal determinants make up a set of orientations that become increasingly abstract from the individual: interpersonal, to specific dyadic relationships, to general social norms. These distinctions parallel those made by Deutsch (1982) and Kelley and Thibaut (1978). The following review of proximal determinants, examines the underlying processing mechanisms in terms of the individual both as actor and observer: the actor engages in self-presentation mechanisms; the observer engages in meaning analysis in terms of cognitive interpretations and emotional reactions to the actor. These mechanisms are argued to contribute to the transformation of motivation.

2.5.B.2 Proximal determinants of transformational processes

The sense making or meaning analysis of behavior is explained in terms of the proximal determinants of transformational processes and relates to the control of individual's social environment, and thus outcomes. Kelley (1979, 1984) stated that

“meaning analysis” is the underlying process that would render the social world predictable, and therefore controllable. This is in line with Fiske (1992) who suggested that “thinking is for doing”, and thus acknowledges the importance of cognitive processing to behavioral outcomes. Riley and Fiske (1991) apply the continuum model of impression formation (Fiske & Neuberg, 1990) to Kelley’s (1979; Kelley & Thibaut, 1978) interdependence framework for: “It is proposed that that perceivers do not typically form impressions of others in a vacuum; rather, they often do so because these impressions are integrally related to their interactions with others” (Riley & Fiske, 1991, p. 173). Specifically,

... forming impressions of the other person’s *motives* and *dispositions* bears on the perceiver’s (effective) self-interest in virtually any interdependent relationship. It has been a theme of all our research that forming impressions of people’s *motivations* and *dispositions* is the impetus behind impression formation under interdependence. (p. 185, italics mine)

These cognitive interpretations, or impressions are thus believed to be important determinants of behavior and behavioral control of others. For example, the stereotyping and interdependence literature has also been linked to the control over outcomes. Recall that the interdependence literature is explicitly about the power of control over outcomes, and more recently Fiske (1993) has discussed the impact of power on stereotyping in controlling other people. Indeed the interdependence literature has been broad and influential.

As well as making cognitive interpretations, proximal determinants are also argued to reflect emotional reactions. As Kelley (1984) states: “For each ... situation, [individuals] have psychological systems that enable quick recognition of their relevance to the person’s interests and that stimulate action promoting those interests” (p. 91). It is believed that these reactions, in part, would be emotional. A review of the literature related to cognitive interpretations, emotional reactions and self-presentation is offered by Rusbult and van Lange (1996), generally adopting a social cognition approach to information processing (cf. Oakes & Reynolds, 1996).

Rusbult and van Lange (1996) summarize additional proximal determinants as follows: dispositional attributions can be implied from the effective matrix that an individual adopts (see Holmes, 1981; as does Kelley, 1984); there are consequences that results from making internal and external attributions (Weiner, 1986); repeated experience in the same situation leads to relatively more automatic (shallow) processing; cognitive biases, such as heuristic information processing, is likely to result in

irrationality; that six emotional prototypes exist and are situationally established as a result of repeated experience (Shaver, Schwartz, Kirson & O'Connor, 1987); and that individuals engage in self-presentation strategies to influence other's behaviors in aid of one's own preferences.

To conclude, transformational processes account for the bias and errors that a strict rational actor model of interdependence could not account for. The analysis takes us from a given -- rationally objective -- matrix to an effective -- subjective, sometimes irrational -- matrix of interdependence. It is interesting to note that it is only a person with a social value orientation of an individualist that perceives the given objective matrix as given (i.e., does not transform it). An individualist is thus the rational actor. This is consistent with Rapoport (1973), who states: "A rational player is defined as one who wants to get as large a payoff as possible, and to whom the payoff that accrues to his co-player is of no consequence" (p. 5). Further, acting in terms of any other orientation implies some "loss" or "cost" to the individual, as the direct self-interest of the individual is not being maximized. These same principles of individual rationality and self-interest underlie the social dilemma research.

2.6 Summary of interdependence theory

While interdependence theory focuses on dyadic relationships, the theory has been applied to triads and larger groups, where the matrix analysis quickly becomes less practical and appropriate. However, the principles of interdependence theory have been applied to a larger class of social problems -- social dilemmas -- as the properties of degree of dependence, mutuality of dependence, correspondence of outcomes and basis for dependence are still purported to be relevant (see Rusbult and van Lange, 1996). Social dilemmas, understood through the interdependence analysis, now ground our understanding of social cooperation.

The functional interdependence approach has yielded overwhelming support in the literature. In line with the functional approach to interdependence, realistic conflict theory (Campbell, 1958) posits that real conflict of interest causes intergroup conflict. The theory "assumes that group conflicts are rational in the sense that groups do have incompatible goals and are in competition for scarce resources" (p. 287). Numerous field studies have supported this view (e.g. Blake & Mouton, 1961; Deridder & Tripathi, 1992; Diab, 1970; Haney, Banks & Zimbardo, 1973; Sherif, 1966, 1967). In fact

Deutsch (1981, p. 61) has noted marked parallels between his own work and many of these classic field studies. Goal expectation theory (Pruitt and Kimmel, 1977) also posits that goal interdependence is paramount to social cooperation. Similarly, value expectancy theory (Feather, 1982) posits that individuals' behavior is a function of the value of the expected outcomes of behavioral choice. Collective behavior theory (Oberchall, 1973; Olson, 1965) draws a distinction between collective and selective incentives which are distinguished by excludability. Finally, Rabbie's Behavioral Interaction Model (1991) also upholds the outcome interdependence model of individuals and groups. Each of these theorists builds on the earlier conceptualizations of the group outlined in this chapter, specifically the functional interdependence of individuals.

The chapter to follow examines the paradigm and research that grew from the interdependence approach to understanding social cooperation - the social dilemma paradigm. In line with the theoretical analysis of Deutsch, as well as Kelley and Thibaut, this paradigm establishes the situational interdependence that becomes the conceptual link to an analysis of social cooperation. The researchers have argued that outcome interdependence of individuals provides the basis for cooperation, and that cooperation produces psychological, or perceived, group membership. Overall, the interdependence approach understands social cooperation through the outcome interdependence of individuals and each individual's transformational processes.

- Chapter 3 -

The social dilemma paradigm: The strategic analysis of functional interdependence and social cooperation

3.1 Introduction

As outlined in the previous chapter game theory, the abstract analysis of strategic social interdependence, underlies social dilemma research (Van Lange et al., 1992). As such, the formal structural properties of game theory constitute the paradigm through which we currently study social cooperation. As with defining conflicts of interest in game theory, social dilemmas are defined in term of their respective interdependence structure and their relationship to the outcomes of individuals. This chapter will begin with a description of intragroup dilemmas, which sets the framework for addressing the “problem of interdependence.” For within these objectively defined situations of interdependence, researchers have found remarkably low levels of cooperation. Indeed, the interesting finding has been that in these situations of positive interdependence individuals cooperate, on average, a mere 30% of the time. Thus, for the last 30 years or so, researchers have been endeavouring to identify factors that increase cooperation in structurally defined social dilemmas (see Turner et al., 1987, p. 31-32). These factors fall into the broad class of what are known as solutions to social dilemmas, which will be reviewed later in the chapter.

Social dilemmas are defined in terms of structural situations in which private and collective interests are at odds. The dilemma arises through players’ realization that acting in terms of individual self-interest leads to less for everyone involved, including themselves. While the outcome structure tempts players to act in their individual self-interest, as this action results in the highest individual payoff, the situational interdependence with other players establishes this action as a deficient outcome for each individual involved in the end. A typical example of a social dilemma is the establishment of labour unions. An individual could choose not to join the union and still reap the benefits of union action while accruing no financial loss; or an individual could

pay the membership fee and participate fully in the union. However, if everyone chose not to join the union, there would be no union benefits to any of the individuals involved, and all would be worse off due to lack of collective representation. This is the character of a social dilemma. Other types of social dilemmas will be presented in the sections to follow; however, the character of the situation remains the same: a conflict of interest must be resolved one way or the other, typically in terms of a cost-benefit analysis.

3.2 The formal structural definition of social dilemmas

Yamagishi (1988) defines social dilemmas as situations in which there is an incentive structure of interdependence that encourages individual actors to opt for a course of action which produces a collectively undesirable outcome. Dawes (1975, 1980), a mathematical psychologist, was the first to formally define, and then revise, a social dilemma in game theoretical terms. The revised definition reads (Dawes, 1980):

[Dilemmas] are defined by two simple properties: (a) each individual receives a higher payoff for a socially defecting choice (eg. having additional children, using all the energy available, polluting his or her neighbors) than for a socially co-operative choice, no matter what the other individuals in society do, but (b) all individuals are better off if all cooperate than if all defect. (p. 169).

To act in terms of individual self-interest is to defect (compete) against the collective, to cooperate is to act in terms of the collective. Cooperation is currently defined in terms of exchange principles; that is, a benefit to the group necessarily accrues a cost to the individual (Boyd & Richardson, 1991). In other words, collective welfare emerges from a cost-benefit analysis by the individual. Implicit in this definition is that collective welfare is a byproduct of individual welfare in situations of social interdependence (Liebrand, 1983).

The literature on social dilemmas is now vast, approaching the study of conflicts of interest through many dispersed conceptual frameworks. A recent review (Schroeder, Sibicky & Irwin, 1995) states: "the extant literature in the field ... seems to represent a loose confederation of research pursued within a common context rather than a truly unified body of work" (p. 185). Thus, various researchers have suggested various organizational schemes to rectify this growing problem (see Cross & Guyer, 1980; Messick & Brewer, 1983). For example, Messick and McClelland (1983) have defined dilemmas in terms of both social traps, a conflict between individual and collective interest (e.g. Kramer & Brewer, 1984) and temporal traps, a conflict between long term

and short term individual interest (e.g. Platt, 1973). Other categories of social dilemmas have been more prominent; specifically, the commons dilemma and public goods dilemma, both of which represent what is known as intragroup dilemmas -- conflict between the individual and the collective. As this latter class of social dilemmas remains a dominant conceptual distinction within this body of research, it will be reviewed in the following section. Intergroup dilemmas, which are much less established in the literature, will be reviewed later in the chapter.

3.2.A Structural properties of intragroup social dilemmas

While commons dilemmas and the dilemma of the provision of public goods have the same incentive structure, it is argued that they are not psychologically equivalent (see Brewer & Kramer, 1986). These are both instances of common-pool resource dilemmas and can be distinguished in terms of two principles: exclusion and subtractability (see Ostrom, Gardner and Walker, 1997). Exclusion refers to the difficulty of excluding individuals from benefiting from a common good; while, subtractability refers to the loss of the resource to all individuals concerned when consumed by those utilizing access. In both types of resource dilemmas exclusion is difficult but subtractability is low for public goods dilemmas but high for commons dilemmas. This will become clear in the following two sections. In terms of behavioral differences, the general finding has been that cooperation is attained more easily in commons dilemmas than public goods dilemmas. As such, a psychological discrepancy in the perceived nature of these two types of dilemmas is forwarded. This finding will be discussed in the following section on intragroup dilemmas.

3.2.A.1 Commons dilemma

The commons dilemma has the same structure as an N-person prisoner's dilemma game (where N specifies the number of players). The conceptual analysis of a commons dilemma grew from Hardin's (1968, based on Lloyd, 1833) analysis of the "tragedy of the commons." Hardin (1968) saw little cause for optimism regarding the prospect of cooperation in situations where individuals share a common pasture or resource. "Ruin," he stated "is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons" (p. 1245). Dawes

(1973) initially developed these ideas in terms of an N-person social dilemma and then defined the dilemma formally (Dawes, 1975, 1980). Commons dilemmas are indeed ubiquitous. Dawes and colleagues (1974) state the commons problem as follows:

With the world as our commons, each of us may believe he stands to gain (fulfilment, "eternal life," companionship and perhaps wealth) by having children, while the loss of each "consummatory and polluting agent" to the commons is clearly distributed among all the living creatures in it, and particularly the other people. That this one type of pollution may underlie most other pollution problems makes the study and resolution of the class of such problems particularly timely. (p. 3)

Commons dilemmas are typically situated in the maintenance of a shared resource, such as the common pastures that Hardin refers to. By definition, all interdependent actors are reliant on the shared resource, have a zero starting point of individual resource revenue and must decide on each round (and sometimes there is only one iteration of the game) how much to take for themselves (see Brewer and Kramer, 1986). This conceptualization has been applied to many different environmental dilemmas (e.g. Edney & Harper, 1978; Hardin, 1968; Kramer & Brewer, 1984). The socially defecting choice is the continued unrestrained utilization of resources, while the socially cooperative choice is the use of restraint to curb the depletion of the resource, whether that be fossil fuels, clean air, food, water or minerals. Dawes (1975) argues that such situations induce defection, as gain (reward) for defection accrues directly to individual; while loss, defined as quantitatively greater than gain, is spread out over all group members.

Recall the ordinal rankings for the prisoner's dilemma game (Figure 2.4, p. 32): unilateral defection gave the highest outcome to the individual. This is consistent with Hardin's conceptualization of "tragedy of the commons" wherein the consumers, acting in their individual self-interest, deplete the resource through maximizing their own interests. Hardin notes the paradox: it is the very actions of rational individuals making defecting (consuming) decisions that results in long term "ruin" for all, as all actors will receive a lower payoff (through the depletion of a common resource) than if they acted to maximize their collective interest in the first place -- that is, preserve the resource.

This type of situation has also been conceptualized as a social trap. Platt (1973) understands a social trap as a situation where "... each individual ... continues to do something for his individual advantage that collectively is damaging to the group as a whole" (p. 1). In a trap situation the short term consequence is positive while the long term consequence is negative. Hamburger (1973) differentiates commons dilemmas from

public goods dilemmas, in terms of take some versus give some games respectively; in other words, individuals can take from a common resource or give to maintain a public, while still common, resource. Later, Dawes (1980) formulated the problem in terms of a dichotomous choice between “C” (cooperation) and “D” (defection) in which an outcome is received. “D”, unto itself, is worth more than “C”, thus it is individually rational to chose “D”; however, “D” is associated with a negative externality which incurs a penalty. The consequence of the penalty is that all will receive less if all choose “D”, the unilateral rational choice of the individual.

3.2.A.2 Public goods dilemma

In contrast to a commons dilemma, where a group of individual must share a common resource, a public goods dilemma is characterized by how much of a personal resource individuals are willing to contribute to a common pool for everyone to consume. Thus, public goods dilemmas do not have a zero starting point, as do the commons dilemmas. The public goods dilemma grew from the work of Olson (1965) and the “free rider problem” (Brubaker, 1975). A public good is a public provision available to be consumed by all members of the collective. The dilemma is based on the premise that some individuals will fail to contribute to the provision, counting on the others within the collective to do so, and thus will “free ride.” However, if all individuals choose to “free ride” then the provision will cease to exist as it is no longer being maintained by the contributions of the individuals who make up the collective. Olson (1965) defines a public good as follows:

A common, collective, or public good is here defined as any good such that, if any person X_i in a group $X_1, \dots, X_i, \dots, X_n$ consumes it, it cannot feasibly be withheld from the others in that group. In other words, those who do not purchase or pay for any of the public or collective good cannot be excluded or kept from sharing in the consumption of the good, as they can where non-collective goods are concerned. (p. 14 - 15)

Yamagishi (1986) explains that as the provision of the good is not immediately conditional on individual payment then individuals can be opportunistic and enjoy the good without payment. Thus, the dilemma arises through the realization that the benefits of the good will cease to be provided, if all individuals fail to contribute. Libraries, schools, public transportation, public radio and public television are classified as problems of public goods provision, often through the payment of taxes which individuals must contribute to the institutional body that provides the public resource.

However, it is conceptually the same as a group of individuals bringing a plate of food to a communal dinner. If everyone “free rides,” everyone starves.

As the analog to the social trap described above, this type of social dilemma has been called a social fence (Platt, 1973). In a fence situation the short term consequence is negative (we have to give-up something) while the long term consequence is positive (the public good is provided for), hence the phrase “fence-sitter.” Platt (1973) explains: “The consideration of individual advantage prevents us from doing something that might nevertheless be of great benefit to the group as a whole” (p. 1). Platt (1973) gives the infamous murder of Kitty Genovese as an example of a social fence. Given that the weightings of the action and consequences are the converse of social traps these situations have also been called countertraps. Hamburger (1973) called these give-some games, as individuals first have to give to then receive the common benefit. Later, Dawes (1980) formulated the problem in terms of another dichotomous choice between “C” (cooperation) and “D” (defection) in which an outcome is received. “D”, unto itself, is worth more than “C” thus it is individually rational to choose “D”; however, “C”, in this case, is associated with a positive externality which incurs a bonus. The consequence of the bonus is that all will receive more if all choose “C”, the individual irrational choice.

Prospect theory (Kahneman & Tversky, 1984) has recently been applied to commons and public goods dilemmas to account for the finding that the former induces more cooperation than the latter (see Brewer & Kramer, 1986). The theory argues that individuals are risk-seeking in situations of loss and risk-averse in situations of gain. Thus, based on the distinction between “take-some” (commons) and “give-some” (public goods) dilemmas, it is argued that public-goods dilemmas are perceived to be more risk adverse as they incur initial loss. As such, individuals will take more risky decisions, such as not fully paying taxes, when loss is initially perceived. Thus, deficient cooperation with the collective is conceptualized, as individuals fail to provide for the collective as a whole.

3.2.A.3 Overview of the structure of intragroup social dilemmas

Some researchers have found Dawes’ (1980) definition of social dilemmas to be too restrictive, for the definition assumes that each player has a constant dominating strategy. Given that this is rarely the case, Liebrand (1983) defines a social dilemma as:

a situation in which (1) there is a strategy that yields the person the best payoff in at least one configuration of strategy choices and that has a negative impact on the interests of the other persons involved, and (2) the choice of the particular strategy by all persons results in a deficient outcome. (p. 124)

Following from this definition, Liebrand argues that the more strictly defined 2 x 2 mixed motive games (e.g. prisoner dilemma, chicken and trust games) become subsumed in a more inclusive range of social dilemmas. Dawes (1980) has also argued that 2 x 2 games are distinctive in the sense that in most dilemmas between an individual and a collective, defection does not focus harm on only one other player, as it does in a 2 x 2 game. It is argued that as behavior in dyadic games is not as anonymous, this can be used to influence the behavior of others more directly. A large amount of research has examined the anonymity effect of social dilemmas through the diffusion of responsibility (Latane & Darley, 1968). This distinction gave rise to the N-person prisoner's dilemma (N-PD) games, where $N > 2$.

Social dilemmas reflect the fact that defection by an actor results in a better individual payoff than cooperation in all instances where the player unilaterally defects. In game theoretical terms, the strategies of players are considered to be in equilibrium if neither player gains by unilaterally altering their respective strategy (Davis, 1970). An equilibrium point is established through these concurrent strategies and is identified through the outcomes corresponding to this pair (Davis, 1970). For example the prisoner's dilemma game has only one equilibrium point -- universal defection that results in a deficient outcome for both (the chicken and leader games have two equilibria). This deficient outcome interdependence is the essence of a social dilemma. If the D payoff function is plotted against the C payoff function, the D function will always lie above the C function; however, the right extremity of the C function will be higher than the left extremity of the D function (Dawes, 1980). This contrast defines the collective deficiency of universal defection in a social dilemma.

One last distinction that Dawes (1980) made is between uniform and variable games. In a uniform game the resource is depleted by some set amount in each iteration, while in variable games the resource can regenerate or replenish itself depending on how much is taken, or given, in each round.

It should also be noted that not all experimental games can be classified as social dilemmas. Liebrand (1983) has developed the following criteria to define games that induce a social dilemma: (1) both players have a strategy that, if chosen, threatens the other player through a deficiency in outcome accrued; (2) the choice to threaten is

attractive to at least one rational player as it provides a higher outcome payoff; (3) a deficient outcome to all players results if all players chose the most-threatening strategy. Drawing on the work of Hamburger (1974), Liebrand (1983) then argued that the two-person and N-person forms of the prisoner's dilemma game, the chicken game and the trust game satisfy these criteria. Liebrand (1983) explains the N-person form, respectively, in terms of decision to pollute, ride a bike (and not drive a car), and hoarding goods.

The N-person prisoner's dilemma has been the most frequently used paradigm in the study of social dilemmas (see Dawes, 1980; Komorita & Barth, 1985) as they are thought to be more threatening through the increased anonymity. They are also argued to have more ecological validity; indeed, Dawes (1980) has argued that the 2-person prisoner's dilemma game is not representative of a social dilemma as all harm of defection is focused on one other player and thus can potentially also include forms of coercion.

A number of indices have been formalized in drawing conclusions from this literature. For example, Kelley and Grzelak (1972) have plotted a payoff curve from which individual interests, gains and losses can be assessed. Following Rapoport (1967), Komorita (1976) has developed an index of cooperation, from which estimates of two motivational factors can be derived: greed (the temptation to defect and gain) and fear (the anticipation of cooperating and being exploited, thus losing). However, the findings of the research into these two motivational forces are, as yet, inconclusive (see Van Lange, Liebrand, Messick & Wilke, 1992 for overview): Komorita, Sweeney and Kravitz (1980) have found that greed was the more highly rated motivational factor, while Yamagishi and Sato (1986) found fear to be, and Liebrand, Wilke, Vogel and Wolters (1986) found them both to be equally motivating.

3.3 Individual transformational processes within social dilemmas

As previously highlighted, one theoretical analysis that has received considerable support for its ability to account for individual variability in choice dilemmas is social value theory (Kelly & Thibaut, 1978; Kuhlman & Marshello, 1975; Liebrand & van Run, 1985; McClintock, 1972). Traditionally the theory examines the subjective weighting of outcomes that accrue to each individual and from this inferences about each individual's transformational process of the objective situation are established. The conceptual

analysis of social value orientations has also been defined in terms of a temporal dimension. It is argued that these orientations emerged because individuals learnt that they “paid off”. In this sense, individuals’ social value orientations achieve a certain functional autonomy (Bem & Lord, 1979; Kuhlman, Camac & Cunha, 1986; McClintock & Allison, 1989). It is further argued that these temporal constructs are relatively stable over time within any given context (Kuhlman et al., 1986; McClintock and Liebrand, 1988). As Kuhlman and colleagues point out:

In addition to demonstrating the importance of social orientation to social judgements of behavior in social dilemmas, we also hope to [contribute] to a growing body of evidence demonstrating that social orientation can be regarded as a temporally stable personality variable that covaries with a variety of behaviors in interdependent contexts. (Kuhlman, Brown and Teta, 1992, p. 116).

Social norms have also been shown to affect transformational processes of individuals, through socialization processes, although there is some ambivalence regarding the significance of norms and normative explanations (see Kerr, 1995). Schwartz (1977) argues that when norms becomes internalized actors reward and punish themselves for norm adherence or violation. Thibaut and Kelley (1959) note norms “provide a means of controlling behavior without entailing the costs, uncertainties, resistances, conflicts and power losses involved in the unrestrained, ad hoc use of interpersonal power” (p. 147).

Most of this work has been done in relation to norms of cooperation and competition. Thus, more generally, the effect of norms can be understood in terms of expectations that others will cooperate or compete. There is consistent evidence, across a variety of social dilemmas, that expectations of others’ cooperation and one’s own cooperation are strongly interrelated (Dawes, McTavish & Shaklee, 1977; McClintock & Liebrand, 1988; Messick, Wilke, Brewer, Kramer, Zemke & Lui, 1983; Schroeder, Jensen, Reed, Sullivan & Schwab, 1983; Van Lange & Liebrand, 1989).

Another general class of norms is called interaction norms (Kerr, 1995). These include: the commitment norm (to carry out those actions which one has promised or committed oneself to perform), equity norm (that payoffs are distributed in proportion to contributions, inputs or costs) and the norm of reciprocity (for each benefit received one should return the benefit in some equivalent way). The commitment norm is argued to underlie the effectiveness of communication in solving social dilemmas and will be discussed below. The equity norm (McGrath, 1984) has had mixed support (see Kerr,

1995). The norm of reciprocity (Gouldner, 1960) will be discussed in relation to the work of Rabbie (1991) and colleagues in Chapters 6 and 7.

Roles are argued to be very closely related to norms, in that they reflect situational specific norms such as sex roles and leadership roles. Schwartz (1977) argues that mere role occupancy can trigger the responsibilities of these roles. For example Kerr and MacCoun (1985) and Vancouver, Rubin, and Kerr (1989) have shown that sex roles have an effect on cooperative behavior. The leadership role has been found to be more complex. However, one of the most robust findings is that when the leader's role is differentiated from other group members leaders typically take less from the pool as a whole, but then award more to themselves (Messick et al., 1983; Rutte & Wilke, 1984).

Camac (1992) has recently pointed out that while we have looked at the effects of a number of transformational variables, such as social value orientations, on choice behavior in dilemma situations, only a small minority of studies has addressed the problem of the cognitive processes underlying decision making. The few that have addressed this issue have, for the most part, restricted their analysis to expectations of others (see Kelley and Stahelski, 1970; Dawes, McTavish and Shaklee, 1977; Kuhlman and Wimberley, 1976; McClintock and Liebrand, 1988; Messe and Sivacek, 1979). Following the work of Fiske and Taylor (1984) and Markus and Zajonc (1985), Camac (1992) posits that the cognitive process of an information search needs to be examined, in terms of the cognitive structures (or schemas) which organize "our beliefs, knowledge, motivations, and behavioral tendencies" (p. 147). The dominant cognitive motivations that have been examined have been fear and greed. Following this emphasis, Camac (1992) examines whether or not subjects search out greed or fear information, using 2 x 2 matrices, and concludes that cooperators seek out different information from non-cooperators and concludes that different schemas are activated in each instance.

Fear and greed, and their absence, have long been thought to be underlying motivational causes and it has been shown (Kelley & Stahelski, 1970; Kuhlman & Wimberley, 1976) that cooperators show a strong preference for information along the diagonal of a 2 x 2 matrix, that is contrasting mutual cooperation with mutual competition. Competitors, on the other hand, show a strong preference for contrasting information along the defection axis of the matrix. It has been shown that cooperators will expect either mutual cooperation or competition, hence these two cells are compared. However, competitors expect only competition from the other player (see

Kelley & Stahelski, 1970; Kuhlman & Wimberley, 1976; Kuhlman, Camac & Cunha 1986) and thus contrast payoffs that would allow for exploitation. This is understood as fear and greed information seeking strategies, and supports earlier findings that non-prosocials have little interpersonal trust (Kuhlman et al., 1986).

Other work on transformational analysis considers behavior in social dilemmas in terms of a further mediating domain - might and morality. Using post-hoc semantic differential items, might (power/potency as strong versus weak) and morality (evaluation of good and bad) constructs are examined in terms of their moderating effect on social value orientation. Cooperators use more moral constructs to distinguish between non-social and prosocial behavior, while individualists and competitors rely on power constructs to distinguish the two. This has been called the Might over Morality effect (Liebrand, Jansen, Rijken & Suhre, 1986; McClintock & Liebrand, 1988), as it has been found that competition (Might) wins out over cooperation (Morality) in many of the findings of social dilemma games.

Van Lange and colleagues have worked with the construct of morality further, building on earlier work on intelligence (Van Lange, Liebrand and Kuhlman, 1990) and have examined transformational analysis in terms of both these dimensions in extending the Goal Prescribed Rationality Principle (Van Lange et al., 1990; Van Lange and Liebrand, 1991). Their premise is that rationality is not fixed but relates to individuals' social goals and motives. Thus, in regard to the relationship between rationality and cooperation in social dilemmas, this relationship is positive for pro-socials and negative for individualists and competitors. Building on the work on intelligence, this research has found that pro-socials expect more cooperation from another player seen as intelligent rather than unintelligent; while individualists and competitors expect those seen as unintelligent to be more cooperative.

As Camac (1992) points out, more work on the underlying psychological process of outcome transformation needs to be carried out, for now the analysis is more descriptive than prescriptive.

3.4 Solutions to social dilemmas

As Kormorita and Parks (1994) state in their summary and integration of work on social dilemmas, much of the research carried out in this area is occupied with the question: "How can we encourage people to be more cooperative" (p. ix). In other

words the thrust of social dilemma research has been to find solutions to social dilemmas, the solution being to increase social cooperation in situations of interdependence. The implicit assumption is that individuals, in their own right, will fail to act for the collective good. The interesting paradox is that in the course of our everyday lives we do cooperate with each other to a remarkable degree (see Etzioni, 1988). However, recall that, on average, individuals only cooperate 30% of the time in a prisoner's dilemma game and this individually self-serving behavior is a robust finding in much of the social dilemma literature. What are the factors that have increased cooperation in situations of social dilemmas, given that most people fail to cooperate within this paradigm? This section will examine factors that have been shown to increase cooperation in the social dilemma paradigm. Liebrand et al. (1992) have identified 14 different factors that affect cooperation levels in prisoner's dilemma (and similar) settings, but as they point out it "is not an exhaustive taxonomy. It is more a list of convenient headings ... as a integrative framework guiding such research does not exist at the moment" (Liebrand, 1992, p. 286). For the present purposes, the review of solutions to social dilemmas have been classified into three groupings. The first two are in line with the theoretical domains outlined above, structural and transformational solutions, and includes Yamagishi's (1986) broad theoretical summary of this approach. A third class, group process solutions, will follow.

3.4.A Structural solutions to social dilemmas

The payoff structure, that is the outcome interdependence structure, has consistently been shown to affect cooperation in social dilemmas. Following the early work of Kelley and Grzelak (1972), many studies have shown that changing the reward structure of the matrices can both decrease and increase the incentive associated with cooperation (see also Bonacich, Shure, Kahan & Mekker, 1976; Komorita, Sweeney & Kravitz, 1980). The extent to which interdependent others can all benefit has also been shown to increase cooperation (Caldwell, 1976; Komorita, Sweeney & Kravitz, 1980). Other research evidence has found that the belief that non-cooperators can be punished and cooperators rewarded within the interdependence structure, will further increase cooperation (Komorita & Barth, 1985; Komorita, 1987).

Field studies have given further support to this finding. For example, Maki, Hofman and Berk (1978) have shown that monetary reward can induce electricity

conservation (see also Winett, Kagel, Battalio and Winkler, 1978; Winett, Kaiser and Haberkorn, 1978; Winett and Nietzel, 1975). The motivating factors of fear and greed have also been examined with respect to reward structures, fear being related to loss, and greed to gain (Coombs, 1973; Rapoport, 1966). Harris (1972) has included these parameters with Rapoport's (1967) index of cooperation. As indicated above these findings are inconclusive, with fear and greed both producing higher and lower levels of cooperation.

The symmetry of access and endowments of individuals to shared resource has also been shown to affect cooperation levels (McGuiness, 1986; Samuelson and Messick, 1986). However, the results are mixed: Rapoport, Bornstein and Erev (1989) found that those with high endowments gave less to the maintenance of a public good than those with lower endowments; while other studies have found that those with high-interest contributed more (see van Dijk and Wilke, 1993 for overview). Marwell and Ames (1979, 1980) have examined group size and the distribution of resource in a public goods dilemma finding no systematic account for why such high levels of investment in the public good were found. van Dijk and colleagues (1994) have examined asymmetry in social dilemmas in terms of coordination rules. The findings show that in public good dilemmas participants give relative to their endowments and interests, while in commons dilemmas participants behave in a manner that minimizes the difference of final outcomes. They conclude that there are differences in give-some and take-some dilemma games, with the latter more easily evoking a social norm of equality. They concluded, in line with Schwartz-Shea and Simmons (1995), that:

The study of coordination rules in asymmetric dilemmas may be particularly promising since the concept of coordination rules circumvents the 'methodological individualism' of social dilemma research by incorporating the notion that group members do not only focus on their own outcomes, but also on the outcomes of their fellow group members. (p. 37)

Despite the fact that there have been strong arguments (see Dawes, 1980; Olson, 1965) for why n-person games are different from two person games, group size has been found to have little or no systematic effect on cooperation levels. More cooperation has been found in two person than three person games (Marwell and Schmitt, 1972), and in three person compared to seven person games (Hamburger, Guyer and Fox, 1975). However, Bonacich, Shure, Kahan and Meeker (1976) found higher levels of cooperation in six-person groups than nine-person groups. Fox and Guyer (1977) found that cooperation decreases as group size moves from three-person to seven-person

groups, with no difference between seven and twelve person groups. Liebrand (1984) found no difference in levels of cooperation between groups of seven and twenty persons. Thus the results are equivocal and seem to vary with other moderating variables such as identifiability and responsibility. Brewer and Kramer (1986) studied the effects of group size, identifiability and decision framing. As briefly indicated above, decision framing was manipulated in line with prospect theory (Kahneman & Tversky; 1984). The results showed support for the prospect theory analysis: give-some (public goods) dilemmas being more risk averse than take-some (commons) dilemmas. Group size only had an effect in the public goods dilemma condition and identifiability only became important when depletion of the common resource became severe. Thus, the results regarding group size are equivocal; however, there is general support for the asymmetry analysis of social dilemmas.

Notwithstanding these results, some researchers (see Kormorita, Parks & Hulbert, 1992) believe that the implementation of structural solutions is often impractical in the “real” world and advocate behavioral solutions. Kormorita and colleagues (1992) have thus returned to an examination of the role that the “norm of reciprocity” could play, building on the postulate “that reciprocity is one of the basic norms of social interaction (Blau, 1964; Holmans, 1961; Thibaut and Kelley, 1959)” (p. 608). Given this, individual behavioral solutions are now reviewed.

While outcome interdependence, as understood through game theory, is a defining characteristic of social dilemmas, it has long been observed, casually and informally, that not all individuals are indifferent to the outcomes of others (c.g., Campbell, 1965; Caporeal, Dawes, Orbell and van de Kragt, 1989; Grisinger and Livingston, 1973; Lynn and Oldenquest, 1986; MacCrimmon and Messick, 1976). In fact there is considerable variability in the relative concern for own and other's outcomes. Building on the theoretical developments addressed in Chapter 2, this variability is explained through transformational processes of individuals and is reviewed in the following section.

3.4.B Individual transformational solutions in social dilemmas

Pro-social motivation derived from the work examining social value orientations, has been shown in numerous studies to increase co-operation (Liebrand et al., 1986; McClintock & Liebrand, 1988; Kramer, McClintock & Messick, 1986; Liebrand, 1984;

Liebrand & van Run, 1985; Liebrand, 1986; van Lange & Liebrand, 1989). This individual difference variable has made a significant contribution to this literature, showing that not all individuals are indifferent to the outcomes of others, in other words that not all individuals are motivated purely by immediate individual self-interest. Following on from the research on social value orientations, trust has been examined as a influential variable with high trust relationships inducing more cooperation (Messick et al., 1983; Brann & Foddy, 1987; Yamagishi, 1986; 1988).

Perceptions of the other player have also been found to be influential, with co-operation being greater with those that have similar, rather than dissimilar attitudes (Kaufman, 1967; Tornatzky and Geiwitz, 1968). Others' morality and intelligence has also been shown to be a moderating factor (see van Lange and Liebrand, 1989, 1991; van Lange and Kuhlman, 1994). Feelings of responsibility have also been shown to be positively correlated with contribution size (Fleishman, 1980). Relatedly, cooperation is found to be greater in social dilemmas which are perceived to be moral issues, as it is believed that moral issues induce feelings of responsibility to others (Dawes, 1980; Dawes, McTavish and Shaklee, 1977; van Lange, Liebrand and Kuhlman, 1990). At the same time, some researchers argue that there is a diffusion of responsibility in larger groups, which then can moderate this effect (e.g. Latane and Darley, 1968; Latane and Rodin, 1969; Schwartz and Gottlieb, 1981). This issue is related to the factor of perceived efficacy. Olson (1965) argued that perceived efficacy declines as group size increases, thus leading to low levels of cooperation (see also Kerr, 1989). Individuals will also cooperate more if their contribution is seen to be critical to the provision of a public good (van de Kragt, Orbell and Dawes, 1983).

Expectations of others' cooperation and one's own cooperation are strongly interrelated (see Dawes et al., 1977; Messick, Wilke, Brewer, Kramer, Zemke and Lui, 1983; Schroeder, Jensen, Reed, Sullivan and Schwab (1983); van Lange and Liebrand, 1989) and there is evidence that this relationship is bidirectional (see Abrie and Kahan, 1972; van Lange and Liebrand, 1991). Further, individuals learn from their experience playing the game, as has been shown in research on the effect of others' strategy. Rapoport and Chammah (1965) have found a U-shaped function in iterated games, with cooperation levels first declining and then increasing over time.

The effect of mutual influence on transformational processes is also borne out the strategies individuals adopt. Axelrod (1984) has shown that the strategy of Tit-For-Tat induces higher levels of co-operation than the pure strategies of cooperation and

competition. There is also research that suggests that the strategy of Tit-For-Tat is seen as more intelligent (McClintock and Liebrand, 1988). Kuhlman and Marshelo (1975) have shown how Tit-For-Tat can increase both own and joint benefit, but not the relative benefit that competitors strive for. Building on Tit-For-Tat, Osgood's (1962) GRIT (Graduated and Reciprocated Initiatives in Tension-Reduction) strategy has been very effective in inducing cooperation (Lindskold, 1978; Lindskold, Walters and Koutsourais, 1983). The protocol of this strategy begins with the expression of cooperative intentions, encouragement of other cooperation, the act of cooperative behavior and retaliation only when the other does not cooperate, but never making a non cooperative choice twice in sequence. This research suggests that the initial prosocial communication is extremely important in determining subsequent cooperation. The research related to group process solutions, such as the role of communication, will be reviewed shortly. Before that, Yamagishi's broad theoretical framework of the two types of solutions just reviewed will be presented.

3.4.C Overview of structural and transformational solutions to social dilemmas

While past theoretical approaches to the solution of social dilemmas tended to emphasize either structural or individual variables, Yamagishi (1986) emphasizes the "rational nature" of actors. He defined the two broad theoretical approaches to finding solutions to social dilemmas as the rational-structural approach and the goal/expectation approach. For Yamagishi, the approaches differ in the extent to which they emphasize the "rational nature" of actors or "more psychological aspects of the problem" (p. 66). The rational structural approach assumes that individuals strive to maximize their self-interest, and thus the only solution would be to modify the structure of the dilemma (see Cass & Edney, 1978; Kelley & Grzelak 1972; Messick & McClelland, 1983; Sheppard & Wright, 1989). The goal expectation approach, presented by Pruitt and Kimmel (1977), assumes that each and every individual is dually aware of the long-term consequences of cooperation and defection. Solutions are found by creating perceptions of interdependence between individuals. In other words, cooperation rests on individuals feeling a sense of interdependence with others. Thus, the solution rests on the individual - change an individual's perception of the interdependence situation and a solution can be reached. These changes in perceptions can be induced by developing mutual goals in

which there is an expectation that others can be trusted, and will reciprocate cooperative actions.

Broadly speaking, the conventional social dilemma research, understood through the functional interdependence of individuals, rests on these two approaches. For the most part, social dilemmas and their solutions are understood in terms of the interdependence structures and transformational process of individuals, or the interaction of these two variables, as the literature on group size would suggest. However a third general solution can also be identified -- group process solutions.

3.4.D Group process solutions in social dilemmas

A recent review by Hogg and Moreland (1994) highlights that social psychology has seen a dramatic upswing in research into group processes. Indeed, this is true for the social dilemma literature, with the research on group decision making and social identity being particularly relevant.

Public and private decision making has been examined in terms of individuals' ability to "hide in the crowd" (Bixenstine, Levitt and Wilson, 1966; Jerdee and Rosen, 1974). The issue is now seen as one of identifiability, as the results show that co-operation levels are higher in public rather than anonymous situations (e.g., Fox and Guyer, 1978; Kahan, 1973). Research on communication in resource dilemmas has found that identifiability only has an influence on cooperation when individuals are not allowed to communicate (Jorgenson and Papciak, 1981).

Communication in intergroup cooperation has been studied (Bornstein, Rapoport, Kerpel and Katz, 1989), comparing the collective (both groups) outcomes when either within-group communication or between group communication was allowed. The findings revealed that communication between groups significantly increased the collective outcome. Bornstein and colleagues (1989) suggests that:

Within group discussion promotes co-operation by enhancing group identity and group regardingness... [and] ... in the absence of separate group discussion, between-group discussion may promote collective identity while blurring or eliminating sub-group boundaries. This would lead players to substitute concern for the welfare of the larger society for sub-group interest as a value guiding their choice (p. 433).

Indeed, one of the most robust findings in the literature is that when communication between players is permitted intragroup cooperation increases (Bornstein

and Rapoport, 1988; Dawes et al., 1977; Dawes et al., 1988; Jerdee and Rosen, 1974; Jorgenson and Papciak, 1981;). Kerr and Kaufman-Gilliland (1994) provide an excellent review of the relevant literature. In line with Dawes and colleagues (see Dawes et al., 1990 for a review of this research program) they conclude that only two explanations for the effect of group communication are viable: (1) induced commitments to cooperate; (2) enhanced feeling of group identity. The former attests to the existence of a commitment norm (see Braver, 1995; Janis and Mann, 1977; Kerr, 1995; Leventhal, 1976; Ostrom, Walker and Gardner, 1992; Stults and Messe, 1985; Tedeschi, Lindskold, Horai and Gahagan, 1969 for theoretical and empirical argument) and draws on recent work by Bonacich (1972) and Orbell et al (1988) in which there is evidence of solicitations of commitment to cooperate. Braver (1995), Kerr (1995) and Ostrom et al., (1992) are strong proponents of this approach. The latter argues that group identity is enhanced through communication (see Kramer and Brewer, 1984, 1986; Tajfel, 1980; Tajfel and Turner, 1986; for theoretical and empirical argument). The suggestion is that through enhancing one's sense of group identity, the utility of the group's outcomes is also enhanced over personal utility. Dawes, Orbell and colleagues (Dawes et al., 1988; Dawes et al., 1990; Orbell et al., 1988, 1990, 1991) as well as Kramer (see Kramer and Goldman, 1995) are strong proponents of this latter approach.

Recently, Bouras and Kormorita (1996) further examine why relevant face-to-face communication in a social dilemma increases the level of cooperation. They tested the two general explanations: group identity, understood as concern for fellow group members' outcomes, and perception of consensus, the degree of agreement perceived among group members in their response to the dilemma. Dawes et al. (1977), as well as Brewer and Kramer (1986, to be reviewed in Chapter 6), provided the early support for the group identity explanation; while Kerr and Kaufman-Gilliand (1994) and Orbell et al., (1988) provided the consensus explanation. The former builds on the conclusion "that group identity should be aroused if group members feel they are all recipients of some common fate rather than if they each experience events as individuals" (Bouras and Kormorita, 1996, p. 1145). While the latter builds on Pruitt and Kimmel's (1977) goal-expectation hypothesis and argues that through communication "perceived consensus may be important because it reduces the risk associated with the cooperative choice" (Bouras and Kormorita, 1996, p. 1146). To test these explanations, Bouras and Kormorita (1996) conducted a study that involved a common fate (similar to Kramer and Brewer, 1984) and a relevant, and irrelevant, group discussion condition, as well as a

control condition (no common-fate or communication). The findings revealed that the only condition to significantly affect the cooperation level was the relevant discussion group condition. This led Bouras and Kormorita (1996) to concluded that:

Assuming that the group reaches consensus on the goal of mutual cooperation, there will be strong pressures to conform to this norm. Moreover, this consensus will evoke expectations of reciprocal cooperation and reduce fear that others will exploit one's cooperative choice (the *sucker's payoff*). These two conditions, of course, coincide with the two conditions prescribed by Pruitt and Kimmel's (1977) goal-expectation hypothesis. (p. 1150)

Clearly some group level process enhances cooperation in a social dilemma as evidenced by the literature reviewed here. However, while the evidence implies that variables such as public commitment, identifiability and communication can increase the level of cooperation, it is not clear why this is the case. In other words it is not clear what exactly these variables facilitate in inducing cooperative behaviour in a social dilemma situation.

3.5 Intergroup dilemmas

Up to this point, social dilemmas have been dealt with as an intragroup problem - a conflict between the individual and the collective. However, more recently a second class of dilemmas has emerged -- intergroup dilemmas. This section will briefly examine a small but growing literature on intergroup dilemmas. This body of literature, by and large, was established through the work of Thibaut (see Insko et al., 1987; Insko and Schopler, 1987), who initiated a program of research examining differences between intergroup and interpersonal relations. However, despite its infancy, one of the most robust findings is what is called the individual - group "discontinuity" effect (Insko, Schopler, Hoyle, Dardis and Graetz, 1990) -- the observation that groups tend to be more competitive than individuals (see Insko et al., 1990; McCallum et al., 1985; Rabbie, Visser and van Oostrum, 1982). This observation underlies important distinctions in the conceptualization of group process in social psychology and Insko and colleagues have done the most consistent work on what is now called the individual-group discontinuity effect.

Beginning with McCallum, Harring, Gilmore, Drenan, Chase, Insko and Thibaut (1985), these researchers built on Turner's (1981) conclusion that states:

there is some consistent evidence that social groups seem to be more competitive and perceive their interests more competitively than individuals under the same functional conditions. (p. 97)

Through a series of experiments McCallum and colleagues conclude that groups are more competitive than individuals because groups transform individuals through providing an important opportunity for self-evaluation. They argue that through intergroup social comparison processes, groups are motivated to protect and maintain their social identity; however, this is at a cost to individual or personal reward. Given these high stakes, groups thus become highly motivated to gain superiority over outgroups. As such, groups subsume the pursuit of individual self-interest and thus intensify intergroup conflict. McCallum et al. (1985) conclude that:

the absolute level of outcomes becomes less important to the group than “winning” or “not losing” in comparison with the out-group. ... the competitive choice achieves these goals. As reported in Turner (1981), this attention to relative gains persists even when it appears to conflict with an individual’s self-interest and reduces his or her actual outcomes, which is another indication that the competition is motivated by self-esteem concerns than by greed. (p.317)

It is further argued that group behavior leads to the development of *astute hypocrisy* of individuals which resulted in more deceitfulness and lying by individuals in intergroup situations. It is argued, in line with LeBon (1895) and McDougall (1921), that groups are “more aggressive, competitive, or barbaric” (Insko et al., 1993) than individuals. Insko and colleagues (1990) conclude that groups are entities that evoke irrational behavior, inducing “stupid, barbaric, or any other undesirable behavior” (p. 419). As such, the “challenge for future research is to discover ways to induce intergroup interactions to be similar to interindividual interactions” (p. 431).

Further studies have examined the role of intergroup contact (Insko, Pinkley, Hoyle, Dalton, Hong, Slim, Landry, Holton, Ruffin and Thibaut, 1987) and consensus rule (Insko, Hoyle, Pinkley, Hong, Slim, Dalton, Linn, Ruffin, Dardis, Bernthal and Schopler, 1988) on the individual-group discontinuity effect to explain this phenomenon. Three hypotheses are put forward: (1) the altruistic-rationalization hypothesis (the individual hypocritically defers competitive behavior in groups to group altruism - action for the sake of fellow group members); (2) the group-schema hypothesis (when entitativity of group membership is elevated a group-schema is evoked which elicits “intragroup loyalty and cooperation and intergroup distrust and competition” (Insko et al., 1987, p. 265)); and (3) the social-support-for-shared-self-interest hypothesis (individual greed is socially supported and thus solicited in the group condition). As the

fear and greed hypothesis has received the most systematic support in the literature, more recently, Insko, Schopler and colleagues (1993) have applied the fear and greed motivational analysis to this observed effect.

It is our contention that the discontinuity effect is mediated by a fear of the out-group's competitiveness and, when this fear is less salient, by a greedy desire to exploit the out-group's expected co-operativeness. (p. 419)

Lindskold et al., (1986) have found this effect to be particularly apparent in the first stage of a social dilemma. This chronology was also found in a study by Insko and colleagues (1992), in which they contrasted two theoretical models to account for this effect: realistic group conflict theory (Campbell, 1965) and social identity theory (Tajfel and Turner, 1978, 1982). They used a three choice matrix to examine the relative dominance of two strategic choices: maximizing individual outcome and maximizing relative outcome. These two strategies are interpreted to reflect the predictions of the two respective theories. They conclude that they have found support for both theories: Campbell is correct in that the conflict must be real (relevant) to both parties, based on the fact that the initial strategy chosen was to maximize individual outcome; however, support for the social identity approach grew as the conflict escalated, based on the fact that parties chose the strategy of maximizing relative payoffs more often as the game progressed.

Other research involving intergroup dilemmas follows Hardin (1982), who observed that "It is often ... the case that collective action is of interest to the group primarily because some other group has an ongoing interest that is being served to the detriment of the first group" (p. 15). In this vein, Bornstein and colleagues have examined social dilemmas in situations involving intergroup conflict. This program of research has used the intergroup prisoner's dilemma (IPD), with each group being treated as a unitary player. Initial research (Bornstein, 1992; Bornstein et al., 1990) found a positive correlation between intragroup cooperation and intergroup competition. For example, it was demonstrated that "free-riding" decreases within the group when intergroup competition is evident. Bornstein (1992) concludes that:

Individuals tend to keep their promises. Groups, however, do not! ... Our findings suggest ... that groups may benefit from restricting intergroup contact in times of conflict. Such restrictions will make each group more effective in solving its internal problems of "free riding." But society as a whole will have to pay the price of collectively deficient outcomes. (p. 259 -260)

This observation is consistent with further work of Bornstein and Ben-Yossef (1994), who conclude that “individuals may be more likely to cooperate in an intergroup conflict than in a single-group dilemma, not because they are more altruistic, but because they are more efficacious” (p. 64). This observation is consistent with Kerr’s Bornstein, Kitayama and Abboushi (in press) summarize their arguments as follows:

Groups decide to compete because their members calculate that more is to be gained (or less to be lost) from this course of action than from [intergroup] co-operation [and in this sense] groups are merely vessels of individual interest.

These researchers concluded that it is real intergroup conflict, as it relates to collectives of individuals, that increases intragroup cooperation. They assume, with Campbell (1965) and Rabbie, Schot and Visser (1989) that it is the interdependence of individuals through common fate that induces perceived group membership. Likewise, van Lange concludes that “the presence of an outgroup per se is not the key to promoting ingroup support; rather, the key to understanding ingroup support is the underlying interdependence between ingroups and outgroups (c.f. Rabbie and Horwitz, 1988)” (p. 59).

This section, with the previous, has highlighted the many ways that social dilemmas are conceptualized and operationalized in the literature. The one basic premise that underlies each of these classifications and definitions is that the individuals involved are outcome interdependent, and this has been objectively defined through the interdependence structure in each of these games. In the words of Deutsch (1980), through structural interdependence “their fates are woven together” (p. 61). Further, the views presented in this chapter predominantly argue that group level behavior leads to irrational processing. This conclusion is in line with Campbell (1965) who offered a similar observation:

We have tended to see the altruistic as moral, as the imposed achievement of civilization. Under a broader framework we must now, in some cases, be willing to see altruistic social motives as irrational and immoral, or at least amoral. (p. 307).

The irrationality of group level behavior is a conceptualization of group life that the social sciences have continued to struggle with, not only over the last century in social psychology but in the social sciences in general (see Hardin, 1995).

3.6 Summary and synopsis of the social dilemma research

A fundamental question that arises in this chapter is: what determines “rational choice” in a social dilemma? What role do group level processes play? Are groups necessarily more deceitful than individuals, as the intergroup research reviewed in this chapters argues? Social dilemmas, in effect, pit individual rationality against collective interest. However, is the serving of individual self-interest, short and long term, always the rational choice in situations of interdependence? On this point, do individual utility functions, such as cooperators, competitors and individualists, also serve this end, in that they provide for the maximization of individual self-interest in the long term. Or does the functioning of group level processes, such as the role of communication, question this premise of rationality and self-interest? In terms of the contemporary analysis, the formal answer lies within the foundations of the social dilemma research -- game theory, wherein rationality is defined through the minmax principle. Individual self-interest is assumed to be the rational choice.

Rapoport (1966) has long suggested that the notions of individual and collective rationality be separated, recognizing that rationality can have more than one meaning. Rapoport (1974) understands the problem as follows:

It turns out that in the context of non-constant-sum games like Prisoner's dilemma actually two concepts of 'rationality' compete for attention, namely individual rationality, which prescribes to each player the course of action most advantageous to him under the circumstances, and collective rationality, which prescribes a course of action to both players simultaneously. It turns out that if both act in accordance with collective rationality, then each player is better off than he would have been had each acted in accordance with individual rationality (p. 18).

This concurs with Poundstone's (1993) recent review of prisoner's dilemma games in which he agrees with Shubik (1970): “The paradox of the Prisoner's Dilemma will never be solved - or has already been solved - because it does not exist” (p. 277). For Shubik, the game demonstrates one thing well, that individual interest can overturn collective interest, given the right circumstances, in other words rationality may not be fixed. He draws the analogy of a feather and a lead weight being dropped in a vacuum. What we find is that they fall at the same rate, defying what we believe to be true. The prisoner's dilemma game also defies what we know to be true. For within the social dilemma paradigm we have been endeavouring for years to increase the rate of cooperation. It has perplexed us, as researchers, that individuals fail to cooperate in these experimental

dilemmas. As a consequence, the rational pursuit of individual self-interest, has become our base line for understanding human nature. But human rationality does not exist in a vacuum, what we know to be true is that humans do cooperate to a remarkable degree (see also Etzioni, 1988; Tajfel, 1972; Turner, 1981). As Poundstone states: "Real-world dilemmas are built of subjective valuations of the welfare of one's self and others... the ability to see "opponents" as fellow beings frequently transforms a nominal prisoner's dilemma into a much less troublesome game" (pp. 277-8). The question is, psychologically, by what mechanism do we come to see opponents as fellow beings - as a collective? Empirically, Dawes, van de Kragt and Orbell (1990) suggest:

Our experiments have lead us to conclude that co-operation rates can be radically affected by one factor in particular, which is independent of the consequences for the choosing individual. That factor is group identity: Such identity - or solidarity - can be established and consequently enhance co-operative responding in the absence of any expectation of future reciprocity, current rewards or punishment, or even reputational consequences among other group members.(p.199)

A recent review of the literature (Tyler and Dawes, 1993) questions the premises of an individual's motivation to maximize individual self-interest, recognizing that often an individual's self-interest is consistent with the group interest. They suggest "that developing a group identity is central to willingness to act in the group's interest rather than one's own. The key psychological question is why this effect occurs." (p. 93). Thus, the question can be asked: what role does identification play in addressing intragroup and intergroup processes? Can the paradigm assist us in answering these questions? Or does it restrict us?

In their review of the literature Pruitt and Kimmel (1977) have suggested that the gaming paradigm can lead us to the theoretical core of behavior in social dilemmas:

The question in our minds is not whether to develop theory, but how? Can we build on the data already collected or must we start anew? Our inclination is toward the former. We are attracted by the metaphysical assumptions of the gaming paradigm -- that behavior should be viewed as a set of decisions aimed at achieving valued outcomes. If their assumptions are valid, then we can view past research as rough "outcropping" or surface phenomena that can guide us to the underlying veins of theoretical core. (p. 370)

Inherently the use of this paradigm embeds us in the notion that rationality, as defined by von Neuman and Morgenstern (1944, 1947), is the pursuit of individual utility maximization. This literature is clearly embedded in a meta-theory that favours the individual: groups are defined in terms of the outcome interdependence of individuals

and rationality is defined at the individual level. The bias is clearly towards human rationality as viewed by homo-economicus (see Grezlak, 1991; Stroebe and Frey, 1982).

Yet this body of literature is at a stalemate, as evidenced by its numerous equivocal results. Researchers are looking for further understanding: some press for the return to the roots of interdependence theory (Kelley, 1991; Van Lange, 1994; Rusbult and Van Lange, 1996); others state that “social psychologists have largely ignored economic principles and concepts” (Kormorita and Parks, 1995, p. 200) and advocate cross disciplinary collaboration; and others argue for the application of artificial intelligence (Liebrand, 1992). For each agrees that the “elegant mathematical world of decision making obviously does not sufficiently match reality. [And] we currently lack a comprehensive theory of decision making in interdependent settings, which integrates the variety of theoretical and empirical research findings” (Liebrand, 1992, pp. 279-280).

Yet this may not be enough. Before adopting yet another trajectory for this research to encompass, it seems prudent to take even a wider step back, beyond the roots of interdependence theory, to the very roots of our discipline and examine the assumptions and meta-theory that are embedded in this body of literature. For a consistent pattern emerges within this literature on social cooperation. We have established an ongoing history of failed theoretical development. In reference to the theoretical developments reviewed in Chapter 2, each of the key researchers highlighted has noted this:

May and Doob (1937): It is quite plain that existing research on competition and cooperation is scattered, spotty, and even chaotic. (p. 141)

Deutsch (1949): There has been little in the way of explicit theorizing and virtually no experimental work with respect to the effects of co-operation and competition upon social process. (p. 129)

Pruitt and Kimmell (1977): Gaming research has a peculiar status. On one hand, it has been immensely popular, with over 1000 published studies. But on the other hand, the results of these studies have been largely ignored by the broader field. Our diagnosis of this situation stresses an undesirable method bound approach, lacking in theory and with little concern for external validity. (p. 363)

Each of these approaches emphasizes the goals or outcome interdependence of the individuals involved. As presented, this approach addresses the problem through the analysis of outcome interdependence structures and the transformational processes of individuals within these situations.

Ironically, this research has moved away from the dynamic theory of the person and the situation that Lewin (1935) argued for. We’ve now categorically classified every

aspect of this literature into taxonomies, typologies, strategies and solutions. It seems that a paradigm shift would be a reasonable extension, moving from a classification system of individuals and situations towards a fuller understanding of the social psychological processes that subsume the dynamic relationship between the individual and the situational. Through our classificational analysis the social psychological study of social cooperation has become more descriptive than prescriptive. This is in line with Lewin's (1935) early arguments:

Finally, it means for psychology, as it did for physics, a transition from an abstract classificatory procedure to an essentially concrete constructive method. (p. 42)

For Lewin the “dynamics of the process” were essential to understanding behavior, in accordance with momentary aspects of the individual and momentary aspects of the environment. In Lewin's (1935) own words:

What a thing is at any time depends upon the total situation and the momentary condition of the [individual]. Similar considerations hold also for the social factors. In this dependence there becomes clear a matter of fundamental psychological importance, namely, *the direct relationship between the momentary state of the individual and the structure of his psychological environment*. That the psychological environment, *even when objectively the same*, depends not only upon the individual character [of the individual] concerned but also upon its momentary condition becomes clear when we consider the relation between environment and needs. (p. 76, italics mine)

In other words, behavior is a product of a dynamic social psychological system. Hence, in order to further develop our understanding of social cooperation, it is essential that we study the social psychological process involved, as it relates to the social field of interaction that is psychologically relevant to the individual. In particular the process of social identification with others seems conceptually ripe to pursue, as highlighted by the conclusions reached by Dawes et al., (1990) and others working within the interdependence literature that defines social dilemmas and their solutions.

This thesis will argue that it is now time to step aside from this structured paradigm of interdependence to study these social psychological processes underlying social cooperation. For as Grzelak (1991) concludes in speaking to the interdependence literature on social dilemmas: “in studying social orientations, social justice and traps, we are in a kind of trap ourselves, a trap of our own experimental paradigms and [meta] theoretical (pre) conceptions. ... We still lack a good psychological theory of conflict between individual and social interest” (p. 234). This issue will be examined in the following chapters. To begin, Chapter 4 will review two important assumptions in this

literature: our conceptual understanding of self-interest and the reality of social group. Chapter 5 will present a different theoretical approach that can be applied to the understanding of social cooperation: social identity theory (Tajfel, 1982; Tajfel & Turner, 1979) and self-categorization theory (Turner, 1985; Turner et al., 1987).

- Chapter 4 -

Us and Them: Self-interest and the reality of the social group

4.1 Introduction

The previous chapter highlighted the findings of literature that has emerged from the social dilemma paradigm - a paradigm designed to study the abstract analysis of strategic social interdependence and to find rational solutions to these scenarios. Given the mixed empirical findings raised in the previous chapter, as well as the active pursuit of researchers in this area looking for answers, this chapter aims to examine two important underlying assumptions of this body of literature: self-interest, narrowly conceived in terms of rational actor models, and functional interdependence, as the defining conceptual nexus between the individual and the group. This chapter will begin with a brief account of our implicit understanding of the self, and rational action, in the social sciences, which will be followed by a short history of how social psychologists have conceptually understood the relationship between the individual and the group. The aim of this review is to re-examine basic theoretical assumptions that have been made when addressing research questions that relate to social dilemmas and social cooperation.

The primary assumption of this body of literature is that behavior in social dilemmas is motivated entirely by individual self-interest, short and long term; the main premise being that all individuals aim to increase their respective utility functions. However it has been widely argued that this assumption needs to be re-examined (Edney, 1980, 1981; Granovetter, 1985; Kramer & Brewer, 1986; Lynn & Oldequist, 1986; Messick, 1974). Recently Caporael (1995) has argued:

Most behavioral and social sciences assume human sociality is a by-product of individualism. Briefly put, individuals are fundamentally self-interested; "social" refers to the exchange of costs and benefits in the pursuit of outcomes of purely personal value, and "society" is the aggregate of individuals in pursuit of their respective self-interest. To this view of "economic man," which long pre-dated Darwin, sociobiology added the idea that individual advantage could be measured in the currency of genes. (p. 1)

This embedded assumption, as well as other concerns, have prompted the following review of the history of self-interest and the principle of rationality. Following this review, the history of the conceptual relationship between the individual and the group will be outlined.

4.2 A brief history of self-interest

The prevailing doctrine of this age defines self-interest in terms of the benefit to me, an isolated individual. This doctrine has influenced the course of social psychology significantly, with the debate on the nature of self-interest having a long and varied history -- back to the fourth and fifth centuries B.C. in Athens (see Mansbridge, 1990).

At that time, self-interest was a topic of debate between the sophists and others, as documented in the writings of Plato and Aristotle, who opposed the sophists' arguments. The sophists believed that it was our nature, as human beings, to act in terms of our individual self-interest, so to gain maximum power and reward to oneself at the minimum of personal risk; mutual individual defence was the primary aim of group life. Plato and Aristotle opposed them on strong humanitarian grounds, arguing that we inherently, as individuals, have collective interests -- the basis of state representation. By the mid-seventeenth century, Thomas Hobbes, following the advancement of the scientific method, reduced the world to its analytic components -- individuals -- deducing a universal, irreconcilable conflict that, if not controlled, would lead to "the war of all against all." In his most influential work, Leviathan, he argued through deductive reasoning the necessity of obedience to a sovereign state to control the ultimate destructive nature of individuals. Hobbes (1651) argued that all individuals are involved in a struggle against others, all of us have:

a perpetual and restless desire of Power after power, that ceaseth only in Death. And the cause of this, is not always that a man hopes for more intensive delight, than he has already attained to; or that he cannot be content with moderate power: but because he cannot assure the power and means to live well, which he hath present, without the acquisition of more. (p. 61)

With the rise of capitalism in the late 17th century, the legitimization of the rational "economic man" developed this perspective further. Hobbes' influential model of individuals pursuing power, ultimate power, pits man against man, nation against nation, all for the sake of the security of the isolated individual. Historically, as man went exploring and conquering new lands, legitimising conflict went hand in hand with legitimising self-interest. Theorists, such as John Locke (1689), began stressing the

necessity of accepting conflict. Today, self-interest, narrowly conceived, prevails and flourishes, as the world powers ride out the ultimate perils of economic self-interest.

As outlined, social cooperation has predominantly been studied through the social dilemma paradigm, where the outcomes that are good for each group member acting individually are bad for the group as a whole. Effectively, the paradigm pits the individual against society, wherein individuals are understood to sacrifice some of their outcomes for the collective good, or all are worse off. The underlying motivation is to maximize personal interests. The similarity with Hobbes' conceptual analysis is striking. Hardin (1968) also saw little cause for optimism regarding the prospects for cooperation in commons resource dilemmas. The conceptualization continues to be that the state of nature resides in the pursuit of individual self-interest. Individual control over outcomes has thus become the dominant paradigm, as seen in the theories outlined in Chapter 2.

As shown in the previous chapter, the evidence is mixed, sometimes ambiguous, and lacks consistency; the jury is still out on how to solve social dilemmas. It is not hard to find evidence from laboratory experiments (Allison & Messick, 1985), field studies (Wilson, 1977), or computer simulations (Meadows, Randers & Behrens, 1972) that seems to support Hardin's gloomy view of the 'tragedy of the commons.' In many experiments, even when small groups of individuals are allowed unrestricted access to scarce resource pools, they often fail to exercise the restraint necessary to preserve them. At the same time, outside the formal structure of the gaming research, there are many situations in which individuals do cooperate to a surprising degree in everyday life. Given such productive levels of cooperation, it is hard to reconcile these findings with the assumption that behavior in social dilemmas, and otherwise, is motivated entirely by individual self-interest. People have been observed to reduce water consumption during droughts, curtail their driving during gasoline shortages, and donate blood when public supplies run low (see Etzioni, 1988; Hornstein, 1976; Organ, 1988; Talarowski & McClintock, 1978).

Given such evidence, several researchers have argued that the assumption that individual decision making in social dilemmas is motivated primarily by egoistic motives, or concern about self-interest alone, needs to be re-examined (Edney, 1980, 1981; Kramer & Brewer, 1986; Lynn & Oldenquist, 1986; Messick, 1974; Mansbridge, 1990). There is a growing recognition, by a number of social psychologists, that it is invalid to assume that all human behavior is driven by selfish individualism. Recently, there have been several cogent and diverse critiques of this Hobbesian assumption (e.g.,

Etzioni, 1986, 1988; Grzelak, 1991; Lerner, 1980; Mansbridge, 1990; Schwartz, 1986; Wallach & Wallach, 1983). Edney (1980), for example, suggested that the development of theory regarding cooperative solutions to resource dilemmas has been impeded by "Hobbesian assumptions that social conflict is natural and ubiquitous in groups" (p. 145). Similarly, Granovetter (1985) observed more generally that recent research on economic and social behavior has been dominated by an "atomistic, *undersocialized* conception of man in the utilitarian tradition of which Hobbes was part. Actors do not behave or decide as atoms outside a social context, nor do they adhere ... [to] ... social categories that they happen to occupy. Their attempts at purposive action are instead embedded in concrete, ongoing systems of social relations" (p. 483, 487). Lynn and Oldenquist (1984, 1986) have mooted this argument directly at the social dilemma literature. In their 1984 paper, *American Social Psychologists: The Children of Hobbes*, they state:

If social psychologists did not feel they could explain human behavior independently of social context, there would be less of a gulf between them and sociologists, who have long been less atomistic than the psychologists, less haunted by the ghost of Thomas Hobbes, and more willing to see *Gemeinschaft* as something that informs and creates the behavior, indeed, *the very identity, of individuals*. (p. 47, emphasis added)

Sahlins (1976) argues that "economic man" is an idiom of Western culture, not a fact of human nature. Caporael et al., (1989) are in agreement, offering an alternative explanation that:

Group living has been a central characteristic of the human species through human evolution (Foley, 1987). Yet psychologists, anthropologists, and evolutionists have rarely considered what psychological characteristics might have evolved as adaptations to living in small groups. Instead, most theorists assume that human nature is basically selfish and individualistic. (p.1)

As this summary outlines, there are converging arguments from a number of perspectives that we re-think our conceptualization of human nature.

On the other hand, recent theorizing continues to support the now centuries old notion of "homo-economicus". Dawkins (1976) has forwarded the selfish gene theory. Axelrod (1984) has forwarded his "reciprocal altruism" hypothesis; Alexander (1987) "kin altruism". Not denying the increasing evidence on the role of identification with groups, there is also a growing interest in the social sciences (Hardin, 1995) in the relationship between self-interest and identity. Hardin (1995) has recently written extensively about this and summarizes:

The argument of "the logic of collective action" is that self-interest typically runs counter to group interest. This is commonly thought to be distressing conclusion: Because we are self-seeking, we fail collectively and, therefore, individually. (pp. 4-5)

Hardin goes on to argue that through identification processes "self-interest can often successfully be matched with group interest. And when it is, the result is often appalling" (p. 5). In other words, while self-interest can be matched to the group interest, this processes often leads to irrational behavior. The double-edged sword (Brewer and Schneider, 1990, to be reviewed in Chapter 6) of individual and group life is borne out; specifically, the dichotomy of individual rationality and collective irrationality induced through identity processes.

Despite this growing body of literature which support these "egoistic incentive" theories, Caporael et al. (1989) offer an alternate explanation that "sociality was a primary factor shaping the evolution of *Homo sapiens*" (p.1) In discussing social dilemma research and self-interest, they state that "a critical assumption in the human sciences is that people's choices in such dilemmas are individualistic, selfish and rational" (p.1). Their analysis shows that the 'egoistic incentive' notion is a heuristic convenience, organizing a variety of behaviors under a single explanatory umbrella, and that it is pre-emptive to write off all human behavior as only a means to an end for the satisfaction of self-interest, narrowly conceived. They provide sociobiological theoretical arguments, with supporting empirical evidence, in which the results cannot be explained in terms of egoistic incentives (i.e. individual self-interest). They propose a 'sociality hypothesis' that human nature is instinctively social rather than individually selfish.

Caporael et al. (1989) cite a number of recent studies that manipulate our social identity as a primary factor of social cooperation, acknowledging that our identity can have a social rather than economic basis. These studies explicitly manipulate social identity in social dilemmas (and will be described in Chapter 6), arguing that individuals inherently act in terms of multiple social identities. These researchers manipulate the social identity of the participants so as to give either ingroup or outgroup identities (differential group identity) or a superordinate group identity (inclusive group identity). The results indicate that social identity does affect the individual's decision making in a social dilemma. Generally, individuals were more cooperative when there was a shared social identity and less so when there was a differentiated group identity. Thus, the assumptions that cooperation is a pursuit of

rational individuals for the benefit of their isolated self-interest needs to be re-examined in terms of the psychological reality of group level processes.

In summary a large assumption within the behavioral and social sciences is that human sociality is a by-product of the resource interdependence of individuals. The simple (untested) assumption is that individuals are fundamentally self-interested; our “sociality” is merely a default mechanism that results from social exchange systems, wherein individuals accrue costs and benefits in pursuit of maximizing their personal outcomes. Society, as such, is a by-product of an aggregate of individuals pursuing their respective self-interests.

Many social psychologists would recognise this model of the individual as grossly simplified and many other social scientists would concur with this assessment. Thus, whilst economics, through game theory, provides a language and structure that allows a certain type of a social dilemma to be defined it has been only moderately successful in explaining people’s behavior in these situation of objective interdependence. This suggests that the strongly individualistic model may usefully be modified or replaced with a more social model or theory of group behavior (see also Chase, 1992). Thus, our historical understanding of the conceptual nexus between the individual and the social group is important to this endeavour, and will be reviewed in the following section. It is telling to consider the implicit nature of the self that is taken in each of these accounts.

4.3 The conceptual nexus between the individual and the group

Given that social dilemma research has found that objective interdependence, per se, does not create essentially group type behavior, such as cooperation, the aim of this section is to examine the debate over the social and psychological reality of the group - a debate that has been called the ‘essential problem’ of social psychology (F. Allport, 1924; Asch, 1952; Oakes et al., 1994; Turner & Oakes, 1986). While the objective or social reality of groups has, for the most part, been taken as a given, the psychological reality of groups as meaningful, and thus motivating, entities, has been debated throughout the history of social psychology. It seems prudent to review this history in light of the findings of the previous chapter. Perhaps this history will offer insights into this literature and bring direction to this body of literature for it seems that this literature is not only discordant with its own findings but it has also grown apart from the a large

body of work on intergroup relations. As Messick and Mackie (1989) state: "It strikes us as curious that the immense literature on conflict management, a literature large enough to support two scholarly journals ... remains by and large apart from the literature on intergroup relations and vice versa" (p. 69). This section will review three main traditions in the conceptual relationship between the individual and the group, each of which have influenced developments in social psychology: (1) group mind theorists (pre-experimentalists); (2) behaviourists; and (3) interactionists.

4.3.A Group mind theorists: The pre-experimentalists

Broadly speaking the pre-experimentalists such as LeBon (1895), McDougall (1921) and Freud (1921) took up a group mind thesis. Generally, it was understood that society existed apart from the primal individual; however, to enjoy the benefits of society individuals adopted social doctrines of law and order to function effectively together as individuals. Society existed to impose peace and order on the individual; in other words, for the individual to become civilized and thus benefit from it. The influence of Thomas Hobbes is immediately apparent in this thesis. Society was not understood as a group, as such, and for the most part group behavior was understood to be irrational, driven by primitive instincts and emotions (see Asch, 1952; Turner et al., 1987 for a more extensive review).

LeBon (1896) explained the mental unity of a crowd as group behavior, specifically it was the mental unity rather than the physical proximity that defined a group. His general thesis was that the crowd induced anonymity, wherein individuals experience a loss of self and personal responsibility. Behaviour was then dictated by a collective radical unconscious which operates from the primitive state of the uncivilized human being, whereby intellect is lost and atavistic emotions predominate. LeBon summarizes group behavior as "the special characteristics of crowds such as impulsivity, irritability, incapacity to reason, absence of judgement or critical spirit, exaggeration of emotions and more besides are also observed amidst lower forms of evolution such as the savage and the child" (1895, p. 23).

Interestingly, LeBon's analysis of crowds reflects his contempt of collective protest in the late 1800's in France and he explicitly adopts the individual self-interest model of human nature.

In a group every sentiment and act is contagious to such a degree than an individual readily sacrifices his personal interest to the collective interest. This is an aptitude very contrary to his nature, and of which a man is scarcely capable, except when he makes part of a group" (p. 33)

For LeBon, individuals are transformed by groups, such that, however different the individuals that makeup the group up may be, they act very differently than they would do as isolated individuals.

McDougall (1921) highlighted an inherent contradiction in LeBon's work - while groups can sometimes bring out a destructive nature in the individuals who make them up, groups also have an amazing capacity to do good. As McDougall (1921) states a group "has ideals and aims and traditions loftier than any principles of conduct the individual can form himself unaided" (p. 20). The recognition of this paradox acted as a catalyst for him to re-examine the relationship between individuals and groups, specifically he made the distinction between organized and spontaneous groups.

McDougall was influenced by the work of Darwin through his interest in the problem of the genesis of the human mind. His approach incorporated the instinct of the individual with the social environment provided by society. While rejecting scientific inquiry as being too abstract from reality, he developed an analysis of the mind within society. In his own way he was an interactionist who believed that:

We can only understand the life of individual and the life of societies, if we consider them always in relation to one another. It was realised that each man is an individual only in an incomplete sense; that he is but a unit in a vast system of vital and spiritual forces which, expressing themselves in the form of human societies, are working towards ends which no man can foresee; a unit whose chief function it is to transmit these forces unimpaired, which can change or add to them only in infinitesimal degree, and which, therefore, has not little significance and cannot be accounted for when considered in abstraction from that system. (1921, p. 6)

For McDougall (1921) society had a spirit of its own -- a supernatural force with metaphysical powers that subsumed the individuals within. Society had a group spirit that united individuals. Social cooperation was understood as acting in accordance with the society's group spirit. Human society could only exist through "faithful self-sacrificing co-operation" (p. 79) of individuals:

The group spirit destroys the opposition and the conflict between the crudely individualistic and the primitive altruistic tendencies of our nature. ... This is the peculiar merit and efficiency of the complex motives that arise from the group spirit; they bring the egoistic self-seeking impulses into the service of society and harmonise them with the altruistic tendencies. The group spirit secures that the egoistic and the altruistic tendencies of each man's nature, instead of being in perpetual conflict, as they must be in its absence, shall harmoniously co-operate and re-enforce one another throughout a large part of the total field of human activity. (p. 79)

Through the essence of a group spirit individuals come to identify themselves with the group and to work for the welfare of the group. The power of the group spirit overcomes purely individualistic egoistic motives. In this view the honour and glory of society or group becomes that of the individual, transcending individualistic motives.

Like Sumner (1906), McDougall saw society as being made up of many different groups and thus each individual could share in multiple group consciousness. This conceptualization is important to his analysis for:

it allows the formation of a hierarchy of group sentiments for a system of groups in which each larger group includes the lesser; each group being made the object of the extended self-regarding sentiment in a way which includes the sentiment for the lesser group in the sentiment for the larger group in which it is comprised. Thus the family, the village, the county, the country as a whole, form for the normal man the objects of a harmonious hierarchy of sentiments of this sort, each of which strengthens rather than weakens the others, and yields motives for actions which on the whole co-operate and harmonise rather than conflict. (1921, p. 80)

Thus an individual can come to cooperate with an ever increasing chain of inclusive groups, each movement outwards increasing the strength of those it includes. One comes to identify with the group in terms of self-regarding sentiment, a process through which the group becomes primary to the individual. As one acquires the group spirit, loyalty and devotion to the group increases as do acts of self-sacrifice. As with the other pre-experimentalists, cooperation is seen as an act of self-sacrifice for a common good that exists above and beyond the reality of the individual -- that being the reality of the group mind which individuals must submit to, in order to reap the rewards of society.

Freud (1945, p. 84, first translated 1922) understood LeBon to be primarily concerned with spontaneous or transient groups, McDougall with stable associations of group life, while Freud himself was concerned with identification processes that are related to attachment to objects of desire to satisfy innate emotional needs and desires. He took a developmental approach. He argued that children first attach themselves with their mother and identify with fellow siblings. This same pattern further develops in the school setting, with teachers being the attachment (authority) figures, and then to other domains of life. Justice within these attachment groups can only be held up through the object of attachment giving equal treatment to all. To uphold this equal treatment individual must sacrifice certain things, which can evoke hostile feelings of resentment. In this same way, throughout the life span, individuals attach themselves to leaders through the same attachment and identification process. As Freud (1945) states:

Thus social feeling is based upon the reversal of what was first a hostile feeling into a positively-toned tie of the nature of an identification. The preliminary condition [of group membership] is that all their members should be loved in the same way by one person, the leader. Do not let us forget, however, that the demand for equality in a group applies only to its members and not to the leader. All the members must be equal to one another, and a single person superior to them all -- that is the situation that we find realised in groups which are capable of subsisting. (p. 88 - 89)

Freud uses the army as an analogy:

It is obvious that a soldier takes his superior, that is, really, the leader of the army, as his ideal, while he identifies himself with his equals, and derives from this community their egos the obligations for giving mutual help and for sharing possessions which comradeship implies. But he becomes ridiculous if he tries to identify himself with the general. (p. 110)

This led Freud to concluded that human nature led individuals to be horde animals, through the manner in which they were led by a chief, and that this hording behavior was the basis of cooperative relations. Cooperation is then understood as a product of identification with a uniting leader, through which all individuals are equal and thus cooperate in pursuit of pleasing the common leader (opposed to goal). This analysis assumed that “this prodigy as meaning that the individual gives up his ego ideal and substitutes for it the group ideal as embodied in the leader” (p. 102).

Interestingly, a common theme to emerge across the work of each of these group mind theorists was the role of emotions and loss of one's individual identity or rationality to the group. While each recognized the reality of a group mind, this was seen as a quite separate entity to the rational, intelligent or civilized individual.

4.3.B Behaviourism: The sole reality of the individual

In reaction to the group mind thesis, Floyd Allport (1924) developed a theoretical synthesis within the framework of Watsonian behaviourism. His quest was to bring social psychology back into the science of psychology and away from the metaphysical, and thus intangible notions, of a group mind. It was in this context that his individualistic doctrine emerged (Allport, 1962), its aim to debunk the “group fallacy” of attributing reality to groups and social institutions. For Allport the individual is the only point of analysis: “if we take care of the individuals, psychologically speaking, the groups will be found to take care of themselves” (Allport, 1924, p. 9).

As a social scientist opposed to the group mind thesis, he was influenced by the zeitgeist of biological determinism, favouring behaviourism and the experimental method. Allport (1924) summarizes his approach as follows:

There is no psychology of groups which is not essentially and entirely a psychology of individuals. Social psychology must not be placed in contradistinction to the psychology of the individual; *it is a part of the psychology of the individual*, whose behavior it studies in relation to that sector of his environment comprised by his fellows. His biological needs are the ends toward which his social behavior is a developed means. (p. 4)

As an individualist, Allport (1924) defines a group as “any aggregate consisting of two or more persons who are assembled to perform some task, to deliberate upon some proposal or topic of interest, or to share some affective experience of common appeal” (p. 260). And while never defining cooperation, per se, Allport (1924) discusses cooperative behavior as follows:

Within the larger groups in which the interests of the whole transcend the narrower family responses, animals afford many examples of cooperation, and often, like humans beings, make real sacrifices for the welfare of the group. One of the simplest forms of cooperation ... is the taking of positions in such a way as to allow the best coordination among the individuals of the group. ... Cooperation in the stricter sense [is] each doing his share in a common labor. (p. 165)

Cooperation, in this sense, is nothing more than co-action with other individuals. His experiments examined the influence of face-to-face groups on individuals concluding that there is a “phenomenon closely allied to cooperation ... known as *esprit de corps*” (1924, p. 283). This observation became incorporated into his theory of social facilitation, one of two processes that accounts for the accelerating effects of groups on individual performance. It is thought that other co-actors serve as contributory stimuli through performing the same task and thus accelerate our responses. At the same time groups can also detract from our performance as “we are confused and distracted whenever we feel our reaction to be at variance with or inferior to the average behavior of those about us” (1924, p. 285). In this light groups induce conformity and are conceptualized as the sum of their individual co-actors.

Allport did not deny the existence of social groups or communities of individuals and he understood cooperation as labouring for the good of the community of which you are a member. He believed that it was our public institutions that maintained the cooperative good of society. Thus the insitutionalization of cooperative behavior maintained the common good. Allport (1924) states:

The school therefore should be an institution, not merely for endowing the individual with abstract knowledge, but for so modifying his responses of avoidance, hunger, and love that they shall serve as means to cooperative social living. ... The classroom itself affords a valuable setting for the inculcation of moral attitudes. The submission and conformity of the individual in the co-acting group is here brought to play. (p. 402-3)

Thus cooperation is learnt through institutionalized reforms, and hence through the prosperity of advancing cycles of needs fulfilled. Through social continuity, each successful generation inherits the prosperity of the one before. As Allport states: "We thus live on in the habit systems of succeeding generations in proportion to the value of our contribution to the social order ... Progress which is the achievement of the individual becomes the heritage of the ages" (p. 430). As such the social order of succeeding generations must be maintained.

In not denying the intergroup nature of our existence, Allport (1933) states:

Let us begin with the psychology of national boundaries. Aside from making out areas of land belonging to a certain group, a boundary has the function of including within it a large number of people who can be counted upon to act cooperatively toward certain ends. ... People within a boundary will cooperate, moreover, in the establishment of armies and navies, in enlistment for war, in policies of immigration, in treaties, in tariff regulations, and in foreign relations generally. Many of the actions in which the individuals within the boundary cooperate are designed for the common defence and the fortifying of the boundary itself. National organization, in modern times, practically always implies definite boundaries; yet it is the very nature of these boundaries to mark off areas within which people will join in conflict against a common enemy. (p. 161)

For Allport, nations themselves are sources of war. In reply to McDougall's concept of the 'self-regarding sentiment' of national consciousness, Allport (1924) states:

"National honour is located solely in the individuals of the nation. Insults to the flag bring personal resentment because this emblem has become a conditioning stimulus for the individual's attitudes of self-esteem and personal security" (p. 388).

Thus at every level Allport is consistent in his argument for the sole reality of the individual. And despite the consistency of his rigorous scientific arguments, it was the classic and important work of Kurt Lewin that brought the reality of the group into the domain of scientific inquiry. However, the full impact of the Lewinian tradition was not entirely felt until after his death, through the work of his students: Deutsch, Kelley, Thibaut etc. This influential tradition will be discussed later in this chapter, for at the same time other interactionists, specifically Asch (see 1952 for review) and Sherif (see 1967 for review), were reacting against individualism in their own distinct ways.

4.3.C Interactionists: The dynamic nature of the individual and the group

It was the classic work of the early interactionists, Lewin, Asch and Sherif, that established a more dynamic understanding of the nature of the nexus between individuals and groups. While the work of these thinkers is rich in depth and relates to many areas of group relations and processes, for present purposes the focus will be on their conceptualization of the group and their understanding of social cooperation. In general this approach can be understood as a gestalt approach to these social psychological processes, whereby the whole is perceived as greater than the sum of its parts. In other words, the group is conceived as more than the sum of its parts - individuals.

4.3.C.1 Asch - The socially structured field within the individual

Asch (1952, p. 257) argued for the “distinctiveness and inseparability of the individual and the group.” In reviewing the group mind and individualistic premises that came before him, Asch states:

For an adequate formulation of the individual-group relation, we need a way of describing group action that neither reduces the individual to a mere target of group forces of mystical origin, nor obliterates the organized character of group forces in the welter of individual activities. We need a way of understanding group processes that retains the prime reality of individual and group, the two permanent poles of all social processes.... We must see group phenomena as both *the product and condition of actions* of individuals. (p. 250 -251)

Through his simple yet powerful experiments, Asch (1956) showed how objective reality became subjectively veridical through group life. He contended that through group life, we engage in mutual reference through the presence of a “*socially structured field within the individual*” (Asch, 1952, p. 253). This perceptual field is shared by individuals through group life and thus refers to the group as a whole -- a powerful yet less tangible entity than the discrete individual. Collective goals and pursuits of individuals are thus shared through similar cognitive representations; the goals of the individual are one and the same with the goals of the group. Through this shared perceptual field, the individual acts in terms of the group and coordinated group action develops. Hence an individual becomes more than a discrete individual, they come to understand themselves in terms of their group memberships. Thus, the reality of the group becomes the reality of the individual.

Cooperation, in this sense, is simultaneous acts by individuals towards a single group goal, that is enabled through a shared socially structured psychological field.

Mutual or reciprocal action is not the means by which group life emerges but this action is the consequence of simultaneous action towards one goal -- a product of this shared socially structured field. Cooperation can thus be explained as a product of psychological group formation. As Asch states: "the essential factor is the presence of *different and complementary actions executed simultaneously and with reference to each other*. ... Cooperative action is therefore identical with *group formation*. The group and the task form a system, a change in each part alters the other parts" (p. 175). Through the salience of a shared perceptual field, personal inclinations are subsumed by the dynamics of achieving group goals -- cooperation is the end, not the means, of group formation.

Asch elaborates further in explaining what he calls extended cooperation. In this form of cooperation the group situation or goal is not fully understood by all members, but the mere action of other group members steers individuals towards the goal. In other words the group, at times, can be primary to the individual -- it becomes the psychological force behind the action at that time. As such, the action is not individually oriented but emerges through group level processes.

Asch's understanding of the relationship between the group and the individual is rich and complex. A single definition of the group is not distilled. The following paragraph will suffice to give the reader an understanding of how Asch conceptualizes the relationship between the individual and the group:

Our task is to understand both the distinctness and inseparability of group and individual. Group conditions can act on individuals only because individuals have very definite properties. The individual possibilities of conversation must precede the actuality of conversation; the individual possibilities of a self precede the actuality of a self that is socially related. *We must understand also how group conditions penetrate to the very center of individuals and transform their character. In particular, we must understand that once a group is functioning, the unit is not an individual but a social individual, one who has a place in the social order as a child, a husband, or a worker.* Therefore, we may not separate the individual from the group for the same reason that we may not separate him from his surroundings. To understand the individual we must study him in his group setting; to understand the group we must study the individual whose interrelated actions constitute it. (p. 257, emphasis mine)

As with other writers, a sense of group identity is pivotal to Asch's conceptualization of the self, in its relationship to the group. He states: "The self is not only a private percept; it is also part of the shared social-psychological field" (p. 282). Further these identities are not summative but function in terms of structural relations -- they emerge as ordered parts within the whole. The perception of the whole necessitates the perception of its parts. Asch's ideas can not be underestimated. He brings a holistic view to our understanding of the process and products of the self, identity, groups and

individuals that must be understood in terms of the context in which they emerge. To fully understand social cooperation we must clearly conceptualize each of these properties and their relationship to each other.

4.3.C.2 Sherif - Identification processes: Emergent properties of group life

In contrast to Asch, Sherif's classic field studies were more goal oriented in explaining intergroup relations; however, in a similar way to the work of Asch the process of identification with the group was central to his understanding of the relationship between the individual and the group, and how this relates to the development of cooperation and conflict. As with Asch the individual and the group inform each other, and thus can not be understood in abstraction from one another. And unlike Lewin, Sherif (1967) was interested in the products of social interaction; the "rounded study of human interaction has to go beyond the study of a process at a point in time. It entails study of the products of interaction (structure and norms)" (p. 2).

Sherif (1966) brings the concept of self, identity, individual and group together in this statement:

Any unit of people ... has some unique sense of self-identity or of common predicament. But this sense of identity as a unit of people is not a primitive intuition that unfolds spontaneously. The sense of self-identity emerges with all its unique characteristics and shadings when a people are shaping the unit itself.

There is no predetermined or immutable blueprint for the formation of a given number of persons into a new human unit. People form and re-form human groupings when they feel the necessity of participating together in toil toward common objectives, or as they share success or failure, glory or humiliation. During the process of formation, the experiences shared by people result in a sense of identity differentiating themselves as a unit. (p. 2)

Sherif (1966) wrote at length about the sequence of self-other differentiation and classifications. In general he argued that "the mere awareness of other groups within the range of our desires generates a process of comparison between "us" and the others. This tendency seems to be one of the fundamental facts in the psychology of judgement. Through this comparison process, we evaluate and categorize other groupings of people, comparing them with our notions of ourselves, our conceptions of our place in life and the places of others." (p. 3). Given this, Sherif (1966) states:

Whenever individuals belonging to one group interact, collectively or individually, with another group or its members *in terms of their group identification*, we have an instance of intergroup behavior. (p. 12)

Sherif's work was described in a number of publications (Sherif, 1951, 1966; Sherif, Harvey, White, Hood & Sherif, 1961; Sherif & Sherif, 1953; Sherif, White & Harvey, 1955). Through his emphasis on the products of social interaction, the field studies, in general, are a descriptive account of cooperative and competitive processes of intergroup relations, as established through the implementation of subordinate and superordinate goals.

Sherif states that "the appropriate frame of reference for staging intergroup behavior is the functional relations between two or more groups, which may be negative or positive" (1966, p. 12). In Sherif's experiments, "functional relations" are equivalent to complementary-noncomplementary group interests. A group is defined:

as a social unit that consists of a number of individuals (1) who, at a given time, have role and status relationships with one another, stabilized in some degree and (2) who possess a set of values or norms regulating the attitude and behavior of individual members, at least in the matters of consequence to them. Shared attitudes, shared sentiments, shared aspirations and goals that characterize the closely identified members are related to these properties, especially to the common values or norms of the group. (1970, p. 12)

He maintained that to understand the etiology of both conflict and cooperation it is important to define the precise framework, or context, in which they arise. For Sherif, it is the context that defines the "sense of we-ness" that is established and upheld by the individual group members.

In time, the standards shared in the "we" feeling become personally binding for individual members. The members who are worthy and true justify or condemn events within the sphere related to their "we-ness" in terms of their sense of identification with the group. Thus, the sense of solidarity, loyalty, personal accountability, and their "do's" and "don'ts" in relevant matters become part of the consciences of individual members. (Sherif, 1966, p. 157)

An important implication of this latter definition is that intergroup behavior need not necessarily involve the physical presence and interaction of entire groups, but can simply mean individuals from two different groups interacting in terms of their respective group identities. Group process and behavior is understood in terms of a psychological motivation, through identification.

Group identification and intergroup attitudes are the dependent variables in his three classic field studies, the intergroup nature being manipulated through task and goal orientation. Each study was carried out in the context of a boys' (11-12 years, white, middle-class, Protestant) summer camp. The four experimental stages progressed as follows: (1) spontaneous interpersonal friendships formed and then were purposefully broken in the forming of two groups, so as to not confound the results with explanations of interpersonal attraction. The result of this division was the formation of

new *ingroup* friendships. Sherif (1966) concluded that “friendship choices shift steadily from strictly interpersonal attractions toward ingroup exclusiveness, as a part of group formation and functions” (p. 75); (2) the two groups carried out a number of ingroup tasks through which a status hierarchy and leadership structure emerged. Each group also develop a strong group identity; (3) intergroup conflict and rivalry began, and escalated, when the outgroup was made evident. Attitudes toward ingroup members became more positive and those toward outgroup members more negative. Notions of justice and fairness became evident and events were perceived in a manner that favoured the ingroup; (4) intergroup cooperation emerged through the use of a series of superordinate goals which required the aid of both groups for achievement. Sherif’s experiments are an important landmark in social psychology since they provide an empirical demonstration of the discontinuity between individual and group processes.

Specific to cooperation, the two general hypothesis that were put forward and supported were (Sherif, 1967, p. 452):

1. When groups in a state of conflict are brought into contact under conditions embodying superordinate goals, which are compelling but cannot be achieved by the efforts of one group alone, they will tend to co-operate toward common goals.
2. Co-operation between groups, necessitated by a series of situations embodying superordinate goals, will have a cumulative effect in the direction of reducing existing conflict between groups.

The application of superordinate goals to achieve harmonious group relations has also been used in a number of applied settings: industrial conflicts (Blake and Mouton, 1962; Blake, Shepard, and Mouton, 1964); international conflict (Frank, 1964); and education (Aronson, 1978; Johnston and Johnston, 1995).

Thus, Sherif induced cooperative behavior through imposing superordinate goals that have “a compelling appeal for members of each group, but that neither group can achieve without participation of the other” (Sherif, 1966, p. 89). It, thus, could be argued that the cooperation Sherif achieved in the fourth stage was not between two different groups, but between individuals who had to act as one group in order to complete the tasks, and that psychological group formation at the superordinate level was the intervening process that allowed cooperative behavior to emerge.

Sherif’s work was contextually rich and inspirational to many, the studies constituting a functional theory of intergroup relations that related to prejudice, stereotyping, conflict and cooperation. The field studies were based on positive or

negative interdependence of members which then produce equivalent relationships with their respective group members. For Sherif stated that “the appropriate frame of reference for staging intergroup behavior is the functional relations between two or more groups, which may be negative or positive” (1966, p. 12). Given this emphasis, we can see the direct relationship between Sherif’s work and the work of Morton Deutsch (1980, p. 58) through the concepts of positive (promotive) and negative (contrient) interdependence. At the same time, to emphasize the positive and negative inter-dependence of group members is to miss important aspects of Sherif’s work; however, Sherif’s field studies are, by and large, used as a representation of the functional interdependence approach to conflict resolutions (recall the earlier quote by Deutsch in chapter 1) and also realistic group conflict theory (Campbell, 1975).

4.3.C.2.a Realistic group conflict theory

In line with other interactionists of his time, Campbell (1965) raised “a self-directed protest against the overly individualistic assumption as to human motivation which is dominant in social psychology today. This assumption can be called *skin-surface hedonism*” (p. 285). Using Thibaut and Kelley (1958) as an example, he was concerned that numerous social psychologists were “deriving group processes and structures entirely from the self-centered concern of the actors as to “What’s there in it for me?” -- a mutual back scratching on the part of fundamentally selfish organisms” (p. 285). Campbell (1965) took refuge in Asch (1952), applauding his efforts to “put accuracy of description ahead of theoretical simplicity” (p. 286). He clearly takes a systems approach:

One of the long-standing observations of biology, and one of the theoretical achievements of cybernetics, is the observation that larger-system parameters can control subsystem variables, can “cause” them in the same sense that a change in the setting of a thermostat can “cause” a change in room temperature. This kind of systems-theory perspective, most relevant to the study of human group behavior, makes traditional psychological reductionism untenable. (1972, p. 27-28)

Campbell picked up on the original work of Sumner (1906) and others (Bernard, 1957a; 1957b; Boulding, 1962; Coser, 1956; Davie, 1929; Newcomb, 1960; Sherif, 1951; Sherif et al., 1961; Sherif & Sherif, 1953; Sherif et al., 1955; White, 1949, 1959) in conceptualizing Realistic-Group-Conflict Theory. Like Sherif, it is largely a descriptive analysis of group conflict (p. 287):

1. Real conflict of group interests causes intergroup conflict.
2. Real conflict of interest, overt, active, or past intergroup conflict, and/or the presence of hostile, threatening, and competitive outgroup neighbors, which collectively may be called "real threat," cause perception of threat.
3. Real threat causes hostility toward the source of threat.
4. Real threat causes ingroup solidarity.
5. Real threat causes increased awareness of own ingroup identity

The theory is clearly group based and assumes that group conflicts are rational in the sense that groups, in competition for scarce resources, do have very realistic goals that are incompatible. In addressing the individual-group problem, Campbell (1965) interprets "altruistic, self-sacrificial ethnocentric motives as ambivalently balanced with the own-skin-saving self-centred ones" (p.306). This reasoning was influential in the development of Brewer's ambivalent sociality model (reviewed in Chapter 6).

Despite Campbell's initial concerns with the functional interdependence approach (e.g. Thibaut & Kelley), many researchers today note that gaming research shares the normative and theoretical underpinning of realistic conflict theory. As Taylor and Moghaddam (1994) state in their review of theories of intergroup relations: "Realistic Conflict Theory (RCT) is essentially an economic theory of intergroup behavior." (p. 35). It is often highlighted that each adopts the assumption that conflict is bad as their point of departure; that the conflict is "realistic"; and that control over resources, that affects individual's utility, is the motivating factor. In fact, in one of this later papers Campbell (1983) drew on concepts from game theory to explain the interplay between biological and cultural evolution to re-assess the appropriateness of kin-selection theories. Campbell argues, as does game theory, that cooperation, sometimes in the form of coalition formation, is a byproduct of competition. It has also been noted that the sentiments of this approach can be traced to the work of another sociologist, Sumner (1906, see Chapter 1), through his articulation of the concept of ethnocentrism.

In line with the other interactionists of the day, Campbell (1958) began exploring the gestalt principles of entitativity of social aggregates, examining Wertheimer's (1923) classification system based on principles of perceptual organization: proximity, similarity, common fate and pregnance, good continuation or good figure. His purpose was to examine "the possibility of a sociology at a level of analysis separate from psychology" (1958, p. 14) to build objective concepts about systems that individuals behave within.

Campbell examined the indices of common fate, similarity, proximity and pregnance. Each of these indices was described in terms of the relationships between the

elements (individuals) and it was concluded that each “represent by and large objective or operationally specifiable aspects of the stimulus field” (p. 18). For example, common fate was described as “elements that move together in the same direction, and otherwise in successive temporal observations” (p.17). While not discounting a similarity based principle, Campbell believed that the entity “boundaries drawn by similarity seem somewhat secondary than those based upon common fate” (p. 20). He used the example that based on objective similarity “red heads” could be argue to be a more defined group than “Negroes;” however, because the latter group also shares a sense of common fate, they are more “real.” Clearly this analysis understands social grouping as external entities to the individual and objectively definable. This reflects the common fate of individuals perspective adopted in interdependence theory and, thus, the social dilemma paradigm. Interestingly, the study of the entitativity of social aggregates is receiving revived attention these days (eg. Brewer & Harasty, 1996; McGarty, Haslam, Hutchinson & Grace, 1995; Yzerbyt, Rocher & Schadron, 1996). Realistic conflict theory remains an influential theory in the literature, particularly through the “realistic” assumptions that underlie gaming research and evolutionary models.

4.3.C.3 Lewin - Field theory in social psychology

Lewin was influenced by the great scientific enquiry of his time, specifically that of field theory in physics (Einstein & Infeld, 1938; Maxwell, 1923) as well as the scientific philosophy of Ernst Cassirer (see Schilpp, 1949). In addition, while Lewin is known for a number of contributions to the field of social psychology, his group dynamics research is most relevant here, as it refers to his theoretical analysis and experimental study of group processes. When Lewin first wrote about group dynamics (1936, 1939) it was in reaction to the commonly denied (e.g. F. Allport) existence or reality of groups to the individual.

One of Lewin’s most significant contributions was that he made the concept of the group acceptable and significant to the experimental study of social psychology. While often criticized he never wavered from his conviction: “I am persuaded that it is possible to undertake experiments in sociology which have as much right to be called scientific experiments as those in physics and chemistry” (p.71, 1948; reprint of 1939 paper). His innovative experimental group studies brought the understanding of the group back to the reality of the individual. The early experimentalists (Festinger, 1947;

French, 1941; Lewin, Lippitt, & White, 1939; Lippitt, 1940) were instrumental in demonstrating that experimental social psychology could further our understanding of group processes and human relations. In other words, he showed that groups *per se* influence the nature of the individuals that define them. As Lewin summarizes: “Generally, in every situation the person seems to know what group he belongs to and to what group he does not belong. He knows more or less clearly where he stands, and this position largely determines his behavior” (1948, p. 146). Thus, in contrast to F. Allport, Lewin might say: There is no psychology of individuals which is not essentially and entirely a psychology of groups. Lewin (1948, p. 54) conceptualized the group as a gestalt:

The essence of a group is not the similarity or dissimilarity of its members, but the interdependence. A group can be characterized as a “dynamical whole”; this means that a change in the state of any subpart changes the state of any other subpart. The degree of interdependence of the subparts of the group varies all the way from a “loose” mass to a compact unit.

He makes a direct contrast with another gestalt principle, that of similarity. For Lewin: “... similarity between persons merely permits their classification, their subsumption under the same abstract concept, whereas belonging to the same social group means concrete, dynamic interrelation between persons” (1948, p. 184).

Unfortunately, apart from his early papers Lewin wrote relatively little on the theory of group dynamics. However, he has produced an influential tradition in social psychology and a myriad of conceptual ideas that have become influential through the work of his students and colleagues. His conceptualization of the group has been immensely influential. Gordon Allport distills the essence of Lewin’s thesis in introducing the compiled papers of Lewin (1948):

The unifying theme is unmistakable: the group to which an individual belongs is the ground for his perceptions, his feelings, and his actions. Most psychologists are so preoccupied with the salient features of the individual’s mental life that they are prone to forget it is the ground of the social group that gives to the individual his figured character. Just as the bed of a stream shapes the direction and tempo of the flow of water, so does the group determine the current of an individual’s life. This interdependence of the ground and the figured flow is inescapable, intimate, dynamic, but it is also elusive. (p. vii)

Lewin’s aim was to build a bridge between concrete social action and abstract social theory. His approach was systematic yet dynamic, employing three main classes of explanatory concepts: (1) topological; (2) those expressing the dynamics tension of individual psychology and (3) those expressing the tension system imposed by the surrounding field. The topological concepts were used to define and map the two

tension systems, examples being the *space of free movement, life space, and region*.

While the second class of concepts are anchored in the individual as a system of tension (such as *need, aspiration level, satiation*), they are in dynamic tension with the third class of forces outside the individual, which include concepts such as *field forces, barriers and locomotion*. These last concepts are important as they are group referent sources. For example, *field forces* emerge from group life, which can place *barriers* that restrain and influence an individual's *locomotion* - a change in an individual's position with reference to the group. Recall that locomotion was the sole Lewinian concept that Deutsch (1949a, b) capitalized on. However, these three classes of explanatory concepts are not separable; they form a gestalt -- a single well-integrated system. Lewin (1936) summarises that together they form the:

Totality of facts which determine the behavior (B) of an individual at a certain moment. The life space (L) represents the totality of possible events. The life space includes the person (P) and the environment (E). $B = f(L) = f(P, E)$. It can be represented by a finitely structured space. (p. 216)

Thus, as defined, an individual's life space encompasses both function and structure of the dynamic system; thus, it is both process and product. Lewin states that: "*forces control the course of a process ... [and] In every process the forces of the inner and outer environment are changed by the process itself*" (1935, p. 48). The system forms an ongoing dynamic entity and the individual can only be understood in interaction with the environment at any given time. In other words the person and the environment can not be abstracted from one another, as each event brings about change in the dynamic whole. The cognitive structure constantly evolves, through an underlying functional mechanism.

Lewin was most interested in accounting for the *functional relationship* between the person and the environment; that is, building a systematic account of the underlying social psychological mechanisms and he argued that this system would necessarily function in terms of an interaction between the person and the environment. As such the person and the environment must be understood as a dynamic whole -- not in abstraction from one another. In other words, for Lewin, it was not sufficient to simply describe the interdependence structure and the psychological state of the individual; to advance the discipline, the job of social psychology is to understanding the functional relationship between the individual and the environment. As Lewin (1943) further states: "*Field*

theory is probably best characterized as a method: namely, a method of analyzing causal relations and of building scientific constructs" (p. 45).

Lewin viewed field theory not as a formal theory but more of a map of conceptual ideas -- a critical yet holistic approach to psychology. Deutsch (1988) states that: "There was a feeling that Lewin was in touch with the richness of common sense psychology and was concerned with trying to transform that into science" (p. 90). Cartwright (1959) and de Rivera (1976) saw field theory as an approach to conceptualization; Jones (1985) as a point of view. What he developed was a theoretical approach to social psychology that has been highly influential in the theory building of his students and colleagues: D. Cartwright, A. Zander, J. Thibaut, H. Kelley, A. Pepitone, P. Zimbardo, J. Singer, L. Ross, S. Schachter, L. Festinger and M. Deutsch (see Festinger, 1980; Patnoe, 1988 for review). These theoretical developments of group processes, based on the interdependence of group members, ground a significant body of research in social psychology, from stereotyping to social cooperation. However, it is also evident that contemporary social psychology has moved away from Lewin's original perspective.

Lewin (1935) stated that to systematically build our conceptual understanding of human behavior "...it means for psychology, as it did for physics, a transition from an abstract classificatory procedure to an essentially concrete constructive method" (p. 42). This transition marks a move from Aristotelian classification to a Galilean field dynamics conceptualization. Classification was of critical importance for Aristotelian physics "because ... the class defined the essence or essential nature of the object and thus determined its behavior in both positive and negative respects." (1935, p. 4). However, interdependence theorists continue to classify variables in terms of taxonomies of situations and typologies of individuals. For example, just as Aristotle describes an object as having an essence that is distinctly its own, social value theorists describe individuals as having an essence that is distinctly their own, such as cooperators, individualists, competitors. For Lewin, the essence of an individual will change with the environment and, thus, a classification approach is somewhat restrictive.

Thus in the psychological fields most fundamental to the whole behavior of living things the transition seems inevitable to a Galilean view of dynamics, which derives all its vectors not from single isolate objects, but from the mutual relations of the factors in the concrete whole situation, that is, essentially, from the momentary condition of the individual and the structure of the psychological situation. *The dynamics of the process is always to be derived from the relation of the concrete individual to the concrete situation*, and, so far as internal forces are concerned, from the mutual relations of the various functional systems that make up the individual. (Lewin, 1935, p. 41)

In arguing for a constructivist's method, Lewin in essence is arguing for a dynamic systems analysis of social psychological processes and products that mediate the relationship between individuals and groups. Recall that he further emphasised that "*the whole situation changes with the process*" (1935, p. 33), thus understanding the process is the critical element.

Lewin stressed his interdependence definition of a group to differentiate it from the objective similarities criterion often used as a way of objectively classifying individuals (by sex, race, economic position, attitude similarity) in terms of group membership. He argued that having similarity in this objective sense does not necessarily imply interdependence within "one social whole." It was for this reason that he stated the often cited definition of the group: "Not similarity, but a certain interdependence of members constitutes a group" (p. 147). However he goes on to clarify his position:

One should realize that even a definition of group membership by equality of goal or equality of an enemy is still a definition by similarity. The same holds for the definition of a group by the feeling of loyalty or of belongingness of their members. However, such an equity, as well as the equity of goal or of enemy, constitutes sometimes, also, a certain interdependence of the persons who show these similarities. Therefore, if one wishes to use the feeling of belonging as the criterion of a group, one can do so if one points to *the interdependence established by this feeling*. ... The kind of interdependence of the members (what holds the group together) is equally as important a characteristic of a group as the degree of their interdependence and the group structure. (p.148, italics mine)

Our social psychological understanding of interdependence has had a slippery history, since Lewin's (1952, p. 146, orig. 1939) early formulation. Lewin, preferred a definition of a group in terms of a certain interdependence of members to distinguish it from an objective classificatory analysis of similarity. Again, for Lewin "Stressing similarity or dissimilarity, rather than interdependence, is typical of the descriptive [Aristotelian] "classificatory" epoch, which can be observed in a relatively early stage of development in practically every science" (p. 148). Recall that Lewin argued that it was important to the development of psychology that it move away from this approach.

Taken together, the point that Lewin stressed was that a group had a reality of its own, a reality that is qualitatively different from a mere aggregate of individuals. His conceptualization of the group was as a dynamic whole that emerged in an individual's life space. He states that: "It took psychology many steps before it discovered that a dynamic whole has properties which are different from the properties of their parts or from the sum of their parts. ... Both whole and parts are equally real. ... the whole has definite properties of its own". This statement, in fact, goes beyond the Gestalt doctrine that the "whole is greater than the sum of its parts" to the "whole is different than the

sum of its parts” thus making it clear that the parts and the whole each have a reality of their own. Just as individuals and groups each have a distinct reality of their own, neither having primacy over the other but function in relation to one another.

4.4 Summary and synopsis of self-interest and the reality of the social group

As this last section has shown, our conceptual understanding (and operationalization) of the nexus between the individual and the group has continued to change through the course of history in social psychology (see Turner et al., 1987, Chpt 2). In contrast to the contemporary interdependence approach reviewed in Chapters 2 and 3, the early interactionist perspectives of Asch, Sherif and Lewin understood the psychological reality of the group in quite a distinctive way; specifically, that the group had a psychological reality of its own that could not be understood in terms of the objective interdependence of individuals.

The social identity and self-categorization analysis, to be introduced in the following chapter, carries on from the work of these early interactionists. The theories' approach is similar to a Lewinian analysis, emphasizing the development of theoretical constructs to explain underlying process and mechanisms. Further, like Lewin, this approach recognized that groups have a distinct psychological reality that is *different* from the sum of its individual members. The theory also has historical overlap with some of the conceptual ideas put forward by McDougall (1921).

Rather than understanding groups in terms of goal interdependence of individuals, self-categorization theory holds that group identification is the basis for perceived interdependence between individuals. In other words, as has emerged in the work discussed above, group identification could be the psychological intervening variable that allows perceptions of interdependence to emerge. This is similar to the conceptualization of the group that Lewin argued for when he stated (Lewin, 1952, p. 146, quoted above) that it is the “feeling of belonging” that establishes the interdependence. Given this, interdependence, in certain instances, could be construed as both cause and effect.

For example, the Sherif summer camp studies quite clearly showed that individuals who were positively interdependent, that is had a common goal, functioned in terms of those interdependent relationships and thus, moreso than not, came to identify with their group. As Sherif (1966, p. 12) has stated whenever individuals act in terms of

their “group identification” this provides the basis of intergroup behavior. The key point is that identifying with the group may be the key psychological variable that allows for group based behavior to emerge. And, in this case, objective outcome interdependence did lead to psychological group formation and thus perceived interdependence.

Likewise Asch (1952) has stated that the dramatis personae of society itself are its human characters. From an interactionist’s perspective he states:

It blunts thinking to speak of the participants in the social scene as “individuals.”... The meaning of [“I” and “you”; “we” and “them”] goes far beyond the identification of separate individuals. Their content is relational and mutually dependent. ... Of course, the categories to which these bare designations refer occur in very concrete contexts. ... But these concrete categories are themselves the product of specific social processes.” (Asch, 1952, p. 180).

The psychological reality of the group is both a concrete and emergent property of group life and processes.

The question then is: Can an identity based approach account for the necessary and sufficient conditions of group-based behavior, such as social cooperation, given the failings of the functional interdependence approach (as described in chapter 2 and 3)? As Lewin stressed, social psychology must at some point move from a descriptive analysis of group processes to a more dynamic analysis of group life. Further, as Camac (1992) points out more work has to be done on the underlying process that allows for social cooperation to emerge. While the interdependence approach has been limited in this regard, this is the explicit focus of the social identity approach.

It could also be argued that objective positive interdependence is only one of many variables that allows for group-based activity to emerge. While, Campbell (1958) identified gestalt variables such as common fate, similarity, proximity and pregnance, others could be shared threat or shared interests. Each of these variables could lead to a common identification, and social identity theorists argue that it is the process of identification that is the intervening variable that allows group based action, such as social cooperation, to emerge. At the same time, this does not deny the role that individuals’ objective interests play (see Turner, 1981). The point is that this perspective “reinstates the group as a psychological reality and not merely a convenient label for describing the outcome of interpersonal processes and relations” (Turner, 1984, p. 535). While this approach follows a Lewinian tradition, it has more fully developed the underlying mechanism for predicting social behavior. For as Kelley (1991) quite rightly acknowledges, many of Lewin’s early ideas were poorly developed in his models.

Briefly, self-categorization theory offers a model of human nature that is radically opposed to the idea that society is made up of discrete individuals who are selfish utility maximizers and, thus, must be controlled through effective social systems. Instead of self-interest being the exclusive domain of the individual, this theoretical perspective re-defines the self such that acting in terms of a group membership is re-conceptualized as acting in terms of self - a self that is inclusive of others at a social or group level. As Coleman (1961) has noted:

Classic economic theory always assumes that the individual will act in "his" [or her] interest: but it never examined carefully the entity to which "his" [or her] refers. ... in many situations men act as if the "his" [or her] refers to some entity larger than themselves. That is, they appear to act in terms, not of their own interest, but in the interests of a collectivity. (p.24)

Tajfel (1966) argued, three decades ago, that cooperation and conflict could not be explained on the basis of calculations of utility or broad assumptions about the role of instinct in social behaviour (p.77). As he states:

The possibility to co-operate in most human situations is based on the ability to perceive a situation from the point of view of another individual, and then to make use of the information so obtained as a guide for subsequent actions. If co-operation were not based on the implicit or explicit use of this ability to become allocentric as distinct from egocentric, it could happen only sporadically, by chance encounters of parallel or complementary actions, and it could never form the basis of a complex and co-ordinated sequence of behavior originating from many individuals. ...

In addition the more an individual perceives other people as similar to himself, the more will his behavior be determined by his perception of their behavior. The importance of this phenomenon in the determination of human reactions to all kinds of events in the environment is sometimes not sufficiently appreciated. It will be obvious that under conditions of "common fate", such as shared threats, dangers or goals, this convergence of behaviour is bound to become more marked. But it can also be found in cases where the function of concerted behaviour does not appear at all obvious. (pp. 80 - 81)

In summary Tajfel argued that social cooperation can only be enacted through some cognitive mechanism that allows for: "man's capacity to see others as men like himself, however different they may be from him" (p. 84). As we will see, the development of social identity and self-categorization theories led to the specification of the psychological mechanism that can account for the functioning of this capacity.

- Chapter 5 -

Social cooperation and self-interest: The history and theoretical development of the analysis of social identity and self-categorization

5.1 Introduction

The previous chapter made two important points. It argued for the importance of the distinctive psychological reality of the group and questioned the prevailing doctrine of the primary motivation of individual self-interest, in favour of a more social model of psychological motivation. This chapter, through social identity (Tajfel and Turner, 1979; 1986) and self-categorization (Turner et al., 1987) theories, aims systematically to address these two points and provide an explanatory perspective that integrates them into a unified analysis that is both descriptive and prescriptive of the social psychological process underlying social cooperation.

The approach to the understanding of social cooperation that will be argued for can be understood as having a similar aim to the original approach that Lewin argued for: to build a systematic account of processes that mediate the functional relationship between the individual and the group. Specifically, in the context of this thesis, this relationship will be used to explain the social psychological process of social cooperation. Unlike the interdependence perspective, which aims to describe the interaction between a number of intrapersonal psychological states and situations of interdependence, this analysis aims to identify an underlying social psychological mechanism that is predictive of social cooperation. In other words, this chapter represents a conceptual shift from a descriptive taxonomy of situations and typologies of orientations, as presented by the functional interdependence approach, to a dynamic systems analysis of social psychological processes that result in the product of social cooperation.

Interestingly, while both of these theoretical models of social cognition can be explained in terms of Lewin's classic formula, $B=f(PE)$, these two approaches are fundamentally distinct and thus use different explanatory constructs. As highlighted, the

interdependence approach explains social cooperation through the interaction of functional interdependence structures and transformational processes of individuals. The social identity analysis explains cooperation as a function of an integrated system of social context and categorization processes of individuals. In other words, social behavior is understood in terms of categorization processes that provide relevant social meaning to the perceiver through emergent social identities that reflect the individual's place within the perceived social structure or situation. As with Lewin, the social context, or environment, is an inseparable aspect of this analysis, in that this analysis addresses the context specific nature of self-categorization that produces a salient social identity. In summary, the interdependence analysis emphasizes individual processes that are constrained by functional interdependence with other individuals, while the social identity approach emphasizes the relevant social structural variables that influence individual cognition. Simply put, the emphasis turns from understanding an individual within a social system to understanding how the social system transforms the individual.

This chapter will begin with an examination of the meta-theory that underlies the theoretical perspectives of social identity theory (Tajfel and Turner, 1979, 1986) and self-categorization theory (Turner et al., 1987). Each of these theories will then be discussed. Given the breadth of this theoretical approach, the emphasis will be on the explanation of social cooperation. The conceptual understanding of the psychological reality of the group, the self and self-interest will be central to this analysis of social cooperation. These two theories are important in reference to the two points raised in the previous chapter. For it was social identity theory that provided the initial analysis that allowed for the reinstatement of the psychological reality of group, that is the group in the mind of the individual, and it is self-categorization theory that accounts for the underlying processes of identity formation, through the social psychological mechanism of the self. Thus self-categorization theory provides a more social model of the self and self-interest that can define and predict the psychological motivation underlying social cooperation.

5.2 Meta-theory: A social psychological “field theory” approach

An important distinction between the interdependence perspective and the self-categorization perspective is the approach that these two theories take to the analysis of the problem of explaining social behavior, that is the meta-theory adopted. Thus, the meta-theoretical approach that Henri Tajfel argued for is important to the development

of this thesis. Tajfel's approach, from the beginning, informed his understanding of behavior in a manner that remains distinct from other contemporary approaches. Indeed, Tajfel's (1958) first paper, *Metaphysicians of behavior*, argued against mechanistic theories of human behavior, such as those put forward by Hobbes and Hull. Hobbes crudely adopted Galilean mechanistic principles and then applied deductive reasoning to legitimate the individualistic self-interest model of man that is still pervasive today (see Mansbridge, 1990; Lynn and Oldenquist, 1984; 1986). As Tajfel (1958) points out: "Hobbes ruthlessly extended Galileo's assumptions into the innermost sanctuaries of human thought and decision" (p. 30). In other words, overt "macro" social processes were applied to the understanding of human nature and behavior, in which the role of "micro" psychological processes was dismissed. Hobbes took the individual as a unitary closed system. And while the simplistic deductive logic underlying this analysis can be questioned on many levels, Hobbes' analysis remains prevalent in the social sciences today (see Curley, 1994; Rogers, 1995). Tajfel charged the social sciences with oversimplifying, that is "psychologizing", human interaction and behavior. His point was that all human behavior occurs within a wider social system that in itself influences and is influenced by individual cognition. To explain and understand individual behavior as if an individual is a discrete mechanism is to deny wider reciprocal social influences.

Tajfel (1958), as did Lewin (1935), argued against individualistic accounts of human behavior for: "[This] model forms a kind of explanatory ceiling in understanding human behavior just as the mechanical model of bodies pushing other bodies formed an explanatory ceiling in the seventeenth-century understanding of nature" (p. 38). As Tajfel (1982) later stated:

The [1958] article attempted to present a case against certain forms of reductionism in psychology. I now know what outraged me about Hull was his bland indifference to all that one knew about human society while he was weaving his web of 'hypothetico-deductive' oversimplifications, claiming at the same time that they provided the basis for insights about the complexities of human social behaviour" (p. 2)

This chapter will present the theoretical development of the social identity and self categorization perspectives, both of which represent the interactionist meta-theory of human behavior that Tajfel argued for in his approach to the science of understanding human behavior.

This meta-theoretical perspective brings a dynamic - neo-Galilean - approach to the central paradox of social psychology -- the problem of systematically accounting for the nexus of individual and collective realities of behavior. In other words, to understand

the distinctive *psychological* properties and processes of *individuals* and how those relate to and influence distinctive higher order *collective* behaviors (see Turner and Oakes, 1986). For while there exists a certain synchronicity between individual and group life there is also an inherent paradox: cognitive systems affect individual activity while higher order political, cultural, economic and historical systems affect collective activity. What underlies the theoretical relationship between psychological and sociological contributions to social behavior? Social psychology's *raison d'être* is to systematically account for this paradox. No social psychologist would deny this relationship. It is how each approaches and represents the problem that is telling.

In contrast to the interdependence perspective, the social identity and self-categorization approach to be developed takes a contemporary "field theory" approach (c.f. Lewin, 1940/1951, pp. 24 - 29): the person and the environment are understood as a dynamic whole, wherein the person and the environment mutually inform each other simultaneously. Further, this approach does not merely aim to describe the independent and dependent variables, and then systematically catalogue them in a framework typical of Aristotle, that is in terms of typologies and taxonomies. The approach aims to account for the underlying psychological processes and properties of behavior that can account for the independent and dependent variables. Simply put, the person and the environment cannot be understood in abstraction from each other. To understand the functioning of society, one must understand the cognitive functioning of the individual; to understand the functioning of the individual, one must understand the social structure and processes of society, and these must be understood concurrently. Society is part of the individual just as much as the individual is part of society. As Tajfel states in the development of social identity theory:

The focus of the theory is not the individual but the explanation of uniformities of inter-group behaviour. No one would deny that 'ultimately' we are concerned with 'individuals' who behave in one way or another. But a clear distinction must be made between patterns of individual behaviour. ... [An individualistic] approach can get us nowhere very far in understanding those crucial uniformities of social behaviour which pertain to the *psychological* aspects of the social systems in which we live. ... The point is that we shall never be able to formulate adequate guidelines for research on collective social behavior if we do not go beyond constructing sets of independent variables seen as functioning in a social environment which is assumed to be psychologically unstructured in its homogeneous and all-embracing 'inter-individuality' (Tajfel, 1979, p. 187-189).

This thesis aims to identify the underlying mechanism of cooperative behavior, and thus go beyond the taxonomies and typologies of other approaches.

The effect of wider social processes on individuals' *psychological* processes is assumed in the interactionist meta-theory of social identity and self-categorization theories (Oakes and Turner, 1986; Tajfel, 1979; 1981; Turner and Oakes, 1986; Turner and Oakes, 1996). In the same way that Lewin (1935, 1952) emphasized a dynamic interactionist theory that sought to understand the functional psychological mechanism that regulates the interaction between the person and the environment, the social identity approach addresses how psychological processes and products can only be conceived in terms of the context of social reality. This dynamic approach is very different from an interdependence approach that isolates a number of independent variables, such as any number of macro-social factors interacting with micro-psychological factors, to understand social behavior. This could only serve to understate the complexity and inter-relatedness of the dynamic system of interaction between the individual and the collective. Tajfel (see 1981, 1982 for review) emphasized these points continually: "The processes of social categorization, social identity and social comparison ... cannot be conceived to originate outside of their social context" (Tajfel, 1979, p. 185). Each of these processes can only be understood in terms of a wider social system. Within this dynamic system emerges a psychological field that defines the frame of reference within which the individual perceiver is placed (see also Asch, 1952; Lewin, 1935; Sherif, 1936).

As the previous chapter highlights, these ideas are not new to social psychology (see Asch, 1952; Lewin, 1935, 1948; McDougall, 1921; Moscovici, 1976; Sherif, 1936, 1967). However, social psychology continues to labour with its approach to the problem of the relationship between the individual and the group. As Smith (1991) reiterates: "In social and personality psychology, we are still struggling to regain and substantiate in research the interactionist approach that Lewin formulated so clearly, which for so long was misinterpreted in social psychology as a mere situationism" (p. 164). This thesis aims to recover this ground. Like Lewin's approach (see 1952 for a good overview), social identity theory and self-categorization theory represent a field theory, not only in the sense that they represent "interactionist" theories but also in the sense that they represent an approach to the quintessential problem of social psychology. For Lewin also emphasized that his field theory is "*best characterized as a method: namely, a method of analyzing causal relations and of building scientific constructs*" (Lewin, 1943, p. 45); the theoretical analysis to be built in this chapter not only represents a distinctive approach to the study of group life and process, but also systematically

presents a parsimonious account of these social psychological processes that is both descriptive and prescriptive of social behavior.

This chapter will argue for a dynamic conceptualization of intergroup processes and the self from which group level processes, such as social cooperation, and self-interest can be re-defined. The result will be a distinctive conceptualization of the social group, the self, and what it means to act in one's self-interest. As Mansbridge (1990) points out "As evidence mounts that even the biological self is socially constituted, the very concept of self-interest becomes more complex" (p. 18). In this light, this thesis will work towards specifying the necessary and sufficient conditions that can account for social cooperation. The aim is to build theoretical guidelines that could provide a parsimonious framework through which to explain the growing number of divergent findings in the social dilemma literature and to provide a unifying theoretical basis to the study of social cooperation. This process will begin in this chapter, where we will lay out the theoretical basis for re-defining the self in self-interest.

5.3 Social identity theory and the psychological reality of the group

Tajfel's interest in intergroup relations led to the development of social identity theory (Tajfel, 1972; Turner, 1975a; Tajfel & Turner, 1979, 1986). The theory draws on the intergroup studies of the Sherifs and colleagues (see 1966, 1967, for review). Tajfel (1970, Tajfel, Flament, Billig and Bundy, 1971) was intrigued by the findings of the summer camp studies; specifically, the extent to which the conflict escalated, the enhancement of ingroup morale and the importance of group membership, particularly after friendship groups were deliberately broken. For while Sherif (1967), as seen in Chapter 4, conceptualized groups in terms of their functional interdependence, creating superordinate goals to resolve conflict in these famous intergroup field studies, he also stated that: "Whenever individuals belonging to one group interact, collectively or individually, with another group or its members *in terms of their group identification*, we have an instance of intergroup behavior" (Sherif, 1967, p. 12). These classic field studies constitute an important landmark in social psychology as they provided an empirical demonstration of the discontinuity between individual and group processes. It was this observation that lay the ground work for the development of social identity theory. Sherif's thesis (1967) was built on the premise that: "We cannot extrapolate from the properties of individuals to the characteristics of group situations" (p. 8).

Recall that Sherif made the point that individuals can and do act in terms of group identifications. It was this observation that lay the ground work for the development of social identity theory.

5.3.1 Intergroup behavior and the minimal group paradigm

The minimal group paradigm was developed from Tajfel and colleagues' (Tajfel et al., 1971) decision to see just how little it took to create intergroup discrimination. The findings of the studies using this paradigm are intriguing, for while groups were stripped down and chosen by arbitrary means, and hence group membership was not value laden, subjects still discriminated in favor of their ingroup. This occurred despite the lack of group goals (such as an objective current conflict of interests between groups), personal reward (that may lead to a simple assertion of individual self-interest for instrumental gain), history of hostility between groups, and face to face interaction. This surprising "empty, almost 'kafkaian' situation" (Tajfel, 1972, p. 298) of intergroup behavior established the importance of social categorization as a primary psychological process. However, while there is consistent evidence that mere categorization can produce ingroup bias, it is important to emphasize that the theory acknowledges that individuals do live in a world where group membership is value laden and that categorization itself will not necessarily result in ingroup bias. As such, this analysis understands the significance of social identification through *both an understanding of social context, such as social structure and norms, and categorization processes of individuals* as important properties of the social psychological processes underlying intergroup behavior and relations.

The minimal group situation was originally conceptualized to act as a neutral baseline of intergroup behavior. The intent was then to incorporate other variables systematically to establish the necessary preconditions for ingroup favouritism in an intergroup situation (Tajfel, 1978a, pp. 10 -11). While trivial intergroup classifications were defined, such as under or over estimation of dots or artistic preference for an abstract painter (Klee or Kandinsky), assignment to group was actually random. Also, the groups were neither positively or negatively interdependent; in other words, there was no cooperative or competitive goal interdependence as defined by group membership. Subjects were simply to allocate reward points to anonymous others, and never themselves, based solely on their group membership. As there was no social

interaction between individuals, subjects did not know who the members of each group were and given the arbitrary nature of group membership there was no historical or normative component of group membership that could act as a source of intergroup definition. Subjects were reliant on members of both groups for the reward allocation that they would receive; thus, individual self-interest could not be linked to group membership. An important aspect of the design was that individuals never allocate to themselves. Given this reasoning, why would participants do anything but act fairly to participants in both groups? Why would individuals have any reason to discriminate on the basis of group membership? As stated these conditions were to act as a neutral baseline of intergroup processes, a foundation to systematically build an understanding of intergroup behavior. However, individuals' behavior in this paradigm did not reveal neutrality, mere categorization of individuals into ingroups and outgroups led to intergroup discrimination that favoured the ingroup.

These initial findings remain significant for the analysis of intergroup relations to this day, as the results indicated a seemingly deliberate strategy of ingroup favouritism despite the arbitrary nature of the groups. Tajfel and colleagues (1971) concluded that: "Social categorization is not just an 'organizing principle' used in the absence of other guideposts; it is capable of creating deliberate discriminatory behavior" (pp. 162-163). These findings were also replicated in a second study which used a different intergroup distinction (preference for Klee or Kandinsky). Further, to extend the first study, the design also aimed to test the strategies that participants were adopting in the allocation task. Different matrices were designed to test the relative "pull" of four different strategies on each other. These were: (a) maximizing joint profit (MJP); (b) maximizing ingroup profit (MIP); (c) maximizing difference in favour of the ingroup members (MD); and (d) fairness (F). This second study revealed that not only was there a tendency to favour the ingroup but also to discriminate against the outgroup; indeed, the strategy of maximizing the difference, in favour of ingroup members, exerted a significant pull on the other strategies. Interestingly, in adopting this strategy, participants had to forego absolute ingroup gain, either in the form of MIP or MJP. In other words, in order to ensure relative ingroup status or gain, participants were willing to have less overall, as long as they had more than the other group. As such, individuals did not adopt an absolute maximizing outcome strategy, as rational actor or economic self-interest models would predict, they adopted a *relative* intergroup strategy that favoured their ingroup.

To account for these results a normative explanation was originally offered that suggested participants, who were schoolboys, adopted a competitive team perception of the situation. The appropriate social behavior, in this context, would then be to beat the other team; as such, the choice of a maximum difference strategy is rationalized as a normative aspect of team competition. As well as pointing out the implication for our contemporary modes of education and socialization, Tajfel and colleagues (1971) concluded that the results:

... also point to the possibility that discriminatory intergroup behaviour cannot be fully understood if it is considered solely in terms of an 'objective' conflict of interests or in terms of deep-seated motives that it may serve. ... The crucial aspect of this situation was that it contained a socially derived and discontinuous categorization of people into an ingroup and an outgroup. (p. 176)

The minimal group studies lay the groundwork for further theoretical interest in the cognitive and normative explanations of social behavior. However, the original normative explanation of the minimal group findings was soon discarded as it was reasoned that this explanation quickly becomes circular, as it merely redescribes the experimental findings in terms of a contextual norm -- a simplistic analysis that could explain any and all experiments.

Tajfel (1972) thus became interested in just how and why these socially imposed categorizations become psychologically motivating. He suggested that the requirements of the minimal group paradigm evoke an essentially meaningless situation for participants. The only resource that engages participants' action is that of categorization processes that result in identification with a group and subsequent behavior. As Tajfel (1972) states:

Meaning was found by [participants] in the adoption of a strategy for action based on the establishment, through action, of a distinctiveness between their own 'group' and the other, between the two social categories in a truly minimal 'social system'. Distinction from the 'other' category provided *ipso facto* an identity for their own group, and thus some kind of meaning to an otherwise empty situation. (pp. 39-40)

This passage highlights three points that will become important to the approach advocated in this chapter: the importance of the social systems that inform individual behaviour; categorization processes underlying identity formation; and the sense making -- meaning analysis -- of social categorization into social groups.

The intriguing results found in these initial minimal group experiment have since been replicated in other contexts (Brewer, 1979; Brewer and Kramer, 1985; Doise et al.,

1972; Doise and Sinclair, 1973; Messick and Mackie, 1989; Tajfel and Billig, 1974; Turner, 1981). Even in a seemingly absurd experiment, where subjects were explicitly told that they would be randomly assigned to groups, subjects favoured their ingroup (Billig, 1972; Billig and Tajfel, 1973). Further, when the allocation task was not explicitly group based, that is no explicit categorization of individuals into groups was introduced, the findings indicated little evidence of discrimination (Chase, 1971; Hornstein, 1972, Tajfel, 1970).

The consistent finding has been that social categorization, per se, of individuals into groups, in the minimal group paradigm, leads to ingroup bias. As Tajfel (1981) states the “empty” group condition “illustrates the *reductio ad absurdum* of this process, but it also shows how easily it can be set in motion” (p. 237). As Turner (1983) later noted, and despite some ongoing critiques (see Bornstein, Crum, Wittenbraker, Harring, Insko and Thibaut, 1983a; Bornstein, Crum, Wittenbraker, Harring, Insko and Thibaut, 1983b, Brewer, 1979), “a decade’s research, including the two experiments of Bornstein et al., has strengthened the inference from the original study by Tajfel et al. (1971) that within FAV [MIP + MD] both MD and MIP tend to be important (since FAV > MD), but that overall MD > MIP” (p. 364). In other words, maximum differentiation in the minimal group paradigm has been an effect consistently found across a number of studies. These findings provided initial evidence for a social psychological mechanism through which individuals define themselves, relative to others, through maximum differentiation. Through this process individuals are able to achieve social distinctiveness in terms of group memberships.

Tajfel (1978, 1981, 1982) wrote extensively about these findings arguing that *social categorization allows the perceiver to structure the causal understanding of the social environment*. This process allows an individual’s psychological processing to functionally adapt to the perceived social context, providing a point of relevant self-reference to guide appropriate behavior. This context specific psychological reference point can be understood to be self-defining, in that it situates self-relevant meaning for the perceiver. Given that social structure specifies and embodies a number of social groups which individuals can identify with, this point of self-reference emerges through categorization processes that can functionally reflect the variable nature of perceived group memberships. Given that these psychological references reflect perceived group membership, they are similar to what Allport (1954) called a reference group.

The psychological reality of group membership brings distinct social meaning and significance to the perceiver, and thus brings a unique understanding to the nature of intergroup relations. Indeed, this analysis led to the development of the social identity critique of intergroup relations. A social identity is conceptualized as the psychological link between the self and the collective that emerges through the psychological process of categorization. In other words, social identification is the mechanism that defines where an individual is situated in a specific social context. As stated by Tajfel (1978), social identity is “that part of an individual’s self-concept which derives from his knowledge of his membership of a social group (or groups) together with the value and emotional significance attached to that membership” (p. 63). This concept later became a basic building block of social identity theory (Tajfel and Turner, 1979, 1986), which provides a theoretical analysis of intergroup behavior. The basic hypothesis is “that pressures to evaluate one’s own group positively through in-group/out-group comparisons lead social groups to attempt to differentiate themselves from each other” (Tajfel and Turner, 1986, p. 16; see also Tajfel, 1978a; Turner, 1975). There are three defining classes of variables that are important to this analysis: (a) categorization; (b) identification; and (c) social comparison. Due to the distinctive aspect of each of these three variables, Tajfel (1982) preferred an alternative name for the theory - C.I.C. theory. The conclusion was drawn that social categorization of oneself, even in terms of a minimal group, led to an identification process that resulted in intergroup comparisons which were self-evaluative and thus became the basis for social competition.

These minimal group studies make a critical point: social competition, as exhibited by subjects in these studies, is conceptually different from instrumental (zero sum) cooperation and competition. Intra and intergroup processes are relational not absolute (see Turner, 1975). In other words, social cooperation and competition arise out of the perceived intergroup situation; they do not create intergroup cooperation and intergroup conflict. Thus social cooperation and competition are not necessarily individual’s competition for a goal or outcome attainment which exists *a priori* to the intergroup situation. Objective goals are not absolute ends in themselves, they are relative and emerge in terms of relevant social comparisons that are based on social identifications that reflect social structure. Thus, social behaviour is not based on individual’s motivation to attain absolute or instrumental ends, as the economic self-interest model would argue. The minimal group findings suggest that social categorization, per se, can provide a sufficient basis for the psychological reality of group

formation; while not questioning the importance of other group level processes. Thus, social identity theory reinstates the psychological reality of the group in terms of an cognitive mechanism that involves social categorization, identity, and comparison processes. Further, this mechanism reflects relevant social structure and brings meaning to the situation.

5.3.2 The continuum model of social identity theory

As work on the development of social identity theory progressed, Tajfel (1978) made the point that “the concept of social identity ... is not an attempt to describe the identification for “what it is” in a static sense. Social identity is understood here as an intervening causal mechanism in situations of “objective” social change” (p. 86). The point Tajfel was making is that merely situating an individual in terms of an objective social category or identity, such as black/white or male/female, is not the point of the theory. Of course there is a myriad of dimensions of objective identities that occur in society. The point is that subjective identification is the causal mechanism which enacts objective social change within the collective life of individuals. The question that social identity theory posed was: how does social identity influence the behavior of individuals and collectives, and what makes up their social psychological construction? Tajfel (1979) explains:

the aim of a theory of inter-group behavior is to help us to understand certain selected uniformities of social behaviour. In order to do this, we must know (i) something about the ways ‘groups’ are constructed in a particular social system, (ii) what are the psychological effects of these constructions; and (iii) how the constructions and their effects depend upon, and relate to, forms of social reality (p. 185)

Taken together, the theory aimed to reinstate the psychological reality of the group to the social psychological analysis of intergroup behavior.

Tajfel argued that, as a theory of intergroup behavior, it was important to make a qualitative distinction between inter-group behaviour and inter-individual behavior. Tajfel (1981) suggested a continuum model with each pole representing one of these extremes, such that all behavior at the inter-individual level was determined by interpersonal relationships, and all behavior at the inter-group level was determined by intergroup relationships. However, Tajfel (1981) argued that “one of these extremes - the interpersonal one - is absurd, in the sense that no instance of it can conceivably be found in ‘real life’ (p. 240). To some degree, an interpersonal encounter (even within the

most familiar relationships) will be determined by the various social groups that the individuals belong to. For Tajfel, the intergroup extreme was less absurd; thus, there was a certain asymmetry to the continuum. For social identity theory, the emphasis was on the real social implications that carried on from categorizing a person at an intergroup level of abstraction, *vis a vis* an interpersonal level. Tajfel's original continuum model was a descriptive analysis of a dynamic continuum of interpersonal and intergroup behavior. It also lay the basis for the understanding of groups as both social psychological process and product.

Asch (1952) had also emphasized this relationship when he stated that individual minds contain a "socially structured field" (p. 253) that represents collective relations of individuals and enables joint action through the mutual reference of the field for the individuals involved. Recall, Asch (1952) stated that a sufficient representation of joint action required:

... an adequate formulation of the individual-group relation ... we need a way of understanding group processes that retains the primary reality of individual *and* group, the two permanent poles of all social processes. ... We must see group phenomena as both *the product and condition* of actions of individuals. ... Once the process ... is in motion it is no longer the individual "as such" who determines its direction, nor the group acting upon the individuals as an external force, but individuals working with, for, or against each other. (p. 250 - 251)

Social identity theory provided a conceptual framework for an analysis of group level psychological processes to proceed.

5.3.3 Individuals and groups: Social mobility and social change

Tajfel (1978) developed a number of other continua that carried on from the idea that social identity provided the conceptual link between the individual and the group. The social continuum put forward in social identity theory also provided a framework through which to explain social mobility and social change, as well as variability and social uniformity. The inter-individual end of the continuum underpins the process of social mobility and variability, while the inter-group end underpins the process of social change and uniformity. Given that identity processes involve the evaluative dimension of social comparison, which in turn mirrors social structure, group status is a meaningful subjective measure that differentiates group identities. Thus status is not an absolute measure, that refers to the amount of wealth or power an individual or group has, but a relative measure that emerges as a product of comparative identification processes.

When an identity is perceived to be negative or threatened in relation to relevant comparison groups, different strategies can be adopted to resolve this unease. An individual solution is to seek social mobility into a higher status group; a group solution would be to unite and put pressure on the system for social change. These latter solutions are thus socially creative. Tajfel and Turner (1979, 1986) cite a number of creative solutions: (a) changing the dimension of comparison. For example blacks often defined themselves in terms of their musical talents in comparison to whites; (b) changing the values assigned to the attributes. The classic example being the “Black is beautiful” phrase that arose during the civil rights movement of the 1960’s; (c) change the comparative outgroup. A recent example would be the race riots of L.A. that emerged between blacks and lower status ethnic groups after the acquittal of a white policeman who had been shown beating a black motorist. Finally, the group can also unite to change the social structure itself through social competition to change the objective state of affairs, which, in turn, has consequences for the maintenance of the status quo. Of course, these strategies are not mutually exclusive.

This discussion highlights the “causal spiral” between objective and subjective states of affairs in intergroup relations; however, it is always relational and comparative, thus the objectivity adopted by rational actor models is lost. Further, whether or not individual or group level strategies are chosen relates to issues such as real and perceived permeability of boundaries and social status (see Doosje, Ellemers and Spears, 1995; Ellemers, van Knippenberg and Wilke, 1990; Ellemers, Wilke and van Knippenberg, 1993; Simon, Pantaleo and Mummendey).

Kelly and colleagues (Kelly, 1993; Kelly and Kelly, 1994) have carried out some relevant studies that examine group identification, intergroup perceptions and collective action. They conclude that:

strong group identification brings the social world into sharper focus by promoting clear distinctions between “us” and “them”, and facilitates participation in collective action by promoting sharp perceptions within the ingroup concerning the desirability and possibility of social change. (1993, p. 76 - 77)

Clearly there is mounting evidence that collective action is the product of social psychological group level processes. Social identity theory emphasises the importance of social structure in these processes as society comprises social categories which stand in power and status relations to one another. While social structure precedes the individual, it is individuals’ capacity to act as a collective that shapes social structure.

Indeed society is not a static monolithic entity but constantly in a state of flux which mirrors individuals' perceived social reality and their place in it. This discussion highlights the psychological reality of both individual and group life, wherein acting in terms of a group membership facilitates individual and collective welfare concurrently.

5.3.4 Dynamic nature of group life: Groups as processes and products

Tajfel (1982) made the important point that “social groups are not ‘things’; they are processes. ... they are cognitive constructions shared by the individuals involved., and/or result from a perception of shared interest. ... In the dynamic conception, groups (and intergroup relations) come to life when their potential designations as such have acquired a psychological and behavioural reality” (p. 485). This theme was developed in his work on group processes (see Tajfel, 1981, Chapter 11). From this perspective group facts achieve objective expression because their social psychological representation can be shared in the minds of individuals, as such social identifications are socially construed. This builds on the earlier work of Asch (1952, pp. 240 - 72; see also Sherif, 1936) where it is argued that group behavior by individuals is made possible through individuals' capacity to engage in a *shared psychological field*. In other words individuals acting collectively can do so because of each individual's capacity to engage in a *mutual reference*.

While the above paragraph emphasizes the process by which social groups achieve objective reality, the psychological reality of groups can not be underestimated. The theory argues that there is a continual dynamic interaction between the psychological construct of social identity, which reflects a meaningful social reality for the individual, and groups as a social product of their psychological reality. Turner and Giles (1981) made this point very clear:

[The] group is both a psychological process and social product ... the psychological hypothesis is that group behaviour and relationships are mediated by a cognitive redefinition of the self in terms of shared social category membership and associated stereotypes.

On the other hand, however, the group is a social reality. It refers to real interrelated people engaged in concrete social activities as a function of their social relationships and goals ... The cognitive processes instigate collective interaction and thus the emergence of social processes. The latter produce social structures, roles, norms, values, purposes, etc. which in turn become determinants of individual psychological functioning. The same also applies to the development of social identity itself ... This is apparent in that the theory takes for granted that real intergroup relations presuppose *shared* social categorizations and stereotypes, with a specific *sociocultural* content, related to members' *collective purposes* and the explanation, justification

and evaluation of *concrete political and historical contexts* ... the group product of social influences as well as cognitive and motivational processes (Turner and Giles, 1981, p. 27)

In summary, group life is a creative emergent process and product through group's inherent social psychological reality in the minds of individuals.

Turner (1982) made the point that while social categories or groups can be objectively defined in terms of similarity criteria such as ethnicity, socio-economic status etc., (the type of classificatory approach that Lewin argued against), social categories can also be self-defining in terms of a shared cognitive representation by a collective of ingroup members. In this sense a group of self-defining individuals can be similar across certain contextually relevant dimensions, as Asch, Sherif and Lewin also argued in their respective analyses of group process and individual identification. The group can be understood as a social psychological process in the sense that these shared cognitive representations are fluid and adaptive and thus reflect the dynamic and emergent properties of group life. This mechanism allows for the reciprocal nature of groups as psychological reference point and objective social product. This process accounts for the dynamic of objective social categories becoming relevant psychological groups, and for the dynamic and changing character of groups and their memberships. As Turner (1982) has stated:

We are concerned here with group membership as a psychological and not a formal institutional state, with the subjective sense of togetherness, we-ness, or belongingness which indicates the formation of a psychological group. What are the necessary and sufficient conditions for some aggregate of individuals to feel themselves to be a group and act accordingly?" (p. 16)

To understand groups in any static, or objective, sense is to fail to capture the dynamic nature of groups and group life. Thus, to define groups objectively is to conceptually limit our understanding of individual behavior in society. It is argued here that, behavior, individual and collective, can most clearly be understood in terms of the functional dynamic between *social context and the categorization processes of individuals*, rather than through their objective interdependence.

As Turner and Oakes (1996) argue, the process of social identification is a primary psychological mechanism; in their words: "our mind and our selves are socially structured, and social identity provides the psychological link between social structure and large scale collective behavior" (p. 363). Groups, as such, are defined in terms of individuals' relationships with groups; that is, as "a collection of individuals who perceive

themselves to be members of the same social category, share some emotional involvement in this common definition of themselves, and achieve some degree of social consensus about the evaluation of their group and their membership in it" (Tajfel and Turner, 1986, p. 15). Groups, as such, must be understood in terms of the "total field" of their existence for the individual.

5.3.5 Social identity theory: In summary

To summarize, social identity theory has been described by Tajfel (1979; see also Turner, 1996) as resting on a conceptual tripod that incorporates three important aspects of his approach to understanding the nexus between the individual and the collective. The first point is that groups are both processes and products, and as such group life not only informs an individual of his or her place in society but can also be used to induce change through the dynamic nature of group processes. Through this dynamic, positive distinctiveness of social groupings can emerge and recede in a continual redefinition of the social structure, as has been shown throughout history. Secondly, individual behavior reflects both interpersonal and intergroup level processing. Collective action does not reflect a group of interdependent individuals pursuing personal self-interest, rather the action reflects a shared social reality that is group based not only functionally but also psychologically. Finally, there is a continual interplay between individual cognition and social context, each can not be fully understood through an analysis of these two variables independently. Self-categorization theory grew out of an interest in further developing this third point. Social identity theory is then a social-cognitive theory of intergroup behavior that "reinstates the group as a psychological reality and not merely a convenient label for describing the outcome of interpersonal processes and relations" (Turner, 1984, p. 535). In other words, the group is best defined and understood in terms of its psychological reality. While intergroup relations can be described in terms of objective social structure, this approach can not account for how and why individuals act in terms of objective social groups. In conclusion, while social identity theory highlighted the motivational aspects of the psychological reality of group life, self-categorization theory, which will now be reviewed, further developed the psychological mechanism through which identification with groups occurs. Further, while social identity theory was launched as "An integrative theory of intergroup conflict" (Tajfel and Turner, 1979), conceptual constructs relevant to the area of social

cooperation were always implicit in this analysis of group life and process. In line with Sumner (1906), conflict and cooperation continue to be understood as reciprocal processes. Evidence in support of these conclusions, will be presented after the introduction of self-categorization theory, which quite explicitly addresses the area of social cooperation.

5.4 Self-categorization theory: Re-defining the self in self-interest

The development of Turner's (1982, 1984) 'self-stereotyping hypothesis' within the social identity framework placed self-identification (self-categorization) at the core of theoretical developments of social identity theory. It was this hypothesis that led onto self-categorization theory. Turner (1984) argued that "it is the cognitive redefinition of the self - from unique attributes and individual differences to shared social category memberships and associated stereotypes - that mediates group behavior" (p. 528). Importantly, as this analysis re-defines the self, it defines the context in which self-interest can also be redefined. This section will present the underlying process of identity formation that redefines the self in self-interest. To begin, self-categorization theory was introduced by Turner (1987) as:

The product of a distinct European tradition of research on social categorization processes and social identity. [It] is an attempt to spell out in explicit fashion the assumptions we need to make about psychological group formation. ... In doing this it makes use of and develops. ... the concept of social identity itself and the assumption of an 'interpersonal-intergroup continuum' of social behavior (p. viii).

While the role of social identity remains central there are some important conceptual differences between these two theories.

Turner (1987) notes that while the former emphasized "positive ingroup distinctiveness [as] the major explanatory notion (p. viii), the latter explains "social identity as the social-cognitive basis of group behavior, the mechanism that makes it possible (and not just the aspects of the self derived from group membership)" (p. ix). Second, the theoretical position of the self in the continuum model changes. As Turner explains in reference to the early work on the model 'the interpersonal-intergroup continuum was conceptualized as varying from "acting in terms of self" to "acting in terms of group" ... as if the latter were not an expression of the former' (pp. viii-ix), while for self-categorization theory, the self is conceptualized as both process and the product. In other words, the self is expressed through all levels of the continuum, both

interpersonal and intergroup, and acts as a process through which perception is conceived in concert with the environment.

Depersonalization is the process that shifts perception towards more inclusive or collective self-definitions or categorizations. It is the psychological mechanism that takes an individual from the interpersonal level to the intergroup level. Self-stereotyping (or categorizing) is social psychological process through which individuals categorise themselves at all levels of abstraction of the continuum model. As Turner (1984) states:

Self-stereotyping produces the depersonalization of the self, i.e., the perceptual interchangeability or perceptual identity of oneself and others in the same group on relevant dimensions. It is this cognitive redefinition of the self - from unique attributes and individual differences to shared social category memberships and associated stereotypes - that mediates group behavior. (p. 528)

Thus, in light of the earlier analysis of group processes, not only do social identifications reflect group affiliation, self-categorizations are both cause and effect of group phenomena. This analysis marked an important theoretical shift from the social identity perspective of group behavior to the self-categorization perspective of individual and collective behavior. As such, social identifications (categorizations) developed from reflecting group memberships to being the basis for group behavior, such as social cooperation. In other words, when individuals self-categorize in terms of a common, and thus inclusive group membership, this becomes the psychological basis of group behavior and processes. The assumption is that self-stereotyping reflects context specific self-definition. And just as the group is not conceptualized as an objective entity in social identity analysis, the self is defined not as a static entity but as an emergent and dynamic process and product. The following section will explain the self-categorization perspective of identity processes of the self.

5.4.1 The Self: Process and Product of the Identity Continuum

The psychological process of self-categorization is the dynamic mechanism underlying identity formation. It is the fluid and dynamic self-process that adaptively makes sense of the social world at different levels of inclusiveness with others. As Turner (1996) states:

[The theory] supposes that the self-process works to socialize cognitive functioning and individual behaviour and ensure that cognitive activity is closely tied to the current realities of individual's social environment. (p. 8)

In other words, the self is reflexive, responding to the social environment. As such the self has the capacity to function adaptively through a wide range of social environments, responding through one underlying mechanism of self-categorization.

As with categorization of natural objects (Rosch, 1978), self-categories are a cognitive grouping of stimuli (others) that are identical (thus interchangeable) in terms of some comparative dimension. For example, an individual can self-categorize as a psychologist, and not a physicist, and within this category of membership an individual will be identical to other psychologists along some relevant dimensions, in comparison to physicists. Self-categories can also vary in level of inclusiveness for an individual can also self-categorize as a scientist and this category would be inclusive of both psychologists and physicist, as well as other scientists. A more inclusive category, defined as moving away from the individual extreme of the continuum, is understood to be a more abstract classification. A continuum of three levels of abstraction are defined within self-categorization theory: subordinate (personal identity); intermediate (social identity); superordinate (human identity). Further, at any level of abstraction, or inclusiveness, these identities are equally real and accurate self-definitions which emerge as a function of the social context.

Identity formation, or self-categorization, involves, at least, an interaction between three properties of the categorization process: specifically, the normative and comparative dimensions of the perceived social context, together with the accessibility of any given category of membership to the perceiver (Oakes, 1987). Each of these will be discussed in detail later in this section. Further, the theory proposes that there is a constant functional antagonism between individual and group level processing. Functional antagonism produces the tension system that enables the appropriate self category to emerge that is relevant to the individual in the perceived social context. Self-categories vary on a dynamic continuum defined by the functional conflict between different levels of abstraction. Movement through this continuum determines whether behavior is based more or less in terms of either end of this continuum, that is, whether behavior is interpersonal or intergroup. It must be made clear though that to say that self-categories vary on a continuum is a conceptual simplification. The continuum is by no means a linear conceptualization of the self with ultimate uniqueness as an individual at one end and an all inclusive category of human being at the other. There is not one unique self at the interpersonal end of the continuum but a potential array of unique selves that arise in relation to the superordinate context. Recall that Tajfel understood

the interpersonal end of the continuum to be absurd. However, the continuum illustrates the cognitive capacity of the self to vary in level of inclusiveness of others, that is through a range of individual and collective identifications.

As mentioned, categorization processes have both comparative and normative dimensions. Both dimensions interact to produce the categorization but can be understood in their own right as well. The social comparative dimension is specified through the meta-contrast principle. It is a meta-contrast because it defines a contrast (in the form of a ratio) of contrasts for a given social psychological field. Take the above example of psychologists and physicists, who also belong to the more inclusive category of scientists. When will one self-categorize as a psychologist, as opposed to a scientist? The meta-contrast principle dictates the following classification criterion: if one perceives the differences between physicists and psychologists to be greater than the differences between individual psychologists, then the likelihood of perceiving oneself as a psychologist is greater (see Turner & Oakes, 1989). At the higher level of abstraction, one is likely to self-categorize as a scientist when the differences between scientists and, for example, artists are perceived to be greater than differences between individual scientists. Thus, the comparative frame of reference is important. This process of categorization describes only the comparative dimension, while the normative dimension describes the normative content of the category. The normative dimension brings comparative social meaning to the difference between the social categories. In other words the normative dimension describes the similarities and differences in normatively fitting directions (e.g. Oakes et al., 1991). Taken together these two dimension make up the concept of perceiver's "fit," which builds on the work of Bruner (1957) on perceptual readiness.

To briefly illustrate the concept of normative and comparative fit take the following example. A social psychologist walks into a room containing some psychologists and some physicists. The psychologists are drawing vectors all over the boards, as physicists usually do, while the physicists are explaining the design of Sherif's autokinetic experiment. The social psychologist then walks into another room. Again there is a group of psychologists and physicists; however, this time the psychologists are explaining Sherif's experiment and the physicists are drawing vectors. In the first room the normative fit between the social psychologist's knowledge of what the group psychologists should be like is low, while in the second room there is congruent normative fit. Thus, in the second room the basis for social identification will be stronger

than in the first room, hence the salience of the self-categorization “psychologist” will be stronger in the second.

This example highlights another important point, that of accessibility. For some individuals the category psychologists will be accessible, while for other individuals the category physicists would be accessible. This would depend on individual’s background experience and thus knowledge of their place in the world. Building on the work of Bruner (1957), it is understood that “fit” interacts with accessibility (that is the perceptual readiness of an individual to use a category). Of course, some categories are more accessible than others across individuals and thus this imposes a certain amount of variance in the salience of any given category across individuals. The interactive dynamic of category salience is defined by the “accessibility x fit” hypothesis (Oakes, 1987; Oakes et al., 1991). Oakes et al., (1994, Chapter 5) provide a detailed review of categorization and selective perception.

In conclusion the social variability of the self can be understood in terms of two key points. Firstly, self-categorizations are not arbitrary but vary systematically in relation to the perceived normative and comparative aspects of social context; second, self-categories reflect social definitions of an individual’s place in society, not as fixed representations, but momentary representations that make the situation meaningful from the point of view of the perceiver. Taken together, self-categorizations are veridical in that they relate to systematic changes in social reality (see Turner, Oakes, Haslam and McGarty, 1994). In summary, self-categories are reflexive judgements that enable individuals to functionally adapt to social reality at many levels of inclusiveness, such that both the reality of the group and the individual is maintained as a functional and dynamic aspects of society.

5.4.2 Social cooperation: The systematic variability of self-interest

As has been highlighted, self-categorization theory offers a model of human nature that is radically opposed to the idea that society is made up of discrete individuals who are selfish utility maximizers, who must be controlled through effective social systems. Instead of self-interest being the exclusive domain of the individual, this theoretical perspective re-defines the self such that acting in terms of group membership can also be conceptualized as acting in terms of self - a self that is inclusive of others. Recall Coleman’s (1961) critique of classic economic theory, wherein it is assumed that

an individual acts in term of their discrete self-interest, observing that individuals often act in terms of entities larger than themselves. They act in terms of the collective. In contrast with the pervasive literature on individualist self-serving humans, Dawes et al., (1990) recently conclude:

Theorists have recently been concerned with speculating about what leads to sociability -- usually in the form of some individual incentives for becoming social (see Axelrod, 1984: 99). In contrast, we don't speculate. We only point out that there have been no findings indicating that humans ever *were not* social. It is fun and somewhat romantic to speculate about how isolates developed our most cherished characteristic, our ties to other humans. But once again, such speculations must be evaluated in terms of our knowledge of how humans behaved without such ties, and there is no evidence we ever did. (p.109 -110)

Self-categorization theory offers a theoretical perspective that accounts for our social nature in terms of a psychological mechanism. The emphasis is on building explanatory constructs to account for the variable nature of social identification; in other words, to explain how the social structure transforms the individual. This is different to an approach that emphasized how different individuals behave within different social systems. As Caporeal, Dawes, Orbell and van de Kragt (1989) have concluded in their review of selfishness and cooperation: “[individualistic] notions are really untested meta-theories; they seem to be based on cultural beliefs about “human nature” rather than on reasoned argument” (p. 683).

Self-categorization theory lays out a number of assumptions and hypotheses that relate to group processes, such as social cooperation. A number of direct hypotheses derive from the statement that: “To the degree that the self is depersonalized, so too is self-interest” (Turner, 1987, p. 65). To make this point conceptually clearer, self-interest, from this perspective, can be re-defined at a higher level of abstraction, that is inclusive of other group members, and not conceptualized in terms of discrete individual self-interest. It is assumed that where mutual perceptions of common interests are collectively salient, the interests of group members are interchangeable. Simply put, to cooperate is to act in terms of a group membership. The formal hypotheses, that relate to social cooperation, read as follows (Turner et al., 1987, p.65):

H. 15 That the perception of identity between oneself and ingroup members leads to a perceived identity of interests in terms of the needs, goals and motives associated with ingroup membership.

H. 16 That factors which tend to enhance the salience of shared ingroup memberships will tend to increase the level of intragroup co-operation (and intergroup competition).

H. 17 That factors which tend to personalize or individuate intragroup relations (or lead to the categorization of others as outgroup members) will decrease mutual co-operation (and increase interpersonal competition).

Each of these hypotheses follows on from the primary hypothesis that social cooperation in the product of a salient social identity. In other words, psychological group formation, through self-categorization, is the intervening variable that allows social cooperation to emerge. As Turner (1985) states:

Whereas ... interdependence theory states that positive interdependence leads to cooperation, which in turn leads to the formation of a psychological group (e.g., see Sherif, 1967), the evidence implies that psychological group formation may be the necessary intervening process before objective interdependence can be translated into cooperative activity (p. 88).

Thus instead of cooperation producing the group, as has long been assumed, it seems that psychological group formation is the basis of cooperative behavior. This resonates with the views of Asch (1952) who stated: "Cooperative action is therefore identical with group formation" (p. 175). Thus, self-categorization theory offers an ontology for social cooperation that may bring parsimony to the social dilemma and cooperation literature. As has been evident from the gaming research alone, interdependence of individuals, per se, does not induce cooperative behavior. It has long been observed that subjects are not governed by a single motive of maximizing their gain, hence the theoretical development of transformational processes, such as social value orientations. However, even with the inclusion of transformational processes within the interdependence analysis, there is still little systematic understanding of the underlying social psychological mechanism involved. The interdependence analysis merely describes the state of affairs: objectively in terms of the interdependence structure and subjectively in terms of a typology of social value orientations.

This theoretical perspective has fulfilled the two points that were raised at the beginning of this chapter: specifically (a) the distinctive psychological reality of the group has been reinstated and questions the functional interdependence analysis of groups; (b) a social model of self-interest has been introduced that questions the simplistic tautology of the motivation analysis prescribed by rational actor models. Given that the two premises raised in the previous chapter and addressed in the present chapter, underlie the social dilemma paradigm and our contemporary understanding of social cooperation, it seems productive to discuss these two premises directly in light of self-categorization theory. Specifically, the next two sections will examine how self-categorization theory

conceptualizes interdependence, in contrast to the former model. And second, how would rational self-interest be re-conceived in the social dilemma paradigm.

5.4.3 Psychological group formation and interdependence

Given the foregoing analysis, is there a functional relationship between interdependence and the group from the perspective of self-categorization theory? The simple answer is yes. The self-categorization approach is essentially in line with Lewin's original conception, explaining interdependence as a product, or consequence, of some group-level process. For while many researchers who follow the Lewinian tradition conceptualize interdependence as the precondition for cooperative behavior, and thus operationalized it as such, Lewin clearly stated that: "if one wishes to use the feeling of belonging as the criterion of a group, one can do so if one points to the interdependence established by this feeling" (p. 148). In other words the group is a psychological reference point for individuals and this leads to a feeling of interdependence with others.

Despite this, many of Lewin's contemporaries conceptualize groups in terms of their social reality, as opposed to their psychological reality, for individuals. For example, Campbell (1958) understood entitativity in terms of social aggregates objectively defined. Recall, he preferred common fate, over similarity, for describing the entitativity of groups. Likewise, common fate of individuals, defined by their objective social reality, establishes the mutual fate of individuals in the social dilemma paradigm.

In contrast, for self-categorization theory, the primary perceptual index is context specific perceptions of similarity, opposed to raw or absolute similarity (c.f. Medin, Goldstone and Gentner, 1993). And, in a certain sense, the self-categorization analysis is, thus, inclusive of the common fate analysis, as individuals can be similar in terms of their common fate. Self-categorization theory argues that the intervening process between objective interdependence and social cooperation is identification with the social group, based on perceptions of similarity, which could be understood as perceived similarity of fate. It is psychological group formation that leads to perceived interdependence with others.

The dynamic process between the self and the groups is lost in the objective analysis of interdependence, based on common fate of individuals. The point that must be made clear is that groups defined in terms of objective similarity or common fate misplaces the conceptual framework through which to understand group process and

behavior. Lewin argued against this approach, and now, so too, does self-categorization theory.

For self-categorization theory common fate is not defined by the objective outcome interdependence of individuals. Common fate is induced by perceptions of identification with a group that arises from a feeling of “we-ness” for the individual. Social identity is then the basis for perceived interdependence and social cooperation. In other words, social cooperation is the product of a salient social identity, and perceptions of interdependence follow this psychological construct. From this perspective it is redundant to first establish the interdependence structure that defines the social dilemma. And, given that situations of objective interdependence have never produced high levels of cooperative behavior, it seems fruitful to develop alternative means to examine the processes of social cooperation.

5.4.4 Self-interest and rationality: The reality of the individual and the collective

A fundamental aspect of the interdependence approach can now be questioned. Within these objectively defined situations of interdependence, rationality, and self-interest, remains to be defined as an individual level process in the social dilemma paradigm. Poundstone (1993, pp. 277-278) recently pointed this out in his review of the gaming literature, arguing that game theory only recognizes a very fixed notion of rationality. His conclusion after reviewing the literature extensively was that he hoped that rationality could be conceptualized more flexibly than currently mandated in the social dilemma paradigm. Recall that rationality, within the paradigm, is defined by the minmax principle; that is, rational individuals are motivated to maximize their minimum payoff. Further recall that the interdependence that the prisoner dilemma game evokes elicits very low levels of cooperation. How would self-categorization theory explain the low levels of cooperation?

First, consider the continuum model and recall that, in part, the social context determines the appropriate level of abstraction of self-categorization. Given that the paradigm explicitly pits one (often anonymous) player against the other (often in a competitive university environment), the assumption is that players are likely to be categorizing themselves at an individual level as there is little basis for group behavior. Thus, it is a rational choice to act as a discrete individual. Given this individualizing context, if players were to act in terms of the group and cooperate, they would run the

risk of being exploited -- not a good way to maintain one's self-esteem! -- and would in all likelihood change their behavioral choice. As many early researchers in this field have noted, the motivation has been "not to lose", as opposed to winning, or "to avoid ego-deflating experiences."

It, thus, seems appropriate and rational in this experimental context to perceive oneself as an individual, and act in accordance with this self-categorization. Individuals are thus motivated to maintain positive social distinctiveness in terms of this category of membership. Competition, through maximizing differences strategies, maintains individual distinctiveness. In this same manner, individuals maximize category differences at a group level in the minimal group paradigm. In line with self-categorization theory, individual and group based behavior is conceptualized as rational behaviour. Thus, overall, at both the individual and the group level the strategy seems to be to maximize the difference between self (defined at the individual or group level) and other.

Having said this, if a player did identify with the other player in a social dilemma, perhaps through relevant communication (as shown to be effective in Chapter 3), and thus perceived themselves as interchangeable on some relevant dimension, a positive sense of self could be maintained by choosing the cooperative, in other words collective, choice. As stated by an early research group:

In our games ... the necessity to avoid an ego-deflating experience that could result from attempted collaboration that is not reciprocated could very well account for the prevalence of [competition]. In [the prisoner's dilemma] this need to maintain self-esteem so dominated the monetary values in the matrix that subjectively players are not really in a dilemma. The choice is between doing as well as or better than the other person and running the risk of doing worse. (as cited in Poundstone, 1993, p. 176)

Turner (1985, 1987) has made the point that the prisoner dilemma paradigm "directly tests the hypothesis that positive interdependence for the maximization of self-interest leads to cooperation" (p. 85). As shown in Chapter 2, the consistent findings do not support this hypothesis. As Eiser (1978, p. 151) states, the basic assumption underlying the interdependence perspective is that individuals would cooperate when it was in their objective interest to do so. As the purpose of the game is to get as many points as possible, then it would be in each individual's self-interest to cooperate. Yet individuals do not (as Eiser, 1980, p. 201, points out), hence the "problem of interdependence" and for the last 30 year researchers have continued to test numerous variables that will increase cooperation within the interdependence structure that

constitutes the social dilemma paradigm. On the whole the results of this approach are largely inconclusive, as was demonstrated at the conclusion of Chapter 3. Clearly, the rationality of economic self-interest is not the whole of the explanation, rational self-interest has been misconstrued in terms of economic models of human nature. In contrast, there is building evidence within social identity and self-categorization theory that individuals are motivated to maintain a positive and distinctive self-perception, whether that be individual or group.

Dawes (1980) may have been on the right track when he concluded that it is the payoffs that lead players to defect (p. 191). As highlighted, an important and interesting aspect of this body of literature is the assumption that acting in terms of the group interest, by definition, means less for (or a cost to) the individual. Indeed, the payoff structure of individual's outcomes specify this in a dilemma game. Indeed, the matrices structurally define this assumption, as can be seen through a comparison of the outcome cells below in Figure 5.1. As can be seen competition, the "D" choice, accrues the most individual gain. The cooperative "C" accrues less. However, when all individuals compete to maximize their own gain, the irony is that collectively, all individuals get less.

		<u>Player two</u> Column player	
		<u>Choice C</u>	<u>Choice D</u>
<u>Player 1</u> Row player	<u>Choice C</u>	40, 40	0, 50
	<u>Choice D</u>	50, 0	20, 20

Figure 5.1 The outcome structure of the prisoner's dilemma game

Thus, the assumption of the primacy of the individual, by definition, is embedded in the paradigm. Game theorists, and thus social dilemma theorists, have sold themselves short by rigorously adopting untested (economic) assumptions about human nature. As Helmreich and colleagues summarize: "The sheer bulk of PD studies and the absence of notable theoretical integration and advance seem to demonstrate that an attempted *via definitiva* may become a *via dolorosa*" (p. 343). Research within this paradigm has lost its theoretical focus, instead we have a growing list of factors that increase cooperation in this paradigm. This raises the question of the relevance and importance of the

construct of objective interdependence and the sole rationality of individual self-interest. Self-categorization theory allows for rational action of the self at both the individual and the group level.

5.4.5 Self-categorization theory: In summary

Self-categorization theory has never implied that awareness of interdependent goals, common fate, or overt cooperation do not lead to harmonious group relations. However, the theory does maintain that these are neither necessary nor sufficient for the formation of groups and subsequent group level processes, such as cooperative behavior that benefits the group as a whole. The point is that, given that groups transform individuals (and it doesn't seem that researchers are disputing this proposition), group formation will directly affect what individuals perceive to be in their interests. Our self-interests are not intrinsically personal, they emerge in terms of relevant self-categorizations, that can be inclusive of others. They vary with the normative and comparative aspects of the perceived social reality. Thus, while social identity and self-categorization theories built on Sherif's analysis of objective interdependence of the group, the two theories in many ways are now incommensurable, not only in terms of theoretical constructs but also in meta-theory and paradigm. Building on the previous summary of social identity theory, the following summary will highlight the distinctive aspects of the self-categorization approach.

The meta-theory that underlies this approach is entirely an interactionist account of social behavior, wherein the individual and the environment are not defined and explained in abstraction from one another but inform one another in terms of a dynamic whole. In other words, in terms of a shared social psychological field. As such the approach is neo-Galilean in that it emphasises the process or system over the discrete parts of the system. Social identity theory provided an initial conceptual framework that allowed for a distinctive analysis of the psychological reality of group life. Within this dynamic conceptual framework, social conflict and cooperation were conceptualized to underlie social change and stability.

It was self-categorization theory that specified the psychological mechanism through which identification with groups occurs. Through the cognitive re-definition of the self, an adaptive functional mechanism was put into place that could account for the fluid nature of behavior -- interpersonal through to intergroup. Depersonalization is the

process that shifts perception towards the group level end of the continuum. Along the continuum individuals can self-stereotype in terms of a number social identifications which reflect group memberships. And in the same way that a group is thought of as both process and product, the self is thought of as both process and product. Self-processes thus socialize cognitive functioning.

This re-conceptualization of the self also re-defines self-interest. As the self becomes de-personalized, so too is self-interest. As group level categorizations become salient, self-interest is transformed to a collective level. To act in our self-interest is to act in terms of collective interests. In this same way social cooperation is re-defined. Cooperation is defined as a product of a salient social identity, as an inclusive categorization of self, and no longer defined as a sacrifice to self. In the chapter to follow we will examine some preliminary evidence that social cooperation can be understood as the product of a salient social identity. The empirical work of this thesis will then follow, the aim to establish further support for this re-definition of self-interest, through social identification with others, that is predictive of cooperation.

- Chapter 6 -

Cooperation as a product of a salient social identity: An overview of current evidence, a retort, and a framework for development

6.1 Introduction

This chapter will begin with an overview of the early evidence that supported the self-categorization analysis of social cooperation (Turner et al., 1987). Since this time many of the ideas mooted in social identity and self-categorization theories have become widely accepted. This is reflected in the work of many researchers who have picked up the social identity analysis of group life and applied it to the analysis of intergroup relations, particularly in the area of stereotyping (see Oakes, Haslam & Turner, 1994; Spears et al., 1996). In terms of the literature addressing social cooperation, the work of Brewer (e.g. Brewer & Schneider, 1990) and Gaertner (e.g. Anastasion, Bachman, Gaertner & Dovidio, 1996), and their colleagues, is particularly noteworthy. Their work, and others', will then be presented.

Following this review of evidence supporting a social identity analysis of social cooperation, Rabbie and colleagues' retort will be presented. This retort represents the only systematic attempt by interdependence theorists to challenge the social identity perspective and thus defend the interdependence analysis of group life. Rabbie and colleagues criticisms are based largely on the social identity explanation of the findings of the minimal group paradigm and they counter the social identity explanation through the introduction of the Behavioural Interaction Model of interdependence.

The final section will outline the empirical framework of this thesis, building on and responding to the work outline previously. The primary aim is to develop a self-categorization analysis of social cooperation; however, particularly in the initial studies, the aim will be to establish the relationship between variables important to both theoretical accounts. As such, the role of the objective interdependence of individuals and transformational processes, specifically social value orientations, will be addressed.

6.2 Social cooperation as a product of a salient social identity: Initial evidence

In developing the self-categorization analysis of social cooperation, Turner drew on a number of early studies. This included early work by Wilson and colleagues (Wilson, Chun and Kayatani, 1965; Wilson, Kayatani and Chun, 1968). They conducted a series of studies comparing intra and intergroup cooperation, using contrived teams playing a prisoner's dilemma game. Interestingly, intragroup choices were twice as cooperative as intergroup choices. Thus, within the same reward structure, group membership had a significant effect on levels of cooperative behavior, just as is found in the minimal group studies.

Dion (1973, 1979) conducted a similar group of experiments using the prisoner's dilemma game, with players making both ingroup and outgroup choices. Again, cooperative intragroup choices were significantly greater than intergroup choices. These researchers discussed their findings in terms of the cognitive differentiation hypothesis; specifically that cooperation and competition enhanced the salience of "us" and "them", describing groups as "perceptual units". It was argued that competition enhances feelings of common fate and similarity (positive interdependence) with the ingroup, while enhancing feelings of opposing fate or dissimilarity (negative interdependence) with the outgroup. Thus cognitive differentiation was induced through perceived homogeneity with the ingroup and perceived heterogeneity with the outgroup. However, it could be argued that these "perceptual units" (or psychological groups) may have been the basis of cooperative or competitive behavior rather than being a consequence of it. This same argument could be made for many of the findings within the social dilemma literature.

Worchel and colleagues have worked on decreasing intergroup conflict by decreasing the salience of group boundaries (Worchel, 1979; Worchel, Andreoli, and Folger, 1977; Worchel, Axson, Ferris, Samaha, Schweitzer, 1978; Worchel and Norvell, 1980). They suggest a number of variables which may maintain intergroup boundaries even though a superordinate goal has been introduced: distinct visible differences between group members; cooperative failure; history of intense intergroup conflict; sporadic cooperative intergroup encounters; differential intergroup status and power, etc. Worchel et al. (1977) suggested that the imposition of a superordinate goal in Sherif's summer camp studies reduced intergroup tension because the goal was met with success. As such, it was not cooperation towards reaching the superordinate goal but the successful outcome that reduced the tension. It was also reasoned that prior history,

such as cooperative or competitive relations between the groups would have an effect on subsequent relationships. A two phase experiment was designed. In the first phase cooperative, independent and competitive group relations were initiated. In the second phase all groups took part in a cooperative task in which failure or success was manipulated. The dependent variable was liking for the outgroup. Interestingly, in all conditions except one, liking for the outgroup increased in the second phase. Liking for the outgroup decreased when the group failed, after having a prior history of competition in phase one. The groups continued to behave as if they were separate entities, with participants making comparative judgements that would distance themselves from the outgroup. Thus, cooperation can have the effect of reducing the salience of group boundaries, even despite the eventuality of failure, but this is not necessarily so. Overt cooperation does not necessarily enhance group harmony. Thus, again the formation of a psychological group may be the intervening variable that must be salient for cooperation to occur. Instead of cooperation producing the group, the evidence implies that the group is the basis for cooperative behavior.

These findings were replicated and extended in a study by Worchel and Norvell (1980). In this experiment the researchers manipulated the ostensible conditions, either "ideal" or "ill-productive," in which failure occurred after intergroup cooperation, while in fact both conditions were the same. In the ideal condition, liking for the outgroup was again found to decrease after failure; however, where the environment could be blamed, liking increased. Again cooperation, per se, did not produce a feeling of group membership

Worchel et al. (1978) examined another factor that was expected to maintain the salience of group boundaries: distinctive visible differences. A similar design as described above was used with the addition of lab coats that either defined group membership (red or white) or were non-differentiated (all white). While similarity of dress produced a strong main effect for the decrease of the salience of the group boundary, distinctiveness of dress served to maintain the salience of group boundaries when the group failed. These studies confirmed the hypothesis that positive and negative intergroup relations are a function of salient intergroup differences. This study also supported the earlier finding that cooperation, per se, does not necessarily lead to a higher order group formation. Two case studies also make related points. Blake, Shepard and Mouton (1964) report how a chemical plant imposed company-wide superordinate goals to reduce interdepartmental rivalry; however, this friction was not

successfully eliminated in all cases. Similarly, Brown (1978) has noted that interdepartmental rivalry in an aircraft engineering factory was not reduced when a superordinate threat was imposed.

Two other studies (Deschamps and Brown, 1983; Brown and Wade, 1987) show just how quickly the importance of subgroup identities can emerge. In both studies a cooperative intergroup situation was established. Joint success could lead to considerable financial reward. The manner in which the two groups worked together was manipulated; they were either given distinctive roles or similar roles to complete the task. In a second study a “no roles” condition was also included. Interestingly, while all groups were working towards the same superordinate goal, those groups with distinctive roles showed greater friendliness toward the outgroups. These studies provide evidence that social structure that embodies super and subordinate identities is important in understanding intergroup relations, further that the imposition of objective superordinate cooperative goals can not fully account for intergroup behavior.

These studies, and others (e.g. Brewer, 1979; Wilder, 1986; Allen and Wilder, 1975), provided the early evidence for the hypothesis laid out by self-categorization theory that relate to social cooperation. They also provide further evidence that overt cooperation does not necessarily lead to psychological group formation. Interestingly, many of these researchers have continued to develop the original ideas of the social identity and self-categorization perspectives. Brewer’s (1991; 1996) work has developed towards an optimal distinctiveness model of social groups. Further, recent work by Gaertner (Gaertner et al., 1990; 1993; 1995) on the development of the Common Ingroup Identity Model, builds on Brewer’s and Wilder’s early work. And work by Insko and colleagues (Insko et al., 1987; 1988; 1993) on the Individual Group Discontinuity Effect (reviewed in Chapter 3) developed from ideas put forward by Turner (1981). While each of these researchers developed the self-categorization analysis within a functional interdependence perspective, they produce findings consistent with the idea that psychological group formation may be the intervening variable that allows social cooperation to emerge and be sustained.

The following section will examine the work of Brewer and Gaertner, with their respective colleagues, as they provide the most systematic development of the self-categorization perspective of social cooperation, while, at the same time working within an interdependence framework. To conclude this section some preliminary work that emphasises process over outcome is introduced.

6.3 Further evidence of support for the social identity analysis of group life

To begin, the evidence is apparent in the social literature itself. As Dawes suggests after working with the social dilemmas literature for over 20 years: “group identity appears to be a crucial factor in eschewing the dominating strategy [competition]” (Dawes and Thaler, 1988, p. 195). And as Tyler and Dawes (1993) state “findings suggest that developing a group identity is central to willingness to act in the group’s interest rather than one’s own. The key psychological question is why this effect occurs” (p. 93).

For example, in a simple experiment based on the work of Tajfel and Turner (1986) and Turner et al. (1987) on social identity, Wit and Wilke (1992) investigated the effect of social categorization on cooperation using three different social dilemmas - prisoner’s, chicken and trust dilemmas. Participants were induced to self-categorize at an individual or a group level, and as predicted group level categorization elicited more cooperation than personal level categorization in each of three dilemma situations. Thus, within a situation of objective interdependence, social categorization at a group level induced higher levels of cooperation. Wit and Wilke conclude that: “In sum, this experiment clearly shows that the level of cooperation is not only affected by the objective interdependence structure (i.e. the type of game), but also by group members’ subjective transformations of their interdependence as a function of level of categorization” (p. 150).

Based also on the work of Tajfel and Turner, Brewer and colleagues’ work has undoubtedly been very influential to the field of intergroup relations as a whole. Initially, Brewer and Silver (1978; see also Doise et al. 1971, 1972), examined both intragroup and intergroup reward allocation in a situation of no anticipated (nor actual) face to face social interaction. Participants were instructed that the allocation task would either have a cooperative, competitive or independent reward structure. Participants’ allocations were in line with the reward structure; however, trait ratings were always biased in favour of the ingroup, indicating some kind of underlying group level process.

Building on this earlier work (see also Brewer, 1979), Kramer and Brewer (1984) carried out some of the first studies within the social dilemma framework where social identity was directly manipulated. These studies systematically manipulated intermediate and superordinate levels of identification. Kramer and Brewer (1984) stated that:

... one effect of group identification may be that individuals attach greater weight to collective outcomes than they do to individual outcomes alone. Inclusion within a common social boundary reduces social distance among group members, making it less likely that individuals will make sharp distinctions between their own and others' welfare. As a result, outcomes for other group members, or for the group as a whole, come to be perceived as one's own. (p.1045)

In these studies, the objectively shared resource was the basis for the interdependence structure as well as the superordinate group identity of the individuals involved. Three studies were run in which identity (subordinate or superordinate) was manipulated. The experiments consisted of two phases: one in which the resource level remained stable; the other in which the resource was being depleted. The second phase of the experiment was designed to create greater conflict between individual self-interest and collective welfare. The primary prediction was an interaction between identification and resource status; specifically, that as the resource became depleted individuals in the subordinate condition would take more resources for themselves than those in the superordinate condition. While identity was manipulated in different ways across experiments, either through the use of natural groups or a common fate induction, it was found that across all experiments the prediction was supported. The researchers suggest that "it is possible that individuals with a superordinate identity are willing to compensate for the selfish and destructive acts of others as long as they are not alone in so doing" (p. 1056).

Brewer and Kramer (1986) conducted a follow up study in which they manipulated social identity, group size and decision framing (public goods or commons dilemma) in a social dilemma. The findings indicated that in a public goods dilemma group identification did not have a significant effect when the group size was large, but did when the group size was smaller ($n = 32$ versus $n = 8$). It was concluded that: "When a choice was framed as a public goods dilemma ... individuals appear to be more sensitive to diffusion effects, so that large groups undermined the positive effects of collective identity" (p. 549). The findings are argued to be consistent with Kahneman and Tversky's (1984) prospect theory. Specifically that public goods dilemmas induce a loss frame and commons dilemmas induce a gain frame; thus, less cooperation would be expected in the former. This work led Brewer to conclude that group size is an important moderating factor, and provided the initial basis for her later work on the Optimal Distinctiveness Model (Brewer, 1991).

While this approach acknowledges that group identification can form a basis for solving collective-choice dilemmas, it is based on an assumption that: "The shared resource, and associated interdependence, must, in effect, form the basis for a

superordinate group identity, which encompasses all of the individuals in the commons” (Kramer & Brewer, 1984, p. 1045). In other words, interdependence is an *a priori* condition that lays the basis of group formation; that is, perceived interdependence produces the group and identity is a byproduct of the interdependence structure. Social identity is thus conceived as a secondary variable within an interdependence structure.

Brewer and Schneider (1990) conclude in their review of social identities and social dilemmas that: “Subgroups large enough to have an impact on the collective, yet small enough to provide a unique identity, seem to be the most effective at inducing cooperative social motives. ... Groups that define their existence in terms of their unique contribution to an interdependent collective will maximize co-operation” (p.184). This work led to the development of Brewer’s Optimal Distinctiveness Model. She states that:

My position is that social identity derives from a fundamental tension between human needs for validation and similarity to others (on the one hand) and a countervailing need for uniqueness and individuation (on the other). ... Group identities allow us to be the same and different at the same time. (Brewer, 1991, p. 477)

The model argues for and incorporates the opposing processes of needs to assimilate and differentiate in terms of group memberships. It is hypothesized that there is a negative correlation between these two needs; that is, an increase in the satisfaction of one, relates to a decrease in the satisfaction of the other. Thus, only at a certain intervening point will equilibrium be reached and both be optimally satisfied. It is argued that the “primary implication of this model of social identity is that distinctiveness per se is an extremely important characteristic of groups, independent of the status of evaluation attached to group memberships” (Brewer, 1991, p. 478). Brewer also cites the fragmentation of the former Yugoslavia and U.S.S.R as evidence that these larger inclusive group identities are not sustainable.

A recent study by Bettencourt, Brewer, Croak and Miller (1992), which builds on Brewer and Miller’s work on the contact hypothesis (Brewer & Miller, 1984, 1988), clarifies their conceptual understanding of the psychological implications of cooperative behavior. Specifically they propose that cooperation “produces more positive intragroup interactions and interpersonal acceptance than does competition” (p.303). As such, cooperation is understood to individualize relationships. However, it is suggested that these positive effects can be undermined by a task oriented structure. Building on work by Erber and Fiske (1984), as well as Neuberg and Fiske (1987), it is reasoned that

a task focus promotes category-based responding as it interferes with the attentional resources that could be used to characterize fellow group members. Cooperation is, thus, understood as behavior that decreases intergroup tension through individuating perceptions in situations of interdependence.

More recently Brewer (1996) has argued for the “ambivalent sociality” of human nature. Brewer’s arguments build on a sociobiological model (see Caporael & Brewer, 1995), wherein interdependence with other individuals at a group level is understood as obligatory as it enhances the survival of the group. As the survival of the group is vital to the survival of one’s own offspring, individuals are motivated to act in terms of the group interests and cooperate with others. It is argued that for groups to survive they must meet certain structural requirements, including mobilization and coordination of individual effort, communication, internal differentiation, optimal group size, and boundary definition (Brewer, 1996, pp. 57-58). In this light, it is stated that:

Human beings are clearly vested with self-interest, but this view of evolutionary history contends that self-interest is naturally mitigated by identification with groups. ...When individual self-interest and collective interests are placed in opposition, the innate ambivalences in human nature are revealed. “Social dilemmas” constitute a special set of interdependence problems in which individual and collective interests are at odds. (p. 66)

Taken together these studies show that for Brewer and colleagues groups are objective realities, defined in terms of cooperative and competitive interdependence structures. At best social identity is a secondary variable that moderates individual responses in a situation of interdependence. Brewer further argues that rational action occurs at the individual level in a social dilemma; thus, this model is essentially a dual process model which favours individuated responses (see Brewer, 1988). These earlier conclusions have lead to an ambivalent sociality model of optimal distinctiveness where group life must simultaneously provide for the need for distinctiveness and inclusion of the individual (see Brewer, 1991; Brewer, Manzi & Shaw, 1993). Outcome interdependence of individuals remains an integral aspect of this model, as Brewer, Weber and Carini (1995, see also Brewer & Harasty, 1996) suggest:

Motivation to perceive an out-group as a social entity may arise from the existence of various forms of behavioral or outcome interdependence between the perceiver (or the perceiver’s in-group) and the out-group. (p.38)

While social identity has become an important mediating variable in this model, cooperative or competitive outcome interdependence of individuals continues to occupy a central role.

Building on Brewer and Miller's analysis of reducing intergroup bias through focusing on cooperative interpersonal interactions, Gaertner and colleagues (Gaertner, Mann, Dovidio, Murrell & Pomare, 1990) asked: "How does cooperation reduce intergroup bias?" and proposed that cooperation reduces the salience of intergroup boundaries. Their findings support the conclusion that "intergroup cooperation increased the extent to which subjects adopted a one-group representation, and intergroup cooperation also decreased intergroup bias" (p. 702). However, while their results offer support for a social identity model they "do not believe that intergroup cooperation reduces bias solely by modifying members' representations of aggregates" (p.702). This early work has led to the development of the Common Ingroup Identity Model (Gaertner, Dovidio, Anastasion, Bachman & Rust, 1993) which they argue is an additional model to Brewer's, which can explain the reduction of intragroup bias (see Gaertner, Rust, Dovidio, Bachman & Anastasio, 1995). More recently this group of researchers state that:

From our perspective, intergroup cooperation toward the achievement of superordinate goals among Sherif and Sherif's (1969) groups of summer campers, reduced the intensity of intergroup bias by altering members' representations of the memberships from "us" and "them" to a more inclusive "we". (Anastasio, Bachman, Gaertner & Dovidio, 1996, p. 239)

In other words, cooperation produced the group. Their model proposes that cognitive representations mediate the relationship between intergroup cooperation and the reduction of ingroup bias. This analysis also defines group relationships in terms of outcome interdependence and thus the interdependence structure shapes the intergroup relations, with cooperation producing the group, or collective representation.

Anastasio, Bachman, Gaertner and Dovidio (1996) summarize five studies that lend empirical support to the model, the first four of which are relevant here. The first study (Gaertner, Mann, Murrell & Dovidio, 1989) demonstrated, as expected, the ability of recategorization and decategorization to reduce ingroup bias. The second study (Gaertner, Mann, Dovidio, Murrell & Pomare, 1990) examined the hypothesis that "cooperation may work in part through cognitive means: by inducing members of two separate groups to conceive of themselves as one superordinate entity or as sharing a common ingroup identity" (p.7).

An experimental design, which manipulated cooperation (presence or absence) with aggregation (one or two groups), operationalized cooperation through participation in a common task versus listening to a recording of a third group's discussion.

Aggregation was operationalized in several ways; through seat arrangements (AAA BBB vs ABABAB), differentiated or inclusive group names, and other structural factors. The results supported the hypothesis that a cognitive re-definition of the group mediates the relationship between cooperation and the reduction of ingroup bias. Studies 3 and 4 (Bachman, 1993; Bachman, Gaertner, Anastasion & Rust, 1993; Gaertner, Dovidio, Rust, Bachman & Anastasio, 1994) examined this relationship using natural groups and confirmed the results of the laboratory study: cooperative equal status contact significantly predicted the degree of inclusiveness of the cognitive representations of the group and the degree of intergroup bias. An inclusive cognitive representation predicted lower intergroup bias. These findings were replicated in the fourth field study that surveyed bank employees who had just undergone an interbank merger. In each of these studies a cognitive re-definition of the group seemed to be a primary mediating variable.

To summarize, the Common Ingroup Identity Model predicts that "equal status, cooperative interdependence, interaction and egalitarian norms reduce bias, in part, because they alter cognitive representations of the [group structure] from different groups to a more inclusive ingroup." (p. 232, 1996). In other words, just as Deutsch (1949) would predict cooperative (or promotive) interdependence produces the group. The group is understood in terms of its objective interdependence, or as stated by Gaertner and colleagues the "objective condition of contact" (p.23).

These studies, as with research done by Deutsch and colleagues, clearly find that social cooperation between individuals can lead to enhanced harmony within and between groups. There is clear evidence that some type of group level process enhances the level of cooperative behaviour significantly.

The importance of group processes, over outcome interdependence, has also been emphasized by Tyler and colleagues (1996). They draw similar conclusions, finding that if the procedural justice within the group is normatively fair, the resource outcomes to the individual become secondary.

The findings of the social dilemma and procedural justice literatures both suggest that the concept of egoism become problematic when we are talking about the members of groups. ... These findings suggest a need to fundamentally rethink the concept of self-interest as an explanation for people's evaluations and behaviors. (Tyler and Dawes, 1993, p 100)

Perhaps, through stressing the outcome structure of group life we miss important aspects of the nature of intergroup relations, we miss out on developing a fuller understanding of the nature of social relationships and the process of social identification with others. For while the above studies draw on and support a social identity analysis, they are in essence hybrid models of the two theoretical approaches, as they manipulate identity within a situation of objective interdependence. This thesis aims to develop the self-categorization analysis of social cooperation, wherein identity, over interdependence, becomes the primary variable. The emergent property of groups, that is the process of social identification, will be at the forefront of this analysis of group life. This analysis, as Tyler and Dawes highlight, allows us to re-think the concept of self-interest.

6.4 Rabbie's critique of the social identity analysis of group life

While many researchers are developing hybrid analyses of social cooperation through integrating these two approaches, they are inherently incommensurable in a number of significant ways. It is thus interesting that after 10 years of development, in which time consistent evidence for the social identity analysis of group life has been building, Rabbie and colleagues (Horwitz & Rabbie, 1989; Rabbie, 1991; Rabbie & Horwitz, 1988; Rabbie, Schot & Visser, 1989) present the only systematic attempt by interdependence theorists to refute the social identity and self-categorization perspectives on group formation. In a recent reply to Rabbie, Turner and Bourhis (1996) highlight the two most significant rejections of the social identity perspective that are raised in his critique: (a) that social categories and social groups have not been differentiated; that is, a fundamental distinction has not been made between social categories of similar individuals and social groups as interacting dynamic wholes and (b) that the findings of the minimal group paradigm, that led to the development of social identity theory and self-categorization theory, can be accounted for through an interdependence analysis of group life; that is, that behavior in the allocation tasks is purely motivated by individual self-interest that is driven by instrumental means to increase the utility value that accrues to individuals. Each of these points will now be addressed.

Rabbie and colleagues argue for a distinction to be made between social categories and social groups. Rabbie and Horwitz (1988, p. 117) argue that a "social group can be considered as a 'dynamic whole' or social system, characterized by the perceived interdependence among its members, whereas a social category can be defined

as a collection of individuals who share at least one attribute in common" (p. 117). In contrast, social identity and self-categorization theorists argue that the conceptual psychological understanding of social categories and social groups are one and the same. This is interesting in light of the fact that throughout the development of social psychology, researchers have made distinctions between societal groups and psychological groups (e.g. see Deutsch, 1949a, Chapter 2), and, following in this same manner, social identity and self-categorization theorists have never denied the reality of both psychological groups and societal groups. However, it is the groups that have psychological reality for individuals, that is psychological reference groups or groups that individuals identify with, which defines the focus and whole essence of the work of self-categorization theory. In other words, social groups that become psychologically self-relevant -- groups that individuals categorize themselves in terms of -- are the groups that self-categorization theory argues are the important perceptual constructs for understanding intergroup relations. It is argued that the mind is socially structured in terms of social reality of groups for individuals (see Turner & Oakes, 1996). The theory takes an interactionist approach to the study of group life and processes, and it is the processes of identification with a group that is at the core of self-categorization theory. This emphasis does not deny the reality of societal groups.

As such, a descriptive analysis of groups has never been the focus of either social identity or self-categorization theories. Tajfel (1978, p. 63) explicitly avoided a descriptive analysis of what 'is' identity; for this was not what was important and in the end would lead to "endless and often sterile discussions." In contrast, Tajfel and his colleagues were interested in the origins and processes of identity formation. For social identity defines an individual's place in the world, not in a passive sense but in an active sense. As such, a social identity "*is a guide to action*" (Tajfel, 1972, p. 298) for individuals, and collectives, in society. It is this process of identification that guides social change, as well as social stability. In other words the process of social identification defines the essence of social conflict and social cooperation.

This emphasis was made clear when Tajfel and colleagues first presented the findings of the minimal group studies. Rather than redescribing the independent variable, that is the division of subjects into minimal socially imposed categories, Tajfel and others were interested in explaining the psychological process underlying behavior in terms of these minimal categorizations. The data showed that individuals did not passively accept the imposed social category and subsequently discriminate against the outgroup. The

point was that if an individual did identify with the minimal group, individuals created social distinctiveness through adopting the maximum difference strategy and thus brought comparative social meaning to the situation. The motivational process of social identification and the psychological process underlying identification thus became the focus of future research. Individuals don't just accept categories, they identify with social groups and categories. And this is the process that accounts for social conflict and social cooperation. As Turner (1975) stated:

whilst it is true empirically that *under certain conditions* categorization *per se* is sufficient for intergroup discrimination, the proposition may be theoretically misleading to the extent that it suggests that 'acceptance' by subjects of a categorization is automatic and its use inevitable rather than indicating that 'acceptance' itself is to be explained in terms of how the category is used. (p. 17)

In other words, in contrast to Rabbie and colleagues, categories and groups play an active role in the conduct of intergroup behavior and do not merely act as a passive category of group membership that serves instrumental needs of individuals.

The Behavioral Interaction Model (BIM; Rabbie et al., 1989) represents Rabbie and colleagues' proposal to refute the social identity account of behavior in the minimal group paradigm. In reporting their study they state: "The main aim of this paper is to show that in the standard MGP [minimal group paradigm], there is a rational link between economic self-interests and the two major allocation strategies which are often found in the MGP experiments: the strategy of ingroup favouritism and the 'influential strategy of fairness' (Tajfel & Turner, 1979, 39): to give the ingroup about as much as the outgroup" (Rabbie et al., 1989, pp. 175-176). In line with this argument Rabbie et al. (1989) manipulated the outcome interdependence structure of individuals and found that discriminatory behavior varied as a function of the interdependence structure. Their primary hypothesis states: "the greater the perceived interdependence of outcomes on the ingroup, the more ingroup favouritism will be observed. Similarly, the greater the perceived outcome interdependence on the outgroup, then outgroup favouritism will occur." (p. 179).

Using an adapted version of the minimal group paradigm, within a 2 (sex) x 3 (interdependence structure) design, this hypothesis was tested. The three interdependence conditions were: ingroup dependence (ID); outgroup dependence (OD); and in and outgroup dependence (IOD). The findings are, by and large, consistent with the prediction. Participants' allocation behaviour favoured the group that they were most

dependent on. In other words, interdependence structure can have an effect on allocation behaviour in the minimal group paradigm.

Based on this one empirical study it is proposed that group based processes, such as cohesion, identification, discrimination, favouritism and cooperation, are all products of the mutual interdependence of individuals pursuing the satisfaction of their individual needs through maximizing their utility levels. They maintain that perceived positive interdependence of individuals “... is a crucial pre-condition for the formation of social groups from which other processes may follow such as the emergence of specific group norms, interpersonal attraction, ingroup-outgroup differentiation, group identification” (Rabbie et al., 1989, p. 175). In line with other interdependence theorists they maintain that behavior of individuals is a function of both the objective interdependence structure and the psychological orientation of individuals.

Social identity theory and self-categorization theory do not discount the potential influence of objective interdependence in determining group level processes; however, the point is that objective interdependence, per se, can not account for the necessary and sufficient conditions of group based behavior. Identification with the social group is the intervening mechanism that accounts for group based behavior.

In response to the arguments presented in the Behavioral Interaction Model, Gagnon and Bourhis (1996) tested these two accounts of behavior in the minimal group paradigm in a study that explicitly manipulates the objective interdependence of individuals in a minimal group paradigm. Gagnon and Bourhis (1996) make the point that these: “authors assert that interdependence and self-interest are the main factors that account for discriminatory behavior in the MGP” (p.1291). Recall that these were the two motivational factors that were questioned in Chapter 4 of this thesis. Thus, in response Gagnon and Bourhis examine “how in-group identification and social identity needs (SIT) combine with interdependence and self-interest (BIM) as complementary explanations of discrimination in the MGP” (p. 1292). It was predicted that, in line with social identity theory and self-categorization theory, interdependence would only contribute to the extent that members first identify with their category of membership in this minimal group setting.

Gagnon and Bourhis’ (1996) study was presented as a decision making task under conditions of minimal information, using the standard minimal group paradigm. Tajfel matrices were used to assess the allocation strategies that participants used when distributing points to anonymous others only defined by their group affiliation. All

participants, that is members of both groups, were outcome interdependent for their individual reward of receiving an extra five course credits for taking part in the study. This standard procedure was labelled the “interdependence” condition. A second condition was created by secretly telling participants that they would be given the full five credit points regardless of the distributions that were chosen. Given this, individuals would no longer be outcome interdependent for the outcome they would receive. This was labelled the “autonomous” condition. In line with the interdependence argument, this “autonomous” condition should produce no ingroup favouritism, as a consequence of ingroup reciprocity conditions, as participants had no reason to act in terms of group affiliations, as their individual self-interest was now maximally satisfied. In other words, now that individuals would no longer experience mutual common fate, ingroup reciprocity expectations would no longer be evoked and lead to ingroup cooperation and favouritism. Specifically, interdependence theorists would not expect tacit intragroup cooperation in the “autonomous” condition, as there is no mutual dependency. As Mlicki (1993) summarizes:

On the basis of perceived interdependence and normative considerations subjects formulate certain expectations as to the way others will allocate points. These expectations can influence subjects' allocations just as real feedback about allocations of others does. In this way subjects develop tacit, instrumental co-operation with members of the group they perceive themselves to be most dependent upon. The co-operative behaviour is based on the assumption that members of the rewarded group will reciprocate this favour. (p. 63)

In other words, interdependence theorists argue that cooperation is a product of instrumental ingroup reciprocity expectations in situations of interdependence.

On the other hand, social identity theorists would argue that the process of categorizing oneself in terms of a group membership, albeit arbitrary in this case, is the basis for the psychological formation of “us” and “them.” It is categorization processes that lead to identity formation and thus the basis for intragroup cooperation. In other words, the formation (salience) of a psychological group is the intervening mechanism and the basis for cooperative behavior. Thus, regardless of functional outcome interdependence of individuals, participants will act in terms of their salient group identification, as such intragroup favouritism and intergroup discrimination were expected in both the autonomous and interdependent conditions.

The results of Gagnon and Bourhis' study supported a social identity perspective. Regardless of condition (autonomous or interdependent) individuals showed intragroup favouritism on the standard minimal group paradigm measures, adopting the

discriminatory strategies of ingroup favouritism and maximizing the difference. To maintain consistency with the Rabbie et al. (1989) study, identification was measured post hoc. Based on this measure, participants were divided into high identifiers and low identifiers with their respective groups which, together with the experimental conditions, produced a 2 x 2 design: interdependent/autonomous with high/low identification. The results are in line with a social identity analysis: high identifiers showed more ingroup favouritism than the low identifiers. Recall that social identity theory predicts that individuals are motivated to positively differentiate their own group from other groups and use ingroup favouritism and maximum difference strategies to aid in this process. Tajfel (1972) argued that through participant's allocation behaviour they create distinctions between the comparative groups, thereby investing the situation with comparative meaning. It is in this manner that social distinctiveness is achieved in a minimal group situation. The results of Gagnon and Bourhis' study clearly supported social identity theory, over interdependence theory. There was no effect for outcome interdependence; that is, regardless of objective interdependence individuals acted in terms of their comparative group memberships and created comparative social meaning through discrimination.

In discussing their results Gagnon and Bourhis concluded that interdependence of fate, without ingroup identification, can not produce the necessary and sufficient conditions for intergroup discrimination. Their findings clearly show that individuals in the autonomous condition, that is those individuals who had no interdependence of fate, discriminated in favour of their ingroup, just as those in the interdependence condition did. The objective for the participants seemed to be to achieve a meaningful dimension of social distinctiveness in terms of their comparative group membership, discrimination strategies achieved this for the individuals involved. As Bourhis, Turner and Gagnon (1996) summarize:

We are not suggesting that social identity is the sole principle at work in intergroup relations. Social identity theory was always meant to complement realistic conflict theory to help account for ... intergroup situations in which there was a lack of an objective conflict of interests between groups but intergroup attitudes and behaviours were still antagonistic; and ... intergroup situations in which an actual conflict of group interests did not lead to antagonistic intergroup attitudes and behaviours. ... Similarly, self-categorization theory provides a detailed analysis of the relationship between group formation and perceived interdependence. (p. 294)

In summarizing their reply to Rabbie et al., Turner and Bourhis (1996) stress three points in response to the Behavioral Interaction Model. Briefly these relate to: (a)

the conceptual understanding of common fate; (b) the relationship between common fate and perceived interdependence; (c) the development of the Lewinian conceptual understanding of the group. Each of these points will now be discussed in more detail.

For self-categorization theory, common fate is in essence a similarity variable, that is individuals perceive themselves to be similar because they share common fate (positive or negative). Together the individuals involved will sink or swim, share the same outcome, and thus through their similarity of circumstance achieve a sense of common fate. In general when individuals perceive themselves to be similar in some relevant sense this is the basis for self-categorization with others; and, it is the feeling of togetherness or belongingness that is the precondition for experiencing common fate. As Turner and Bourhis (1996) explicitly state: "Common fate is not outcome interdependence" (p. 38).

Following on from this, Turner and Bourhis raise their second point: to remain a distinct theory, BIM must show that perceived interdependence follows directly from the common fate or outcome interdependence of individuals and this process is necessary and sufficient for group formation, that is, it must specify an ontology that does not replicate the social identity analysis of group life. The Behavior Interactional Model has failed to do this.

Finally, and somewhat ironically, it is self-categorization theory that is actually more parsimonious with Lewin's analysis of group life, and it has subsequently developed a systematic analysis of many of the points that Lewin stressed. It is Rabbie and other interdependence theorists who have moved away from the original Lewinian analysis through the descriptive outcome interdependence analysis of group life. In conclusion, Turner and Bourhis use Rabbie et al.'s own data to make their point and conclude that the "data (and other more recent data) demonstrate that social categorization per se under certain conditions can produce ingroup bias irreducible to personal self-interest" (p. 60). In other words, there is little evidence for the primacy of the psychological motivation to maximize personal self-interest. In the final analysis, Turner and Bourhis mount strong evidence that Rabbie and colleagues are victims of "semantic confusion," just as Tajfel (1982) had argued when Rabbie et al. first mooted the idea that social identity theory reduced groups to simple categories.

Recently, building on the work of Rabbie et al., Mlicki (1993) has recommended the use of an alternative manipulation of interdependence to contrast the BIM and social identity theory. The study builds on the original Rabbie et al. study, using a minimal

group paradigm in a 3 (IOD vs OD vs ND - no dependence) x 2 (points vs money) x 2 (order of task: identification vs allocation) design. The design of the study introduced a no dependence condition to act as a control and, as with the previous study, it was predicted that degree of interdependence would predict the degree of discrimination. The study also hypothesized that money allocation would enhance ingroup identification over points (or symbolic) allocation, making a distinction between relational and instrumental interdependence on the process of social identification (see p. 61). The final hypothesis stated that initial identification, in comparison to post hoc identification, would lead to higher levels of discrimination, while at the same time producing a weaker identification with the ingroup. The findings by and large support the hypothesis. Discrimination was linked to degree of interdependence, with the highest degree of interdependence inducing the most discrimination and the no dependence condition inducing the least (IOD > OD > ND). Also allocation of money, versus points, induced higher levels of discrimination. It was concluded that: "when allocating monetary points people perceive some rational link between economic self-interests and the strategies of ingroup favouritism and fairness. This link shows nevertheless much more in behavioural tendencies and normative expectations than in actual allocation behaviour" (p.87). However, the predictions regarding social identity were not supported: both induced equal amounts of discrimination and identification. To explain these results, it was concluded that there are both "cognitive" [identification] and "behavioural" [discrimination] ways to express group belongingness. Ellemers and Mlicki (1991) concluded that these responses might reflect:

two different ways in which people express their group affiliation: at the cognitive (identification) or at the behavioural (differentiation) level. It turns out that these two responses to one's group membership do not necessarily occur simultaneously, so that we may not conclude that the overt expression of ingroup identification is a necessary condition for intergroup discrimination to occur. Nevertheless, both types of responses do influence each other, in that group members may not feel the need to discriminate against outgroup members when they already have expressed their group affiliation by showing strong identification as a cognition response, because their group affiliation is not apparent from the behaviour they have displayed. (pp. 25-26)

Thus, as in the previous study, Mlicki finds evidence in support of social identity theory, while expressing these findings within an interdependence framework. Mlicki (1993) concludes "that the processes of development of ingroup identification and ingroup bias can also be related in a different way than described in SIT (Mlicki, 1988)" (p. 85). Yet as stated above, it remains that social identity and self-categorization theories would not deny that interdependence can play a role in psychological group formation, however as

Mlicki highlights, identification with the group is an inherent process involved in group-based behavior. The comments raised by Turner and Bourhis remain uncontested.

6.5 Social identity and social cooperation: Further development

In summary, there is mounting evidence in the social dilemma literature, and related areas, of the importance of group processes and social identity. These arguments, in part, follow from the social identity analysis that arose from the early minimal group studies, which as highlighted remain influential, contentious and highly debated today. The social identity analysis of groups contends that above and beyond resource based links of individuals to groups, it seems that groups provide something distinct to the lives of individuals. However, do group level processes necessitate, as Brewer and Schneider (1990) argue, “a double-edged sword” in social dilemmas, given that they argue that a salient group identity increases intragroup cooperation at the expense of a objectively interdependent superordinate collective? The relationship between social identification, interdependence and social cooperation will now sustain the remaining empirical work of this thesis. However, unlike the studies reported here, identity will become the primary variable of analysis, interdependence secondary; for in line with self-categorization theory it is argued that social cooperation, and interdependence, is the byproduct of a salient social identity. In other words, social cooperation, in line with the social identity analysis of social change and stability, is an active process of the pursuit of mutual interests by individuals in a given context.

Further, the self-categorization analysis of social cooperation broadens our conceptual definition to include other prosocial acts such helping behavior, and even altruism. It is argued here that our formal definition of social cooperation within the social dilemma paradigm is too narrowly conceived and restricts our conceptual development. An appropriate metaphor would be to define the conceptual understanding of social influence, solely in terms of conversion, ignoring the important conceptual links with conformity and compliance. The social identity approach allows conceptual links to be made with helping behavior and altruism. Finally, a very important distinction between the interdependence and social identity approaches is that cooperation does not involve self-sacrifice, as the self, and self-interest, can be defined at both the individual and the group level.

To resolve the incommensurable aspects of these two approaches the following empirical strategy will be used. Given that the interdependence literature conceptualizes cooperation as a function of objective interdependence structures and transformational processes of individuals (as seen in Chapter 2), the necessity and sufficiency of these constructs will be examined within a social identity analysis of group life. At the same time, these studies also aim to draw out the dynamic emergent properties of group life.

A first study will replicate and extend Gagnon and Bourhis' (1996) study that responds to Rabbie and colleagues' retort to social identity theory. The aim is to build consistent evidence that group life and processes are a function of social identification, rather than objective interdependence of individuals as presented by the Behavior Interactional Model. This study thus examines the necessary precondition of objective interdependence as upheld by interdependence theorists.

The second study examines the second important construct of interdependence theory, specifically the transformational process of social value orientation. Social value orientation represents the most systematic attempt by interdependence theorists to account for variance in level of cooperation within any given situation of interdependence. This study will examine the stability of this intrapersonal construct within a given situation of objective interdependence over time.

Given that interdependence theorists argue that objective interdependence is a necessary precondition for social cooperation to emerge (a condition present in the two previous studies), the third study will examine if cooperative relations between groups will emerge as a product of a salient social identity, despite the lack of objective or functional interdependence of individuals.

Studies two and three will be conducted as longitudinal field studies in the same setting to examine systematically the correlational nature of variables important to the analysis of social cooperation, such as perceptions of similarity, interdependence, as well as cooperation. These field studies, in particular, highlight the dynamic emergent properties of groups.

In study four interdependence will be examined again, however this time it will be experimentally manipulated in a naturalistic setting. The aim will be to show that despite the objective interdependence of individuals in an environmental dilemma, individuals' cooperative behavior will vary as a function of salience of social identity. Further, the study aims to show that perceptions of interdependence vary with social identification.

The final study will exclusively develop the social identity analysis within the same naturalistic setting as study four. The study will examine if, in line with self-categorization theory, social cooperation will vary with the salience of the social identification in an environmental dilemma situation.

In conclusion, this thesis aims to test and develop the self-categorization analysis of social cooperation. The primary hypothesis to be tested is that social cooperation is the product of a salient social identity. At the same time, constructs important to the interdependence analysis will be addressed, specifically the necessity and sufficiency of the constructs of objective interdependence of individuals and social value orientations. Finally, just as social identity theory was always meant to complement and build on Sherif's field study which manipulated the outcome interdependence of participants, this thesis aims to build on previous work as well. In particular, this thesis aims to develop the conclusion reached in the social dilemma literature that identification with the group is the key principle involved in increasing the level of social cooperation. The processes of social identification put forward by self-categorization theory will be used to develop this principle finding in the social dilemma literature.

- Chapter 7 -

Determinants of intragroup cooperation and intergroup competition: Examining the functional interdependence and social identity analyses of group life

Experiment 1

7.1 Introduction

This chapter will examine the psychological basis of defining “us and them,” that is group memberships, and the derivative processes of intragroup cooperation (and favouritism) and intergroup competition (and discrimination). Specifically, group level processes will be examined in regard to the two theoretical positions outlined in the previous chapters: functional interdependence and social identity. This is an important step in developing a systematic understanding of social cooperation, as our conceptual understanding of the psychological group is fundamental to our understanding of group level processes. As Sumner (1906) has indicated, cooperation with the ingroup (intragroup cooperation and favouritism) and competition against (and discrimination towards) the outgroup has long been taken as a functional aspect of intergroup relations. The question is asked: by what psychological mechanism does this occur? In other words, what is the psychological basis for group behavior: functional interdependence or social identity?

Interdependence theorists argue that intragroup cooperation is a function of rational, instrumental processes that derive from the interdependence structure that defines the objective relations of individuals. As such, the interdependence perspective argues that a collection of individuals form a social group when they perceive and experience an interdependence of common fate. In other words it is the functional interdependence of individuals that produces the group.

Self-categorization theorists argue that intragroup cooperation and favouritism is a product of a salient social identity, whereby the psychological conceptualization of the group may not necessarily match the objective state of affairs. While objective

interdependence can lead to psychological group formation and thus intragroup cooperation (and favouritism) and intergroup competition (and discrimination), this is not a necessary precondition of group based behavior. In other words, objective interdependence can be sufficient but is not necessary. Self-categorization theorists would argue that identification with the group is the necessary intervening process that allows for group-based behavior.

The main point of this study is to test these two analyses of group based processes and behaviour. The question to be addressed is: What is the basis for perceived group membership? Do individuals act in terms of a group because they are objectively interdependent for outcomes they will receive as individuals? Or, do individuals act in terms of group memberships because they are subjectively meaningful social identifications which motivate them to achieve social categorical distinctiveness in terms of the salient self-categorization? This is a fundamental question underlying the nature of group life and processes, such as intragroup cooperation and intergroup discrimination. Thus while this study does not examine cooperation, per se, we are examining a much more basic underlying process: the nature of the psychological group.

As discussed in the previous chapter, Rabbie and colleagues (Horwitz and Rabbie, 1989; Rabbie, 1991; Rabbie and Horwitz, 1988; Rabbie, Schot and Visser, 1989) present the only systematic attempt by interdependence theorists to refute the social identity and self-categorization perspectives of group formation. They argue that:

A group becomes a compact 'we-group' or 'social group' to the extent that individuals are subjected to the experience of a common fate, perceive themselves to be interdependent with respect to their common goals and means to attain those goals, view themselves (and are also considered by others) as a distinctive social unit, can directly communicate with one another and engage in cooperative face-to-face interactions in an effort to achieve a group product or a common outcome which contributes in some way to the desired outcomes of each of the individual members and of the group as a whole. (Rabbie, 1991, p. 238-239)

Rabbie and colleagues present their behavioral interaction model (BIM) (Rabbie, 1987; Rabbie, Schot and Visser, 1989) and argue: "Consistent with the interdependence perspective of Lewin (1948), a group is conceptualized as a social system or 'dynamic whole,' ranging from a 'compact' social unit to a 'loose mass' whose members are defined, not by their similarity to each other but by their perceived goal interdependence with each other and with the group as a whole" (p. 238). As such, Rabbie and colleagues' arguments are consistent with the interdependence arguments presented in Chapters 2 and 3; however, they remain distinct as they are the only theorists to directly

address the social identity analysis and findings of group-level processes from an interdependence perspective.

Rabbie and his colleagues argue that the findings of the minimal group studies (described in Chapter 5) are consistent with the interdependence analysis of their behavioural interaction model (Rabbie et al., 1989). They maintain that perceived interdependence for the satisfaction of self-interest “is a pre-condition for the formation of social groups from which other processes may follow such as the emergence of specific norms, interpersonal attraction, ingroup-outgroup differentiation, group identification and shared social identities” (p. 175). Thus, in contrast to self-categorization theory, they argue, in line with the arguments presented in earlier chapters, that behavior is a function of the structural interdependence of the individuals and individuals’ respective intrapersonal orientations.

An important aspect of psychological orientations that Rabbie and colleagues (1989) discuss is ingroup-reciprocity expectations. They argue that individuals will reasonably assume that: “By giving more to their ingroup members than to the outgroup members -- in the expectation that the other ingroup members will reciprocate this implicit cooperative interaction -- they will increase their chances of maximizing their own outcomes. ... They tacitly seem to coordinate their responses with each other ... in trying to maximize their own individual self-interest and probably the interests of their group as a whole” (p. 176). Overall, in line with other interdependence theorists, they argue that there is a rational link between objective outcome interdependence and discriminatory behavior in the minimal group paradigm.

Gagnon and Bourhis’ (1996) study, reported in the previous chapter, addressed the issues raised by the behavioral interaction model and social identity theory and found greater support for the latter theoretical approach. The study showed that while the manipulation of outcome interdependence of individuals showed no effect, there was a clear effect for social identity. Specifically, high identifiers discriminated more than low identifiers on a post hoc measure in a minimal group situation. Thus, the results of this study supported the hypothesis “that discrimination contributed to positive social identity only to the degree that individuals identified with their own group membership” (p. 1299). Thus degree of identification has been established as an important moderating factor in group-based behavior. Gagnon and Bourhis then argue for the “heuristic value of distinguishing between degree of ingroup identification and quality of social identity” (p. 1229). The study to be presented aims to develop this distinction of quality of

identification through a replication and extension of the Gagnon and Bourhis study. Thus, the study to be presented addresses the interdependence approach to group formation from the perspective of the behavioral interaction model, as presented by Rabbie and colleagues (Rabbie et al., 1989; Rabbie, 1991).

The primary aim of the present study is to replicate these findings, that is compare the interdependence and identity analysis of group formation. Three modifications will extend and validate the general findings of the Gagnon and Bourhis study. Importantly, the study will be extended to the analysis of an established social group. This is important in light of recent evidence that has found some differences between discrimination behavior in minimal and established social groups (see Jetten, Spears and Manstead, 1996; Long and Spears, 1997; Mullen, Brown and Smith, 1992), which may affect both intragroup and intergroup processes. Further, in this present study a different interdependence manipulation is also introduced, in line with the work of Fiske and colleagues (Ruscher and Fiske, 1990; Ruscher, Fiske, Miki and Manen, 1991). Finally, allocations are made in reference to a monetary reward which, as argued by Mlicki (1993), tends to increase individuals' concerns for fulfilling personal self-interest.

The second aim is to assess the influence of quality of social identification on intergroup processes; specifically, distinctiveness of identification is addressed. Recall that social identity theory predicts that individuals are motivated to positively differentiate their own group from other groups and thus use ingroup favouritism and maximum difference strategies to aid in this process. Tajfel (1972) argued that discrimination in the minimal group paradigm invested the situation with comparative social meaning, in other words, this process enhanced category distinctiveness. Indeed, the very fact that the situation was "minimal" left participants with limited means of creating social distinctiveness; discrimination, it seems, was the only means available.

More recently, normative dimensions of group membership have been cited as an important mediating factor in group level processes such as discrimination (Diehl, 1989; Vivian and Berkowitz, 1992, 1993) and other intergroup processes (Hogg and Hains, 1996; Hogg and Hardie, 1992; Oakes, Haslam, Morrison and Grace, 1995; Oakes, Haslam and Turner, 1994, 1996). Recently, Jetten, Spears and Manstead (1996) have shown that, on the basis of the fit hypothesis and the meta-contrast principle, group norms are influential in defining and differentiating the group identity more clearly. In summarizing their study they state:

One popular interpretation of the social identity explanation of discrimination in minimal groups is that ingroup bias is a fairly universal feature of intergroup relations. However, even a cursory analysis of relations between real world groups reveals that this is far from the case (cf. van Knippenberg & Ellemers, 1990). The evidence of the impact of group norms revealed in the present research provides one powerful reason why this may be so, and suggests that group norms may play an important role in moderating ingroup bias. (p. 429).

This study also demonstrated interesting differences between minimal groups and established social groups. Jetten et al., (1996) found that while incongruent, that is distinguishing, norms between the two groups resulted in greater use of differentiating allocation strategies in minimal groups, the opposite effect was found with established social groups. Specifically, congruent norms, those that fail to distinguish the two groups, resulted in higher levels of discrimination. Jetten et al.'s study makes two important points that are relevant to the present study: it illustrates the importance of ingroup norms in moderating individuals' allocation behavior and provides further evidence that the effects found in minimal group situations can not always be generalized to established group settings. Thus, unlike minimal groups, it seems that established social groups have other means by which to create comparative category distinctiveness. Recall that early in the development of social identity theory Tajfel and Turner (1979, 1986) discussed the process of social creativity in identity formation, which relates to the normative dimensions by which we define ourselves.

The study to be presented will build on these findings and manipulate the quality of the identification through (false) feedback (see also Hogg & Sunderland, 1991) that indicates to a subject how normatively consistent (or representative) they are of an ingroup norm. The relevant ingroup norm will be chosen so as to maximally differentiate highly representative ingroup members from highly representative outgroup members. As such, participants who are given feedback that they are not highly representative of the group will have achieved less category distinctiveness based on this normative dimension. It is predicted that if participants' social distinctiveness is not achieved on a normative dimension, further distinctiveness could be achieved through discrimination against the outgroup. This, of course, this will only be the case when the group is a positive reference group for the participants.

To this end, the study to be presented will give systematic differential feedback to participants with reference to their level of individual representativeness of the group psychology students. The aim is to manipulated their social distinctiveness in respect of this relevant category of membership. As the fit hypothesis involves both normative and comparative dimensions that act in unison, an explicit social comparison is used:

psychology students as compared to economics students. These two groups could be normatively differentiated from each other on many dimensions, however, the specific dimension of comparison chosen is decision-making strategy. In line with this, participants are told that psychology and economics students use different strategies in decision making tasks. Thus decision making strategy becomes a relevant basis for group differentiation.

Specifically, participants are given feedback in terms of one of three categories of normative representativeness: highly, moderately and slightly. It is thus predicted that slightly representative participants will discriminate more than moderately representative participants, who in turn will discriminate more than highly representative participants, given that relative degree of group distinctiveness is threatened for the two former conditions.

Taken together, the empirical study to be presented in this chapter builds on the work of Gagnon and Bourhis and addresses the critique of social identity theory as put forward in the behavioral interaction model; however, as well as manipulating the objective interdependence of participants, social distinctiveness is also manipulated. This second manipulation is important given that the achievement of positive social distinctiveness is a fundamental aspect of social identity theory and self-categorization theory. Thus the design of this study tests key principles of both theoretical positions orthogonally: objective interdependence and social distinctiveness.

In summary, this study replicates and extends Gagnon and Bourhis' study in several important ways. Overall the analysis is extended from a minimal group setting to an established group setting. Further, a different interdependence manipulation is used in line with another established method in the literature (e.g. Ruscher and Fiske, 1990) and a monetary reward task is utilized. Finally, quality of identity is manipulated a priori through false feedback that threatens the distinctiveness of social identity -- a important aspect of the social identity approach.

Following Gagnon and Bourhis (1996) two sets of predictions are put forward: (a) In line with the behavior interaction model autonomous participants should not act in terms of group memberships, as individuals are not outcome interdependent; thus, no group based behavior would be expected; (b) Self-categorization theory would predict that: (i) both autonomous and interdependent subjects would act in terms of group memberships, as it is argued that self-categorization, that is identification with the group membership, is the basis of group behavior; (ii) further, in line with underlying identity

processes it is argued that subjects who identify highly with the group but who are given feedback that they are only slightly representative of the group will discriminate more than subjects who identify highly with the group and are given feedback that they are highly representative. In other words, degree of normative representativeness will have an inverse relationship to the degree of discrimination that individuals exhibit.

7.2 Method

Participants and Design: Participants were 147 (82 female; 65 male; age: $M = 24.51$) psychology students from the Australian National University enrolled in a first year psychology course. They participated in the study as part of their weekly class tutorial. Participants were randomly assigned to one of six experimental conditions.

The 2 (interdependent/autonomous) x 3 (level of representativeness) design investigated the effect of these manipulations on a resource allocation task (Tajfel matrices). Ostensibly on the basis of their conflict resolution style, students were given (false) feedback as to how normatively representative (slightly, moderately, highly) they were of psychology students. Interdependence was manipulated in an initial instruction that indicated that they were either autonomous or interdependent in their chances to win a lottery (see Ruscher and Fiske, 1990; Ruscher, Fiske, Miki and Manen, 1991). Thus, the 2 x 3 factorial design consisted of two levels of interdependence (autonomous or interdependent) with three levels of representativeness (slightly, moderately or highly). Eight participants were dropped from the analysis, as they did not complete the entire questionnaire, leaving 139 students to be included in the analysis.

Procedure: The experiment was introduced as an investigation of different decision-making styles used by different groups of people -- in this case psychology and economic students. The participants initially filled in a conflict resolution style questionnaire (see Johnson & Johnson, 1991) ostensibly to assess how normatively representative the students were of psychology students. The students were told that it had previously been found that psychology and economics students used different decision-making strategies when dealing with conflict and the researchers were interested in exploring this finding. Students were also told that both psychology and economics students would be participating in this study.

After the questionnaire had been completed, it was collected and the experimenter left the room under the guise of scoring and collating the questionnaire.

During this time students were randomly assigned to one of the six experimental groups and a letter, which indicated which category of representativeness, was hand written onto the top left hand corner of their questionnaire. While the experimenter was gone, the students participated in another unrelated study. Upon return, the experimenter distributed the questionnaire booklets according to a code number written on the top of the previous worksheet. The task instructions in the questionnaire booklet read:

Past research has shown that psychology students and economics students use different strategies when dealing with conflict. However, within these two groups some students use their respective strategy more consistently than others. The more consistent you are in the strategy that you use, the more representative you are of your respective group.

Thus, people are normally graded into three categories within these two groups: those highly representative, moderately representative and slightly representative of psychology or economic students. On the basis of your responses on the previous task, you have been graded as to how representative you are of a psychology or an economics student.

Participants then received feedback as to how representative they were of their respective group by means of the hand written letter on their questionnaire. This letter related to information in a table in the questionnaire and a frequency distribution graph that was presented on an overhead. Instructions on how to interpret this information were also given (see appendix 7.1.1). The graph showed the bi-modal distribution of three respective representativeness categories in the two groups (see Figure 7.1). The graph was designed to provide an explicit comparative context for the participants, with highly representative participants achieving the most social group distinctiveness (e.g. categories A and F).

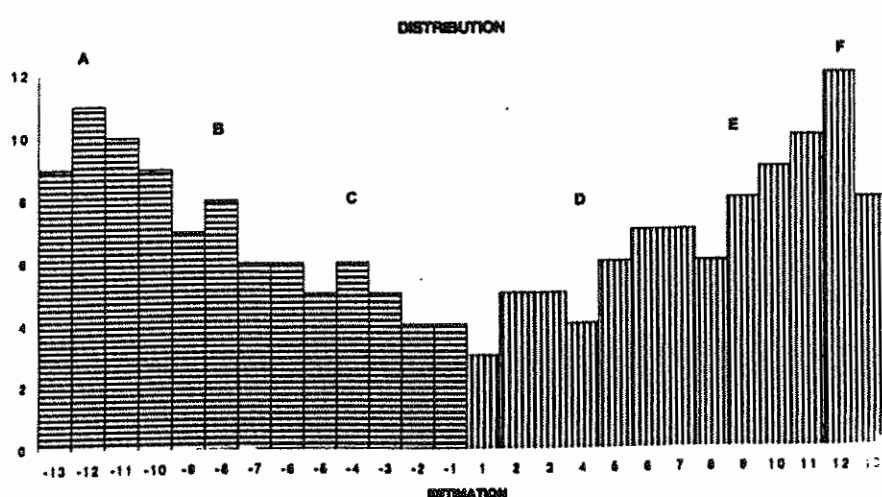


Figure 7.1

Distribution graph used in representativeness manipulation of group identity

After reading the instructions, participants completed the allocation tasks and questions in the questionnaire booklet. The last information that the participants received before filling out the matrices was the interdependence manipulation. In the interdependent condition they were told:

For participating in this study, you have the opportunity to win a prize of \$20.00. Everyone is receiving points from other players. For every point that you receive, your name will be entered into the draw. The more points you get the more chances you have to win. The person whose number is drawn will win a prize of \$20.00.

In the autonomous condition they were told:

For participating in this study, you have the opportunity to win a prize of \$20.00. Everyone who completes the task will be entered in a draw. The person's number drawn will win a prize of \$20.00

Dependent variables: The dependent variables were measured in the following order: matrices (6 - random order); zero-sum distribution; identity measures; follow-up questions and manipulation checks. The point distributions attained by the Tajfel matrices were the main dependent measures, assessing both the strategy adopted and the absolute amount of points distributed between the ingroup and the outgroup. As described in Chapter 5, the Tajfel matrices assess the use of four basic strategies (see Bourhis et al., 1994; Turner et al., 1979): parity (P); maximum ingroup profit (MIP); maximum differentiation (MD); and maximum joint profit (MJP). Parity exists when an equal number of points is awarded to the ingroup and the outgroup. When a choice is made that awards the highest absolute number of points to the ingroup member, regardless of awards made to the outgroup members, this represents a strategy of maximizing ingroup profit. A strategy of maximum differentiation, the so-called discrimination strategy 'par excellence', aims to maximize the difference in points awarded to the ingroup and outgroup member, in favour of the ingroup. This strategy overrides the aim of maximizing ingroup profit, and thus is not an economically rational strategy, but aims to maximize the relative gain. The strategy of maximizing joint profit aims to maximize the total profit of both group members collectively.

Three matrix types are used to examine the relative "pull" (or strength) of each of these strategies, as reflected by participants choices (see Bourhis et al., 1994; Brown et al., 1980): Type A compares ingroup favouritism (FAV or MIP + MD) with maximum joint profit (MJP); Type B compares maximum difference in favour of ingroup (MD) with a combination of absolute ingroup profit (MIP) and maximum joint profit (MJP);

Type C compares parity (P) with ingroup favouritism (FAV) (see Bourhis, Sachdev and Gagnon, 1994). Each matrix type has two versions, so that the pull of each of the two strategies can be assessed. For example, for the first matrix type one matrix would test the pull of parity on favouritism, while the other would test the pull of favouritism on parity. Thus, six different matrices are used to test the pulls of six strategies. Each pull has a theoretical range of -12 to +12. Positive pulls indicate psychological congruence with the membership group, while negative pulls indicate psychological antagonism with the membership group. For example, in terms of assessing the strategy of favouritism, a negative pull score would indicate outgroup favouritism, whereby more points were awarded to the outgroup than the ingroup. The six matrices were presented in random order to control for any order effects.

As with the Gagnon and Bourhis experiment, two other dependent measures were also used. The first again uses the Tajfel matrices but this time assessed the absolute total number of points awarded to the ingroup and outgroup members, and the difference between these scores. Further, following the matrices, a 100-point zero-sum distribution was used to independently measure the distribution strategy. Each of these measures was taken to examine the validity of the Tajfel matrices pull scores.

In line with both the Rabbie et al. study and the Gagnon and Bourhis study, post hoc identification measures were taken as follows: (1) How much do you like being a member of your own group (psychology or economics)?; (2) How much do you feel comfortable, confident, happy and satisfied as a member of your own group? ; (3) How much would you rather be a member of your own group than the other group? Each question was assessed on a eight point Likert scale (1 = not at all; 8 = very much so). Follow-up questions and manipulation checks used similar scales to assess the success of the interdependence and representative manipulations, as well as perceptions of similarity.

A final group of questions was included to measure participants' expectations of reciprocity and cooperation for psychology students as compared to economics students. For example, participants were asked: "Which group of students do you think gave you the most points?". For each of these questions, students responded on an eight point Likert scale with psychology (1) at one end of the scale and economics (8) at the other.

Students were fully debriefed at the end of each experimental session and cautioned to not discuss the study with other students. Given that students were led to believe that they would be taking part in a lottery, the students were assured that this

would take place. Each student had an equal chance to win the draw. The lottery took place after the experiment was complete and a presentation was made in class.

7.3 Results

The data were initially screened for level of identification: 73.4 % of the subjects highly identified with psychology students. To a large extent the students that did not identify highly with psychology were studying both psychology and economics, and are problematic because of potential conflicts of identity. These students were dropped from the analysis ($n = 102$; the cell sizes remained relatively equal). Specifically, the students who indicated five or greater on a composite eight point Likert scale made up of the three identification measures were included in the analysis. The composite scale showed high internal reliability ($\alpha = .88$). Thus, only those students who identified relatively highly with the group psychology students, were included in the following analysis.

Manipulation checks: The manipulation checks for operationalizing the autonomous and interdependent outcome conditions indicated that the manipulation was successful. A 2×3 analysis of variance (ANOVA) for dependence on psychology students for receiving a fair chance in the draw found only a main effect for the autonomous/interdependence manipulation ($F = 3.75, p < .05$). Autonomous subjects felt less dependent ($M = 4.44, SD = 2.27$) than the interdependent subjects ($M = 5.65, SD = 2.04$). Interestingly, when this analysis was applied to economic students no effect for dependence was found for receiving a fair chance in the draw (overall: $M = 4.05, SD = 2.27$); that is, while participants were objectively interdependent with both groups they only felt dependence on their ingroup, psychology students.

The representativeness manipulation was also confirmed to be equally effective across conditions. A 2×3 ANOVA found a significant effect for participants' perceived representativeness ($F = 4.36, p < .05$): highly representative ($M = 6.24, SD = 2.01$); moderately representative ($M = 5.13, SD = 1.87$); slightly representative ($M = 3.65, SD = 2.29$). There was no main effect for interdependence, nor an interaction effect. Participants' confidence in the correctness of the assessed level of representativeness was also measured. A 2×3 ANOVA found no effect for representativeness or interdependence, each level of representativeness was seen to be equally valid: highly representative ($M = 4.50, SD = 2.09$); moderately representative ($M = 4.53, SD = 2.06$); slightly representative ($M = 4.65, SD = 1.79$). Interestingly, all participants were only

moderately confident in their assessment. It should also be noted that participants, across conditions, equally wanted a chance to win the \$20.00 draw ($M = 6.16$, $SD = 2.02$).

Resource allocation strategies: The strategies that participants adopted in resource distribution and the subsequent award structure are reported in terms of three measures: Tajfel matrices “pull” scores; Tajfel matrices total scores; and the 100 point zero-sum distribution. There was no effect for experimental session or sex (see also Bourhis, 1994; Bourhis and Gagnon, 1996).

Tajfel matrices “pull” scores: The Tajfel matrices assess the use of specific strategies (see Turner, 1978; Turner, Brown and Tajfel, 1979). These strategies were assessed using the three classic matrix types. Following Gagnon and Bourhis (1996), two sets of analysis, within and between experimental condition, were conducted to assess the strategies adopted by participants.

Within experimental condition strategy assessment: The mean pull scores for each of the strategies are reported in Table 7.1 for each of the experimental conditions. The significance levels reported within the top half of the table represent the significance of one strategy being used over another within any one condition (significance levels should thus be read across the rows). As each of the three matrix types has a matched pair of outcome scores (that is the pull of P on FAV can be compared with the pull of FAV on P), Wilcoxon matched-pairs tests were used to determine which strategy was used significantly more than by chance within each experimental condition.

The pull of parity (P on FAV) was significant across all conditions, indicating that this was a utilized strategy for participants regardless of experimental group. Discrimination was assessed using three measures (FAV on MJP, MD on MIP + MJP, FAV on P) and the findings show that this strategy was used significantly by participants that received feedback that they were moderately and slightly representative of psychology students. The highly representative subjects did not discriminate as much as the moderately and slightly representative subjects. Interestingly, the maximum joint profit strategy was utilized primarily by the participants who were given feedback that they were highly representative of their group.

Between experimental condition strategy assessment: A 2 x 3 multivariate analysis of variance (interdependence x representativeness) was conducted using the six matrix pull scores as dependent measures. The overall MANOVA indicated no significant interaction effect ($Wilk's\ lambda = 0.909 = F(12, 184) = .748$, $p = .703$).

Table 7.1

Mean pull scores of subjects' matrix distribution strategies, as a function of degree of ingroup identification and interdependence

<u>CONDITIONS</u>	<u>STRATEGIES</u>					
	<u>PARITY</u>	<u>DISCRIMINATION</u>		<u>JOINT PROFIT</u>		
	<u>P/FAV</u>	<u>FAV/MJP</u>	<u>MD/MIP+MJP</u>	<u>FAV/P</u>	<u>MIP+MJP/MD</u>	<u>MJP/FAV</u>
<u>HIGHLY REPRESENT</u>						
Autonomous	7.89***	- 0.105	- 0.21	- 0.63	1.68*	- 0.32
Interdependent	9.11***	0.529	0.29	1.00	- 2.53*	- 2.65*
<u>MODERATELY REPRESENT</u>						
Autonomous	5.19**	1.75*	2.06*	2.44*	2.19*	1.13
Interdependent	5.61**	3.39**	2.00*	3.39**	.33	- 0.50
<u>SLIGHTLY REPRESENT</u>						
Autonomous	3.88**	4.25**	2.56*	3.00**	1.44	- 0.13
Interdependent	5.56**	3.88**	3.94*	3.19**	1.44	- 1.13
<u>COLUMN MEANS</u>	6.27	2.22	1.71	2.00	0.75	- 0.61
* $p < .05$; ** $p < .01$; *** $p < .001$ (for Wilcoxon's within experimental strategy comparisons)						
<u>MAIN EFFECTS</u>						
Representativeness F (2, 97), p	4.17* (.018)	5.93** (.004)	4.44* (.014)	3.68* (.029)	1.69 (.189)	2.62 (.078)
Interdependence F(1, 97), p	0.926 (.338)	0.468 (.495)	0.461 (.499)	0.861 (.356)	4.81* (.031)	6.47* (.013)
<u>INTERACTION EFFECTS</u>	0.100 (.905)	0.384 (.682)	0.213 (.809)	0.175 (.839)	1.75 (.178)	0.352 (.704)

* $p < .05$; ** $p < .01$; *** $p < .001$ (for ANOVA's on between experimental conditions)

Note. Mean pull score for each matrix distribution strategies ranges from -12 to +12. P = Parity; FAV = Ingroup Favouritism (MIP + MD); MD = Maximum Differentiation; MIP = Maximum Ingroup Profit; MJP = Maximum Joint Profit.

There was only a main effect for group representativeness (Wilk's lambda = 0.795 = $F(12, 184) = 1.863$, $p < .05$) but not for interdependence (Wilk's lambda = 0.895 = $F(12, 184) = 1.805$, $p = .107$). These overall findings suggest that within this study the degree of group representativeness, that is quality of social identity, is a better predictor of group members' resource distribution strategies than outcome interdependence.

Univariate analyses were then conducted on each of the six pull scores (summary statistics are reported in Appendices 7.2.1 to 7.2.6). In each case there was no interaction effect. The univariate analysis confirmed that interdependent and autonomous subjects did not differ in their use of the parity and discrimination strategies; that is, there was no main effect for the use of these strategies in terms of objective interdependence of participants. However, interdependence did have an effect on the use of joint profit strategies.

Interestingly, the strategies that showed main effects for normative representativeness were not the strategies that showed main effects for interdependence, and these main effects were never found together. There were significant main effects for normative representativeness for parity and discrimination strategies, while not for joint profit strategies, where interdependence effects were found. Examination of the means across conditions shows that use of parity increases as individuals receive feedback that they are more representative of the group, while the use of discriminatory strategies increases as individuals are told that they are less representative of the group. The trend is less clear for the joint profit strategies.

Tajfel matrices total scores: The total ingroup and outgroup allocation was determined by adding up the choices across the six matrix presentations. The first two scores presented in Table 7.2 represent the mean number of points allocated to ingroup and outgroup recipients respectively (summary statistics are reported in Appendices 7.2.7 to 7.2.9). An ingroup favouritism measure was also obtained for each experimental condition by calculating the difference between the ingroup and outgroup allocation. A $2 \times 3 \times 2$ ANOVA (interdependence by representativeness by repeated measure in/outgroup allocation) was used to assess if there was a significant difference between the ingroup and outgroup allocation. The results show a significant main effect for allocation ($F(1, 93) = 26.32$, $p < 0.001$) and an interaction effect for representativeness and allocation $F(2, 93) = 5.76$, $p < 0.01$ only. As can be seen by the

Table 7.2

Mean total number of points allocated to ingroup and outgroup members across six experimental conditions using the results obtained from the Tajfel matrices and the zero-sum allocation task.

<u>CONDITIONS</u>	<u>TOTAL POINTS ALLOCATED</u>					
	<u>TAJFEL MATRICES</u>			<u>ZERO-SUM TASK</u>		
	<u>INGRP</u>	<u>OUTGRP</u>	<u>DIFFGRP</u>	<u>INALL</u>	<u>OUTALL</u>	<u>DIFFALL</u>
<u>HIGHLY REPRESENT</u>						
Autonomous	85.47	85.88	- 1.12	56.21**	43.79**	12.42
Interdependent	80.82	76.94	3.88	55.88*	44.12*	11.76
<u>MODERATELY REPRESENT</u>						
Autonomous	93.60**	81.75**	12.53	59.19***	40.81***	18.38
Interdependent	93.72**	74.78**	18.94	65.76***	34.24***	31.52
<u>SLIGHTLY REPRESENT</u>						
Autonomous	96.75***	75.44***	21.31	64.50***	35.50***	29.00
Interdependent	96.56***	74.63***	21.93	60.73***	39.27***	21.46
<u>COLUMN MEANS</u>	90.91	78.23	12.81	60.17	39.83	20.35

* $p < .05$; ** $p < .01$; *** $p < .001$ (for Wilcoxon's within experimental strategy comparisons)

MAIN EFFECTS

Representativeness F (2, 98), p	7.65 *** (.001)	1.69 (.190)	5.76 *** (.004)	1.63 (.201)	1.63 (.201)	1.63 (.201)
Interdependence F(1, 98), p	0.274 (.602)	3.90 (.051)	0.63 (.428)	0.06 (.812)	0.06 (.812)	0.06 (.812)

INTERACTION EFFECTS

	.273 (.762)	.740 (.480)	.120 (.899)	.743 (.478)	.743 (.478)	.743 (.478)
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* $p < .05$; ** $p < .01$; *** $p < .001$ (for ANOVA's on between experimental conditions)

Note: INGRP, OUTGRP & DIFFGRP represent the total number of points allocated to the ingroup/ outgroup/difference between groups in the Tajfel matrices. INALL, OUTALL & DIFFALL represents the same comparisons using the zero-sum allocation task.

means presented in Table 7.2 the difference between ingroup and outgroup allocation becomes larger as group representativeness decreases. A simple analysis of variance across each of these three dependent measures derived from the Tajfel matrices found only a main effect for group representativeness for the ingroup allocation measure and the differential measure ($F(2, 98) = 7.65, p < 0.001$ and $F(2, 98) = 5.76, p < .01$ respectively).

These results corroborate the findings from the results of the Tajfel matrices pull scores in terms of both the effects of representativeness and interdependence. There is no overall effect found for interdependence, while feedback on the degree of representativeness of the group predicts the amount of discrimination in favour of the ingroup. Again, participants in the slightly representative condition discriminate more than the highly representative condition. The results of the repeated measures ANOVA indicated that the interdependence by allocation interaction was not significant ($F(1, 93) = .63, p = 0.428$). In other words, contrary to the interdependence analysis autonomous participants discriminated just as much as interdependent participants in their resource allocations.

Zero-sum distribution: The results of the analysis of the 100-point zero-sum distribution further corroborate the general pattern of results found with the pull scores and in/outgroup allocation obtained from the Tajfel matrices (see Table 7.2). While the ANOVA's are not significant for each of the three allocation measures, the Wilcoxon matched-pairs test showed that ingroup favouritism occurred across all conditions, with more favouritism occurring in the slightly representative condition (ingroup: $M = 62.62$; outgroup: $M = 37.39$) over the highly representative condition (ingroup: $M = 56.05$; outgroup: $M = 43.96$).

Quality of Identification: Based on the three measures of quality of identification, all participants identified highly with psychology students in comparison to economics students. Quality of identification did not vary with degree of representativeness (composite score: $M = 6.45$).

Expectations of Reciprocity: As discussed in the introduction, ingroup reciprocity expectations are an important motivating factor for the behavioral interaction model. Rabbie et al., (1989) state that "although subjects in the standard MGP cannot directly allocate money to themselves, they can do so indirectly, on the reasonable assumption that the other ingroup members will do the same to them" (p. 176). Specifically, the behavioral interaction model predicts a significant and positive

relationship between participants degree of ingroup favouritism, that is the number of points that they allocate to the ingroup, and the number of points that they expect from interdependent others. In line with this latter expectation participants were asked: "Which group of students do you think gave you the most points?" Students responded on an eight point bipolar scale with psychology (1) at one end of the scale and economics (8) at the other end. Across conditions participants thought psychology students would give them more points ($M = 2.88$; $SD = 1.51$). This trend was accentuated by interdependence as shown in a 2 x 3 ANOVA. The analysis showed a significant effect for interdependence ($F = 4.84$ $p < .05$; Autonomous: $M = 3.21$; $SD = 1.68$; Interdependent: $M = 2.55$; $SD = 1.30$). Thus interdependent subjects had a higher expectation than autonomous subjects that psychology students would give them more points. This result further confirms that the interdependence manipulation was successful.

A further analysis showed that there was no significant correlation between how many points interdependent participants expected to receive from ingroup members and respondents' actual use of the discrimination strategies. FAV on P, $r(48) = .17$, n.s.; FAV on MJP, $r(48) = .23$, n.s.; and total number of points allocated to in-group members using the Tajfel matrices, $r(48) = .15$, n.s. Further, there was no significant correlation between respondents' actual use of the parity strategy (P on FAV) and the number of points they expect to receive from ingroup members $r(48) = .12$, n.s.

Expectations of Cooperation: As with the expectations of reciprocity, expectations of cooperation followed the same pattern of results. In general, students expected more cooperation from psychology students (1) than economics students (8) on a bipolar scale ($M = 2.90$; $SD = 1.42$). However, in this case, the MANOVA showed no overall effects; that is, objective interdependence did not have a main effect on the levels of expected cooperation.

Similarity measure: Measures of perception of similarity to other psychology students were also taken. Collapsing across group representativeness, perceptions of similarity to other psychology students varied with interdependence. Interdependent subjects perceived themselves to be more similar to psychology students ($M = 5.62$, $SD = 1.39$) than autonomous participants ($M = 4.87$, $SD = 1.54$). This difference was found to be significantly different in a 2 x 3 MANOVA, with a main effect only for interdependence ($F = 5.68$, $p < .01$). In contrast participants did not feel similar to economics students across conditions ($M = 2.92$, $SD = 1.61$).

7.4 Discussion

Overall, the results of this study provide support for social identity and self-categorization theory over the behavioral interaction model. In line with predictions from self-categorization theory, regardless of interdependence condition (autonomous or interdependent) participants discriminated in favour of their ingroup. In other words, participants in the autonomous conditions continued to act in terms of their group membership as psychology students in comparison to economics students even though they were not outcome interdependent. In terms of the behavioral interaction model, tacit intragroup cooperation would not be expected in the autonomous condition as individuals were not interdependent for outcomes received. In other words individuals in both conditions acted in terms of their group memberships regardless of objective interdependence or common fate between players. Interdependence theorists continually stress the importance of mapping the objective interdependence structure; however, the findings of this study suggest that social identification is more predictive of group based behavior, as the identification provides individuals with a subjectively meaningful self-category of membership.

Individuals acted in terms of group memberships that embodied comparative subjective reality, specifically in this situation as psychology students. This is important, not only because autonomous participants acted in terms of this group membership but also because participants were, in fact, objectively interdependent with both economics students and psychology students in their chances to win places for the draw. Given this, and in line with the reciprocity explanation of the behavioral interaction model, tacit intragroup cooperation would be expected to occur across group memberships. If this was the case then it would be expected that the maximum joint profit strategy would be the most utilized. The findings of this study do not support a behavioural interaction model analysis.

Interestingly, the only effect for interdependence was found in the analysis of the maximum joint profit strategy, and more so for highly representative than slightly representative subjects. These results are intriguing in light of the findings of the representative manipulation. The findings seem to indicate that social group distinctiveness has been achieved by some means in the highly representative condition and once achieved participants then considered joint profit to be an effective strategy, especially when objective interdependence is explicit. This is speculative though and

further study is necessary. However, an important point can be made here. It is not surprising that interdependence does have some effect, the point that self-categorization theory is making is not to discount that fact that objective interdependence can affect intergroup behaviour as found in Sherif's classic field studies. The point is that interdependence, per se, can not account for the necessary and sufficient conditions to explain group level processes, such as social cooperation. Psychological identification with the group is the necessary intervening process. The gaming research that led to the development of the social dilemma paradigm points to this fact as well -- structural outcome interdependence did not lead to high levels of cooperative behavior. Recall (Chapter 2), when this paradigm was first established researchers were surprised at the low (30%) levels of cooperative behavior; yet, the paradigm, and its inherent assumptions about the nature of group life remained. However, the evidence found in this study, like that of Gagnon and Bourhis, presents strong evidence that outcome interdependence is not a sufficient explanation for group-based behavior.

The results also supported the normative representativeness predictions made by social identity theory and self-categorization theory in reference to the importance of achieving social distinctiveness. The degree of normative representativeness of participants had an effect on allocation behavior; participants who were given feedback that they were not highly representative of the group psychology students, discriminated more than those who were told that they were highly representative of this group. In other words the evidence implies that discrimination against the outgroup served to increase their social distinctiveness, and thus self-esteem, in terms of their salient group membership (see also Branscombe & Wann, 1994; Branscombe, Wann, Noel & Coleman, 1993; Chin & McClintock, 1993; Lemyre & Smith, 1985; Long & Spears, 1997; Oakes & Turner, 1980). While there was a general overall tendency to favour the ingroup in the reward allocation task, thus supporting the classic finding of the early minimal group paradigm studies (see Tajfel & Turner, 1986), this effect was mediated through normative feedback to participants that implied differential levels of representativeness of their group. Thus the functional aspect of group norms, inherent to group life, are drawn out in this analysis. Self-categorization theory provides a systematic analysis of group life that acknowledges the importance of both normative and comparative aspects of the social group. This perspective is fundamentally different from a perspective that understands group behavior as a function of interdependence structure and intrapersonal variables.

While this thesis is not specifically examining discriminatory behavior, it is prudent to comment further on the findings of this study that relate to discrimination as it contributes further insights into the social identity analysis of group life. Gagnon and Bourhis (1996) reiterate Turner (1984) by highlighting two ongoing questions that arise out of the social identity theory analysis: "Do people discriminate because they strongly identify with their own group, or does discrimination contribute to a stronger identification with the in-group? Do people discriminate because they already have a positive social identity, or do they discriminate to achieve a more positive social identity?" (p. 1299 - 1300). For reasons of comparability with the original Rabbie et al., (1989) study the study presented here, like the Gagnon and Bourhis study, measured identification after the allocation task was complete. Thus, it is not clear if ingroup identification was cause or effect of social discrimination; that is, did participants who highly identified with the ingroup discriminate, or did discrimination lead to high levels of identification? This was particularly problematic for the Gagnon and Bourhis study, as the identity division was post hoc. While in this study the identity measures were again taken after the completion of the allocation tasks, there were a priori manipulations of group representativeness carried out that were predicted to affect the quality of the identification. Further, the findings showed that this manipulation had a moderating effect on discrimination behaviour which varied systematically with the self-categorization predictions. Thus, it is interesting to further examine the results of this normative manipulation of representativeness in light of the questions raised by Turner (1984) and Gagnon and Bourhis (1996).

The results show that individuals' degree of discrimination behavior was inversely related to the degree of normative representativeness; that is, individuals who were told that they were highly representative of the group discriminated significantly less than those who were told that they were slightly representative of the group. The results are interesting to discuss across the three conditions of group representativeness as well as the three strategies (parity, discrimination and joint profit) assessed.

Across the representativeness conditions there are interesting differences found: highly representative participants primarily adopted parity and joint profit strategies, while moderately and slightly representative participants adopted discrimination strategies as well as parity strategies. Thus, the strategy of discrimination was only adopted when participants believed they were not highly representative of the group as a whole. Interestingly, highly representative subjects did not tend to adopt a

discrimination strategy but still reported that they identified highly with the group. Thus in terms of this condition, high identification did not lead to discrimination. In other words, individuals did not discriminate because they highly identified with the group. Likewise, Long and Spears (1996) have also found that individuals with high collective self-esteem did not necessarily discriminate in an allocation task. Participants in the other two representative conditions also reported that they highly identified with the group; however, these two groups also discriminated, thus, causal direction is less clear but still interesting to speculate upon.

It seems reasonable to argue that individuals in these two conditions discriminated because they highly identified with the group. They discriminated to gain further social distinctiveness that had not been achieved in terms of this normative dimension that defined the group. This argument would then be in line with the findings of the highly representative condition and it also seems reasonable to conclude that given that students had voluntarily enrolled in psychology that they would identify fairly highly with other psychology students. Further, the graph that was used in this manipulation explicitly shows that individuals in the highly representative condition had achieved high levels of distinctiveness from economics students while individuals in the other two conditions had achieved this to a lesser extent. These findings then raise the question: can social distinctiveness be achieved on normative dimensions alone? Does high identification with a group not necessarily lead to discrimination against an out group? These questions require further systematic investigation.

This analysis is also borne out when examining each of the strategies across conditions. Parity was mostly used by those who were told that they were highly representative of psychology students and used significantly less by those who were told that they were slightly representative. However, in terms of the three discrimination strategies, the inverse relationship was found: slightly representative participants used significantly more discrimination strategies. And interestingly the only effect for interdependence was found in the analysis of the joint profit strategy, with primarily highly representative participants using this strategy.

The zero-sum scores are important as they by and large support the validity of the pull scores which have been questioned in the past (see Bornstein, Crum, Wittenbraker, Haring, Insko & Thibaut, 1983). The total ingroup and outgroup allocations attained through the Tajfel matrices supported the predictions. The difference between the ingroup and the outgroup allocation was least in the highly

representative condition and greatest in the slightly representative condition. Indeed a significant main effect of group representativeness was found, with slightly representative participants discriminating significantly more than highly representative participants. While the results are less clear in the 100-point zero-sum allocation task, the same general pattern of results remains: participants in the highly representative condition favouring their ingroup the least, while participants in the slightly representative condition favoured their ingroup the most. However, what is interesting here is the finding that highly representative subjects did favor their ingroup more than is reflected in the Tajfel matrices total point scores.

The measures of reciprocity, cooperation and similarity also support a self-categorization analysis. In terms of reciprocity expectations, psychology students thought other psychology students would give them more points, and this was accentuated by interdependence. In line with earlier arguments made, the behavioural interaction model would predict reciprocity expectations to arise with respect to interdependent others which in this case includes both psychology students and economic students. Interdependence theorists, including Rabbie and colleagues, would not then expect this effect. In line with this, psychology students expected more cooperation from psychology students than economics students. Further, in line with the similarity measure that is important to the self-categorization analysis, psychology students perceived themselves to be more similar to other psychology students than economics students and this perception was accentuated by the interdependence manipulation.

As Gagnon and Bourhis point out discrimination contributes to achieving a positive social identity where group membership is important to an individual. Given that all individuals identified highly, at least following the allocation task, and that identification did not vary systematically with the representative manipulation the data indicates that not only is degree of identification important, so is quality of identification. The data indicates that the feedback that we receive from our respective reference groups gives us information about the quality of our identification, which, in turn, influences our group based behavior. Thus our perceived social reality in terms of our group memberships gives us important information about our place in the world, and this relates to our behavior towards both in and out group members. As such, there is a constant dynamic between individual and group life. How representative an individual is of their respective groups, reflects one dimension of this functional dynamic.

Norms have also been found to be influential in other studies using resource allocation tasks. For example Jetten, Spears and Manstead (1996) found that discrimination decreases when an ingroup norm of fairness is established. They conclude that participants are motivated to act in terms of the normative content of the salient social identity. While the effect of the comparative group norms of psychology and economic students was not specifically examined in this study, Jetten et al. (1996) found evidence that the normative expectation of both ingroup and outgroup norms were important to understanding intergroup behavior. This is also reflected in a concluding comment by one participant in the present study, who stated: "I gave more points to psychology students in an attempt to influence the prize to a psychology student 'cause I do not believe that economic students should be given money for nothing as it will just encourage their greed". This implies that while economic students are greedy, by contrast, psychology students may be fair. Many other participants openly stated that they were biased towards their own group of psychology students, not to increase their individual chances of winning but because, by comparison, they wanted a psychology student to win the prize. Thus, regardless of outcome interdependence structure, participants were acting in terms of their group membership, specifically as psychology students.

This point raises an interesting question; perhaps, in comparison to economic students, it is normative to be fair as a psychology student. Thus, the highly representative subjects may have been acting in terms of a fairness norms and thus were being normatively consistent by comparison to economic students. Indeed the findings did show that psychology students did expect more cooperation from psychology students than economics students. This remains to be seen, as self-categorization theory would predict that cooperative expectations are a product of psychological group formation, which may be accentuated by this normative dimension.

To some extent the latter explanation seems more plausible in light of the finding that there was no difference on the expectation of cooperative behavior across conditions. One could argue that psychology students who received feedback that they were only slightly representative of this group, yet highly identified with the group, would try to act more in terms of the group and be more fair to achieve positive group distinctiveness. However they do not, in fact individuals in this condition discriminated more to achieve positive social identification. The point remains that perceived normative representativeness of group-level processes is an important moderating factor

in intergroup behavior. In the study to be presented in the next chapter of this thesis group representativeness is specifically measured in terms of the emerging group norm to examine if normative representativeness is predictive of cooperative behavior in an intragroup setting of objective interdependence.

Together, these findings provide further evidence for the importance of achieving social distinctiveness in intergroup situations, specifically the importance of norms in category formation (see Oakes, Turner & Haslam, 1991). Thus, all in all, this study provides overall support for the social identity analysis of group formation over and above the interdependence analysis of group formation. Group life, as a determinant of varying self-definitions, clearly does guide behavior of the individual. Self-categorizing establishes certain motivational forces for individuals; in line with the meta-contrast principle of self-categorization theory, that individuals are motivated to achieve social distinctiveness within a given frame of reference. The finding here suggests that perceived knowledge of group representativeness of the relevant group norm aid in this process.

In summary this study replicates and extends the Gagnon and Bourhis study in the following way. To begin with, both studies found no effect for objective interdependence of individuals, despite the objective state of affairs individuals discriminated in favour of their own group. The manipulation was extended in two ways: through a lottery that established interdependence of individuals and through a monetary reward. However, the monetary reward did not increase individuals' utilitarian motivation, as Mlicki would predict. Further, *a priori* measures were used to manipulate quality of identification in terms of normative category distinctiveness. The results were in line with predictions.

While this study is conceptually limited in its ability to further specify the underlying properties of identity processes, it has established some initial evidence that quality of identity, in establishing distinctiveness, is an important factor. These factors include both the normative and the comparative processes of psychological group formation, which will be examined in more detail in later chapters. The main point of this chapter is that interdependence, *per se*, can not account for the necessary and sufficient conditions of group-based behavior. The intervening mechanism seems to be attaining social distinctiveness in terms of a salient social identity. As such, there is preliminary evidence that it is not the objective state of affairs that determines social cooperation and conflict but identification processes that place individuals in the social world.

The aim of this thesis is to establish this mechanism as the underlying process that is predictive of social cooperation. The question to be continually at the forefront of this thesis: Is social cooperation a product of a salient social identity. If so, then by examining the identity mechanism, as specified by self-categorization theory, these determinants should be predictive of cooperative behavior. While there is still much to be established, the findings of this study are important as they make a fundamental point: objective interdependence, per se, does not account for group based behavior. As such the emphasis that interdependence theorists place on the interdependence structure is brought into question, as is the structure of paradigm that we use to study social cooperation.

- Chapter 8 -

The emergent properties of groups: Normative representativeness, intrapersonal transformational processes and intragroup cooperation

Experiment 2

8.1 Introduction

The previous chapter addressed whether objective interdependence is the basis of psychological group formation, a construct emphasized in interdependence theory. Indeed, interdependence has always been understood as the primary mechanism in group formation and social cooperation, as reflected in the following statement: “According to interdependence theory, prosocial behavior in ongoing relationships is strongly shaped by the broader interdependence structure underlying a relationship (Kelley & Thibaut, 1978; Rusbult and van Lange, 1996)” (van Lange, Agnew, Harinck & Steemers, in press, p. 5 - draft). However, while the functional interdependence of individuals is the core of the theoretical approach, recall that interdependence theorists argue that behavior is a function of both the interdependence structure and transformational processes of individuals. This chapter will examine the transformational processes of individuals within a given situation of objective interdependence. Transformational processes, within any given context, are argued to be relatively stable over time (see McClintock & Liebrand, 1988; Rusbult & van Lange, 1996; van Lange et al., in press). In other words, it is argued that behavior in situations of interdependence is “moderated by pre-existing individual differences in social value orientations (i.e. prosocial, individualistic, or competitive orientation” (van Lange et al., in press, p. 2 - draft). Given this, the level of cooperation by any given individual should remain relatively stable over time within a given situation of interdependence. In line with this analysis, pre-existing individual differences are argued to be the moderating variable that establishes individuals’ willingness to sacrifice for the group.

Recall that social dilemmas are characterized in terms of the problem of interdependence; that is, when individuals are confronted with a conflict between their

own interest and the interest of the collective as a result of interdependence, this leads to a deficient outcome for the individuals involved, unless an individual is prosocially inclined. Individuals are prosocially inclined if they value the outcomes of others. Typically, the degree to which individuals value the outcomes of others is measured through decomposed games, such as the ring measure, whereby a vector is plotted on the self-other outcome plane (see Chapter 2).

Given this emphasis in the social dilemma literature, the study to be presented in this chapter will examine individual differences within a stable structure of interdependence over time. The aim of the study is to test the strength of variables important to interdependence and self-categorization theories in predicting social cooperation in situations of objective interdependence. Specifically, social value orientations and normative measures of how representative an individual is of the emergent group norm will be examined. This latter measure builds on the work of normative representativeness found important to categorization processes and intergroup discrimination behavior, as seen in Experiment 1. Taken together, this study examines the emergent properties of groups and the dynamics of intragroup cooperation in relation to social value orientations and normative dimensions of group life and behavior.

However, the conventional measure of social value orientations will not be used, as a previous study carried out in the same context as the study to be presented found no systematic differences when using the measure. Specifically, in an earlier attempt to follow conventional practice the present author (Morrison, 1994) carried out a study, in the context of an Outward Bound course, using the ring measure to examine how allocation behavior in self-other comparisons would change over time, and with comparison other. The results were interesting as the measure did not pick up the range of individual differences normally present in the population: 45 - 55 % cooperators; 30 - 40 % individualists; 10 - 20 % competitors. Instead, in a precourse measure 91% of participants were found to be cooperators and 9% were individualists. No competitors were found. The measure was also distributed at two other times during the course, and comparison other was also varied. While some changes were found over time, and comparison other, for each individual, these differences were not found to be significant. Thus, the use of this instrument was problematic in this setting and necessitated the development of a more sensitive measure of cooperation.

To this end, it was decided that group members' perceptions of individuals' behavior would be an effective measure of overall cooperation within the group as this

measure would be less vulnerable to response biases and ceiling effects. This was based on some early studies examining the robustness and measurement of social value orientations by McClintock and colleagues. They showed that “actors can detect or learn another’s value orientations by observing other’s choice behavior” (McClintock, 1978, p. 129). In other words, their studies showed that individuals were accurate at predicting the behavior of cooperators, individualists and competitors, the three most common social value orientations. Thus, it could be assumed that the participants in these small interactive groups could also accurately perceive the overall level of cooperativeness across group members.

These results have the potential to be very revealing given that social value orientations are expected to account for a significant amount of the variance in cooperative behavior in situations of interdependence (see Grezlak, 1994). The question then is: can we account for further systematic variation in this sample. For the sample is indeed unique, with two possibilities for the ceiling effect of cooperation being evident. Firstly, because of the self-selected nature of participation on an Outward Bound course, the course may predominantly attract cooperators. Secondly, the normative expectations of an Outward Bound course may induce high levels of cooperative behavior. Recall Kerr (1995; see also McClintock & van Avermaet, 1982) found that group norms do influence social value orientations. To some extent at least, the latter explanation seems more plausible. Either way, this initial study aims to examine if it is possible to show further systematic variation in this extreme sample (or situation). If systematic variation can be found then we may be able to further develop our understanding of predicting subtle changes in cooperative behavior.

Self-categorization theory argues that social cooperation is an emergent product of psychological group formation. Thus, as the psychological group becomes salient for the group members, perceptions of cooperation should vary as a product of this salient category of membership. As such, cooperation is not a static product of intra-personal differences within a given interdependence structure, it is an emergent product of group life, understood here in terms of a cognitive re-definition of the self. Further, groups are defined in terms of normative dimensions as well, the more normatively consistent an individual is perceived to be of a group, the more cooperative that individual should be perceived to be in reference to the group. Simply, the greater the typicality of the individual in reference to the group, the more the person fits the salient categorization and thus the more cooperative they are perceived to be.

This study builds on an earlier field study (Oakes et al., 1995) carried out in the same context where the cohesiveness of the group was expected to increase over time. Specifically, both this study and the study to be presented took place within the context of small interacting groups (summer Challenge Courses) at Outward Bound Australia. Participants are divided into autonomous groups of approximately 10 - 15 members, who spend 22 days (the course length was shortened from the previous study by 4 days) on expedition through the Australian wilderness. The focus of the courses is highly group oriented; that is, individuals are highly interdependent in regard to their ability to achieve the course goals. This context thus provides the ideal opportunity to examine intragroup processes in highly interactive groups which operate autonomously, and in relative isolation, over a period of 22 days.

The aim of the published study was to investigate the relationship between familiarity and perceived ingroup homogeneity. In contrast to current (e.g., Park, Judd, & Ryan, 1991) and longstanding (e.g., Lippmann, 1922) research that argues that increasing familiarity should decrease perceived homogeneity within the group, it was predicted that in this context the opposite would be the case. The findings confirmed the latter prediction, showing that over time these highly interactive groups were perceived to be more homogenous and that group members were more likely to be described in terms of stereotypic ingroup norms. Thus, in line with self-categorization theory, it was argued that the salient self-stereotype was in terms of group membership and that the salience of this self-stereotype increased over time, thus capturing the emergent properties of group life.

It was concluded from this study that "change in subjects' responses over time accurately reflected the process of their becoming an ingroup -- a process through which a collection of disparate individuals became a coherent social-psychological entity" (Oakes et al., 1995, p. 58). These findings suggest that individuals were acting in terms of a salient social category of membership, and the extent to which this category of membership was salient increased over time. In line with this it would be expected that group members would exhibit increasing degrees of social cooperation, that is, behave in a manner which is increasingly normatively consistent with the pursuit of group goals.

The experiment to be presented in this chapter will examine social value orientations and ingroup representativeness as determinants of social cooperation within a given structure of objective interdependence. Building on the former study, this present study will utilize a time-series design, such that the emergent properties of

groups can be examined. Specifically, from the perspective of the social value theory (see McClintock & Liebrand, 1988) expectation that social value orientations are relatively stable intrapersonal differences, previous levels of cooperation should predict subsequent levels of cooperation within the same situation of interdependence. On the other hand, self-categorization theory would predict that perceptions of social cooperation would increase as a function of the increasing salience of the collective self-category of membership, as reflected in the increasing homogeneity on the stereotypic ingroup norm in the initial study. Further, social cooperation is argued to be a product of the degree to which another individual is perceived to share the same self-category of membership. Thus, perceived group representativeness should predict perceived intragroup cooperation at any given time.

Taken together, it is predicted, in line with self-categorization theory, that perceived group representativeness, at any given time, will predict perceptions of social cooperation in reference to the group, over and above previous levels of perceived social cooperation. Social value theory would predict that previous levels of cooperation would predict future levels of cooperation within the same situation of interdependence. Further, in line with self-categorization theory, given that the initial study found that perceived homogeneity on the stereotypical ingroup norm increased over time, overall the level of perceived social cooperation in pursuit of group goals should increase over time. This should be reflected in individuals' perceptions of group members individual and general level of intragroup cooperation. On the other hand, if cooperation is a stable intra-personal state, then previous levels of cooperation should predict subsequent levels of cooperation and the overall level of cooperation should remain relatively stable over time.

8.2 Method

Subjects and Design: The subjects in this study consisted of 100 members (61 males, 39 females, 16 - 32 years of age, $M = 21.16$; $SD = 3.77$) of the general public who were participating in a 22-day Outward Bound Challenge course. The participants were members of one of eight different groups [namely: (Sturt: $n = 13$; Gunn: $n = 13$; Cottee: $n = 13$; and Mawson: $n = 12$), (Bass: $n = 9$ and Gilmore: $n = 10$), (Cook: $n = 15$ and Franklin: $n = 15$); groups within brackets were run concurrently, while remaining autonomous, within the same course]. Each of these groups were

independent and took part in an Outward Bound course of the same structure and nature, specifically a Challenge Course conducted in the Australian Capital Territory.

Within each group, participants were not known to each other and thus had no direct social experience with their respective group members. Immediately upon arrival participants were assigned to a group, with each course consisting of two or more groups. While concurrent groups had knowledge of each other's existence, for the most part interaction was primarily at the intragroup level. Three subjects dropped out of their respective courses and were thus excluded from the analysis.

Measures of perceived normative representativeness and cooperativeness of group members were obtained at four stages during the course. Group members self-selected normative measures of their respective groups on Day 1 and 3. Based on the self-relevant normative data collected, measures of individuals' representativeness and cooperativeness followed on Days 9, 12, 16 and 22. The study thus employed an 8 (group) x 4 (time) factorial design with repeated measures on the second factor.

Procedure: The course of events was the same for each of the eight groups. Upon arrival, participants were divided into groups to ensure that across concurrently running groups, each group had relatively the same sex ratio, age range and socio-economic background. One Outward Bound instructor (who was blind to the details of the study) was assigned to each group. The course began with a three day preliminary training program at the Australian Capital Territory national base of Outward Bound Australia. Each group then departed for a 12 day wilderness expedition, under the guidance of their instructor. On day 15 each participant began a three-day "solo" period -- a time for participants to think about their life in relation to experiences on the course. Either directly before or after the "solo" period each group participated in a day of rockclimbing or abseiling. Each group was then divided into two smaller groups. Each of these smaller groups planned and executed a unaccompanied 4 day expedition. The final leg back to national base, where final group activities occur, was an individual activity, whereby each individual completed a 12-kilometer run.

At an introductory briefing to the course on Day 1, all groups were told that research will be an aspect of the course. This briefing was given by the experimenter and participants were told that participation in the research was voluntary and confidential. The participants did not meet with the experimenter again until the last day of the course, when they were fully debriefed. At the prearranged times during the course, each instructor distributed the relevant questionnaires and asked participants to complete the

sheets in the order provided in a private, thoughtful and honest manner. No particular rationale for the research was given to the participants or instructors until the end of the course.

Normative Rating Measures: Initially, participants filled out a questionnaire to ascertain self-relevant normative expectancies of the group. Following Haslam, Turner, Oakes, McGarty and Hayes (1992; following Katz & Braly, 1933), participants were asked to read through a list of 50 adjectives that would complete the sentence: How important is it to (be) _____ on this course? Participants were then asked to rate each adjective on a scale from 1 (not at all important) to 7 (very important). Following this general task, participants were asked to choose from this list “the five most important attributes that will be important to the overall success of your course.” The purpose of this first questionnaire was to get the participants thinking about these 50 different attributes and become familiar with the questionnaire design. As the experimenter was present during the completion of this first questionnaire, questions could also be responded to as appropriate. On day 4 of the course, once on expedition, the participants filled in this same questionnaire again. It was thought that this second measure would better reflect the emergent group norm, rather than reflect the expectations that participants brought to the course on Day 1. These questionnaires were left by the instructor at a designated spot on the expedition route and retrieved after the group had continued on their expedition.

Individual ratings: Based on the group members’ overall responses, five adjectives were identified for each group that were most consensually chosen within each of the eight groups (e.g., members of Sturt chose *supportive, positive in attitude, aware of others’ needs, committed and responsible* most consistently; see appendix 7.1 for the normative dimensions of all eight groups). Using the most consensually defining adjectives, a questionnaire was designed such that each participant rated how much each of these five adjective described the individual members of their group. The ratings were made on a scale from 1 (not at all) to 7 (very much so). Participants were presented with a questionnaire which listed across the top of the page the five adjectives and the names of the individuals in their group down the left side. Participants were also asked to rank the group members from most to least representative of the group on these five adjectives. Finally, on this same questionnaire, participants also rated the same five words on a 7-point scale which measured how important each item was to the success of their course at each point of measurement. This was to ensure that the items remained

important to the group members, as a whole, throughout the course. This questionnaire was presented at four times during the course (Days 8, 11, 15 and 22).

On a second questionnaire, also presented four times, participants were asked to rate group members on a number of statements on a scale of 1 (not at all) to 7 (very much agree). For example the first question read: "This person cooperates with others to achieve success for the group". The other questions are not relevant here (they were in fact gathering pilot information for a study on leadership). Follow up questions asked about the importance of group membership, general cooperation in the group and similarity to other group members. Finally, participants were asked to rank each individual in the group from most cooperative to least cooperative member of the group in working towards the achievement of a successful course.

8.3 Results

Individual Ratings: The participants' ratings of intragroup representativeness were averaged across the five consensual dimensions for each group, such that for each individual a mean level of perceived group representativeness was calculated across individuals and across the five adjectives. Mean levels of perceived group representativeness were entered into an 8 (group) x 4 (time) analysis of variance with repeated measures on the second factor. As anticipated, a main effect for time was found; participants' perceptions of individuals' group representativeness increased over time ($F(3, 267) = 23.28, p < .001$; Ms: $T1 = 4.9$; $T2 = 5.12$; $T3 = 5.55$; $T4 = 5.65$). Orthogonal contrasts confirmed these means to be significantly different in the predicted order: $T1$ with $T2$ ($F(1, 89) = 2.65, p < .05$); $T2$ with $T3$ ($F(1, 89) = 6.32, p < .001$); $T3$ with $T4$ ($F(1, 89) = 2.12, p < .05$).

Participants also rated each of the five words that were initially chosen to represent the group norm to ensure that these dimensions remained important to the group over time. Collapsing across adjectives, an 8 x 4 MANOVA revealed only a main effect for the repeated measure of time ($F(3, 228) = 4.27, p < .01$). Thus, the normative descriptors, on average, not only remained important to the group as a whole but also increased in importance over time (see Table 8.1). Further, as Oakes et al.(1995) have shown, the standard deviations reflect increasing homogeneity over time, indicating that the importance of these dimensions became more consensual over time.

Table 8.1

Standard measures of the importance of the five selected group adjectives at four times.

	<u>Time 1</u>		<u>Time 2</u>		<u>Time 3</u>		<u>Time 4</u>	
<u>Adj</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
A	6.35	1.12	6.39	1.13	6.61	0.67	6.67	0.73
B	6.37	1.17	6.31	1.25	6.63	0.62	6.57	0.90
C	6.22	1.21	6.23	1.12	6.44	0.90	6.54	0.92
D	6.22	1.07	6.13	1.16	6.46	0.88	6.46	0.85
E	6.24	1.05	6.26	1.15	6.56	0.75	6.65	0.71

The item on the second questionnaire assessing the groups' ratings of individuals level of perceived intragroup cooperation also increased over time. Again, mean levels of perceived intragroup cooperation were entered into an 8 (group) x 4 (time) analysis of variance with repeated measures on the second factor. As predicted, a main effect for time was found; participants' perceptions of individuals' level of cooperation within the group increased over time ($F(3, 267) = 23.28, p < .001$; M_s : $T1 = 5.26$; $T2 = 5.54$; $T3 = 5.78$; $T4 = 5.88$). Orthogonal contrasts confirmed these means to be significantly different in the predicted order: $T1$ with $T2$ ($F(1, 89) = 2.33, p < .05$); $T2$ with $T3$ ($F(1, 89) = 4.04, p < .001$); $T3$ with $T4$ ($F(1, 89) = 4.44, p < .001$). These results together with the group ratings for group representativeness are shown in Figure 8.1 to emphasise the emerging relationship between these two variables over time.

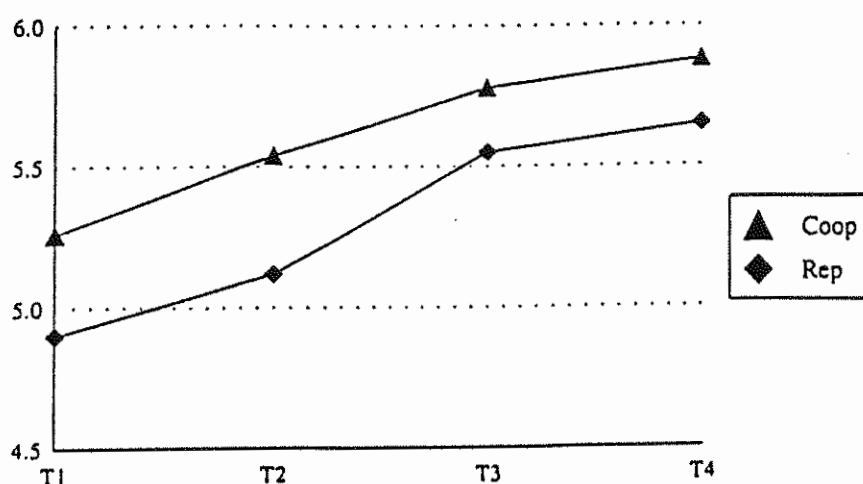


Figure 8.1

Perceptions of intragroup cooperativeness and group representativeness at four times over the course of 22 days.

The general rating of overall cooperation within the group confirmed this finding of the individual ratings. Perceptions of intragroup cooperation increased over time ($F(3, 234) = 6.38, p = .000$; Ms: $T1 = 5.66$; $T2 = 5.82$; $T3 = 5.99$; $T4 = 6.08$). Orthogonal contrasts confirmed these means to be significantly different in the predicted order: $T1$ with $T2$ ($F(1, 78) = 2.41, p < .05$); $T2$ with $T3$ ($F(1, 78) = 1.04, p < .05$); $T3$ with $T4$ ($F(1, 78) = 0.43, p > .05$).

In line with self-categorization theory, perceptions of similarity to other group members also increased significantly over time, producing a pattern of results similar to that of the cooperation data. Only a main effect for time was found when this measure was entered into an 8 (group) $\times$ 4 (time) analysis ($F(3, 231) = 5.23, p < .01$; Ms: $T1 = 5.06$; $T2 = 5.22$; $T3 = 5.59$; $T4 = 5.60$). The univariate tests found the first two of these comparisons to be significantly different: $T1$ with $T2$ ($F(1, 77) = 2.06, p < .05$); $T2$ with $T3$ ($F(1, 77) = 4.04, p < .01$); $T3$ with $T4$ ($F(1, 77) = 0.12, p > .05$). The summary statistics for these results are reported in Appendix 8.2.

Finally, the importance of group membership was measured. The results confirmed that the group remained important to the individual group members over time and did not change significantly (Ms: $T1 = 6.25$; $T2 = 6.12$; $T3 = 6.08$; $T4 = 6.17$).

Predicting cooperation: A regression analysis was used to address the question of the stability of intrapersonal orientations within a given interdependence structure, in comparison to the normative dimension of psychological group formation, which then predicts individuals' cooperative behavior. Perceptions of individual group members' level of cooperation and group representativeness were used to predict intragroup cooperation over time within an ongoing situation of objective interdependence. On the basis of participants' ratings of individual group members, mean scores were computed for each individual on the dimensions of perceived representativeness and cooperativeness at each of the four different times. These scores were then entered into a hierarchical regression analysis. This procedure was also completed for the ranking data. The results are reported in Table 8.2.

At each of the three times of analysis, and using both the rating and the ranking data, group representativeness predicted cooperation over and the above previous levels of cooperation. While degree of perceived level of representativeness has a higher predictive value, it should also be noted that previous level of cooperation is also highly correlated. However, in four of the six regression analyses the significant relationship between previous levels of cooperation and subsequent levels of cooperation disappears

Table 8.2

Hierarchical regression of perceived intragroup cooperation and group representativeness on subsequent measures of perceived intragroup cooperation

A) Predicting Perceived Cooperation T2:

	Variables (DV)	CoopT2	CoopT1	B	Beta	sr (incr)	
<u>Ranked</u>							
Step 1	Coop T1	.911		.434	.458*	.83**	Mult R = .95
Step 2	Rep T2	.919	.871	.556	.520**	.07**	R = .89
				-.086 (Int)			Adj. R = .89
<u>Rated</u>							
Step 1	Coop T1	.766		.163	.229	.59**	Mult R = .89
Step 2	Rep T2	.881	.707	.674	.707**	.21**	R = .80
				1.229 (Int)			Adj R = .78

B) Predicting Perceived Cooperation T3:

	Variables (DV)	CoopT3	CoopT2	B	Beta	sr (incr)	
<u>Ranked</u>							
Step 1	Coop T2	.838		.064	.075	.70**	Mult R = .95
Step 2	Rep T3	.948	.864	.856	.883**	.20**	R = .90
				.590 (Int)			Adj R = .89
<u>Rated</u>							
Step 1	Coop T2	.891		.331	.402*	.79**	Mult R = .95
Step 2	Rep T3	.922	.832	.619	.587**	.11*	R = .90
				.517 (Int)			Adj R = .89

C) Predicting Perceived Cooperation T4:

	Variables (DV)	CoopT4	CoopT3	B	Beta	sr (incr)	
<u>Ranked</u>							
Step 1	Coop T3	.896		.262	.222	.80**	Mult R = .94
Step 2	Rep T4	.939	.915	.784	.735**	.09**	R = .89
				-.370			Adj R = .88
<u>Rated</u>							
Step 1	Coop T3	.908		.415	.382	.82**	Mult R = .96
Step 2	Rep T4	.938	.867	.619	.607**	.09**	R = .92
				-.023 (Int)			Adj R = .91

** p < .001 * p < .005

when degree of group representativeness is entered in the regression equation. In contrast, in each of the six regression analyses degree of representativeness remains a strong predictor of degree of perceived social cooperation, the ranking data ($\beta = 0.52$; 0.88 ; 0.74 , $p < .001$ in each case) and the rating data ($\beta = 0.71$; 0.59 ; 0.61 , $p < .001$ in each case) at time 1, 2 and 3 respectively.

8.4 Discussion

The results of this study support the self-categorization theory analysis of social cooperation, over and above a social value theory analysis. These findings were supported across 8 different groups, within which different norms emerged, as well as two different measures of social cooperation and group representativeness (ranking and rating measures). Within these small interactive groups, the overall level of perceived social cooperation and group representativeness increased over time. Further, group representativeness predicted social cooperation over and above previous levels of cooperation. Measures of perceived similarity and homogeneity on the group relevant norm also supported a self-categorization analysis; specifically, perceptions of similarity and homogeneity both increased over time.

The findings were predicted on the assumption that individuals would increasingly self-stereotype in terms of the group over time and thus perceive themselves to be more cohesive over time (see Oakes et al., 1995). In other words, it was assumed that the sense of “we-ness” or “groupiness” would increase over time. Given this, it was predicted that perceptions of group representativeness and cooperativeness would also increase over time. Specifically, as predicted, the findings supported the primary hypothesis of this thesis, that social cooperation is a product of psychological group formation. That is, as the group becomes salient for the individual group members, social cooperation varies with this emergent property of group life. Across analyses and measures, the findings are consistent with self-categorization theory.

In line with this theoretical analysis, as individual group members are perceived to be more normatively representative of the group, they are also perceived to be more cooperative, as they are perceived to share the same self-category of membership. Contrary to the findings of this study, social value theorists would predict that within any given context of interdependence, any given individual's cooperative behaviour should remain relatively stable over time. The findings clearly show that both normative representativeness and perceived cooperation increase over time within this enduring

structure of interdependence. Further, while these variables are highly correlated group representativeness is the more sensitive predictor of perceived social cooperation.

In contrast to the interdependence analysis, we would argue that as a salient social identity emerges, group members perceive themselves and others as more homogeneous, in other words as more similar in terms of what defines them as a group. The psychological process of self-categorization works as a gauge, whereby judgements can be made on the degree to which group members are representative of the stereotypic ingroup norm. Social cooperation is then a product of the degree to which individuals are perceived to share the same self-category. As Turner and colleagues (1987) state, "the general process underlying mutually cooperative intentions and expectations is the extent to which players come to see themselves as a collective or joint unit, to feel a sense of 'we-ness', of being together in the same situation facing the same problems" (p. 34). Self-interest can thus be expressed both at the individual and the group level.

Having said this, it could be argued, as raised in the introduction, that individuals were converging to the cooperative normative expectation at Outward Bound. To a certain extent this would be true, given that perceptions of cooperation increase hand in hand with levels of normative representativeness of the group. However, the norms that were specified, and subsequently used as predictor variables, did not reflect a generic Outward Bound group norm of social cooperation; they varied with each group. The normative adjectives that were used by each group reflected the distinctive emergent stereotype of that group. The relevance of the specific group stereotypes was ensured through the initial self-selection process (see Haslam et al., 1992). Thus, there was high normative fit (Oakes, 1987) between the attributes of judgment for each individual and participants' identities as group members. Self-categorization theory specifies quite clearly the process by which norms become influential in individuals' perception through the fit hypothesis. Interdependence theorists have acknowledged the importance of norms but do not systematically specify a predictive mechanism, in general there seems to be ambivalence over the role of norms in predicting behavior in social dilemmas (see Kerr, 1995). Group norms, and individuals' representativeness of these norms, has been shown to be an effective predictor of group behavior in self-categorization theory. Normative and comparative fit will be examined further in an experiment to be reported in Chapter 11.

It could also be argued that interdependence, per se, produced the effects found in this study; that is, the interdependence structure induced cooperative behavior and

that, in turn, allowed for psychological group formation. This is difficult to argue here, given that this study emphasises the correlational nature of the variables. Further recall that the level of group representativeness and cooperativeness were highly correlated. It is difficult to know the causal direction of these result in this field study. Having said this, self-categorization theory would not deny that the interdependent nature of these small dynamic groups facilitated the identification with the groups; however, it would be argued that identification is the underlying process that allowed cooperative relations to emerge. The study to follow in the next chapter will examine the causal relationship between interdependence and cooperation systematically in an experimental design within this same context.

An interesting aspect of the results of this study is the fact that measures systematically predicted levels of cooperative behavior in a sample that was already defined as highly cooperative, as specified by the ring measure. This is important given that a significant amount of attention has been given to the development of social value orientations in the literature. In fact this measure represents the most robust measure that is used in predicting variation in the level of cooperation in the social dilemma literature. However, as the results here show the measure only produced ceiling effects in this context, when other measures were used with more success. Perhaps, as Grzelak (1994) has suggested, the results of endless gaming studies in the lab can only be partially generalized into predicting behavior in everyday social dilemmas.

An examination of the ring measure of social value orientation highlights some interesting differences between the interdependence theory approach and the self-categorization theory approach. As already mentioned, the former approach assumes stable intrapersonal differences, while self-categorization theory emphasizes the emergent properties of individual and group life. Another important difference is that the ring measure assumes, as do other measures, that the self and others are perceived to be orthogonal entities, that is independent variables. Recall that the self-other outcome plane represents social value orientations in terms of a vector point on the self and other outcome place, where each is represented as being an orthogonal construct (see McClintock, 1978). In contrast, self-categorization theory defines the self along a continuum of abstraction -- individual to collective. At the collective level, the self becomes inclusive of others, as such individuals are understood as interchangeable exemplars of the salient category of membership. Given this conceptualization, the self and other are not conceived to be orthogonal entities or constructs but inclusive

conceptualizations of the self. Thus, for an individual group member to perceive a fellow group member as similar and cooperative, is to see the other in terms of a shared self-category of membership. The nature of self-interest is re-defined. Acting in terms of the group can be defined as acting in terms of the self.

This study also highlights another important distinction for the self-categorization approach. This study measured perceived cooperative behavior of individuals and did not measure behavioral cooperation within the group, as the decomposed matrices of the ring measure aim to do. This is an important point, for one of the reasons that the social dilemma paradigm has become so established in the literature is because of the behavioral nature of the paradigm (see Pruitt and Kimmell, 1977). The paradigm defines what we are formally able to distinguish as social cooperation; as such, social cooperation is differentiated from helping and prosocial behavior. However, as others have noted, are they really different psychologically (see Grzelak and Derlega, 1982)? Is it productive to our developing understanding of cooperative behavior to differentiate between these different classes of prosocial behavior? Many researchers have found a significant amount of overlap between cooperation and helping behavior. A relevant example here would be that social value orientations are also predictive of helping behavior (McClintock and Allison, 1989). This study highlights that it may be prudent to re-think the conceptual constructs that define our analysis of social cooperation and the instruments we use.

Having noted the limitations of this study, it remains that in terms of the constructs that were developed and measured, this study found that the degree of representativeness clearly predicted perceptions of cooperation, within this situation of objective interdependence. Further, the evidence clearly supports an analysis that acknowledges the emergent properties of groups and group processes. As such, in line with the theoretical analysis adopted by this thesis, it may well be that instead of cooperative behavior of individuals producing the group that cooperation is the product of psychological group formation and consequent perceptions of interdependence with others.

In conclusion, it does not appear that the evidence presented here is compatible with other evidence which argues that the expression of an individual's social value orientation remains relatively stable over time within a given situation of interdependence (see Kuhlman et al., 1986; McClintock and Allison, 1986). While the ring measure may have found stability in this sample, there was no variance found. Most

individuals were classified as cooperators. The measures used here not only showed systematic variation in line with predictions, but this variation reflected an emergent property of group membership and not a stable intrapersonal variable. The findings showed that there was an overall increase in levels of cooperation and group representativeness over time. While more work needs to be done to overcome some of the limitations of this study, in particular the correlational nature of the data, the evidence implies that social cooperation is an emergent property of psychological group formation.

- Chapter 9 -

The nature of group life and social cooperation: The relationship between interdependence and psychological group formation

Experiment 3

9.1 Introduction

The last two chapters introduced the self-categorization theory analysis of social cooperation in reference to the two propositions which together make up the interdependence approach to understanding social cooperation and solving social dilemmas. Specifically, the interdependence approach involves an analysis of the objective interdependence structure of the situation, together with the transformational properties of individuals within the interdependence structure. Study one of this thesis provided evidence that objective interdependence of individuals, per se, cannot fully account for group based behavior, such as intragroup cooperation and intergroup discrimination; specifically, objective interdependence had no effect on the behavior of participants. The quality or distinctiveness of social identity, as opposed to objective interdependence, accounted for group based behavior.

Study two provided preliminary evidence that questioned the measurement and stability of the transformational process of social value orientations in a given situation of objective interdependence. Instead of levels of cooperative behavior remaining stable over time within a given situation, cooperation overall increased over time. In line with self-categorization theory, this is accounted for in terms of the emergence of the psychological group. As group members perceived themselves to be more similar and homogeneous over time, cooperation increased hand in hand with this effect.

Together, these studies provided initial support for a self-categorization theory analysis of cooperative behavior; however for both Study 1 and Study 2 the measures were taken within a situation of objective interdependence. The study to be presented in this chapter will examine if social identification with a group can predict the level of

cooperation over and above a situation objectively defined in terms of group memberships.

The following field study, carried out in the same context as Study 2, examines the emergent properties of perceived group membership in terms of three indices -- common fate, similarity, and interdependence -- and relates these indices of group formation to an analysis of cooperative behavior. Specifically, it is predicted that perceptions of similarity will predict cooperative behaviour over and above the objective common fate (or objective interdependence) of individuals. It is also predicted that perceptions of interdependence will co-vary with perceptions of similarity. The present study will build on the previous study and will examine perceptions of similarity and interdependence over time within the context of an Outward Bound course, wherein the objective common fate of individuals remains stable across course groups. In line with the previous study, it is also predicted that perceptions of similarity and interdependence will increase over time with the emergence of psychological group formation.

In light of the literature that differentiates intragroup cooperation from intergroup cooperation (Insko et al., 1987; 1988; 1993; Bornstein, 1992), this study also examines both intragroup and intergroup processes. The aim is to establish, in terms of self-categorization theory, that the same perceptual index, specifically similarity, is predictive of both intragroup and intergroup cooperation. To this end this study will examine intragroup and intergroup cooperation within the same situational context. The aim is to provide a systematic account of intragroup and intergroup cooperation that aims to bring parsimony to this divergent literature.

The Outward Bound structured expeditions offer an ideal medium to examine the constructs described above. The objective interdependence of these small autonomous interactive groups remains stable over time and in isolation from other groups, while at the same time these individual groups are pursuing common goals as Outward Bound participants and thus are similar on many relevant dimensions. Through the introduction of a group not associated with Outward Bound, the relevant similarities between the autonomous Outward Bound groups will be accentuated. Given this social comparison, it is predicted that participants would identify as Outward Bound participants and not in terms of their discrete objectively defined interdependent groups. To test whether social comparison is predictive of cooperative behavior, three comparison others are used in this study, each of whom are only described in terms of their group memberships: a

member of their ingroup, a member of another Outward Bound group and a member of the local bushwalking club.

Building on the findings of the previous chapter, it is predicted that the salience of their collective identity as group members will increase over time, as evidenced by the increasing levels of perceived similarity. Further, based on normative and comparative fit each Outward Bound group will perceive themselves to be more similar to other Outward Bound groups in comparison to a group from the local bush walking club. As such, in both the intragroup and intergroup conditions participants will perceive themselves to be similar on comparative dimensions that define themselves as Outward Bound participants and thus levels of cooperation are predicted to be similar in both the Outward Bound intragroup and intergroup conditions. By comparison, lower levels of cooperation are expected in the conditions where the comparison other is a member of the local bush walking club. Recall, as with the last study, that this sample had been predominantly identified as cooperators using the ring measure. Thus further systematic findings of levels of cooperation would be of significant interest to this literature, given that social value orientations currently account for most of the variance on levels of cooperation in situations of objective interdependence.

Given that self-categorization theory argues that social cooperation is the product of a salient social identity, it is thus argued that cooperation will vary with perceptions of similarity and will not be constrained within the situation of objective interdependence as defined by these small interactive groups. As such, interdependence could not be argued as the precondition for cooperative behavior to emerge. This study aims to test self-categorization theory's proposition, in line with Lewin, that objective interdependence is a sufficient but not necessary condition for group formation and cooperative behavior. On the contrary, perceptions of interdependence are argued to co-vary with perceptions of similarity. Further, perceptions of similarity will predict intentional cooperative behavior, with each of the three comparison others -- ingroup and outgroup.

9.2 Method

Subjects: One hundred and sixty members of the general public (74 males and 86 females) who had enrolled to take part in a 22-day Outward Bound course participated in the study. They participate in one of four different courses [course 1 (n = 61); course 2 (n = 33); course 3 (n = 40); course 4 (n = 26)]. Within each of these

courses participants were divided into independent groups of 12 - 15 people [course 1 (5 groups - Gunn, Sturt, Gilmore, Mawson, and Cotter); course 2 (3 groups - Mawson, Gunn, and Cook); course 3 (3 groups - Chisholm, Bass, and Gilmore); course 4 (2 groups - Flinders and Cotter)]. Thus 13 independent groups were used in this study. Subjects ranged in age from 16 to 38 years ($M = 22.4$; $SD = 3.8$). Nationality was noted for all subjects as the first course had a large enrollment of Singaporean participants ($n = 33$). Within each course, the independent groups were aware of each other's existence, but had minimal interaction with each other during the course. Each group developed autonomously. Following Outward Bound program policy, the groups were formed so as to ensure as much variety as possible in group members' age, education, and social background across group memberships in each course. Each group contained an approximately equal number of males and females, and in the instance of the first course an equal number of Singaporean students. Over all groups and courses, five participants dropped out of their groups for various reasons; data from these subjects were excluded from the analysis.

Design: This study was conducted in two parts. The first part is a longitudinal design which measured individuals' perceptions of interdependence and similarity over three time periods; as such, the design of this aspect of the study is conceptually similar to the previous study. Specifically, all participants of these thirteen different groups completed measures of perceived similarity and interdependence in comparison with three different groups: Outward Bound ingroup, Outward Bound outgroup, and the local bush walking club. These measures were taken at three different times: Day 1, 13 and 22. Thus, the design is 13 (Outward Bound group) by 3 (comparison group) by 3 (time), with repeated measures on the second and third factors.

Within this longitudinal design a second group of measurements were taken on Day 17. Participants were randomly assigned to one of three experimental groups in which the comparison other was a member of one of the following groups: Outward Bound ingroup (ingroup), Outward Bound outgroup (outgroup 1), or the local bush walking club (outgroup 2). Note that these conditions are congruent to the measures being taken longitudinally. Thus the design is 12 (Outward Bound group) x 3 (comparison other). In each of these conditions participants were presented with a vignette in which they were asked to make a cooperative decision in reference to their comparison other. At this time, measures of perceptions of similarity, interdependence, common fate, familiarity, and other follow-up measures were also taken.

Overview of course: The course proceeded in the same manner as the 22 day Outward Bound course described in the study reported in Experiment 2 (Chapter 8). Again the instructors, blind to the nature of the study, distributed the questionnaires at pre-arranged times during the course. An introductory briefing, as well as final debriefing, were given by the experimenter.

Longitudinal measures: These measures are very straightforward and aim to complement the measures of the previous study. Participants filled out a questionnaire that asked two questions: (1) "When on expedition in the bush, how interdependent (that is, mutually dependent or dependent on each other) do you think you would be with members of the following groups"; (2) "When on expedition in the bush, how similar do you think your needs and values regarding resources would be to members of the following groups". In each case participants responded in terms of three groups: (1) members of your own Outward Bound group on this course; (2) members of another Outward Bound group on this course; (3) members of the local bush walking club. Participants circled a number from (1) not at all interdependent/similar to (8) extremely interdependent/similar for each of the three groups. The order of the questions was counter balanced in two ways: the order of the two questions, as well as the order of the groups within each question.

Cooperation measure: Depending on condition participants were given one of three vignettes to read. The vignette involved either a member of their ingroup, another Outward Bound group or the local bush walking club. The ingroup vignette read as follows, the others differed marginally (see Appendix 8.1 for other vignettes):

You and the other members of your group are now on your final expedition back towards Tharwa. It is the first day of your expedition and after a long morning of hiking you have stopped for a break. You are looking forward to a good drink of water and a flapjack. Each member of your group has been given a limited number of flapjacks for the completion of your

journey and this will be the first of those flapjacks. As you get settled and bring out your flapjacks, one of the other members of your group tells you that their flapjacks were still in the back of their backup vehicle when it drove away. So, they have no flapjacks for their expedition.

Participants were then asked to circle the percentage of flapjacks that they would be willing to give to the other person; they could circle 0, 10%, 90%, 100%. Flapjacks (muesli bars) are a highly desired resource on expedition. Each group had made their own prior to expedition and this was the last collection point so no reciprocity could be expected in terms of flapjacks after this point.

To control for specific group biases in the Outward Bound outgroup condition, the comparison outgroup varied randomly from case to case. For example, participants in this condition on course 2, had an equal chance of having the outgroup member being from Mawson, Gunn or Cook. Participants then filled in follow up questions on perceptions of common fate, familiarity, similarity and interdependence.

9.3 Results

The results are straight forward and build on the previous study reported in Chapter 8 (see figures 9.1 and 9.2). In line with the previous findings, the longitudinal measures of perceptions of similarity increased over time for ingroup members (Ms: T1 = 6.15; T2 = 6.30; T3 = 6.73), as well as Outward Bound outgroup members (Ms: T1 = 5.78; T2 = 6.05; T3 = 6.20). In contrast perceptions of similarity decreased over time for outgroup members that were members of the local bushwalking club (Ms: T1 = 4.63; T2 = 4.45; T3 = 4.23). The interdependence measures followed the same pattern of results; perceptions of interdependence increased over time for ingroup members (Ms: T1 = 6.41; T2 = 6.52; T3 = 6.83), and outgroup members who are also Outward Bound participants (Ms: T1 = 5.56; T2 = 5.49; T3 = 5.83). While perceptions of interdependence tend to decreased over time for members of the local bushwalking club (Ms: T1 = 4.01; T2 = 3.30; T3 = 3.50).

These measures were entered into a 13 (Outward Bound group) x 2 (order1) x 3 (order2) x 3 (time) x 3 (comparison other) MANOVA, with repeated measures on the last two measures. The two order manipulations refer to the counterbalancing of the presentation of the similarity and interdependence questions, as well as the presentation of the comparison other within each set. As predicted, the results revealed a two way interaction effect for time and comparison other on both the similarity and interdependence measures (respectively: $F(4, 344) = 10.54, p < .001$; $F(4, 344) = 7.37, p < .001$), all other tests were not significant. Three planned comparisons were then carried out and each was found to be significantly different: collapsing across Outward Bound ingroup and outgroup comparisons, T1 was compared to T3 ($F(1, 152) = 2.06, p < .05$); T1 was also compared to T3 for the local bush walking club comparison ($F(1, 152) = 4.04, p < .01$); at T3 Outward Bound ingroup and outgroup comparison was collapsed and contrasted with the local bush walking club ($F(1, 77) = 0.12, p < .05$).

These results replicate and extend the findings of Experiment 2, showing that

perceptions of similarity not only increase over time for members of ingroups, but also other Outward Bound outgroups. Further, there is a very high correlation between perceptions of similarity and interdependence across the three times of measurement $r(155) = .94$.

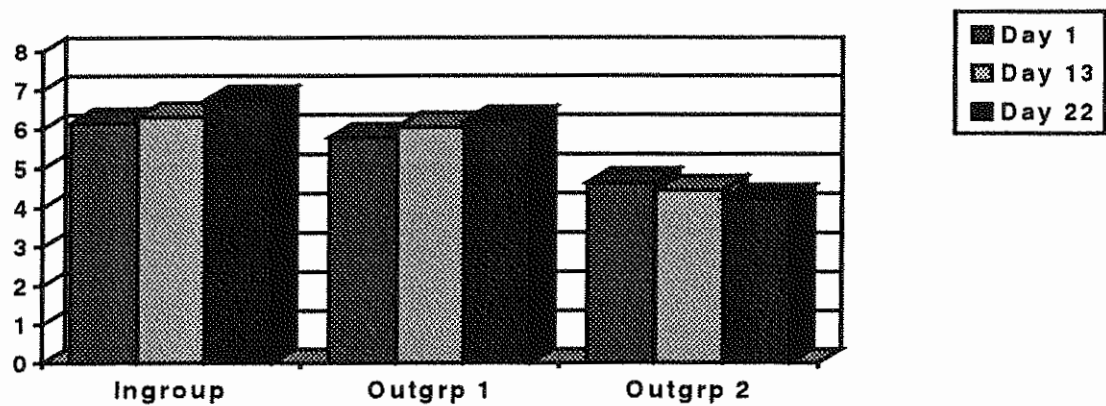


Figure 9.1: Mean ratings of perceptions of similarity over 3 times for the social comparisons of ingroup members, other Outward Bound outgroup members (Outgroup 1) and members of the local bush walking club (Outgroup 2).

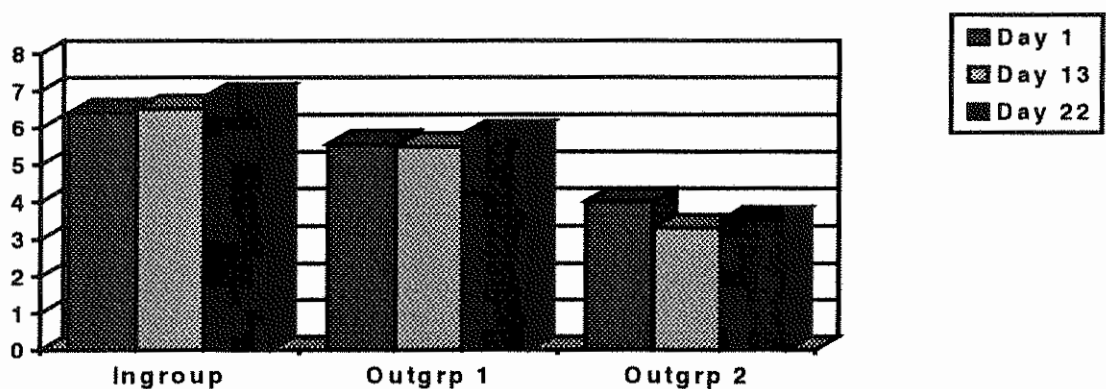


Figure 9.2 Mean ratings of perceptions of interdependence over 3 times for the social comparisons of ingroup members, other Outward Bound outgroup members (Outgroup 1) and members of the local bush walking club (Outgroup 2).

Resource allocation task: A 13 (Outward Bound group) $\times$ 3 (comparison other) analysis of variance (ANOVA) was used on the resource allocation task which measured levels of cooperation. As predicted, a main effect for comparison other was found ($F(2, 119) = 16.22, p < .001$; *Ms*: Ingroup = 53.33; Outgroup1 = 53.07; Outgroup2 = 41.92; see Appendix 8.2). Planned orthogonal contrasts found no difference between

Ingroup and Outgroup1 ($F < 1$) but significant differences between Ingroup and Outgroup 2, as well as between Outgroup 1 and Outgroup 2 (respectively: $F(1, 152) = 4.74, p < .001$; $F(1, 152) = 4.68, p < .001$). Thus, cooperation varied systematically across conditions as predicted. Participants were equally willing to cooperate with members of both objectively defined ingroups and outgroups, as long as they were Outward Bound participants. Thus it could be argued that participants' identity as Outward Bound participants overrode the objective interdependence structure defined in this context. It is important to note that members of these independent groups had limited face to face contact, had no previous affiliation, and no expected future affiliation.

To confirm that the groups were genuinely not objectively interdependent a series of measures were taken: common fate, participants' dependence on other, others' dependence on participant, mutuality of dependence and familiarity with other. These measures were entered into a 13 (Outward Bound group) $\times$ 3 (comparison other) MANOVA. The results showed only a main effect for comparison other ($F(11, 119) = 71.03, p < .001$). As the consistency between these variables was high (Cronbach's $\alpha = .94$) a composite measure across these variables was constructed for each condition (M_s : Ingroup = 6.51; Outgroup1 = 4.42; Outgroup2 = 3.65). Planned orthogonal contrasts found significant difference between Ingroup and Outgroup1 ($F(1, 152) = 5.05, p < .001$) and Ingroup and Outgroup2 ($F(1, 152) = 11.65, p < .001$) but not between Outgroup1 and Outgroup 2 ($F < 1$). Thus, objective interdependence between groups was assured.

Specifically, participants felt that the success of their expedition (common fate) depended on their ingroup members but not the members of either outgroup (M_s : Ingroup = 7.00; Outgroup1 = 4.69; Outgroup2 = 3.72). Participants also felt that they knew and were familiar with their ingroup members but not members of either outgroup (M_s : Ingroup = 6.02; Outgroup1 = 4.11; Outgroup2 = 3.10). The three measures of dependence for resources (dependence on other, other's dependence on you, and mutuality of dependence) followed the same pattern of results (collapse across these three measures: M_s : Ingroup = 6.52; Outgroup1 = 4.46; Outgroup2 = 4.10).

Follow-up measures on willingness to give their flapjacks to others indicated that participants were more willing to do this for an ingroup member, or a member of another Outward Bound group, than for a member of the local bushwalking club (M_s : Ingroup = 6.83; Outgroup1 = 6.93; Outgroup2 = 5.69). A post hoc comparison between Ingroup/

Outgroup1 and Outgroup2 found this difference to be significant ($t(1, 152) = 2.04, p < .01$).

Interestingly, the flapjacks were found to be more important to participants when they were giving them to an outgroup member of the local bush walking club, whom they overall gave less to, as opposed to members of their ingroup or other Outward Bound group (*Ms*: Ingroup = 4.93; Outgroup1 = 4.46; Outgroup2 = 5.53). A post hoc comparison between Ingroup/ Outgroup1 and Outgroup2 found this difference to be significant ($t(1, 152) = 1.84, p < .05$).

Finally, in line with the self-categorization analysis, participants felt more similar to both their ingroup and the other Outward Bound group than they did to members of the local bushwalking club group (*Ms*: Ingroup = 6.81; Outgroup1 = 6.73; Outgroup2 = 5.59). Planned orthogonal contrasts found no difference between Ingroup and Outgroup1 ($F < 1$) but significant differences between Ingroup and Outgroup 2, as well as Outgroup 1 and Outgroup 2 (respectively: $F(1, 152) = 2.44, p < .001$; $F(1, 152) = 2.38, p < .001$).

Further, perception of similarity also predicted cooperation reliably across conditions. The analysis produced a correlation of .442 between the two variables ($r^2 = .196$), which is significant ($F(1, 149) = 36.26, p = 0.00$). The regression equation is also significant ($t(149) = 6.02, p = 0.00, \text{beta} = .42$). Thus, perceived levels of similarity are associated with higher levels of social cooperation.

9.4 Discussion

The findings are systematically clear across conditions and support a self-categorization analysis: perceptions of interdependence vary with perceptions of similarity which in turn predicted cooperative behavior. Specifically, the evidence suggests, as predicted, that objective interdependence of individuals did not produce the group; the salience of the group membership produced the perception of interdependence with other individuals, and subsequent level of cooperative behavior. In other words, perceptions of similarity with other Outward Bound participants overrode the objective interdependence of the small interactive groups. As such, participants were willing to cooperate without prior face to face contact or dependence on the other individual or their group. Further perceptions of interdependence and similarity are not static objective distinctions, as interdependence theorists argue, but emergent properties of

psychological group formation, as the longitudinal data reveals. The results of these two aspects of this study will now be examined in more detail.

As the data shows, perceptions of similarity increase over time for both members of the Outward Bound ingroup and the Outward Bound outgroup; however, perceptions of similarity decrease over time for a comparison other who was a member of the local bush walking club. There was no significant difference in perceptions of similarity between the two Outward Bound groups. Thus, the similarity data supports the emergence of a superordinate Outward Bound group that is inclusive of both, objectively defined, Outward Bound groups. In other words it could be argued in line with self-categorization theory that participants' identity as Outward Bound participant was salient. Further, perceptions of interdependence show a similar pattern of results to the similarity data; in fact, there was a very high correlation between the longitudinal similarity and interdependence data. This data is theoretically important in light of the objective structure of this situation; that is, participants had no objective interdependence with either of the outgroups yet they perceived themselves to be interdependent with both the Outward Bound ingroup and outgroup.

The longitudinal data also highlights the emergent aspect of psychological group formation. In line with self-categorization theory, the individuals in the group came to see themselves less as individuals and more in terms of their group membership as Outward Bound participant; however, the evidence suggests that it was not the group that they were objectively interdependent with that became salient (e.g. Gunn, Sturt, Gilmore, Mawson, or Cotter) but the superordinate Outward Bound group, that is all Outward Bound participants, that was salient. This analyses supports a self-categorization analyses as it is the perceptual index of similarity that is predictive of group level processes over the common fate criterion of group membership. In line with the self-categorization analysis, levels of cooperation followed systematically in relation to these measures; specifically, cooperation varied with psychological group formation. Thus, given that the ring measure could not pick up on different levels of cooperation in this population, the systematic differences in levels of cooperation found in this study are quite significant.

The comparative frame of reference, specifically Outward Bound ingroup, Outward Bound outgroup and the local bushwalking club, was induced across all participants through the course of this study. Within this frame of reference, the perceptions of similarity between the two Outward Bound groups would be

accentuated, in comparison to the local bush walking club. Thus through social comparison, it would be expected that the two Outward Bound groups would be self-categorizing as Outward Bound participants in contrast to the local bush walking club. As such, the level of social cooperation would not be expected to be different across these two conditions.

This prediction was confirmed with the measures taken on Day 17. As the results show, cooperation levels with both the Outward Bound ingroup and Outward Bound outgroup were not significantly different. Again, in line with self-categorization theory, it could be argued that the identity that is salient is participants' identity as an Outward Bound participant. Given that participants felt less similar to members of the local bush walking club over time, less cooperation was predicted with this group, as was found.

The conceptual differences in how interdependence theorists and self-categorization theorists define social cooperation can also be highlighted here. The measure of social cooperation used in this study would formally be defined as helping behavior by interdependence theorists, as there is no mutuality of dependence. However, the point remains, as raised previously: what is the effective difference between cooperation and helping behavior (see Derlega & Grzelak, 1982)? Self-categorization theorists would make no distinction. Recall that interdependence theorists define cooperation in terms of a cost benefit analysis for the interdependent individuals, wherein the individual must experience loss or sacrifice for the group (see Boyd and Richardson, 1991; Rabbie, 1991). Thus, cooperation is analogous with individual sacrifice.

In line with this narrow conceptualization of the self, a full understanding of the processes of identification underlying cooperation is restricted by the utilitarian principles underpinning the social dilemma paradigm. The paradigm restricts us to a very special class of cooperative behavior, in abstraction from the related fields of prosocial, helping and even altruistic behavior. More fundamentally, understanding cooperation through the use of gaming principles embeds us in notions of human rationality and self-interest that are driven by principles of utility maximization of outcomes that accrue to individuals. In the paradigm the individual is the primary unit of analysis; all behavior is explained and understood in relation to the sole reality of the individual, which in turn defines rationality.

This study questions our contemporary understanding of self-interest. For no conflict of interest was apparent in this study; participants were very willing to give up their flapjacks for another individual who they did not know based solely on their group

membership. In line with self-categorization theory, the interchangeability of individuals, when a collective identity is salient is highlighted. Further, the more salient the collective identification the more willing they were to give a fair share away, that is at least an equal number of flapjacks to another individual.

Similarity also predicted both intra and intergroup behavior. In each condition similarity was a reliable predictor for both intra and inter-group cooperative intentional behavior. Further, in line with Lewin (1939) there is still a “certain interdependence of members”; however, this is based on a similarity construct rather than an objective common fate construct, as conceptualized in terms of outcome interdependence of individuals, as outlined in the social dilemma paradigm.

These findings suggest, in line with self-categorization theory, that cooperation is a product of a salient social identity. In this case the identity that is salient is the superordinate category of Outward Bound participant irrespective of objective social group, wherein ingroup members are outcome interdependent. The point is that each Outward Bound participant, regardless of group membership, perceived that they have a similarity of fate, and that is the basis of perceived group membership. The social dilemma paradigm rests on the premise that the individuals involved have objective common fate and are outcome interdependent. Thinking back to the prisoner’s dilemma game, the matrix is said to define the objective outcome interdependence or common fate of players (see Deutsch, 1980). This data shows that objective outcome interdependence, or common fate, of individuals is not sufficient for a full understanding of cooperative behavior.

In terms of our understanding of psychological processes underlying cooperative behavior, the importance of defining objective outcome interdependence of individuals, in terms of their interdependent outcomes, needs to be reassessed. The present data suggests that perceptions of interdependence led from perceptions of identification, which in line with self-categorization theory is based on perceptions of contextually based similarities and identity formation. The building evidence implies that social cooperation may be a product of a salient social identity -- in other words, contextually relevant self-categorizations. Given this the social dilemma paradigm restricts us from a full conceptual analysis of identification processes and properties. It also restricts us to a very narrow and utilitarian understanding of social cooperation and the self.

- Chapter 10 -

Social cooperation: Inclusive identities and perceived interdependence within a social dilemma

Experiment 4

10.1 Introduction

While the previous studies have developed some strong correlational measures of the relationship between social cooperation, social identification and interdependence, this study aims to examine the relationship between these variables experimentally in a naturalistic setting that involves an environmental dilemma. A dilemma situation is specifically used in this study to address the possibility that the prior studies could be interpreted as investigating helping behavior rather than cooperative behavior. To quickly recap the previous studies: Study 2 showed that social cooperation arose as a function of salient group membership within a situation of objective interdependence; Study 3 built on these results showing that objective interdependence of individuals was not a necessary precondition of social cooperation. This study also showed that perceptions of interdependence varied as a function of perceived group membership. This study aims to turn the social dilemma paradigm inside out. Instead of taking an objectively defined situation of interdependence and examining how social identity affects cooperative behavior, as mandated by the social dilemma paradigm, this study aims to show how a salient social identity affects the interdependence structure that is perceived.

In particular the study attempts to demonstrate that social cooperation is a product of identity salience, which is in part determined by the frame of reference. In other words identity salience is a product of social comparison. This study builds on the previous study through now systematically varying the comparative frame of reference. Further, in that this study utilizes mutually inclusive frames of reference, some interesting comparisons can be made that make important points regarding the primacy of objective interdependence. For not only will we examine how a salient

social identity affects the interdependence structure that is perceived, given that the same objectively defined area can be framed in two different ways in this study, we can examine the effects of comparative frame of reference on level of social cooperation.

In the study to be presented the social identities of 135 Papua New Guineans will be manipulated in the context of an environmental social dilemma. In terms of self-categorization theory, any one of the participants in this study can define themselves as a unique individual, differentiating themselves from others on many relevant dimensions. Yet, these same individuals can also define themselves based on relevant collective similarities, that is in terms of the social identities they share. As well as being a unique individual, each participant can also be defined in term of three increasingly inclusive identities: provincial, regional and national (see appendix 10.1). That is, each participant shares with other individuals any one of the 19 provincial identities. At the next level of abstraction, each participant also shares a regional identity, which is geographically inclusive of the provincial area but not necessarily definitive of this area, and still more inclusive they share their national identity as Papua New Guineans. And indeed with over 700 different language groups, Papua New Guineans carry with them many more potentially salient identities. And by no means are these identities seen as stable or rigid, they evolve and emerge in terms of self-categorizations that respond to the relevant comparative social structure that is perceived.

Experimentally, we are interested in social identification and this study will examine three levels of identification, at increasingly inclusive levels of abstraction: provincial, regional and national. In Papua New Guinea, each region contains 4 to 5 provinces, and the nation is made up of 4 regions. Within each of these three levels of abstraction, both intragroup and intergroup cooperation will be measured. In line with self-categorization theory measures of perceived similarity, shared needs and values, and interdependence will also be measured.

Intragroup cooperation, or cooperation within a group, is defined as cooperation with other ingroup members. Intergroup cooperation, or cooperation between groups, is defined as cooperation with outgroup members. In other words, we will examine cooperation within provinces compared to cooperation between provinces, cooperation within regions compared to cooperation between regions, and cooperation within the nation compared with cooperation between nations. These six comparisons make up the six conditions of this study. Cooperation will be examined in three regards:

participants' level of cooperation; participants' expectation of ingroup members level of cooperation; and participants' expectation of outgroup members level of cooperation.

This design enables some interesting comparisons to be made, given that provinces make up the regions and the regions make up the nation. The same geographical areas can be objectively defined in two different ways. For example, the area that is not shaded in Figure 10.1 can be defined in two ways: as the region Momase or the four provinces Morobe, Madang, East Sepik and West Sepik (Sandaun). Either way they define the same objective area. Thus for a given resource dilemma, it can be defined as a problem affecting these four provinces, or the region as a whole. Thus, this enables the comparison of provincial intergroup cooperation with regional intragroup cooperation and these make up the same objectively defined geographic area. Likewise, we will compare regional intergroup cooperation with national intragroup cooperation.



Figure 10.1: Map used to induce the provincial identities of Morobe, Madang, East Sepik and West Sepik (Sandaun) within the region of Momase.

In terms of this design, the following experimental predictions are made: a main effect for frame of reference (intragroup or intergroup) at all three levels of abstraction, with intragroup cooperation being greater than intergroup cooperation in each case.

The same pattern of results will be expected when the participants are predicting what they expect other ingroup members to do, given that, in line with self-categorization theory, they would be expected to be perceived as interchangeable perceptions of self. For example, when the Momase regional identity is salient participants will expect the people of Momase to be very willing to cooperate when it is an ingroup problem and less willing to cooperate when it is an outgroup problem. Finally, participants are also asked what they expect outgroup members to do. It is predicted that, if it is a perceived outgroup problem then they would expect high levels of cooperation within the outgroup. Likewise, if it is not a perceived outgroup problem then lower levels of cooperation will be expected within the outgroup. In other words, the pattern of results is inverted from what we would expect ingroup members to do for the same comparative frame of reference.

In terms of the two planned comparisons, intergroup cooperation, when provincial identities are salient, will be compared to intragroup cooperation when regional identities are salient; and intergroup cooperation, when regional identities are salient, will be compared to intragroup cooperation, when the national identity is salient. Thus, for the same objectively defined geographical area, intragroup cooperation is predicted to be greater than intergroup cooperation. This same pattern of results is predicted for measures of similarity, needs and values and interdependence of individuals.

10.2 Method

Subjects and Design: Papua New Guinea students (n = 135; 75 males, 60 females) studying in Australia through the Australian International Development and Assistance Bureau (now AusAid) took part in this experiment, and were randomly assigned to experimental groups. The students were representative of 18 of the 19 provinces and each region throughout PNG and ranged in age from 16 to 22 years ($M = 18.2$). All students had a good understanding of English. The design involved a 3 (Salient identity: Provincial; Regional; National) x 2 (Comparison frame of reference: Intragroup; Intergroup) analysis.

Salience manipulation: Different geographic maps were used to induce a salient social identity (national, regional and provincial). Three maps were used in all (see appendix 9.1). The map used to induce the national identity included the south pacific countries of Indonesia, Malaysia, Australia, as well as Papua New Guinea. The

map used to induce the regional identity showed the four regions that make up the nation of Papua New Guinea: Papua, Highlands, Momase, and the Islands. Finally, there were four different maps used to induce the provincial identity, one representing each of the four regions. Within each region, the provinces making up that region were geographically defined. For example (see Figure 10.1), for the provinces within the region of Momase (the non-shaded area in the map), the provinces of Morobe, Madang, East Sepik and West Sepik (Sandaun) are outlined.

Other maps were of the regions Papua [Western (Fly), Gulf, Central, Milne Bay and Northern (Oro)], the Highlands [Enga, Western Highlands, Chimbu (Simbu), Eastern Highlands, and Southern Highlands], and the Islands [West New Britain, East New Britain, North Solomons, New Ireland, Manus]. Given this range of identities, for the Papua New Guineans who took part in this study three levels of identification could be made salient: national; regional (four possibilities); and provincial (19 possibilities). Thus, all in all 24 different identifications were possible.

Procedure: As a cover story participants were told that: “An independent research group has asked us to give you the following questionnaire. They believe you will be interested in what they have to tell you and would like your honest responses”. Each participant was presented with the relevant questionnaire booklet for their condition, which included the relevant map that reflected their identity in that case. Participants first circled the relevant geographic area they were from, each area was framed in terms of the other areas defined on their map. Thus, taking the example above in Figure 10.1, the frame of reference would list the four provinces: Morobe, Madang, East Sepik and West Sepik (Sandaun). The order in which the provinces were presented varied systematically from condition to condition. This was also the case at the regional level. Participants were then asked how proud they were to be from this area. Participants responded by circling a number from (1) not at all proud to (8) extremely proud. Participants were then presented with a map of the relevant area and asked to colour in each of the areas presented with a different colour and name each area.

Social dilemma stimulus: Participants were presented with one of the three dilemma vignettes, reflecting the three levels of abstraction (national, regional and provincial). The essence of the dilemma is in line with a temporal conflict of interests: short term benefits, long term loss (see van Lange, Leibrand, Messick and Wilke, 1992).

Below is an example of the dilemma (see appendix 10.2 for examples of the specific vignettes for each of the three identity conditions). At the top of each page the frame of reference, as given on the front page, was again provided.

An **international/national/regional** non-profit environmental agency has asked you to please consider the following:

Rainforests are an important natural resource, as they are a vital part of a stable ecosystem. As well as other benefits, a rainforest aids in the purification of the air and water supplies, develops rich and fertile soil, and provides a habitat for a variety of animal and plant life. Rainforests have recently been listed as a natural world heritage. Environmental groups are celebrating; however, all the news is not good. This year an insect, that is rapidly destroying the rainforest, has been found in **nation/region/province**.

While this insect has only been spotted, at this time, in **nation/region/province**, the environmental impact could reach each of the other **nations/regions/provinces** listed at the top of the page. The only way of eradicating the insect, without further harming the rainforest, is to actually locate and destroy these populations of insects. This requires days, on end, in the dense rainforest. This environmental group is asking for your assistance; they require volunteers to join expedition teams that will scout the rainforest to locate these insects. These initial expeditions will take place in **nation/region/province**.

In June and July of this year you will be going back home for your mid-year holidays, to spend time with family and friends. You will want to make the most of your time, as you won't have long before you have to return to school in Australia. While this is your holiday time, this **international/national/regional** environmental group is asking you to spend some of this time helping to protect your future, by helping to protect the rainforest and stop further environmental impact.

For each of the six conditions specific provinces, regions or nations were chosen to systematically act as the frame of reference. For example, if a participant was from Papua and in the regional intragroup condition, the frame of reference at the top of the page would read: Islands Papua Momase Highlands. And at each bolded point in the vignette the region "Papua" would appear. If this was an intergroup condition, the region Momase would appear at each of these points. In the intergroup condition, for each provincial/regional identity a constant comparative province or region was presented, these were consistent across frames of reference. For example, the region Momase was always the comparative outgroup for the region Papua, and this region was randomly chosen from the possible choices (see appendix 10.3 for a full listing).

Participants then filled out three primary dependent measures. The three questions read: (1) How willing are you to contribute your time to the National/Regional/Provincial insect eradication project?; (2) How willing do you think people from National/Regional/ Provincial (Ingroup - e.g. Paupuan) are to contribute their time to the National/Regional/ Provincial (Ingroup or Outgroup) insect eradication project?; (3) How willing do you think people from National/Regional/ Provincial (Outgroup - e.g. Momase) are to contribute their time to the National/Regional/

Provincial (Ingroup or Outgroup) insect eradication project? Participants then filled in a number of follow-up questions that related to perceptions of similarity, shared needs and values and interdependence. Questions were also asked regarding who had responsibility for the rainforest. In each of the conditions, the questions were specifically tailored to match the salient identity, specific comparative outgroup and frame of reference.

10.3 Results

As predicted, levels of cooperation varied with social identity and comparative frame of reference: ingroup or outgroup. In each of the three identity conditions, intragroup cooperation was greater than intergroup cooperation. Initially, the 3 primary measures were entered into a 2 x 3 ANOVA and for each question only a main effect for comparative frame of reference (intragroup or intergroup) was found. Table 10.1 reports the means and standard deviations for each condition across these three measures. Specifically, it was found the participants cooperated more in the intragroup condition than the intergroup condition ($F(1, 129) = 4.20, p < .05$; Intragroup: $M = 6.16, SD = 1.78$; Intergroup: $M = 5.48, SD = 2.02$). When participants were asked what other members of their ingroup would do in the same situation, the same effect was found: anticipated intragroup cooperation was greater than intergroup cooperation ($F(1, 129) = 11.00, p < .001$; Intragroup: $M = 6.42, SD = 1.57$; Intergroup: $M = 5.50, SD = 1.85$).

The results also supported the predictions for participants' anticipated outgroup members' response. When the resource dilemma was framed as an ingroup problem, participants did not expect as much cooperation from outgroup members; however, if it was an outgroup members' resource problem (that could affect them in the long term) they expected high levels of intragroup cooperation from the outgroup members ($F(1, 129) = 57.91, p < .001$; Intragroup: $M = 4.77, SD = 2.24$; Intergroup: $M = 7.25, SD = 1.38$).

Planned comparisons were then carried out between provincial intergroup condition and the regional intragroup condition, as these were objectively interchangeable in terms of being at environmental risk. The same was done with regional intergroup condition and the national intragroup condition. All comparisons were significant, indicating that for the same objectively defined area the comparative frame of reference had a significant effect on social identification and thus level of

cooperation. In other words, interdependence may be best defined subjectively, rather than objectively.

Table 10.1

Mean ratings and planned comparisons of willingness to cooperate (8 point scale) across three levels of identification and two comparative frames of reference for the participant and their expectations of ingroup and outgroup members

<u>Frame of reference</u>	<u>Level of Identification</u>			<u>Planned Comparisons</u>	
	<u>Provincial</u> mean (s.d.)	<u>Regional</u> mean (s.d.)	<u>National</u> mean (s.d.)	<u>Comp 1</u> t(1, 40)	<u>Comp 2</u> t(1, 46)
<u>Individual</u>					
Ingroup	5.86 (1.74)	6.00 (2.02)	6.50 (1.61)	1.72*	2.09**
Outgroup	5.00 (1.72)	5.33 (2.25)	6.00 (1.92)		
<u>Ingroup Exp.</u>					
Ingroup	6.76 (1.51)	6.27 (1.54)	6.30 (1.64)	1.68*	3.21**
Outgroup	5.40 (2.04)	5.05 (1.89)	5.92 (1.64)		
<u>Outgroup Exp.</u>					
Ingroup	4.86 (2.01)	4.45 (2.39)	4.93 (2.33)	23.34***	18.19***
Outgroup	7.55 (1.00)	7.33 (1.14)	6.96 (1.76)		

Note: Comp1: Inter-provincial/Intra-regional comparison; Comp2: Inter-provincial/Intra-regional comparison; *** $p < .001$; ** $p < .01$; * $p < .05$

Follow-up questions were entered into 2 x 3 ANOVAs and revealed interesting differences in line with the predictions.

Perceptions of shared resources: To begin, the responsibility for the rainforest, as a common resource, was perceived differently across conditions. In line with the salient identity used across conditions, it was established that the rainforest was an important natural resource to the salient geographical area. No significant differences were found ($M = 7.42$, $SD = 1.02$). However, when it was asked if the rainforest was a common resource that was shared by the superordinate geographical areas significant differences were found. For example, when a regional identity was made salient (e.g. Papua), the question was asked if the four regions (e.g. the Islands, Papua, Momase and Highlands) that make up the country share the responsibility for this resource. A main effect for level of identification was found ($F(1, 129) = 3.29$, $p < .05$). Across areas, participants judged provinces ($M = 7.02$, $S.D. = 1.45$) and regions to share common

resources ($M = 7.28$, $S.D. = 1.00$) but nations to a lesser extent ($M = 6.48$, $S.D. = 1.45$).

Perceptions of similarity: In line with the perceptual constructs important to this thesis, questions regarding perceived similarity were asked. The questions were asked at three levels: perceptions of similarity of the ingroup, outgroup and then in terms of the superordinate frame of reference. For example, in the salient regional condition of Papua, it was asked: In general, how similar are the people of Papua (ingroup), Momase (outgroup) and the Islands, Papua, Momase and Highlands (superordinate frame of reference of the regions that make up the nation). No difference was found for the ingroup and the outgroup, across conditions, for perceptions of similarity: (ingroup: $M = 6.21$, $S.D. = 1.50$; outgroup: $M = 5.19$, $S.D. = 1.76$). In other words despite level of identification, participants perceived ingroup members to be similar and outgroup members to be similar. The result was different for the superordinate frame of reference, where a significant difference was found ($F(1, 129) = 7.03$, $p < .001$). Perceptions of similarity decreased with increasing levels of abstraction, as well as being lower overall (provincial: $M = 4.78$, $S.D. = 2.10$; regional: $M = 3.44$, $S.D. = 1.66$; national: $M = 3.40$, $S.D. = 1.86$).

The similarity measures were also carried out in line with the planned comparisons done with the primary measures. Some interesting results are revealed. While the people of provinces that make up the regions are not perceived to be very similar when a provincial identity is salient ($M = 4.78$, $S.D. = 2.10$), the people of the same region are perceived to be similar when the regional identity is salient ($M = 7.02$, $S.D. = 1.78$). This same pattern of results is borne out at the next level of abstraction. The people of the regions that make up the nation are not perceived to be very similar when a regional identity is salient ($M = 3.44$, $S.D. = 1.66$); however, they are perceived to be similar when the national identity is salient ($M = 6.45$, $S.D. = 2.03$). Each of these difference was found to be significantly different ($t(1, 40) = 19.59$, $p < .001$; $t(1, 46) = 23.98$, $p < .001$).

Perceptions of common needs and values: The same pattern of results was found when participants were asked if the needs and values of the people of the salient ingroup, outgroup and superordinate frame of reference were the same. Participants reported that across salient ingroups the needs and values were the same ($M = 6.45$, $S.D. = 1.27$) as well as within their respective comparative outgroups ($M = 6.05$, $S.D. = 1.57$). No significant differences were found. Again, the pattern was slightly different for the superordinate frame of reference. The degree of agreement decreased with level

of abstraction (provincial: $M = 4.65$, $S.D. = 2.20$; regional: $M = 4.81$, $S.D. = 2.82$; national: $M = 3.90$, $S.D. = 1.87$). Again these differences were found to be significant ($F(1, 129) = 4.68$, $p < .01$). Drawing on the same planned comparisons that were used for the primary dependent measures, the same pattern of results is revealed.

While the people of provinces that make up the regions are not perceived to share the same needs and values when a provincial identity is salient ($M = 5.30$, $S.D. = 1.32$), the people of the same region are perceived to share the same needs and values when the regional identity is salient ($M = 6.82$, $S.D. = 1.14$). The same pattern of results is found at the next level of abstraction. The people of the regions that make up the nation are not perceived to share the same needs and values when a regional identity is salient ($M = 4.79$, $S.D. = 1.67$), however they are when the national identity is salient ($M = 6.10$, $S.D. = 1.86$). Both of these differences were found to be significantly different ($t(1, 40) = 3.12$, $p < .01$; $t(1, 46) = 2.98$, $p < .01$).

Perceptions of interdependence: Finally, the question was asked, at each of these same three levels, if the people of their respective ingroup, outgroup, as well as the people that made up the superordinate frame of reference, depended on each other to satisfy their individual needs. Interestingly perceptions of interdependence of individuals vary in terms of the same pattern of results as similarity and needs and values, as well as reflecting the cooperation measures. When the ingroup is salient perceptions of interdependence of individuals do not vary across conditions ($M = 6.33$, $S.D. = 1.88$); that is perceptions of interdependence varied with salient social identity. The same is found for the outgroup ($M = 6.21$, $S.D. = 1.45$). Again this changes for perceptions of interdependence with individuals in term of the superordinate frame of reference. Perceptions of interdependence decrease with each increasing level of abstraction (provincial: $M = 5.25$, $S.D. = 1.91$; regional: $M = 5.30$, $S.D. = 2.04$; national: $M = 4.93$, $S.D. = 2.36$). However in this case these differences were not found to be significantly different.

Again the planned comparisons are revealing. People of the provinces that make up the regions are perceived to be less dependent upon each other to satisfy their individual needs when a provincial identity is salient ($M = 5.15$, $S.D. = 1.34$), than when the regional identity is salient ($M = 6.01$, $S.D. = 1.21$). The same results were found at the next level of abstraction. The people of the regions that make up the nation are perceived to be less dependent upon each other to satisfy their individual needs when a regional identity is salient ($M = 5.30$, $S.D. = 2.14$) than when the national

identity is salient ($M = 6.50$, $S.D. = 1.42$). Both of these differences were found to be significantly different ($t(1, 40) = 1.96$, $p < .01$; $t(1, 46) = 2.05$, $p < .01$).

10.4 Discussion

The results are clearly in line with a self-categorization theory analysis: cooperation varied as a function of the level of abstraction of the self, that is in terms of a social identification that was salient. Specifically, it was found that intragroup cooperation was greater than intergroup cooperation at each level of abstraction: provincial, regional and national. Further, social cooperation varied systematically with level of identification. In particular the planned comparisons reveal some interesting results that are important to the social dilemma literature. Given that the same geographical area was defined in terms of one region or a number of provinces, or one nation or a number of regions, and the environmental dilemma related to this geographical region as a whole, the different results are illustrative of the point that level of identification impacts significantly on cooperative behavior in a social dilemma. Intergroup cooperation at the provincial level was significantly less than intragroup cooperation at the regional level. In the same manner, intergroup cooperation at the regional level was significantly less than intragroup cooperation at the national level. In terms of both comparisons, the dilemma was defined to affect the same geographical area. In other words objective interdependence was not the criterion for group based behavior; in fact, perceptions of interdependence arose in line with identity salience.

When participants were asked what they would expect the other ingroup members to do, the same pattern of results was found. In other words, when a social identity is salient participants expect other ingroup members to do as they would do. This highlights the interchangeability of individuals when a collective identity is salient. Further, when participants were asked what they would expect outgroup members to do, the level of cooperation for both ingroup and outgroup was accentuated. When the dilemma was framed as an outgroup problem, in an intergroup context, expectations of cooperative behavior went down, and in an intragroup context expectations of cooperative behavior went up. In other words, it's not our problem, it's their problem and they should do something about it.

The follow up measures of perceived similarity, shared needs and values and interdependence are also interesting, with the same pattern of results being found.

Given the consistency of these results across these three measures they will be discussed together for reasons of parsimony. The findings clearly show that perceptions of similarity, needs and values, as well as interdependence vary with salient identity. In other words, for any given salient identity, these three measures varied with this identification. For example, if a participant's identity as a Papuan was salient other ingroup members were perceived to be similar, to share the same needs and values and to be dependent on each other. In contrast, as the planned comparisons reveal, participants did not feel they were similar, shared the same needs and values, and were dependent on each other for the same geographically defined area that defined the dilemma situation.

The primary and follow-up results reveal remarkable consistency. Perceptions of similarity, shared needs and values and interdependence varied with category salience, and commitment to cooperate, regardless of level abstraction of the category. In line with these findings, each of these is argued to be a product of categorization processes of individuals. Thus, for any given salient category, perceptions of similarity, shared needs and values and interdependence will follow. The findings, in regards to interdependence, are particularly important given that interdependence theorists first emphasise the interdependence structure that objectively defines the social dilemma and then look at factors to increase the level of cooperation. Perhaps researchers should instead be examining the identities that arise for individuals within a social dilemma, as this better reflects individual perceptions of the relevant interdependence structure. Each individual can, of course define themselves to be interdependent with many different social groupings, the taxonomy of possibilities is endless. However, is it not more pertinent to take into account how the perceiver understands the interdependence structure of the social dilemma situation, rather than how the social scientist defines it - objectively.

This study makes a further important point. As researchers we greatly restrict ourselves by defining social dilemmas in terms of conflicts of interest between the individual and the collective; while we know, through our own social experiences, that conflicts of interests encompass a much wider range of situations. For example, we can experience a conflict of interest between our work and family life, and people of political office can experience (but not necessarily acknowledge) conflicts of interest between their ministerial portfolio and their economic interests. By adopting an identity based approach, a wider range of conflicts of interest can potentially be studied.

In line with the theoretical proposition argued here, specifically that categorizations are comparative judgements, perceptions of the outgroup and their expected behavior vary systematically with ingroup judgements. Thus, just as the ingroup was perceived to be similar, to share the same needs and values, and be interdependent at each level of abstraction, so too do these perceptions reflect categorization of the outgroup. These, in turn, reflect the levels of expected cooperation for the outgroup. In other words, categorization, and thus social cooperation, is a comparative process. As such, the frame of reference in which a social dilemma is framed contributes to the pattern of behavior that emerges.

Taken together, cooperation varied in line with a salient social identity, regardless of face to face interaction or group size. This is contrary to Rabbie's conceptualization of the group, wherein "cooperative face-to-face interaction" is a necessary criterion of groups (see Rabbie, 1991, p. 239). Further, in discussing social dilemma tasks Rabbie (1991) states that: "The absence of direct communication and interaction between the players and the highly restricted choices they can make prevent the players in these laboratory tasks from becoming a social group as we have defined it" (p. 241). This study, and the previous one, have shown that psychological group membership can emerge despite the lack of communication and social interaction, and that psychological group membership is indeed predictive of cooperative behavior.

Further, it is difficult to know how congruent these findings are with Brewer's (1991) optimal distinctiveness model. Recall that Brewer argues that her "model of optimal distinctiveness [proposes that] *social identity is viewed as a reconciliation of opposing needs for assimilation and differentiation from others. According to this model, individuals avoid self-construals that are either too personalized or too inclusive and instead define themselves in terms of distinctive category memberships*" (p. 475). When applying this theory to the social dilemma literature, Brewer concludes that individuals behave selfishly when there is no collective identity or the identity is too large and amorphous: "However, when an intermediate group identity is available, individuals are much more likely to sacrifice self-interest in behalf of collective welfare" (p. 479). However, despite the increasing group size across the three identity conditions in this study, this did not systematically affect the level of cooperation. That is, unlike the findings of Brewer and colleagues, group size had no effect. The term intermediate is relative, and it is not clear how this is defined for Brewer and colleagues, suffice to say here that the effect of group size on social cooperation needs to be re-examined.

However, a few points can be made. Brewer's analysis constrains the social identity perspective within an interdependence framework; in other words, her studies, as presented in Chapter 6, take interdependence as the necessary precondition, and manipulate identity within the given interdependence structure. Instead of "human social life [being] characterized as a perceptual juggling act -- maintaining the integrity of individual identity, interpersonal relationships, and collective interests simultaneously" as Brewer (1996, pp. 57-58) argues, the evidence here suggests that human social life varies systematically in terms of identification processes that reflect social structure (see Turner and Oakes, 1997). In this light, it is interesting to note that while participants were willing to state that the rainforest is a common resource that is shared across provinces and regions, they were less willing to state that nations share this common resource. This perception, it could be argued, directly reflects the way such a natural resource management is politically structured -- nations don't share resources.

In conclusion, social dilemmas are traditionally defined in terms of discrete individuals interacting within a social system, wherein conflicts of interest between the individual and society are inherent. The paradigm clearly pits the individual against society. Yet, in terms of everyday life, we do cooperate to a remarkable degree and act in terms of a large number of social identities. These identities, so too, can come into conflict and define a conflict of interest. And while conflicts of interest may always be an inevitable aspect of life, we often do not act in terms of our individual self-interest, often the interests of the collective and the individual, as this study has suggested, are one and the same -- there is no dilemma, as there is no conflict of interests. Self-interest is collective interest. This study has demonstrated that social dilemmas may be best defined from the point of view of the perceiver, for it is the perceiver who determines the interdependence structure that is relevant to them.

- Chapter 11 -

Social cooperation and category salience: A test of the fit hypothesis

Experiment 5

11.1 Introduction

While the previous chapters developed the self-categorization analysis of social cooperation in relation to constructs important to the interdependence theorists account, this chapter aims solely to develop the self-categorization analysis. In particular, this study aims to explore the effects of a further determinant of category salience on social cooperation, beyond the role of comparative context developed in the last study. Specifically, this study will examine the effects of both normative and comparative fit on cooperative behavior. That is, given that social cooperation is the product of a salient social identity, does the degree of identity salience affect the degree of cooperative behavior. To this end this study will build on a previous study on the role of fit in the salience of social categorizations (Oakes, Turner and Haslam, 1991), which aimed to examine the conditions under which person's group memberships become salient. As Oakes and colleagues state:

In order to predict when people will define themselves and others as group members, engage in stereotyping, intergroup behaviour and otherwise act as group members, we need to understand how and when people's social categorizations of themselves and others become salient. (p.125)

Self-categorization theory argues that category salience is a product of normative and comparative fit, as well as accessibility (see Turner et al., 1994). The study by Oakes et al. (1991) examines the role of fit. Building on the work of Bruner (1957) who suggested that salience was a function of both accessibility and fit to social reality, they argue that social categorizations become salient to the degree that the representation is veridical, that is, the representation captures the essence of social reality. The greater the fit, or veridical nature of the representation, the greater the salience of the category of membership. While accessibility is equated with perceiver readiness of individuals, it is

fit that accounts for the importance of acknowledging the role that social reality plays in the social cognition of categorization processes. In fact it is the principle of fit that truly captures the expression that “all cognition is social cognition, from the perspective of the mechanism of cognition” (Turner et al., 1994, p. 462). In terms of Lewin’s expression $B=f(PE)$, the concept of fit captures the essence of the person and the environment being understood together, in unison, and not as abstract variables.

As described in Chapter 5, comparative fit accounts for the comparative social relations between social groups which provides the basis for social comparison, while normative fit accounts for the normative content which differentiates one social category from the other. These two aspects of fit were manipulated orthogonally in the study presented by Oakes et al. (1991). Undergraduate faculty membership, specifically arts or science, was used as the basis for categorization. Undergraduate science students watched a video presentation of six individuals (three arts and three science students) discussing their attitudes towards university life. Based on previous research, it was established that the student community expected arts and science students to disagree on this matter. Specifically, the normative expectancy was that while art students valued liberal education, which included extracurricular activities and an active social life, science students valued the hard work and discipline that would bring them good grades and an impressive career. Each of the six presenters were visually labelled as either a science student or an arts student. Normative and comparative fit were manipulated in terms of the attitude expressed by a target arts student (normatively consistent or inconsistent arts attitude) and overall agreement of the six students (consensus, conflict or deviance). In the consensus condition all six individuals agreed on the issue, in the conflict condition the arts and the science students collectively disagreed, and in the deviance condition the target individual disagreed with the rest. Taken together, this makes up a 2 x 3 factorial design (consistent/inconsistent x consensus/conflict/deviance; see Table 11.1 for configuration).

Two primary hypothesis were tested, of which the first is relevant here. It was expected that the arts/science categorization would be most salient in the consistent/conflict condition, given that this stimulus was providing the greatest “fit” with social reality. In other words the stimulus was veridical: the three arts students were in agreement on their normatively consistent view; in contrast, the three science students were in agreement on theirs.

This hypothesis received consistent support. Specifically, on measures of perceived similarity, the target was most similar to arts students and least similar to science students in this condition. Further this condition produced that highest levels of comparative likeability, agreement and favourableness. On these same measures, it was found that the arts/science categorization was least salient in the inconsistent/deviance condition, where the one arts student was expressing a science attitude and all others were expressing typical arts attitudes. In other words this stimulus did not capture the veridical nature of what the participants, as science students, knew to be “true” about the differences between them, science students, and arts students. As these researchers conclude:

... it was where input fitted the comparative relations and the stereotypical content specified by the arts/science categorization that is properly explained and gave meaning to what subjects observed and so became salient. (Oakes et al., 1994, p. 120)

The study to be presented will use this same manipulation of salience, to predict variance in the level of cooperation with category salience. This is an important extension of the primary hypothesis of this thesis. Specifically it aims to show that not only is social cooperation the product of a salient social identity, social cooperation is the product of the degree of category salience.

This study will endeavour to induce systematic variation in the salience of the category “Papua New Guinean,” using a group of students of this nationality studying in Australia. Given this comparative circumstance, it is assumed that this category will be relatively accessible across participants, as it is generally found that our sense of nationality is heightened when we are abroad. Building on Oakes et al., (1991) a video is used to induce category salience. The video introduces six individuals who were advocating a particular intervention approach to address the monopolization and destruction of the rainforest by multinational companies in developing countries such as Indonesia and Papua New Guinea. Three of the speakers are from Indonesia and three are from Papua New Guinea. One speaker, from Papua New Guinea, was the target individual. Earlier research (gathered at the conclusion of Experiment 4) indicated that while it was normative in Indonesia that the government and the military intervene in saving the rainforest, in Papua New Guinea the preference was for traditional and “grass-roots” intervention by the relevant local constituents and stakeholders. Given this framework, the problem was presented as a national environmental issue that needed to be addressed. Intervention strategies were presented in terms of one of these two

normatively consistent ways. Comparatively, Indonesians and Papua New Guineans make up the comparative frame of reference. Normatively, Indonesians would be expected to endorse government or military intervention, while Papua New Guineans would be expected to endorse traditional or “grass-roots” intervention.

In that participants are asked to assist in saving the rainforest, a common good, a typical social dilemma is induced. Like the study reported in the previous study, the dilemmas induces a conflict between long term and short term benefits to the individual. In other words, individuals could do nothing in the hope that the problem would be sorted out by others and thus not affect them, leaving themselves to enjoy their time in other ways. However, if no one did anything, this could lead to the depletion of the resource in the long term and potentially all involved would lose both economic and social capital.

Normative fit, that is consistency of stimulus content with category, was varied across the target individual through the advocacy of an intervention program that was normatively consistent with either the Indonesian or Papua New Guinean approach. Comparative agreement, across the six individuals, on the intervention program (Indonesian or Papua New Guinean) constituted comparative fit and varied in three ways: consensus, where all individuals agreed; conflict, where the three individuals from each country expressed different opinions; and deviance, the target individual expressed an opinion that was different to the other five opinions. Thus, in line with the fit hypothesis it is predicted that salience will vary across the normative consistency (2 levels) and comparative agreement (3 levels) of these messages.

The comparative Indonesian/Papua New Guinean categorization was expected to be most salient where the Papua New Guinean target individual was expressing an opinion that was normatively consistent with the Papua New Guinean approach, as well as being in agreement with the two other Papua New Guineans but not in agreement with the three Indonesians, who were espousing their normative point of view -- the consistent/conflict condition. As in Oakes et al., (1991), category salience was expected to be least in the condition where the Papua New Guinean target individual was expressing an opinion that was normatively consistent with the Indonesian approach (and normatively inconsistent with the Papua New Guinean approach) and the target was the only person espousing this point of view (all others expressed a typically Papua New Guinean opinion; see Table 11.1) -- the inconsistent/deviance condition.

In line with self-categorization theory social cooperation was predicted to vary as a function of category salience; that is, the greater the degree of category salience, the greater the degree of social cooperation, and vice versa. As such cooperation with the target individual is predicted to be highest in the consistent/conflict condition, and least in the inconsistent/deviant condition. Other measures were predicted to vary in terms of this same pattern: similarity, favourableness of impression, quality of argument, and agreement. In summary, it is argued here that given cooperation is produced by identification through category salience, the degree of cooperation should also vary with the degree of salience. In other words, if the “fit” is good, individuals should feel more confident about who they are and what they should do. Cooperation, as such, is acting in terms of a collective identification with others. Self-interest is collective interest. It is a rational self definition in that instance.

11.2 Method

Subjects and design: Papua New Guinean students ($n = 118$; 80 males; 37 females; age: $M = 18.13$, range = 16 - 20) studying in Australia through the Australian International Development Assistance Bureau (now AusAid) participating in this study. At the time that the study was run, the students had gathered from schools across Queensland to attend a camp over the Easter break. A 2 (consistency) x 3 (agreement) factorial design was utilized in which a target individual provided normatively (consistent or inconsistent) information within a context of comparative consensual, conflictual or deviant agreement.

Stimulus materials: The manipulation was induced through the creation of six audiovisual stimuli tapes which were filmed and edited at the Australian National University. Three students from Papua New Guinea (2 Males, 1 Female) and three students from Indonesia (2 Males, 1 Female) volunteered to act as the stimulus individuals, all were blind to the nature of the study until filming and editing were completed. Each individual was provided with two scripts; one script was normatively consistent with a Papua New Guinean viewpoint on resolving an environmental problem, the other was normatively consistent with an Indonesian viewpoint. Through background research and interviews it was established that a stereotypical distinction between these two social groups is that the former advocates traditional and “grass roots” social intervention while the latter advocates government or military intervention.

Each individual introduced themselves, the country that they were from, and read one of their two scripts (the scripts are included in appendix 11.1).

The scripts were rehearsed until the point of view being advocated by the stimulus individual sounded natural. To ensure that each condition was consistent across stimulus individual each person was video taped reading their two scripts and then the footage was edited to form the six conditions described in Table 11.1. The final 6 videos all began and closed with a scene of all six individuals, each wearing casual clothing, sitting in a semi-circle talking amongst themselves. Each video, on average, lasted just over 10 minutes, and appeared genuine and natural.

Table 11.1

Stimulus individuals normative attitude to environmental intervention

<u>Conditions</u>	<u>Stimulus individuals</u>					
	<u>Indonesian</u>			<u>P.N.G.</u>		
	1(M)	2(F)	3(M)	4(M)	5(M)	6(F)
Consistent/consensus	P	P	P	P	P	P
Consistent/conflict	I	I	I	P	P	P
Consistent/deviance	I	I	I	P	I	I
Inconsistent/consensus	I	I	I	I	I	I
Inconsistent/conflict	P	P	P	I	I	I
Inconsistent/deviance	P	P	P	I	P	P

Note: P= Papua New Guinean stereotypical script (pro- traditional /grass roots intervention); I = Indonesian stereotypical script (pro-military/government intervention).

Stimulus person 4, a Papua New Guinean, is the target individual in every condition. The consistency variable is defined in terms of the behaviour of this individual. M = male, F = female.

Procedure: The experiment was introduced as follows:

The rainforests are an important natural resource to the **Island of New Guinea** yet they are under threat by multinational companies who are now moving in. Both the **Indonesians** and the **Papua New Guineans** can no longer ignore the potential exploitation of their land. Various representatives have come forward with proposals on how to best deal with this problem. They are asking for your cooperation to promote their policies. Please listen to each of the following speakers carefully but in order to keep this questionnaire as simple but detailed as possible you are asked to pay particular attention to person _____, _____ and you will be asked to answer specific questions related to this person's proposal, as well as questions about the other speakers and more general information.

In all cases “#4, Simon” was written, by hand, into the spaces provided. This procedure was used to create the impression that different people were being asked to pay particular attention to different target individuals. In fact, the target individual was always “#4, Simon.”

Participants then circled the country that they were from (Indonesia or Papua New Guinea) and were asked how proud they were to be from that country. They responded by circling a number from (1) not at all proud to (8) extremely proud. The video was then played with all participants in one condition being run together. They were reminded of the following:

Please pay careful attention to what each person is saying. Your answers are very important and will be used to establish new policies and you may be asked to assist with the policy chosen in the future. Listen to all the speakers, but in order to receive as much detailed information as possible you have been asked to pay particular attention to one person and will be asked questions specific to this person.

Participants were then asked to fill in the number and name of that person in the space provided to insure that they were aware of the target individual that they were asked to pay particular attention to.

After watching the video, participants were asked to fill in the questionnaire privately, thoughtfully and honestly. They were also reminded that the research was important to the future of the rainforest and their country, and to consider the questions carefully, as it would be their time that the policy makers would be asking for in the future. The aim of this paragraph was to highlight the dilemma nature of the situation.

Dependent measures: All questions were answered by circling a number from 1 to 8 on a bipolar scale. To give participants the further impression that each person in the video was a target person, “#4, Simon” was hand written into the questionnaire whenever the target person was referred to directly.

Cooperation: Participants were asked how willing they were to contribute their time to the proposal offered by “#4, Simon”. The scale ranged from (1) not at all willing to (8) extremely willing.

Similarity: Two measures were asked with reference to how similar the target person’s general beliefs, attitudes, values, etc. were to (1) Papua New Guineans/(2) Indonesians. The scale ranged from (1) not at all similar to (8) extremely similar.

Impression: Three questions assessed the overall impression of the target individual: overall, favourability: (1) very unfavourable to (8) very favourable; quality of argument: (1) extremely bad to (8) extremely good; and agreement with opinion: (1) strongly disagree to (8) strongly agree.

Manipulation check: Manipulations checks were carried out on both the normative and comparative dimensions. Two questions assessed the normative manipulation: were the target’s opinions typical of most (a) Papua New Guineans’/(b)

Indonesians' attitudes to this issue: (1) not at all typical to (8) extremely typical. Three questions assessed the comparative manipulation of agreement: (a) degree of agreement between the Indonesians and Papua New Guineans: (1) disagreed completely to (8) agreed completely; degree of target persons agreement with (b) other Papua New Guineans/ (c) Indonesians.

Dilemma: Two questions assessed the dilemma nature of the decision to cooperate: (a) the rainforest is an important natural resource to the future of Papua New Guinea and needs to be protected; (b) time at home with family and friends was important. Both questions were assessed on a scale from disagree strongly (1) to agree strongly (8).

Commitment measure: Finally, participants were given a direct opportunity to assist with sustaining the rainforest in their country. They were told: "If you would like to help with one of the policies put forward by the 6 representatives, please fill in the information below." In the space provided, they were asked to name the person that they would like to contact them, the numbers of hours per week that they were willing to assist over the summer break, their name and contact details. Finally, participants were asked to write a short paragraph on why they would like to help and how they could help, and what they understood the purpose of the study to be.

11.3 Results

Manipulation checks: All participants believed that the speakers were genuine and that the purpose of the study was to develop strategies and policies to save the rainforest from multinational companies. In fact, during the debrief, a large number of the students were disappointed that they were not going to be contacted by one of the speakers to participate with others in saving the rainforest. The experimenter pointed out that the students could get involved with an organization of their choice when they returned home.

The five manipulation checks were also put into separate ANOVA's (see Table 10.2). The results show that there was good evidence that the manipulation for normative consistency was effective ($F(1, 112) = 13.23, p < .001$), overall participants perceived the target to express more typical Papua New Guinean attitudes in the consistent ($M = 6.69, SD = 1.27$) than in the inconsistent condition ($M = 5.65, SD = 1.73$).

There was only moderate evidence that the manipulation for comparative agreement was effective. For while there was a main effect for comparative agreement on the policy across these conditions ($F(1, 111) = 2.78, p < .05$) and target agreement with other Papua New Guineans ($F(1, 111) = 3.56, p < .05$), this result was not found with respect to target's agreement with the Indonesians. In fact, a main effect for normative consistency was found ($F(1, 111) = 6.30, p < .10$) for target's agreement with the Indonesians. In the consistent condition, the target individual was generally perceived to be consistent with Indonesians' position ($M = 6.32, SD = 1.30$), but less so in the inconsistent condition ($M = 5.60, SD = 1.71$). There was no effect for comparative agreement across conditions for this measure, as one would expect if the manipulation was successful. An examination of the means across these three manipulation checks indicates that the pattern of results does not support the manipulation. For example, the consensus conditions does not yield the highest levels of agreement.

Table 11.2

Manipulation checks across the conditions of normative consistency (2) and comparative agreement (3).

<u>Manipulation checks</u>	<u>Consistent</u>			<u>Inconsistent</u>			<u>F ratios</u>		
	<u>Cons</u>	<u>Confl</u>	<u>Dev</u>	<u>Cons</u>	<u>Confl</u>	<u>Dev</u>	<u>Norm</u>	<u>Agree</u>	<u>2X3</u>
Typical PNG attitude	6.52	6.95	6.58	5.74	5.57	5.65	13.23	0.11	0.40
Typical Indo attitude	5.47	5.90	5.16	5.37	4.90	5.70	0.44	0.00	2.28
Policy agreement	6.42	6.90	6.63	5.94	6.29	7.15	0.61	2.78*	2.16
Target with PNG	6.57	7.15	6.74	5.79	6.52	7.00	2.69	3.56*	1.92
Target with Indo.	6.05	6.60	6.28	5.42	5.71	5.65	6.30**	0.74	0.09

Note: *** $p < .001$; ** $p < .01$; * $p < .05$

It seems that what was driving the effects was the comparative normative dimensions of Papua New Guineans and Indonesians not across agreement, but across other comparative dimensions that define Papua New Guineans and Indonesians, such as physical appearance. This is revealed in a repeated measures analysis of the two normative manipulation checks: a 2 (normative consistency) x 3 (comparative agreement) x 2 (typical PNG/Indonesian) MANOVA with repeated measures on the final factor was used. This analysis examined if the target person's opinions were typical of

most Papua New Guineans or Indonesians. A main effect was found for the repeated measure factor of national typicality of the ideas expresses by the target person ($F(1, 111) = 23.41, p < .001$). Across conditions, the participants thought that the target person's opinions were more typical of Papua New Guinean's attitudes ($M = 6.13, SD = 1.55$) than Indonesian's attitudes ($M = 5.42, SD = 1.66$) regardless of the content agreement. Further, the follow-up question on agreement with Papua New Guineans/Indonesians was also entered into this same repeated measures analysis. Again, a main effect was also found on the repeated measure factor of the target persons agreement with the two national groups ($F(1, 111) = 54.45, p < .001$). In general, participants thought that the target person's attitude was in agreement with the Papua New Guinean's ($M = 6.16, SD = 1.60$) more so than the Indonesian's ($M = 5.42, SD = 1.73$), regardless of conditions.

The measurements that assessed the important of the rainforest to the people of Papua New Guinea, as well as the importance of spending time with family and friends showed no overall effects. Across conditions, the rainforest was perceived to be important ($M = 7.82, SD = 0.73$) as well as their time with family and friends ($M = 7.49, SD = 1.01$). As such, a conflict of interests was assumed.

The primary variables were entered into separate ANOVAs and are presented below and in Table 11.3

Willingness to cooperate: The analysis of this measure revealed only a main effect for normative consistency ($F(1, 112) = 9.57, p < .01$). There was no effect for comparative agreement, as predicted. Nonetheless, means did vary in the predicted order with most cooperation in the consistent/conflict condition ($M = 7.30, SD = 0.73$) and least in the inconsistent/deviance condition ($M = 5.95, SD = 1.82$).

Similarity: Perceptions of similarity also yielded a main effect for normative consistency ($F(1, 112) = 9.57, p < .01$). Again the consistent/conflict condition yielded the highest level of perceived similarity ($M = 7.15, SD = 0.99$) and inconsistent/deviance condition yielded the lowest level of perceived similarity ($M = 5.60, SD = 2.19$).

Impression: In regard to the favourability of the impression gained, a main effect for normative consistency was found ($F(1, 112) = 4.17, p < .05$), as well as an interaction effect ($F(1, 112) = 3.71, p < .05$). The consistent/conflict condition yielded the highest level of favourability ($M = 7.20, SD = 0.77$) and the inconsistent/deviance condition yielded the lowest level of favourability ($M = 5.52, SD = 1.93$). The quality of argument measure yielded a main effect for comparative agreement only ($F(1, 112) =$

3.67, $p < .05$), while the planned comparison bore out the same pattern of results as predicted. The quality of the argument was perceived to be higher in the consistent/conflict condition ($M = 7.00$, $SD = 0.79$) than the inconsistent deviant condition ($M = 5.32$, $SD = 1.57$). Finally, main effects for comparative agreement ($F(1, 112) = 5.86$, $p < .05$) and normative consistency ($F(1, 112) = 3.95$, $p < .05$) were found for agreement with target individual. Again, the consistent/conflict condition yielded the highest level of agreement ($M = 7.30$, $SD = 0.80$) and the inconsistent/deviance condition yielded the least level of agreement ($M = 5.53$, $SD = 1.78$). These five dependent measure were entered into one overall planned comparison: consistent/conflict with inconsistent/deviance with the overall result being significant ($t(1, 17) = 24.78$, $p = 0.00$).

Table 11.3

Measures of category salience and cooperation across the conditions of normative consistency (2) and comparative agreement (3).

Measures	Conditions						F ratios		
	Consistent			Inconsistent					
	Cons	Confl	Dev	Cons	Confl	Dev	Norm	Agree	2X3
Cooperation	6.84	7.30	6.74	6.05	6.57	5.95	9.57**	2.21	0.01
Similarity	6.68	7.15	6.53	6.05	6.33	5.60	9.57**	2.40	0.11
Impression	6.11	7.20	6.94	6.50	6.57	5.52	4.17*	2.38	3.71*
Quality of argue.	6.26	7.00	6.22	6.55	6.38	5.32	2.13	3.67*	1.60
Agreement	6.13	7.30	6.68	6.20	6.52	5.53	5.86*	3.95*	1.76
Commitment to #4	3	11	9	4	9	3			
Hours committed	3	14.9	14.5	3.25	9	5			

Note: *** $p < .001$; ** $p < .01$; * $p < .05$

Commitment: Seventy (of the 118 students) committed themselves to be contacted to assist in the recommendation put forward by the six different speakers. The data to be reported for each speaker will indicate the number of individuals that named that person as their contact person and, in brackets, the mean number of hours volunteered by those individuals. In terms of the three Indonesian presenters: speaker #1 received no support; speaker #2 received the support of 6 individuals who, on average,

were willing to donate 15.7 hours of their time; speaker #3 received the support of 1 person, donating 6 hours. Together the Indonesian presenters received the support of 7 individuals. In contrast the Papua New Guinea presenters received the support of 63 individuals. Across the three Papua New Guinean presenters: speaker #4 (Simon) received the support of 39 individuals, offering 10.17 hours on average; speaker #5 received the support of 16 individuals, offering 4.06 hours on average; and speaker #6 received the support of 8 individuals, offering 11.63 hours on average.

As can be seen 88.57 % of the students cooperated more with a Papua New Guinean representative than an Indonesian representative, with the target individual receiving the highest amount of votes. Given that Simon was the target individual for all participants this could have biased this result. However, interestingly, when the distribution of the target individual's results is compared across conditions, individuals were most willing to commit to time to the project in the consistent/conflict condition (11 persons), and they also committed the largest amount of time (14.9 hours on average) in this condition as well. In contrast, the target individual only received the support of 3 individuals in the inconsistent/deviant condition, who each offered 5 hours on average (see Table 11.3).

11.4 Discussion

The results reveal general support for the prediction that social cooperation is not only the product of a salient social identity; further, the degree of category salience is predictive of the degree of cooperative behavior. In particular the highest level of cooperation was found in the consistent/conflict condition, the condition expected to yield the greatest category salience, and the lowest levels of cooperation was found in the inconsistent/deviant condition, where category salience was expected to be least. These findings are interesting, particularly in light of the failed manipulation check of comparative agreement.

The follow-up measures to confirm category salience further support the overall predictions. Specifically, perceptions of similarity, favourableness of impression, quality of argument and agreement with argument were all highest in the condition where the target person's message was consistent with the Papua New Guinea normative viewpoint, the Papua New Guineans had a consensual opinion on this viewpoint, and it contrasted with the viewpoint of the Indonesians. In contrast, the

condition where the target person's message was not normatively consistent and was different from the rest of the speakers produced the lowest levels of these measures. Together, these measures support the assumption that category salience was greatest in this condition and thus lend support to the argument that social cooperation is the product of underlying context specific identification processes.

The measure of commitment also supports the primary measure of cooperation. In general, individuals showed more cooperation and support for the Papua New Guinean speakers than the Indonesian speakers. Particularly, when examining only the target person's commitment levels of cooperation, the findings suggest that there was more influence, and thus subsequent cooperation, in the high salience condition than in the low salience condition. An important point can be made here, as this study could just as much been a study of social influence. However, for self-categorization theory social influence and social cooperation are both products of context specific social identification. The processes of depersonalization produces a qualitative transformation of the self, from which higher order emergent properties of intergroup behavior are produced. As well as social cooperation and social influence, this also includes social phenomena such as group cohesiveness and polarization.

This account of group processes offers a much more dynamic and predictive account of social cooperation than the interdependence account that emphasizes objective interdependence structure and stable intrapersonal dispositions. Defining the ingroup and its relative importance to us is important to how we see ourselves and others, and how we act on these perceptions. Self-categorization theory offers a context dependent mechanism that responds to the environment in a functional, adaptive and systematic manner. Self-categorization defines who we are in any given instance, taking into account our background information about ourselves and the social context. They provide a reference for action, such as social cooperation.

While this study in general offers support for these ideas, there are aspects of this final study that remain unclear. At some level or dimension it seems that comparative judgements were being made; however, the dynamics of this comparative process are not on the basis of agreement as found in the Oakes et al. (1991) study. To begin with, and to a significant extent, it seems that participants were being influenced more by Papua New Guineans than Indonesians, particularly if the person was stating an opinion that was normatively consistent with the typical Papua New Guinea attitude. The evidence suggests that the physical and social distinctiveness of these two cultural groups overrode the comparative agreement manipulation. The importance of

normative fit has also been found in a number of other studies which examine stereotyping and the self-esteem hypothesis of social identity theory (see Experiment 1); however, it is beyond the scope of this study to further determine this precisely.

There could also have been an effect for an inclusive identity as environmentalist, as both national groups were soliciting an environmental message. It could be that the participants in this study were generally responding to this identity and it is normatively consistent for this group that environmentalists act in terms of the attitudes that are similar to Papua New Guineans. Again this is speculation and further research would need to be carried out.

The manipulation of normative fit could have also been stronger, as there was a high amount of consistency in agreement across experimental condition. This could have been as a result of the opening paragraph by speakers, which was consistent across conditions. While the aim of this was to provide a consistent message of the overall intent to save the rainforest from multinational companies, overall it could have weakened the comparative agreement effect which expressed the means by which this would be carried out.

At the same time the results, specifically in terms of the planned comparisons are consistent with the fit hypothesis and the predictions that follow for this study. In retrospect it seems reasonable to assume that in this comparative context Papua New Guineans would identify more with Papua New Guineans than Indonesians, thus overriding the comparative agreement affect. The planned comparisons showed systematic support, indicating that participants knew who they were in comparison to the Indonesians, and what they would expect to hear from the respective group members. They were acting in terms of themselves as Papua New Guineans and this was most salient when the stimulus fit their expectations. In other words the stimuli was most veridical in the instance of highest fit. There was no cost benefit analysis of action, they were acting in terms of their veridical reality as Papua New Guineans -- a very real group membership, a very real aspect of the self.

Social cooperation has been defined in the contemporary social dilemma literature as a sacrifice to the self for the benefit of the collective. This has been contested in the course of this thesis. It has been argued that social identification transforms the nature of the self, such that self-interest *can be* collective interest. As such there is no sacrifice to the self. This study has systematically varied the social categorical perception of the self and thus highlighted the adaptiveness of this functional system. It has establish further support for the dynamic interaction between

the social and the psychological. Salience of group membership is a function of both the social and the psychological. As such, this approach fully acknowledges that groups are real, both socially and psychologically. It is now interesting to again reflect back upon Rabbie's retort to the social identity analysis of group life. One of Rabbie's key arguments was that this approach did not differentiate between social groups and social categories, but this has clearly never been the case.

Social categories emerge from a functional, adaptive mechanism. They are veridical social representations of the our social relationships and they act in unison with the perceived social context. As raised in Chapter 1, it is in this manner that social cooperation is understood as a function of the normative and comparative aspects of the social context and categorization processes of individuals. Social categories are veridical because they emerge as a function of social reality, that is, in terms of real social groups and our memberships in them. The degree of salience of category membership increases as a function of the degree of fit between the stimulus and what we expect to the true in term of the category of membership. Social categories, thus, represent social phenomena that are shared and, as such, socially meaningful. By no means is this a passive processes but an emergent ongoing system of making sense of our place in the social world. Social identifications are just as much a valid aspect of our self, as our personal self.

Self-categorization, individual and group, become our reference point for social action. They have the potential to incite conflict and cooperation with others. They are the source of both social change and social stability. It is erroneous to define social cooperation as self-sacrifice. Social cooperation, just as competition, is a functional aspect of who we are as human beings. As Oakes et al., (1991) summarizes:

What is being suggested is a sensitive, dynamic process of imputing meaning to action. Whether any social category fits behaviour depends on the specific social context and varies both with the relations between the people compared and the actual behaviour to be represented. The process is made all the more fluid by the fact that social and person categorizations are unique in that both the perceiver and the perceived can transform themselves: people can act as individuals in one situation, as group members in another, as members of different groups in yet others, varying the cues available for categorization and the current meaning of those cues. (p. 142)

In conclusion, this study provides further evidence for the dynamic nature of individual and group life, and for the conceptual richness of categorization processes from which emerge a range, and degree, of identities that any one individual can act in terms of. With each being a veridical perception of the self, thus to act in terms of this self-

perception is to act in terms of one's self-interest. To define social cooperation in terms of self-sacrifice is a historical artefact of the constructs and methodologies that we have adopted.

- Chapter 12 -

Human nature, self-interest, social identity and social cooperation

12.1 Introduction

Over the course of this thesis an analysis of social cooperation based on self-categorization theory has been developed and contrasted with the interdependence approach. Broadly, two points have been developed: (a) the reality and distinctiveness of group-level phenomena and (b) a categorical perception of the self which re-defines the nature of self-interest. Taken together, this re-conceptualization of the social group and the self has been applied to the understanding of social cooperation. The aim has been to build a systematic understanding of the social psychological process underlying social cooperation.

In line with self-categorization theory, it has been argued that social cooperation is the product of a salient social identity. In other words the psychological group is the basis of cooperative behavior. In contrast, interdependence theorists argue that cooperation produces the group, and that interdependence of individuals is the necessary precondition for cooperation. While social identity theorists have never argued that functional interdependence of individuals will not lead to cooperative relations (Sherif clearly showed this), the argument has always been that social identification is the necessary and sufficient process that allows cooperative relations to ensue.

The findings of the work of this thesis develop the self-categorization perspective, in that the studies provide systematic support for the primary hypothesis that social cooperation is the product of a salient social identity. These studies were carried out with established social groups and in a naturalistic field setting (c.f. Grzelak, 1994), wherein the relationships between objective interdependence, social identification and cooperation could be examined. There was good evidence that social cooperation varied with identification with the social group. It has further been shown that perceptions of interdependence arise from psychological group formation. Thus, in contrast to interdependence theory, not only is it argued that the group is the basis of cooperative

behavior, it can also be argued that the social identification is the basis of perceived interdependence.

As such, not only has the thesis contributed to the development of self-categorization theory, through the most systematic testing of the theory's analysis of social cooperation in the literature, this work has also re-established, in line with Lewin, the role that interdependence plays in the analysis of group life. Specifically, interdependence is related to feelings of belongingness in terms of group memberships. The findings show that while objective interdependence is not necessarily the basis of cooperative behavior, psychological group formation is the basis for perceptions of interdependence. The implication is that for progress to be made in the understanding of social cooperation, the role that the social dilemma paradigm plays in defining our formal approach to the study of social cooperation has to be re-considered. The paradigm establishes the necessary precondition of structural interdependence, however the work of this thesis suggests that functional interdependence is not a necessary pre-condition. Instead of first defining the objective situation of interdependence, it seems the basis of social identification which establishes the perceived interdependence structure, must first be defined.

This final chapter begins by retracing the course that this thesis has taken: beginning with the theoretical roots of the social dilemma paradigm, moving to the definition of and solution to social dilemmas, challenging the self-interest and group based assumptions inherent in the theory and paradigm, and finally, presenting the theoretical and empirical analysis of social cooperation from the perspective of self-categorization theory. The implications of the findings of this research for the social dilemma paradigm and our conceptual understanding of social cooperation are then discussed. The thesis concludes with suggestions for future research and some final comments.

It is also important to note that while this thesis specifically examines social cooperation, the two broader points noted above are relevant beyond this analysis of social cooperation. Firstly, the work of this thesis has challenged the orthodox position of the conceptual relationship between the individual and the group, specifically in terms of the conceptual understanding of social identification, interdependence, and the psychological reality of the group. This is not only relevant to the study of social cooperation but also intergroup relations in general. This was noted by Turner (1987) in the development of self-categorization theory. He stated in his detailed review of the

psychological reality of the group: “Research on ‘mixed-motive’ games, in particular, the ‘Prisoner’s Dilemma Game’ (PDG) is most relevant to this issue. The research directly tests the hypothesis that positive interdependence for the maximization of self-interest leads to co-operation” (p. 31). As such, this thesis has contributed to the development of a our understanding of the psychological reality of social groups.

Further, through self-categorization theory, a conceptual re-definition of self-interest has been presented. Thus, in contrast to deductive and economic rationalists conceptualizations of human nature, the evidence here suggests that human nature seems to reflect both individual and group level processes, each of which have a distinct reality of their own. Each of these points will be developed further in the remainder of this chapter.

12.2 Recapitulation

In contrast to the pervasive literature on the economic or subjective utility analysis of human nature, this thesis has developed a self-categorization analysis of the nature of group life. In particular the role and understanding of social cooperation has been developed. Through this analysis the dynamic role that group membership plays in shaping and being shaped by the social life of individuals in society has been drawn out. In the opening chapter of this thesis it was noted that theories of social cooperation, as with those of conflict, have developed in line with the evolving zeitgeist of social psychology, in particular the conceptual understanding of the nexus between the individual and the group. It was also pointed out that the study of conflicts of interest have long preoccupied the pursuits of social theorists and others. Thus, while this thesis focuses on the work of social psychologists, it has important implications for other disciplines as well. The social psychological analysis of conflict of interest developed at the turn of the century, and many of the concepts and ideas first mooted then are still with us today. For example the work of Sumner (1906) is important for he introduced the terms ethnocentrism, ingroup and outgroup, each of which remain central to our conceptual understanding of social cooperation. For it was Sumner who first associated cooperation with the ingroup and competition with the outgroup. In different ways, we still believe this to be true today.

In Chapter 1, a brief historical overview highlighted that while our conceptual understanding of cooperation has developed from how cooperation and competition

effects individuals' behavior (May and Doob, 1937; Deutsch, 1949a) to accounting for the transformational processes which give rise to these outcomes (Deutsch, 1980), this research has continued to focus on the goal or outcome interdependence of individuals. The contemporary functional interdependence approach to the study of social cooperation, formalized through the social dilemma paradigm, continues in this vein. However, a more recent conceptualization of group life has challenged this view, through the development of social identity and self-categorization theories.

These two distinct theoretical approaches to the study of groups and social cooperation were presented in detail in two different chapters (Chapters 2 and 5, respectively). These accounts were summarized as follows: (a) interdependence theorists understand cooperation in terms of outcome interdependence structures and transformational processes of individuals (see Kelley, 1991; Rusbult & van Lange, 1996); (b) self-categorization theorists understand cooperation in terms of the normative and comparative aspects of social context and categorization processes of individuals (see Turner et al., 1987; Turner, Oakes, Haslam & McGarty, 1994). Interestingly, while both these approaches arose from the work of the early interactionists, the underlying assumptions and meta-theoretical principles are now fundamentally distinct. As such each analysis conceptually defines and approaches the problem in different ways.

Interdependence theorist's conceptualization of the group carries on directly from Lewin's (1935) emphasis on the interdependence of group members (Chapter 2). In line with this, for many contemporary researchers a group is conceptually defined, and operationalized, in terms of the outcome interdependence of individuals. This analysis is reflected in the work of Lewin's students, Deutsch (1949a, b) and Thibaut and Kelley (1959; Kelley and Thibaut, 1978), each of whom have remained highly influential in the field. Deutsch's theory of social cooperation remains largely uncontested and Kelley and Thibaut's work on interdependence theory now grounds a large body of research in social psychology - from stereotyping to social cooperation.

The paradigm through which interdependence theorists study social cooperation directly reflects this analysis of group life, with game theory aiding in the consolidation of the rational (economic) actor approach to the analysis of group life (see Chapter 3). Deutsch was clearly influenced by game theoretical constructs presented in the prisoner's dilemma game; likewise, interdependence theory includes some of the gaming matrices in their taxonomy of interdependence structures. The influence of game theory, that is the strategic analysis of outcome interdependence, has been so strong that cooperation is

now defined in terms of a cost benefit analysis of subjective utility to individuals. Specifically, cooperation is defined as situations in which individuals sacrifice their self-interest for the welfare of the group.

Of interest to the focus of this thesis, this same literature establishes evidence that identification with the group is a central aspect to increasing the levels of social cooperation within a situation of objective interdependence (see Dawes, van de Kragt and Orbell, 1990; Tyler and Dawes, 1993). These researchers ask: "The key psychological question is why this effect occurs. Is group membership important because they provide their members with a sense of social identity, or are groups important because they provide resources? (Tyler and Dawes, 1993, p. 93). They conclude that "there is more to group identity effects than expected resource gains from acting in the group's interests" (Tyler and Dawes, 1993, p. 94).

At the same time, the longstanding finding to come out of this research is that individuals fail to cooperate to any significant degree in situations of objective interdependence. As such, this literature is defined as addressing the "problem of interdependence" and researchers have been endeavouring to find "solutions" to this problem, that is, to increase the level of cooperation in situations of interdependence. To restate the issue, while Sherif has shown that the functional or objective interdependence of individuals can induce cooperative behavior, this has not been the finding in a number of laboratory studies wherein a number of discrete individuals are brought together in a situation of objective interdependence. Interdependence of individuals, per se, does not necessarily lead to intragroup processes such as social cooperation. Given this finding, interdependence theorist accounted for variation in level of cooperation through the definition and measurement of transformational processes such as social value orientations. Still, the results remained inconsistent and ambiguous and researchers in this area are currently searching for explanations within interdependence theory itself and related fields, such as economics and computer simulations.

In Chapter 4 an argument was presented that questioned the usefulness and validity of this pursuit. In contrast to the present surface approaches to the "problem of interdependence," it was argued that we must return to the very roots of this literature, in particular our conceptual understanding of the psychological reality of the group and the nature of self-interest. This review established that there is building evidence and argument that questions the primacy of the individual self as governor of rationality. Further, in the review of the work of the early interactionists it was determined that we

have conceptually moved away from the psychological reality of the group as these researchers understood it. This is particularly evident with the work of Lewin. For Lewin stressed interdependence only in the sense that individuals felt a certain interdependence of fate through feelings of belongingness with a group. Objective situations of interdependence would not necessarily have this effect. Further, Lewin stressed for psychology to develop, it must move from a descriptive classification approach, upheld through the development of taxonomies and typologies, to an approach that systematically builds an analysis of the mechanism underlying social behavior.

This thesis has argued that the process of social identification is the intervening factor that allows group level processes to emerge (Chapter 5). While interdependence continues to have an important role in this analysis, it is understood as product rather than precursor of group formation. The social identity analysis of group life grew from the findings of the Sherif summer camp studies and was always meant to complement these findings. However, in subsequent development, the functional interdependence structure has been emphasised, over the discontinuity he established between individual and group life.

Group life, for social identity and self-categorization theorists, is conceptualized not as an aggregate of interdependent individuals but as a cognitive re-grouping of the self which is systematically variable and always context dependent. It is a conceptualization of the self that varies in level of inclusiveness with others. This cognitive re-defining of the self, as “we” and “us” rather than “I” and “me,” allows us to re-conceptualize our understanding of self-interest and social cooperation. This conceptualization of social cognition enables individuals to engage in meaningful and productive behavior at variable levels of abstraction of the self. Depersonalization of self-perception is the basic process underlying group phenomena. At the same time, neither the individual or the group is primary in this analysis, both act in unison and are necessary aspects of cognitive functioning. Together they establish the functional antagonism within the cognitive system. High order, inclusive, self-processes are argued to be the basis of social cooperation, prosocial and helping behavior, altruism and other forms of collective action.

The empirical chapters of this thesis provided support for a social identity or self-categorization analysis of social cooperation, which was contrasted with the interdependence approach. In particular the role of establishing the outcome interdependence structure, as a necessary precondition of group based behavior, has been questioned in a

number of studies, as well as the stability of social value orientations. In line with self-categorization theory a number of other variables have also been examined. The importance of group norms and individuals perceived representativeness of these norms to group behavior was established (studies 1, 2 and 5), as well as the importance of perceived interdependence in defining the relevant social structure from the perspective of the individual (studies 3 and 4). Finally, the emergent dynamic nature of identity formation was systematically analysed (studies 2, 3 and 5). Each of these studies will now be briefly summarized.

The first study (Chapter 7) directly examined the two accounts of group-based behavior. The findings showed that while objective interdependence produced no effects, the importance of achieving social distinctiveness in terms of social identification processes showed systematic effects. The process of defining oneself in social categorical terms involved both normative and comparative dimensions. Specifically, the study showed that individuals' perceptions of normative representativeness on a relevant comparative dimension is predictive of social behavior, as the pattern of discrimination behavior showed. In line with social identity analysis, social discrimination aided in the processes of establishing social distinctiveness.

The two studies that followed directly tested ideas relevant to both theoretical accounts and were carried out in the context of the objective interdependence established through groups participating in Outward Bound courses. This context was uniquely effective in teasing out variables important to the interdependence analysis of social cooperation in two ways: (a) not only does the course structure establish parallel situations of objective interdependence; (b) the population sample showed high levels of a cooperative social value orientation as found through the ring measure. Given that the ring measure of social value orientations is one of the most systematic tools used in the literature to establish variance in levels of cooperation, if further systematic variation in this population could be established, it would provide an important conceptual advancement in the literature. In both studies this was found to be the case.

The first of these studies (Chapter 8) examined the constructs of social value orientations and group representativeness. In line with interdependence theorists social value orientations are argued to be stable interpersonal constructs within a given situation of interdependence and are argued to be predictive of cooperative behavior within a given objective situation. In contrast, self-categorization theory argues that perceived group representativeness is predictive of perceived levels of cooperative

behavior at any given time. The findings supported the latter theoretical account. This study further examined the emergent properties of group life, with the findings showing that the levels of cooperation and group representativeness increased over time.

In this same context objective intragroup and intergroup cooperation was examined (Chapter 9). In line with self-categorization theory, cooperative behavior varied with perceptions of similarity and interdependence rather than the objective common fate of individuals. Further, the same perceptual index, specifically similarity, was predictive of both intragroup and intergroup cooperation. Thus, contrary to Insko et al. (1990), as well as Bornstein (1992), there is more of a basis for the reciprocal congruency of these processes rather than a differentiated account of intergroup behavior.

The final two studies specifically utilize a resource social dilemma set in Papua New Guinea. The first study (Chapter 10) manipulated inclusive levels of social identities, predicting that social cooperation would vary with level of identification. The findings clearly supported this analysis: for the same comparable objective area of interdependence, cooperation was higher when an inclusive identity was salient. Perceptions of interdependence also varied with level of social identification. The final study (Chapter 11) examined if social cooperation varied with salience of the identity. Salience of identity predicted level of cooperation, specifically levels of cooperation varied with normative and comparative fit. The conditions of highest fit produce the greatest degree of salience and thus induced the highest level of cooperative behavior.

Taken together there was consistent evidence that social cooperation is a product of a salient social identity. Further, the consistent evidence suggests that instead of objective interdependence producing the group, the group is the basis of perceived interdependence. Thus the evidence implies that the contemporary analysis of social cooperation, through the social dilemma paradigm, must be re-examined.

12.3 Theoretical and methodological implications

Theoretically, one of the principle contributions of this thesis has been to extend the analytical domain of self-categorization theory. Specifically a self-categorization analysis of social cooperation has been developed. The general hypothesis derived from the theory, namely that cooperation is the product of a salient social identity, has been empirically tested and the results support this analysis.

It has been argued that group life is not simply a situational aspect of individual behavior that is defined and mapped out in terms of an specific interdependence structure. Group life is an important and integral reality of the psychology of the individual. And it is this aspect of social cognition that critically shapes the way individuals perceive themselves and their social world, and thus the way that individuals interact in their social environment. The self, through the processes of depersonalization, is the mechanism through which individual and group-level perception is systematically regulated (see Turner et al. 1994).

This position adopts distinct assumptions about the self and the nature of the group in comparison to the interdependence analysis. To begin, the self is no longer understood as a discrete entity, but through the processes of depersonalization can be understood to be inclusive of others. Thus, this conceptual analysis has implications for the conceptual understanding of self-interest.

... it is argued that social co-operation reflects not an interdependence of separate, personal self-interests, but a cognitive redefinition of self and self-interest and hence has a strong element of altruism, and that the effect of anonymity is often to privatize and hence personalize and not to de-individuate as is usually supposed (in other words, that it is individuation rather than de-individuation which decreases the level of co-operation, see Colman, 1982). (Turner, 1987, p. 66)

For while it remains that we always act in terms of our self-interest, that nature of the self has been re-defined to vary on a continuum of inclusiveness with others. Thus, instead of self-interest and altruism being conceptualized as opposite poles of behavior, altruism now coincides with self-interest at a higher level of abstraction of the self. Likewise, self-interest (individualism) is no longer conceptualized as an orthogonal construct to altruism, as defined by the social value orientation literature; the self and other can be defined as interchangeable. In essence, the relationship between the self and the group is re-defined. It could be argued that “the problem of interdependence” is a conceptual problem of the understanding of the self. For in contrast to self-categorization theorists, interdependence theorists define cooperation as acting in terms of the collective; however, this marks a disjuncture, for this is no longer acting in terms of self. Self-categorization theory reconciles this problem through re-defining the nature of self and self-interest.

Recall (Chapter 3) that in the social dilemma literature social cooperation is defined as self-sacrifice. In other words, acting in terms of the self does not coincide with acting in terms of the collective; the self must sacrifice its interests for the good of

the group, albeit this may benefit the individual in the long term. Likewise, for interdependence theorists, thinking of ourselves as group members and acting in terms of the collective is not a rational state of affairs. It is a biased and distorted reality that leads to poor outcomes for all involved (see Insko et al., 1993; Hardin, 1995). Thus, the primacy of the individual rational self is argued for and distinguished from group level processes. In contrast to these negative conceptualizations of group life, for self-categorization theorists, acting in terms of a group membership is a rational and normal aspect of social cognition. Thus rationality can be defined in terms of group memberships and vary systematically with identity formation. This is distinct to the type of rationality that game theory recognises, where rationality sits firmly in the realm of the discrete individual.

For social identity and self-categorization theorists, intergroup and intragroup processes are argued as equally rational and the same perceptual index, namely similarity, is predictive of both intergroup and intragroup cooperative behavior. Perceptions of similarity is the index underlying categorization processes and categorization is a sense making process that defines an individual's place in the world.

Inherent in the social categorical analysis of the self, wherein categorization is a primary mechanism, individuals will be motivated to achieve social distinctiveness in terms of the salient category of membership (social identity). This can be achieved in different ways. As Study 1 showed, where the normative dimension did not define the category distinctiveness, then discrimination aided in this process. This study also showed that objective interdependence of individuals did not account for group based behavior. The goal for participants in this study did not seem to be to increase their chances of winning the lottery, through ingroup reciprocity expectation, on the contrary the aim seemed to be to achieve comparative social distinctiveness in terms of a subjectively relevant group membership.

This analysis thus has implications for our conceptual understanding of cooperation and competition. While self-categorization theory does not deny that social competition and cooperation can arise on the basis of some objective state of affairs, objective interdependence of individuals can not account for the necessary and sufficient conditions of cooperative and competitive intergroup relations. As such, social cooperation can not solely be defined in terms of some objective state of affairs but as a social comparative product that emerges out of the categorization process of defining "us" and "them". It is a relational, not an absolute, judgment and outcome. Given this

change in emphasis, this has implications for the methodology, that is the paradigm, through which we study social cooperation.

Given this theoretical analysis, together with the fact that researchers currently utilizing the social dilemma paradigm have concluded that identification is an important process underlying social cooperation and that these same researchers are concurrently seeking new direction to understanding the “problem of interdependence,” perhaps the time is ripe for a paradigm shift. The “problem of interdependence” is a false pretence through which to understand the nature of social cooperation and group life. The paradigm pits the individual against society. However society and the individual are both necessary determinants of human nature. The real problem is how to systematically develop the conceptualization of the functional relationship between the individual and society.

This thesis has provided evidence that perceived interdependence with others varies with individuals own self-categorizations. As such a corollary to the self-categorization analysis is presented. For while self-categorization theory has always argued that the group is the basis of cooperative behavior (in contrast to cooperation being the basis of the group); this thesis has developed the argument that it is not interdependence of individuals that produces the group, the group is the basis of perceptions of interdependence. The argument put forward by self-categorization theory that the members of the same self-category are perceived as interchangeable could be the basis for social psychological interdependence, rather than social interdependence. For the evidence presented here implies that it is social psychological interdependence that is predictive of social behavior, over objectively defined social interdependence.

Thus, while the socially defined interdependence structure can be an important variable, it does not establish the primary mechanism involved. Psychological group formation is the primary processes and social cooperation is a product of the degree to which an other individual is perceived to share the same self-category. Thus by understanding the way that individuals perceive their place in the world, we will understand the nature of interdependence and social cooperation. This is critical to our understanding of intergroup relations. We need to understand interdependence from the perceiver’s point of view; that is, how the world is socially structured within the individual mind. Instead of examining situations of interdependence from the point of view of “objective” social reality, we must examine interdependence from the “subjective” state of affairs of the perceiver. In other words, the social dilemma

paradigm establishes psychological processes through deductive reasoning, through first establishing the objective interdependence structure, and then examines individuals' cooperative behavior. And after years of studies, researchers have established that identification with the group is a key factor involved in promoting cooperative behavior. Given that identity formation leads to perceptions of interdependence, it seems reasonable to now examine cooperation from the perceiver's perspective in terms of identity formation. That is from the inside out; from the point of view of the perceiver, rather than vice versa.

The social identity analysis does not deny the importance of interdependence within social structure, of course individual are interdependent with groups at many different levels of abstraction. Each of us can define ourselves in terms of a number of social groups: male or female; Canadian or Australian; cyclist or motorist. It is the nature of social identification that will be predictive of behavior in any given situation, not the objective state of affairs. By the nature of our group life we are increasingly interdependent with a wide range of individuals and groups. However on what bases can we delineate that interdependence?

While individuals can be defined in terms of their objective interdependence, this does not necessarily mean that they will perceive themselves to be interdependence within that particular group of people. For example, a group of individuals may be objectively interdependent on the basis of their membership in a particular department in a university. However, at a departmental meeting they may see themselves identifying with, and thus representing, other groups such as a women when discussing EEO (Equal Employment Opportunities) principles, or as an environmentalist when discussing paper usage in the department, or, more inclusively, as a member of the university when discussing higher education. We have the capacity of acting in terms of a myriad of group membership, however that group membership may not be the group defined in terms of the objective state of affairs. Given this, social cooperation is probably more often than not an intergroup problem rather than an intragroup problem, as defined by the commons and public goods dilemmas. Thus, it is understanding the nature of social identity and the process of identification that should be the focus of analysis.

The concept of social identity was developed by Tajfel because he recognized that individuals share social representations of themselves that define their place in society in terms of group memberships. Tajfel (1974) argued for the importance of social structure, content and process in the development of social identity theory, he stated:

Any society which contains power, status, prestige and social group differentials (as they all do), places each of us in a number of *social* categories which become an important part of our *self*-definition. In situations which relate to those aspects of our self-definition that we think we share with others, we shall behave very much as they do ... They acted together, but it was not because of any *individual* facts of their personal psychology. (Tajfel, 1977, p. 66)

Social identity theory drew our attention to the fact that we seek to evaluate ourselves positively in comparison to others, in terms of "the implicit and explicit ideologies" that constitute our variable group memberships (see Tajfel, 1981, p. 36). To act in terms of these group memberships does not constitute irrational behavior. Of course it is biased in terms of a collective reality shared by group members but this does not necessarily mean that it is irrational. Rapoport (1991) has made similar claims:

We are all human and all of our thinking is biased. Ideological commitments are a major factor in producing bias. In scientific work, bias should, of course, be guarded against because of the very nature of the scientific ethos. Since it cannot be eradicated, however, and neither can its principal source -- ideological commitments -- the best we can do is recognize those sources of bias in ourselves and admit them. The sociobiological discussions about "selfishness" and "altruism" (i.e., cooperation and competition in the living world) reveal more clearly than anywhere else the way ideological commitments have colored sociobiological thinking. (p. 99)

Social identities, with their inherent ideologies, sustain our knowledge of ourselves in terms of our place in the world and appropriate behavior. Given then that our minds are socially structured, and that we can be functionally interdependent with a wide range of social groups, social identities are important to study as they are the psychological link between the social reality of the functional interdependence of individuals and social cooperation (or collective action) in terms of this identity. It is argued that this process also underlies acts of altruism, prosocial and helping behavior. As Tajfel has argued these are active not passive processes and can not be understood fully in terms of individual differences and other abstract or piecemeal variables. On a large scale, social cooperation and competition embody the essence of social stability and social change. They are relative to the subjective state of affairs not the objective state of affairs and, as such, are always in dynamic flux, as history has revealed. Rather than focusing on the outcomes that accrue to individuals through social behavior, it is now important to focus on process underlying social behavior. We must understand the process by which identities emerge and are constituted, and the process by which the mind regenerates the state of affairs from the perspective of the perceiver. It is this process that determines social action such as cooperation and competition.

The emphasis on process relates back to the aim of this thesis: to account for a social psychological mechanism underlying social cooperation. As such we must move

from a descriptive taxonomy of interdependence properties and transformational typologies to develop a systematic casual mechanism that accounts for cooperative behavior. This is in line with Lewin, whose aim was to move psychology from a Aristotelian approach to a Galilean approach in studying group processes. Instead of understanding group life in terms of an number of interacting abstract variables, this process must be understood as a dynamic whole. Taxonomies and typologies describe the differences between different entities. However, in the end this is not very satisfactory because as scientist we know nothing about how or why this entity has emerged and how it is psychologically meaningful. Therefore a typology is only a way station. It may be a necessary way station, but always the next step is toward "how".

In summary, methodologically a paradigm shift must ensue. For the social dilemma paradigm pits the individual against the collective. Its roots are based on the economic rationalism of game theory. The inherent assumptions about human nature are in line with those of Adam Smith:

It is not from the benevolence of the butcher, the brewer, and the baker that we expect our dinner, but from their regard of their own interest. We address ourselves not to their humanity but to their self-love and never talk to them of our necessities but of their advantages. Nobody but a beggar chooses to depend chiefly on the benevolence of his fellow citizens. (1776/1910, Vol. 1, p. 13)

The belief that humans are individualistically selfish is now a common assumption made by social theorists examining social behavior, rationality and decision making. It is also a widely held assumption by lay people alike. The roots of this ethos emerge from our conceptualization of "homo economicus" through the influence of the early classic political economists such as Hobbes, Montesquieu, Hume, Smith and Tocqueville (see Ostrom, Gardner and Walker, 1994). However, none of these models has successfully provided an explanation of prosocial behavior based on the rationality of individual self-interest.

Arguments based on individual self-interest quickly become circular. In the end they are not falsifiable. This is evident in Hobbes' explanation of his own behavior, after he had given sixpence to a beggar. True to his ideology he replied: "I was in pain to consider the miserable condition of the old man; and now my alms, given some relief, doth also ease me" (Aubrey 1697/1982, p. 159). The argument that individuals always act in their self-interest is both true and false. It depends on how the self is defined. It is

false when the self is defined as a utility maximizing individual rational actor. In fact the conceptual utility of this concept is not sustainable. It quickly becomes tenuous. However, when the self is re-defined in terms of inclusive self-categorization, the prospect of finding parsimony in the social dilemma literature and working towards a fuller understanding of social relations and cooperative behavior becomes more tenable.

12.4 Directions for future research

Social cooperation is not about individuals acting in their individual self-interest, no matter how you define it. Social cooperation is about collective behavior of individuals acting in terms of their group memberships. Above all, we must continue work on defining the conceptual nexus between the individual and the group, and the research reported within this thesis highlights some interesting directions for future development.

In particular the findings of Study 1 are intriguing as the individuals who highly identified with the group and were normatively distinctive (that is highly representative of the group psychology students in comparison to economics students) did not discriminate to the same extent as those individuals who highly identified and were not normatively distinctive. It seems that discrimination behavior further achieved social distinctiveness for those who were not highly distinctive in terms of the normative dimension of comparison. The evidence suggests that distinctiveness can be achieved through both normative and discrimination processes. Gagnon and Bourhis (1996) found in their study that high identifiers in a minimal group study discriminated significantly more than low identifiers. In this minimal situation it seems that discrimination was the only means available to achieve category distinctiveness. A further study currently underway (Morrison, 1995), replicates and extends these results in a minimal group setting. The study replicated the methodology of Study 1 of this thesis but used the minimal categorization of under and over estimators of dots as the basis of social categorization. In contrast to Study 1, this study found that high identifiers, who were highly representative, discriminated more than those who were slightly and moderately representative of groups. This work compliments the work of Jettsen, Spears and Manstead (1996) who have also found significant differences in discrimination behavior between minimal and established social groups in terms of normative and discriminatory processes.

These findings have implications for the understanding and analysis of social cooperation. For they seem to indicate different processes are emphasized for groups that are in the processes of defining themselves compared to socially established groups. In other words, defining the ingroup, is often not a straight forward state of affairs. The breakdown of the former Yugoslavia, in the aftermath of the cold war, highlights the variable nature of defining the boundaries that differentiate “us” and “them”. As mentioned in the introduction of this thesis, the social reality in the former Yugoslavia is that Serbs and Croats, Serbs and Muslims, and Croats and Muslims have each defined the conflict of interests at times. It is clear that the basis for a superordinate self-categorization is not readily accessible with the breakdown of social structure. The social structure that will emerge must be re-negotiated. The processes of negotiating the new social structure through which sustainable intergroup relations will be established seems an important area of research. It seems that the social psychological processes that are at play at the early stage of development when normative social consensus has not been reached in what defines a group, are somewhat distinct from those when normative dimensions have been negotiated. The cognitive role and process underlying the building of normative social consensus seems an important area of theoretical development, for much of the meaning we invest in our pursuits as individuals is normatively derived.

Tajfel (1972) argued that subjects in the minimal group paradigm invested the situation with meaning through their allocation behavior; that is, they created distinctions between their own group and the other group. An important point that he made was that social categorization informs the perceiver, and guides appropriate actions, through structuring the individual’s relevant social environment. The process of depersonalization provides an adaptable system of self-reference that can vary with social context and define an individual’s place in society, in relation to a variable array of personal and social identities. The individual and the group are integral aspects of our cognitive system. As Tajfel states:

Membership in groups is not an idle affair. It establishes orientation and bounds for our transactions with other human beings, for good or for evil. It builds favourable or unfavourable images of ourselves and others which are more than momentary and situational. It defines aspirations, claims, and superiority-inferiority-equality arrangements between us and other groups that have unmistakable consequences on how we view and how we actually deal with the individuals in these other groups. (p. 149)

Of course, groups are not static. If we look closely enough, we easily find that the human group is not merely a collection of discrete individuals. Nor does it drop fully formed from nowhere. Every group, small or large, takes shape when its eventual members interact with mutual concerns.

Given the arguments resented in this thesis for the relevance of groups to social cognition, perhaps instead of the fundamental motivational aspect of human nature being to maximize self-interest, as it has long been understood, it may be that "the fundamental human process is the formation of social norms" (Sherif, 1966, p. 153). Further, it may be that the fundamental human process is for us to affiliate ourselves with others and define ourselves in terms of some normative distinction. What is suggested here is that instead of the fundamental nature of human beings to secure our utility as individuals; perhaps the most fundamental nature of human beings is to form groups (or disassociate ourselves from groups) and define ourselves normatively in terms of those group memberships. It is this affiliation that provides individuals with a sense of security in the world. As Sherif (1967) stated it is norms that provide our yardstick in the world. As such we must look further at the development of social norms and our propensity to seek out consensus in terms of relevant group memberships.

If psychological group membership does provide a sense of security for us and is as psychologically relevant and real as individual life, this has implications for the conceptual understanding of intergroup negotiation. This is particularly the case where an inclusive superordinate identity is not socially defined or is not normatively consistent with the expectations of individual actors. If we take, for example, the former Yugoslavia, this nation was formed through a union of a number smaller nations in response to a common enemy. However, with the fall of communism this superordinate identity, of Yugoslavia, was no longer relevant. Regional identities were salient in the minds of individuals again and their security as smaller distinct nations had to be re-defined. Social conflict ensued. If social cooperation is a product of an inclusive and salient social identity, what would be the basis of cooperative behavior in this context?

To bring peace, it seems that, in line with self-categorization theory, the best practice would be to first bring security to the most relevant identity: Serbs, Croats and Muslims. Only through the security of these relevant identities could effective negotiations proceed. This is interesting in light of the existing literature on negotiation which, in different ways, seeks to de-emphasize group boundaries to resolve conflict (see Carnevale & Pruitt, 1992; Fisher & Ury, 1981). It could very well be the case that the most promising principle of negotiation to be put into practice is for group boundaries, in

terms of relevant social identities, to be recognized and addressed. For there is good theoretical and practical reason to believe that social identification, a collective perception of self, is the psychological motivation underlying the conflict and, as such, the appropriate level to direct the intervention process in resolving the conflict. However, in theory and practice this is not often the case. Typically, the practice is to threaten the social identity at stake. So begins the escalation of the conflict.

In the context of the conflict in Northern Ireland, it was only recently that the IRA were invited to the negotiation table, and only because other options had been exhausted. Whether or not this will be effective, short and long term, remains to be seen. Nevertheless, given this analysis of the importance of group life, and its psychological reality, for the well-being and security of the individual, it is important to further develop our understanding of these individual and group level processes in negotiation. The implications for our broader understand of conflict and cooperation, social justice and peace are striking in comparison to conventional approaches.

Group life has always been an important aspect of our lives as individuals. However, within the contemporary literature reviewed here groups have been conceptualized as a negative influence on our lives as individuals. Further, the primacy of the individual has also been heedfully adopted in conjunction with this growing perspective. It just could be that both the individual and the group are primary to our cognition and social systems. Further work needs to be done to develop the conceptual nexus between the individual and the group, in terms of the normative dimensions and emergent aspects of group life.

At the same time, a certain amount of pragmatism is in order. For as Lewin has argued there is nothing as practical as a good theory. Thus, as theory is developed its practical relevance should also be promoted. The social psychology of social cooperation provides a foundation for the study of sustainable intergroup relations. A recent analysis on the current state of global affairs states that there has been a continued “failure of the old conceptual frameworks to guide timely analysis and effective multilateral intervention. ...Much remains to be done but there can be no more intellectually satisfying task than working out how to move the world from systems based on coercion and threat to ones based on trust and cooperation. This is the task of the twenty-first century” (Clements and Ward, 1994, p. 1/ 26).

12.5 Final comments

This thesis has presented a theoretical analysis of social cooperation which has sought to account for the social psychological mechanism underlying cooperative behavior. It has argued against, and presented an alternative to, the interdependence perspective of the social group. Early in the thesis two arguments were raised against this approach: (a) the conceptualization of self, narrowly conceived in terms of discrete individuals; (b) the conceptualization of the group, solely defined by the outcome interdependence structure of individuals. Rather than groups being an abstract entity to the self, wherein rationality is distorted and self-sacrifice made for the group, the self has been re-defined such that the individuals can act rationally along a continuum of self-perceptions that can be inclusive of others. Likewise, social cooperation has been re-defined as acting in terms of a group membership. In terms of this analysis, it is argued that we always act in terms of our self-interest and cooperative with others when a collective identity is salient.

In some respects the arguments presented here have been difficult to tease out, for the interdependence account has not been fully discounted and the theoretical roots and inherent ideology of this approach are entrenched in the history that we share. Indeed they provide a deep foundation for the contemporary structure of society. Having said this, this thesis has continued the course of science and built on theoretical constructs and empirical findings of earlier literature. This includes the findings of interdependence theory. The broad aim has been to provide a parsimonious approach to addressing the problem of specifying a functional mechanism that underlies social cooperation. It is my hope that this approach will provide a productive avenue to the study of social cooperation. This is in line with Bohm (1993), who stated: "Science consists not in the accumulations of knowledge, but the creation of fresh models of perception" (p. 42). It can be argued that we have catalogued enough "solutions" to social dilemmas, perhaps the time is ripe for a new perspective that builds on what we have established. This thesis presents a perspective that has gathered support through the course of the empirical work presented herein. Only future work will determine its fruition. Of course we can define social cooperation in terms of economic rationalizations; however, for a truly social psychological understanding of these process to become clearer, the research presented here suggests that we must look beyond the economic parameters that may now constrain us within the social dilemma paradigm.

In conclusion, for at least the last four centuries we have lived with the doctrine of the primacy of individual self-interest; however, it seems today that individuals and society still have much to learn about "human nature". The evidence, across disciplines, suggests that we not only require a paradigm shift in the social psychological study of social dilemmas, we, as a society, are in urgent need of a "paradigm shift" -- a shift that is necessary for sustainable intergroup relations to be tenable possibility.

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General Appendices

Appendix 7.1

Experiment 1 (Chapter 7): Instructions to participants

On the top left hand corner of this page is a letter (A to F). This letter indicates which group you are in and the extent to which you are **representative** of your group. Listed below are the letters and groups that they represent:

ECONOMICS

- A) HIGHLY REPRESENTATIVE OF ECONOMICS STUDENTS**
- B) MODERATELY REPRESENTATIVE OF ECONOMICS STUDENTS**
- C) SLIGHTLY REPRESENTATIVE OF ECONOMICS STUDENTS**

PSYCHOLOGY

- D) SLIGHTLY REPRESENTATIVE OF PSYCHOLOGY STUDENTS**
- E) MODERATELY REPRESENTATIVE OF PSYCHOLOGY STUDENTS**
- F) HIGHLY REPRESENTATIVE OF PSYCHOLOGY STUDENTS**

The following overhead shows the frequency distribution of **economics** and **psychology** students for this study. Have a look at the general pattern and distribution of A, B, C, D, E, F's and see where you are in the distribution. The numbers along the horizontal axis represent standardized scores which relate to the degree to which certain strategies are used. As is normally the case the distribution is bi-modal, reflecting the two distinct groups: **psychology** students (vertical lines-on the right) and **economics** students (horizontal lines-on the left) and the colours indicate the degree to which the different strategies are used and thus how representative individuals are of each group.

Highly representative RED,
Moderately representative GREEN,
Slightly representative BLUE.

Appendix 8.1

Experiment 2 (Chapter 8): Group's adjective listings of self-stereotyped group normsGunn

positive in attitude
supportive
persevere
able to organise
determined

Cottee

aware of others needs
positive in attitude
motivated
supportive
trusting

Sturt

supportive
positive in attitude
aware of others needs
committed
responsible

Mawson

aware of others needs
positive in attitude
trusting
supportive
persevere

Cook

positive in attitude
supportive
persevere
considerate
determined

Franklin

supportive
communicate clearly
aware of others needs
trusting
encouraging

Bass

motivated
committed
adaptable
communicate clearly
encouraging

Gilmore

positive in attitude
supportive
determined
trusting
encouraging

Appendix 9.1

Experiment 3 (Chapter 9): Vignettes used in the cooperation measure

Intragroup vignette:

You and the other members of your group are now on your final expedition back towards Tharwa. It is the first day of your expedition and after a long morning of hiking you have stopped for a break. You are looking forward to a good drink of water and a flapjack. Each member of your group has been given a limited number of flapjacks for the completion of your

journey and this will be the first of those flapjacks. As you get settled and bring out your flapjacks, one of the other members of your group tells you that their flapjacks were still in the back of their backup vehicle when it drove away. So, they have no flapjacks for their expedition.

Outward Bound outgroup vignette:

You and the other members of your group are now on your final expedition back towards Tharwa. It is the first day of your expedition and after a long morning of hiking you have stopped for a break. You are looking forward to a good drink of water and a flapjack. Each member of your group has been given a limited number of flapjacks for the completion of your

journey and this will be the first of those flapjacks. As you get settled and bring out your flapjacks, another group happens by -- it is a group from Flinders. Their flapjacks were still in the back of their backup vehicle when it drove away. So, they have no flapjacks for their expedition.

Note: Depending on course Flinders could also read Gunn, Sturt, Gilmore, Mawson, Cook, Chisholm, Bass or Cotter.

Local bush walking club vignette:

You and the other members of your group are now on your final expedition back towards Tharwa. It is the first day of your expedition and after a long morning of hiking you have stopped for a break. You are looking forward to a good drink of water and a flapjack. Each member of your group has been given a limited number of flapjacks for the completion of your

journey and this will be the first of those flapjacks. As you get settled and bring out your flapjacks, another group happens by -- it is a group from the local bush walking club. Their flapjacks were still in the back of their backup vehicle when it drove away. So, they have no flapjacks for their expedition.

Appendix 10.1

Experiment 4 (Chapter 10): Maps and Frames of reference information (originals A4 size)

10.1.1 - Map used to induce national identity within a frame of reference that includes Papua New Guinea, Australia, Indonesia and Malaysia

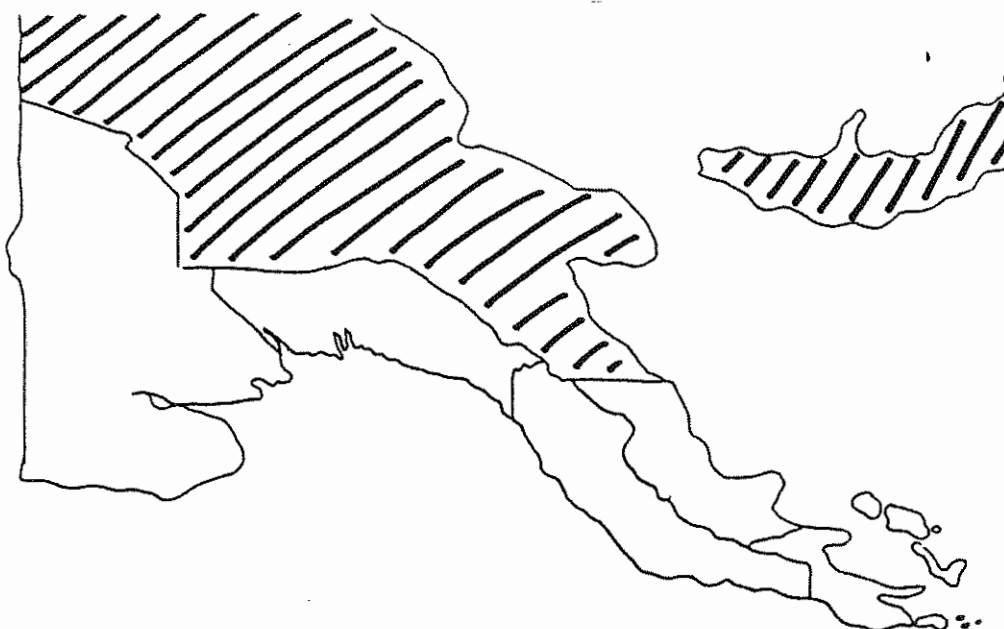


10.1.2 - Map used to induce regional identity within a frame of reference that includes the Islands, Papua, Momase and Highlands

10.1.3 - Maps used to induce provincial identity within their respective regional areas.



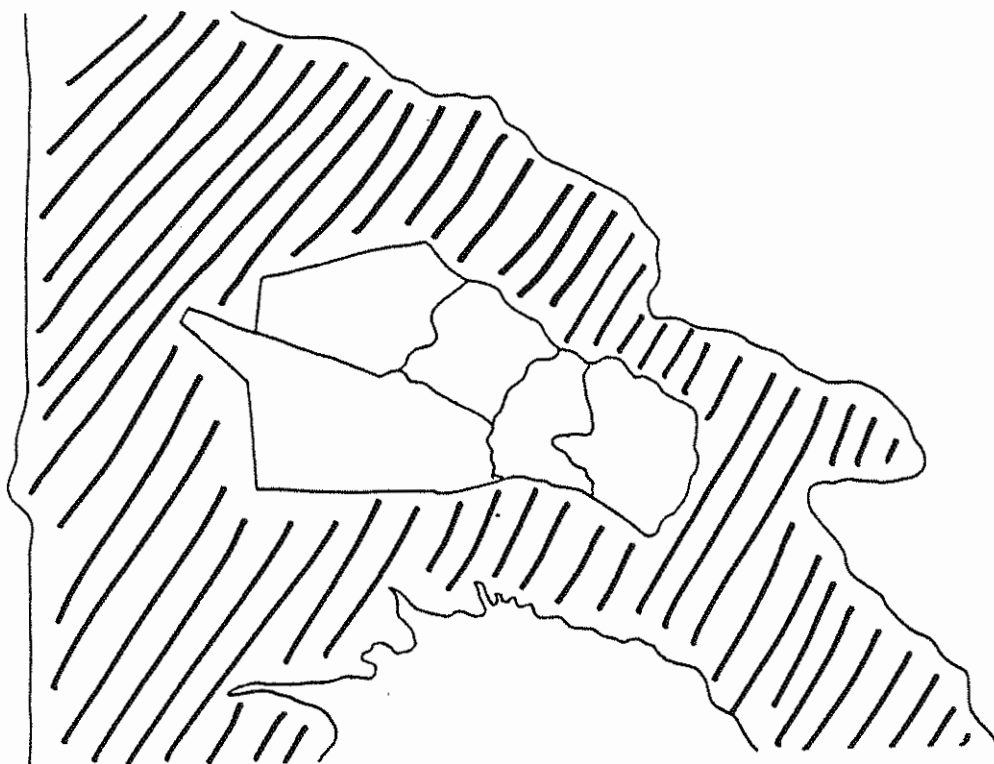
(1) Madang, Morobe, East Sepik and West Sepik (Sandaun)



(2) Northern (Oro), Central, Western (Fly), Milne Bay



(3) New Ireland, East New Britain, Northern Solomons, West New Britain, Manus



(4) Eastern Highlands, Chimbu (Simbu), Enga, Southern Highlands, Western Highlands

Appendix 10.2: Specific comparisons of dilemma conditions

National -stimulus map international (x1 - including the following nations)

Intragroup

Papua New Guinea, Indonesia, Malaysia and Australia.

Intergroup

Papua New Guinea, Indonesia, Malaysia and Australia.

Region - stimulus map national (x1 - including the following regions)

Intragroup

Papua	1) <u>Papua</u> , Highlands, Momase, Islands
Highlands	2) Papua, <u>Highlands</u> , Momase, Islands
Momase	3) Papua, Highlands, <u>Momase</u> , Islands
Islands	4) Papua, Highlands, Momase, <u>Islands</u>

Intergroup

Papua	1) Papua, Highlands, <u>Momase</u> , Islands
Highlands	2) Papua, Highlands, Momase, <u>Islands</u>
Momase	3) <u>Papua</u> , Highlands, Momase, Islands
Islands	4) Papua, <u>Highlands</u> , Momase, Islands

Province - stimulus map regional (x4 - including the following provinces)

Intragroup - Papua

Western	1) <u>Western (Fly)</u> , Gulf, Central, Milne Bay, Northern (Oro)
Gulf	2) Western (Fly), <u>Gulf</u> , Central, Milne Bay, Northern (Oro)
Central	3) Western (Fly), Gulf, <u>Central</u> , Milne Bay, Northern (Oro)
Milne Bay	4) Western (Fly), Gulf, Central, <u>Milne Bay</u> , Northern (Oro)
Northern	5) Western (Fly), Gulf, Central, Milne Bay, <u>Northern (Oro)</u>

Intergroup - Papua

Western	1) Western (Fly), Gulf, Central, Milne Bay, <u>Northern (Oro)</u>
Gulf	2) Western (Fly), Gulf, Central, <u>Milne Bay</u> , Northern (Oro)
Central	3) <u>Western (Fly)</u> , Gulf, Central, Milne Bay, Northern (Oro)
Milne Bay	4) Western (Fly), Gulf, <u>Central</u> , Milne Bay, Northern (Oro)
Northern	5) Western (Fly), <u>Gulf</u> , Central, Milne Bay, Northern (Oro)

Intragroup - Momase

Morobe	1) <u>Morobe</u> , Madang, East Sepik, West Sepik (Sandaun)
Madang	2) Morobe, <u>Madang</u> , East Sepik, West Sepik (Sandaun)
East Sepik	3) Morobe, Madang, <u>East Sepik</u> , West Sepik (Sandaun)
West Sepik	4) Morobe, Madang, East Sepik, <u>West Sepik (Sandaun)</u>

Intragroup - Momase

Morobe	1) Morobe, Madang, <u>East Sepik</u> , West Sepik (Sandaun)
Madang	2) <u>Morobe</u> , Madang, East Sepik, West Sepik (Sandaun)
East Sepik	3) Morobe, Madang, East Sepik, <u>West Sepik (Sandaun)</u>
West Sepik	4) Morobe, <u>Madang</u> , East Sepik, West Sepik (Sandaun)

Intragroup - Highland

Enga	1) <u>Enga</u> , Western Highlands, Chimgu (Simbu), Eastern Highlands, Southern Highlands
W Highlands	2) Enga, <u>Western Highlands</u> , Chimgu (Simbu), Eastern Highlands, Southern Highlands
Chimgu	3) Enga, Western Highlands, <u>Chimgu (Simbu)</u> , Eastern Highlands, Southern Highlands
E Highlands	4) Enga, Western Highlands, Chimgu (Simbu), <u>Eastern Highlands</u> , Southern Highlands
S Highlands	5) Enga, Western Highlands, Chimgu (Simbu), Eastern Highlands, <u>Southern Highlands</u>

Intergroup - Highlands

Enga	1) Enga, Western Highlands, Chimgu (Simbu), <u>Eastern Highlands</u> , Southern Highlands
W Highlands	2) Enga, Western Highlands, Chimgu (Simbu), Eastern Highlands, <u>Southern Highlands</u>
Chimgu	3) <u>Enga</u> , Western Highlands, Chimgu (Simbu), Eastern Highlands, Southern Highlands
E Highlands	4) Enga, <u>Western Highlands</u> , Chimgu (Simbu), Eastern Highlands, Southern Highlands
S Highlands	5) Enga, Western Highlands, <u>Chimgu (Simbu)</u> , Eastern Highlands, Southern Highlands

Intragroup - Islands

W N Britain	1) <u>West New Britain</u> , East New Britain, North Solomons, New Ireland,
E N Britain	2) West New Britain, <u>East New Britain</u> , North Solomons, New Ireland,
N Solomons	3) West New Britain, East New Britain, <u>North Solomons</u> , New Ireland,
N Ireland	4) West New Britain, East New Britain, North Solomons, <u>New Ireland</u> ,
Manus	5) West New Britain, East New Britain, North Solomons, New Ireland,

Intergroup - Islands

W N Britain	1) West New Britain, East New Britain, North Solomons, <u>New Ireland</u> ,
E N Britain	2) West New Britain, East New Britain, <u>North Solomons</u> , New Ireland,
N Solomons	3) <u>West New Britain</u> , East New Britain, North Solomons, New Ireland,
N Ireland	4) West New Britain, East New Britain, North Solomons, New Ireland,
Manus	5) West New Britain, <u>East New Britain</u> , North Solomons, New Ireland,

Appendix 11.1

Experiment 5 (Chapter 11): Scripts used by the six video stimuli

Person No. 1 (Indonesian) - Introduction

We are all concerned for the environment and the well being of our people. We want our countries to continue to develop but some of the multinational companies that come to our countries are taking advantage of us, exploiting our natural resources and our people. The plantations that have been established are important to our economic development, however we also need the land for other uses. We must take care of the land. It is our future. These multinational companies have no respect for the land. We must teach them respect.

Person No. 1 (Indonesian) - Consistent condition

I propose that strict guidelines must be implemented and enforced through a stronger military presence. The youth of our nations need to join the national military reserves as part time volunteers. As part of the military reserves they will be trained as officers of the land and then patrol the areas under threat of being exploited. The officers will uphold the guidelines that the government will dictate. I urge you all to join, and encourage others to join, the national military reserves - these multinationals must be made to respect the land.

Person No. 1 (Indonesian) - Inconsistent condition

I propose that guidelines need to be established and implemented that can be effectively adopted by the people who own the land. As free and independent citizens of our countries we need to take care of the land that is ours, for now and for the future. Educators must train the people of the land how look for the signs of potential exploitation of the land. We must also educate the youth to know the land as our parents have. These multinational companies have no respect for the land. The traditional respect for the land must come from us and we must teach others respect for the land, as is our tradition..

Person No. 2 (Indonesian) - Introduction

Farming of the land and agriculture are essential to our well being, as well as for our economic growth and development. We are developing new technology every day to make the most of the land and prosper from it. This is all good. The multinational companies that are coming to our country are capitalizing on our natural resources. This will be of benefit to our growth and development. But, they can take advantage of us, as a nation, and we can't allow this to happen. They must remember that it is our land and we must benefit and use it as our own.

Person No. 2 (Indonesian) - Consistent condition

The government needs to control them more. We have no power to control them and we do not want to be exploited like so many other Asian nations. At the same time we have many mouths to feed and we need to keep producing large quantities of food - extensive farming is necessary. We need to lobby the government and support them for more government control of the land. Help by supporting your local politician who will bring in stronger government control to protect the natural environment from the multinational companies.

Person No. 2 (Indonesian) - Inconsistent condition

Traditional land owners need to maintain control of their land. Strong and democratic government is needed so we can be self sustained. It is the traditional land owners that know what is best. The government and these multinational companies can not know what is best for the land. We have lived on the land for many years - we know the land and how to sustain it. We can not over extending our resources by extensive agricultural and farming practices. They must recognize that we need control of the land to manage it well.

Person No. 3 (Indonesian) - Introduction

The nature of the relationship between the people and the land is changing. People are no longer staying in one spot - there is significant migration between villages and to the cities. Because of this we are losing traditional local knowledge of the land and how to sustain it for the future. When multinational companies move into areas they can take advantage of this, and do what they want, because traditional knowledge is diminishing. This can lead to the land being exploited and ruined for the future. They will take from us, and then leave us, when there is nothing left to take. Leaving us with nothing.

Person No. 3 (Indonesian) - Consistent condition

Land owners are no longer able to care for their land. With the promotion of transmigration within the countries, such as that from Western Indonesia into Irian Jaya, there now needs to be more control of the land by the government. The land needs to be surveyed and measured so that the government can monitor the situation. Volunteers must join with government officials to help map the country, so the government knows what it has to work with and maintain control of the land. Please assist us in the promotion of, and action of, volunteers helping the government map the land.

Person No. 3 (Indonesian) - Inconsistent condition

Land owners need to maintain control of their land or there is no want for them to stay. They need to be given the control of the land, so that they may practice traditional farming. People are no longer staying in their homelands - the government is pushing them elsewhere. We are hardworking people who respect and know the land. Determining how the land should be used through agriculture, farming, etc must be kept at the local level. We have cared for the land for many years and have not overextended the land. Land matters to us we must to be self sustained in small rural villages. Help to promote traditional village life.

Person No. 4 (Papua New Guinea) - Introduction

The rainforest is an important natural resource yet many multinational corporations are disrupting this fragile ecosystem and the subsistence traditional lifestyle. The land owners must be educated to make effective decisions on how land is to be used. More than 85% of people in Papua New Guinea rely on agriculture for their livelihood. As a whole, the production of traditional food crops has kept pace with population growth. With the incoming multinational corporations, they may disrupt this balance that we have achieved in sustaining our country.

Person No. 4 (Papua New Guinea) - Consistent condition

The people of the country need to maintain control of the land. It is important that landowners are educated so that they can make effective decisions. As the population grows the problem of over using the land by farming etc will become more of an issue. By over extending local farming practices, farmers may extend their crops into unoccupied land. This could lead to further land rights conflicts. We must keep subsistence farming and modern farming practices in balance. We must promote sustained development through a democratic process - to keep our nation growing as one nation in peace.

Person No. 4 (Papua New Guinea) - Inconsistent condition

Industry and government must search for alternative ways to use the land and advise us on how to use new technology and crops to get more from the land. As the population grows, intensifying farming methods must be considered, as well as extending our growing areas. We will have to move production into unoccupied land - the government will have to take control of this land for development and to sustain economic growth. The government can work with these multinational companies, using the land as they see fit. This will provide many benefits for all people. We need to give land to the government for our common good.

Person No. 5 (Papua New Guinea) - Introduction

New Guinea contains one of the largest intact rainforests left on earth. An amazing relic of unique and exquisite biodiversity. With these multinational companies coming in they are showing a general disregard for the needs of sustainable forestry practice. Further they fail to provide adequate assessment of biodiversity and conservation values thus reinforcing the unsustainable notion of economy before ecology. We must not overuse our land resources, we depend on the rainforest and other natural resources for our survival.

Person No. 5 (Papua New Guinea) - Consistent condition

We must maintain the land in the traditional sense - self-government and self-determination are important to us. These multinational companies alienate traditional landowners in favour of government and multi-national interests. They take our power of self-determination away. We can not let them have this control. I urge each of you, when you return to your villages to help to educate the others in how to sustain the land and keep it in the hands of the traditional villagers - the people that know the land and how to use it for the future. Help us to promote this policy for our future.

Person No. 5 (Papua New Guinea) - Inconsistent condition

We must maintain the land - government intervention is important to help us do this effectively. These multinational companies are in favour of government and multi-national interests. We must work with them, as it is our hope for the future. I urge each of you, when you return to your villages to help to educate the others in how to sustain the land, by giving the government some control in determining future land use. The government will be able to keep the multi-national companies in hand. We need to educate the more traditional villagers into a different way of thinking for the future. Help us to promote this policy for our future.

Person No. 6 (Papua New Guinea) - Introduction

Hunting, fishing and agriculture are part of our life- they always have been; we have viably sustained our resources for years. We have respected the land and used it well. In return it has always provided for us. Ninety seven percent of the land in PNG is traditionally owned - this is part of our heritage. Yet we are still developing and we must increase our economic growth. Is it multinational companies that can help us with this? In what way will they become part of our future? What impact will they have on our natural resources, such as the rainforest?

Person No. 6 Papua New Guinea - Consistent condition

The land is vital to our existence - it provides for us. We need to care for it so that it can continue to provide for us. Papua New Guinea's economy is unique in that two distinct economies exist side by side - the traditional economy and the modern economy. The traditional economy supports 72% of the population and is based on subsistence farming, as it has been for many generations. The worry is that multinational companies will come in and not respect the traditional ways that have sustained us for many years. We must fight to maintain our traditional ways. Help us to educate others before we are exploited by multinationals any further.

Person No. 6 (Papua New Guinea) - Inconsistent condition

Papua New Guinea's economy is unique in that two distinct economies exist side by side - the traditional economy and the modern economy. In the past, this system has worked. But presently the government is subsidising much of the exports and this can not continue. The government must take more control of the economy by taking more control of the land and its development. This is the only way for economic growth and development to occur for us. There is little immediate potential for growth through our traditional ways. Resource development, through the government, should focus on reform of existing industries. We must help change peoples attitudes to land and development.

Statistical Appendices

7.2 Experiment 1 (Chapter 7): Summary Statistics from Analysis of Between Subjects Effects

7.2.1 Parity strategy: The pull of P on FAV: Group representativeness (High/Med/Slight) X Interdependence (Interdependent/Autonomous)

<u>Sources of variation</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Main Effects	3	102.43	3.02	.03
Group rep.	2	141.07	4.17	.02
Interdep.	1	31.36	.93	.34
2-way Interaction	2	3.39	.10	.91
Group Inter.	2	3.39	.10	.91
Explained	5	62.87	1.86	.11
Residual	96	33.88		

7.2.2 Discrimination strategy - the pull of FAV on MJP: Group representativeness (High/Med/Slight) X Interdependence (Interdependent/Autonomous)

Main Effects	3	90.23	4.16	.008
Group rep.	2	128.73	1.69	.19
Interdep.	1	10.17	0.47	.50
2-way Interaction	2	8.35	.38	.68
Group Inter.	2	8.35	.38	.68
Explained	5	57.84	2.66	.03
Residual	96	21.71		

7.2.3 Discrimination strategy - the pull of MD on MIP+MJP: Group representativeness (High/Med/Slight) X Interdependence (Interdependent/Autonomous)

Main Effects	3	63.68	2.64	.05
Group rep.	2	89.63	1.69	.19
Interdep.	1	9.31	4.81	.03
2-way Interaction	2	4.30	1.76	.18
Group Inter.	2	4.30	1.76	.18
Explained	5	39.74	2.32	.05
Residual	96	20.19		

7.2.4 Discrimination strategy - the pull of FAV on P: Group representativeness
(High/Med/Slight) X Interdependence (Interdependent/Autonomous)

<u>Sources of variation</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Main Effects	3	70.56	2.81	.04
Group rep.	2	92.43	3.68	.03
Interdep.	1	21.65	0.86	.36
2-way Interaction	2	4.41	0.18	.84
Group Inter.	2	4.41	0.18	.84
Explained	5	44.99	1.79	.12
Residual	96	25.14		

7.2.5 Joint profit strategy - the pull of MIP+MJP on MD: Group representativeness
(High/Med/Slight) X Interdependence (Interdependent/Autonomous)

Main Effects	3	56.99	2.64	.05
Group rep.	2	36.61	1.69	.19
Interdep.	1	103.86	4.81	.03
2-way Interaction	2	37.94	1.76	.18
Group Inter.	2	37.94	1.76	.18
Explained	5	50.14	2.32	.05
Residual	96	21.61		

7.2.6 Joint profit strategy - the pull of MJP on FAV: Group representativeness
(High/Med/Slight) X Interdependence (Interdependent/Autonomous)

Main Effects	3	39.97	3.73	.01
Group rep.	2	28.05	2.62	.08
Interdep.	1	69.29	6.47	.01
2-way Interaction	2	3.77	0.35	.70
Group Inter.	2	3.77	0.35	.70
Explained	5	25.72	2.40	.04
Residual	96	10.71		

7.2.7 Total ingroup matrix allocation: Group representativeness (High/Med/Slight) X Interdependence (Interdependent/Autonomous)

<u>Sources of variation</u>	df	MS	F	p
Main Effects	3	1165.81	5.15	.002
Group rep.	2	1733.01	7.65	.001
Interdep.	1	61.99	.27	.602
2-way Interaction	2	61.77	.27	.76
Group Inter.	2	61.77	.27	.76
Explained	5	719.77	3.18	.01
Residual	96	226.58		

7.2.8 Total outgroup matrix allocation: Group representativeness (High/Med/Slight) X Interdependence (Interdependent/Autonomous)

Main Effects	3	482.58	2.43	.05
Group rep.	2	335.59	1.69	.19
Interdep.	1	775.59	3.90	.03
2-way Interaction	2	147.04	0.74	.48
Group Inter.	2	147.04	0.74	.48
Explained	5	353.84	1.78	.12
Residual	96	198.67		

7.2.9 Difference between total outgroup and total ingroup matrix allocation: Group representativeness (High/Med/Slight) X Interdependence (Interdependent/Autonomous)

Main Effects	3	2547.12	4.07	.01
Group rep.	2	3603.12	5.76	.004
Interdep.	1	397.04	.64	.43
2-way Interaction	2	73.56	0.12	.89
Group Inter.	2	73.56	0.12	.89
Explained	5	1564.15	2.50	.04
Residual	96	625.36		

8.2 Experiment 2 (Chapter 8): Summary Statistics from Analysis of Between Subjects Effects

8.2.1 Intragroup representativeness over time: Repeated measures of intragroup cooperation over time (4) X group (8)

<u>Sources of variation</u>	df	MS	F	p
Between Subjects				
Within cells	89	2.91		
Condition	7	1.83	.63	.730
Within Subjects				
Within cells	267	.20		
Rating dimension	3	4.69	23.28	.000
Condition x rating dim.	21	.27	1.32	.162

8.2.2 Adjective homogeneity over time: Repeated measures of adjective descriptiveness over time (4) X group (8). Note 12 cases rejected because of missing data.

<u>Sources of variation</u>	df	MS	F	p
Between Subjects				
Within cells	76	2.05		
Condition	7	2.65	1.29	.267
Within Subjects				
Within cells	228	.53		
Rating dimension	3	2.25	4.27	.006
Condition x rating dim.	21	.70	1.32	.162

8.2.3 Intragroup cooperation over time: Repeated measures of intragroup cooperation over time (4) X group (8)

<u>Sources of variation</u>	df	MS	F	p
Between Subjects				
Within cells	89	1.96		
Condition	7	.78	.40	.901
Within Subjects				
Within cells	267	.14		
Rating dimension	3	7.39	51.47	.000
Condition x rating dim.	21	.16	1.11	.338

8.2.4 Perceived similarity to group over time: Repeated measures of individuals perceived similarity to the group over time (4) X group (8). Note 11 cases rejected because of missing data.

<u>Sources of variation</u>	df	MS	F	p
Between Subjects				
Within cells	77	6.73		
Condition	7	8.73	1.30	.263
Within Subjects				
Within cells	231	1.27		
Rating dimension	3	6.65	5.23	.002
Condition x rating dim.	21	1.41	1.11	.339

9.2 Experiment 3 (Chapter 9): Summary Statistics from Analysis of Between Subjects Effects

9.2.1 Cooperation with other: Measure of cooperation by Outward Bound group (13) and comparison other (3)

<u>Sources of variation</u>	df	MS	F	p
Between Subjects				
Within cells	119	147.80		
Comparison other	2	2396.81	16.22	.000
OB group	12	129.20	.87	.567
Comp. other x group	22	156.62	1.06	.400

10.2 Experiment 4 (Chapter 10): Summary Statistics from Analysis of Between Subjects Effects

10.2.1 Willingness to cooperate: Measure of willingness to cooperate: salient identity (3) by ingroup/outgroup comparison other (2)

<u>Sources of variation</u>	df	MS	F	p
Between Subjects				
Within cells	129	3.57		
Identity	2	8.53	2.39	.095
Comparison	1	14.97	4.20	.043
Identity x comp. other	2	0.37	0.10	.902

10.2.2 Expected cooperation of other ingroup members: Measure of expected cooperation: salient identity (3) by ingroup/outgroup comparison other (2)

<u>Sources of variation</u>	df	MS	F	p
Between Subjects				
Within cells	129	2.92		
Identity	2	2.61	0.90	.410
Comparison	1	32.07	11.00	.001
Identity x comp. other	2	3.36	1.15	.319

10.2.3 Expected cooperation of outgroup members: Measure of expected cooperation: salient identity (3) by ingroup/outgroup comparison other (2)

<u>Sources of variation</u>	df	MS	F	p
Between Subjects				
Within cells	129	3.64		
Identity	2	1.14	0.31	.731
Comparison	1	210.90	57.91	.000
Identity x comp. other	2	2.40	0.66	.519

11.2 Experiment 5 (Chapter 11): Summary Statistics from Analysis of Between Subjects Effects

11.2.1 Willingness to cooperate: Measure of willingness to cooperate: normative consistency (2) by comparative agreement (3)

<u>Sources of variation</u>	df	MS	F	p
Between Subjects				
Within cells	112	1.83		
Consistency	1	17.39	9.57	.002
Agreement	2	4.02	2.21	.114
Consistency x Agreement	2	0.01	0.01	.993

11.2.2 Similarity: Measure of similarity: normative consistency (2) by comparative agreement (3)

<u>Sources of variation</u>	df	MS	F	p
Between Subjects				
Within cells	112	1.83		
Consistency	1	18.46	9.58	.002
Agreement	2	4.62	2.40	.096
Consistency x Agreement	2	0.21	0.11	.895

11.2.3 Impression: Favourability of impression measure: normative consistency (2) by comparative agreement (3)

<u>Sources of variation</u>	df	MS	F	p
Between Subjects				
Within cells	112	2.15		
Consistency	1	8.96	4.17	.044
Agreement	2	5.11	2.38	.098
Consistency x Agreement	2	7.98	3.71	.027

11.2.4 Quality of argument: Measure of quality of argument: normative consistency (2) by comparative agreement (3)

<u>Sources of variation</u>	df	MS	F	p
Between Subjects				
Within cells	111	2.33		
Consistency	1	4.97	2.13	.147
Agreement	2	8.56	3.67	.029
Consistency x Agreement	2	3.73	1.60	.207

11.2.5 Agreement: Measure of agreement with message: normative consistency (2) by comparative agreement (3)

<u>Sources of variation</u>	df	MS	F	p
Between Subjects				
Within cells	111	2.00		
Consistency	1	11.71	5.86	.017
Agreement	2	7.90	3.95	.022
Consistency x Agreement	2	3.52	1.76	.177