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The moderating role of individualism – collectivism on
the relationship between reward structure and
cooperation?

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Table of Contents

1. Cooperation: The diverse attempts in defining it	6
1.1 Cooperation as psychological motives	6
1.2 Cooperation in terms of goal structure	7
1.3 Cooperation as behavior	9
1.3.1 Defining cooperation via its opposite: social loafing and defection	9
1.3.2 Cooperation as a conflict style	11
1.3.3 Organizational citizenship behavior (OCB) and the interactional approach to cooperation.....	11
2. Individualism – collectivism and its relation to cooperation	13
2.1 What is individualism-collectivism?	14
2.1.1 Individualism – collectivism according to Hofstede.....	14
2.1.2 Vertical and horizontal aspects of I/C.....	16
2.1.3 The four main aspects of I/C according to Triandis and colleagues	17
2.1.4 Further characteristics of individualism-collectivism.....	18
2.1.5 Individualism-collectivism as one or two dimensions? – The level of analysis issue	20
2.2 Measurement instruments of individualism-collectivism	21
2.3 Which role does individualism-collectivism play with regard to cooperation?	23
2.3.1 Is there a direct relation between I/C and cooperation?	23
2.3.2 Does individualism-collectivism mediate the relation between culture and cooperation?.....	25
2.3.3 Does individualism-collectivism moderate the relation between culture and cooperation?.....	25
3. Reward interdependence as a means of fostering cooperation?	27
3.1 Different types of reward structure and different types of rewards	28
3.2 The role of reward structure in fostering cooperation	29
3.3 Reward-allocation preferences and individualism – collectivism.....	32
4. Current study	34
4.1 Research question and hypothesis.....	34
4.2 Method	35
4.2.1 Sample and procedure.....	35

4.2.2	Vignettes and manipulation check.....	35
4.2.3	Measures	36
4.2.4	Pretest and translation procedure	37
4.3	Results	38
4.3.1	Psychometric properties of the measures	38
4.3.2	Descriptive statistics.....	42
4.3.3	Manipulation check	42
4.3.4	Hypotheses testing	44
5.	Discussion.....	48
5.1	Summary of results	48
5.2	Strengths and limitations.....	50
5.3	Contributions and implications for future research	53
	Reference list	55
	List of figures	62
	List of tables	62
	Appendix.....	63
	Abstract - English	67
	Abstract - Deutsch	69
	EIDESSTATTLICHE ERKLÄRUNG	72

1. Cooperation: The diverse attempts in defining it

When looking at the literature, three aspects strike the reader immediately: first, that cooperation is a topic that has received enormous attention from researchers of all fields (economics, sociology, psychology, anthropology, political science, organization theory, organizational behavior and strategic management). Second that the *importance* of cooperation has been recognized for a fairly long time now - be it to the success of organizations (Barnard, 1938), the effectiveness of in- or out-groups working together (Wageman & Baker, 1997) or generally in any situation where activities of differentiated tasks must be coordinated and a common end is to be pursued rather than an individual goal (Koch & Koch, 2007; Wagner, 1995). And third, that despite the apparent importance of cooperation, it is far from being clear, *what* cooperation actually is. Its definition varies not only depending on the field of research and within these fields (evolutionary versus organizational psychology), but also highly depends on the author's idea of man: While some see it as an *effort* undertaken in favor of group work in order to enhance group performance (Kidwell & Bennett, 1993; Wagner, 1995), assuming that „cooperation will not continue if its benefits do not equal or exceed its costs“ (Smith, Carroll & Ashford, 1995), others consider effort and cooperative behavior as two distinct processes (Wageman et al., 1997) and emphasize the interpersonal aspect by speaking of cooperative *relationships* (Ring & Van de Ven, 1994).

Therefore, an overview of cooperation definitions in organizational and social psychology will be given in the following sections.

1.1 Cooperation as psychological motives

In her extensive study on primitive peoples, Mead (1937) distinguishes three different kinds of behavior: competitive and cooperative – which are not opposites since they are „so loosely used in popular speech“ (p.16) – and individualistic. Although cooperation is defined as „the act of working together to one end“ and competition – accordingly – as „the act of seeking or endeavoring to gain what another is endeavoring to gain at the same time“ (p.8), it must be noted, that the aspect that is actually stressed in her definition is the underlying *motivation* of the

acting individuals: a man hunting alone still is engaged in a cooperative enterprise as long as he hunts *in order to* contribute his prey animal to a communal feast. Thus, interaction is not required in this definition. In that cooperation reflects a motive and it is each individual's relationship to the goal that determines whether or not it is cooperative behavior, she distinguishes cooperation from helpfulness since in the latter „the goal is shared only through the relationship of the helpers to the individual whose goal it actually is“ (Mead, 1937, p.17). That is to say, in helpfulness, the emphasis is on the relationship, not on the goal itself, as it is in cooperation. These goals which motivate human behavior are shaped by the culture people live in (i.e. traditional behavior that is characteristic of a certain society, area or period of time) and are not the result of an external situation, like scarcity of food, for instance.

1.2 Cooperation in terms of goal structure

Deutsch (1949) in his seminal work, defines three different kinds of *objective* relationships between goals: cooperative social situations are those in which the goals of the individuals are positively related to each other, i.e. that an individual can only attain his or her goal, when the others can attain their goal as well. Hence, the individual aspires to an outcome that is beneficial to all those participants he or she is positively linked with. From such a situation of „promotively interdependent goals“ (Deutsch, 1949, p. 132) result promotively interdependent locomotions of the people involved in the direction of these goals. A competitive social situation, on the contrary, is one where the individual can only attain his or her goal if the other participants cannot achieve their aims, i.e. their goals are negatively related, or, as Deutsch puts it, „contriently interdependent goals“ (p. 132), leading to contriently interdependent locomotions. The third category according to Deutsch consists of individualistic situations in which the respective goals are not related at all, i.e. they are independent from each other. Based on these assumptions, Deutsch proposed that such goal interdependence has direct consequences for the dynamics and outcomes of interactions. Accordingly, he theorized that cooperators are willing to help each other, to share resources and to consider each other's ideas open-mindedly, thus supporting constructive conflict management.

A conception of cooperation close to this one is the one suggested by Kelley and Thibaut (1969), who employ the term of rewards rather than goals. A structure is cooperative when the individual's reward is directly proportional to the quality of the group work, it is competitive when one person receives a maximum reward and the others a minimum – and it is individualistic when the individuals' rewards are independent of each other. According to the authors, it is these reward distribution systems that *motivate* people to behave cooperatively – thus not giving a definition, of what cooperation actually is.

An approach similar to the one proposed by Deutsch (1949), yet slightly different is the one offered by Tjosvold (1986, 1988) who makes a distinction between *objective* goal interdependence, as it is reflected by the reward and task structure, and the *subjective* goal interdependence, as it is perceived by the members of an organization. According to his theory, employees construct their idea of mutual dependence or independence using the organization's culture and structure. The conclusions they draw about their mutual dependence, i.e. the subjective interdependence, mediates the effect of objective tasks and rewards on their interaction. In a study interviewing 27 managers from an engineering consulting firm and 43 employees of a utility company (Tjosvold, 1988), it was demonstrated that a common task, shared rewards and mutual trust brought people to perceive their goals as linked, that is to say to perceive cooperative goals. Such a perception of the situation was, in return, linked to employees helping each other by exchanging resources, positive feelings about the interaction, confidence concerning future work together and progress on the task (Tjosvold, 1988). That is to say that cooperative interaction was strongly linked to both good working relationships and progress on the task.

What is striking and must be highlighted is that this definition constitutes a tautology for the purpose of the current study: here, the definition of cooperation itself is put on a level with reward structure, which otherwise is regarded as a possible means of fostering cooperation (see section 3), hence this approach does not distinguish between cooperation and how it can be fostered or hindered by certain goal or reward structures.

1.3 Cooperation as behavior

While some authors like Barnard (1938) give an extremely broad definition of cooperation as a behavior, stating that it is a „functional system of activities of two or more persons“ (p.17), there are more specific approaches to define and operationalize cooperation as a behavior. These can be divided into three quite different groups: One that defines cooperation via its opposites, such as defection in the literature on social or prisoner's dilemma (e.g. Axelrod, 1984; Komorita, Hilty & Parks, 1991; Komorita and Parks, 1995; Pillutla & Chen, 1999) or as social loafing (e.g. Wagner, 1995). Second, approaches defining cooperation as a conflict style (e.g. deDreu et al. 2000) and third, those focusing on interaction, extra-role and nonrewarded activities, such as in the organizational citizenship behavior (OCB) literature (e.g. Argyle, 1991; Dávila de Leon & Finkelstein, 2011; Moorman & Blakely, 1995; Van Dyne et al., 1994).

1.3.1 Defining cooperation via its opposite: social loafing and defection

Social loafing, i.e. individuals exerting less effort when working in a group than when working alone, and *free riding*, i.e. reduced effort and letting the others do the work when an indivisible public good is involved (Kidwell et al., 1993), have been seen – implicitly or explicitly – as the opposites of cooperation (Wagner, 1995), as they constitute the „choice to withhold cooperative effort from group endeavors“ (p.156). It becomes obvious, however, that in this field of literature emphasis is put on effort, i.e. on aspects related to performance, thus outcome. From this follows that cooperation is a behavioral pattern that is defined as increasing a group's output. This kind of definition makes the research on the relation between cooperation and group performance (e.g. Allen, Sargent & Bradley, 2003; Wageman et al., 1997) dispensable since it equates cooperation and outcome, thus, again, creating a tautology.

In addition to that, it implies an idea of man, where interpersonal aspects of the act of cooperating with others are ignored, taking only into account economic dimensions and leaving out the importance of cooperation for the maintenance of social relationships (Alencar, de Oliveira Siqueira & Yamamoto, 2007). Moreover, according to Sampson (1988), the conceptualization of cooperation as the opposite of

social loafing is of limited applicability to collectivists. To conclude, this definition presents major theoretical shortcomings, which is why it will be disregarded in the following.

Defection. Prisoner's dilemma or public good games have been used extensively to operationalize cooperation in experimental studies – by opposing it to defection (e.g. Probst & Triandis, 1999; Chen & Li, 2005; Chen, Wasti & Triandis, 2007; González Beltrán & Santoyo Velasco, 2007; Koch et al., 2007; Pillutla et al., 1999). By doing so, cooperation is delineated as a very specific behavior under very specific circumstances. Emanating from the assumption that people are self-seeking egoists (Axelrod, 1984), defection constitutes the choice that maximizes one's own outcome and exposes the partner(s) to the risk of gaining nothing in the interaction – a selfish choice that, if made by both/all, leads for both/all parties to a lower outcome than the one obtained if both/all made the cooperative yet risky choice. That is to say that this conception of cooperation always opposes personal to group interests and thus a decision must be made between maximizing one of them (Pillutla et al., 1999). The pay-off matrix is build in a way so that it is better to defect no matter whether one expects her/his partner to defect or to cooperate, but this individual rationality leads to a worse outcome for both parties than the mutual cooperation. Hence, cooperation constitutes the choice that maximizes group interest and puts one's self-interest at risk.

Hence, it assumes that people are interdependent in their respective outcomes, since the individual's pay-off depends on the partner's choice and the players' interests are not in total conflict. Therefore, compared to the approach that defines cooperation in terms of goal structure, there are no goal relations that the players can take for granted, cooperation rather constitutes the *choice* to accept the *uncertainty* of the partner's behavior.

Interestingly, while this conception emanates from the assumption of people being selfish, it emphasises that *expecting* the partner to act selfish leads to one's own defection, thus „causing unending punishment“ (Axelrod, 1984, p.15). So, despite the fundamental assumption of selfishness, the solution lies in its overcoming. Therefore, much of the literature operationalizing cooperation via social/ prisoner's dilemmas, investigates the role of trust, reciprocity and feedback on the partner's behavior in the

fostering of cooperative choices (e.g. Dasgupta, 2009; Komorita et al., 1991; Pillutla et al. 1999).

The clear advantage of this approach lies in its behavioral specificity. However, it reduces the scope and complexity of cooperative behaviors in real life (Argyle, 1991; Chen et al., 1998) and suffers, therefore, from low external validity.

1.3.2 Cooperation as a conflict style

Cooperation as a behavior not only plays a role in working situations in general, but especially when conflicts occur at work. Four different kinds of conflict resolution styles are generally identified (Boros, Meslec, Curseu & Emons, 2009): The contending/dominating style is the one where people tend to ignore the needs of others since they strive for their own goals. The avoiding conflict style is the one in which people withdraw or sidestep situations and, thus, fail to satisfy their own needs as well as those of the other party. The cooperating/ integrating style is marked by openness, that is to say that people are willing to explore the existing differences and to exchange information in order to find effective solutions that fit the needs of both/all parties. The fourth conflict resolution style consists in involving a third-party, i.e. an external mediator for negotiating and finding a solution (Boros et al., 2009).

The cooperating conflict resolution style, however, can be further divided into three subgroups: problem solving, yielding and compromising (DeDreu & Van Vianen, 2001). „Problem solving“ designates a cooperative conflict resolution style in which the parties seek a solution that is beneficial to all of them. A conflict resolution style is called „yielding“ when one party makes unilateral concessions and it is called „compromising“ when the conflict is solved by splitting the differences.

1.3.3 Organizational citizenship behavior (OCB) and the interactional approach to cooperation

The classical definition of organizational citizenship behavior (OCB) given by Organ (1988) characterizes it as „individual behavior that is discretionary, not directly

or explicitly recognized by the formal reward systems, and that in the aggregate promotes the efficient and effective functioning of the organization“ (p.4). In this context, „discretionary“ describes behavior that is not enforceable by the employment contract and which's omission, thus, is not punishable. OCB comprises several different dimensions: Altruism (Organ, 1988; Smith, Organ & Near, 1983), i.e. voluntary helping others with, or prevent the occurrence of, work-related problems (Podsakoff, MacKenzie, Paine & Bachrach, 2000). The second dimension is called generalized compliance by some authors (Smith et al.1993) or conscientiousness (Organ, 1988) or organizational obedience (Graham, 1991) by others. It comprises impersonal behaviors such as the internalization of and adherence to the organization's norms and rules, even when their compliance is not monitored (Podsakoff et al., 2000). The third element is sportsmanship, i.e. for instance not complaining about negligible matters (Organ, 1988) or maintaining a positive attitude even when one cannot get one's way (Podsakoff et al., 2000). The fourth aspect of OCB is called courtesy (Organ, 1988) or individual initiative or personal industry (Moorman et al., 1995) and it describes behaviors that go beyond the call of duty, such as advising with others before taking action. Given that it differs more in degree than in kind, it is the OCB dimension that is most difficult to distinguish from in-role behaviors (Organ, 1988). The last element of OCB is civic virtue (Organ, 1988) or organizational participation (Graham, 1991) which reflects a macro-level interest in, or commitment to, the organization as a whole, comprising the disposition to actively participate in its governance, to keep up with matters affecting the organization or looking out for its best interests, even at great personal costs (Podsakoff et al., 2000).

As suggested by Williams and Anderson (1991), these behavioral elements can conceptually be divided into two subgroups of OCB, according to the behaviors' beneficiary: OCB directed toward individuals (OCB-I) and OCB directed toward the organization (OCB-O) or, as Coleman and Borman (2000) name it: interpersonal citizenship performance and organizational citizenship performance, with – respectively – the former ones comprising altruism and courtesy and the latter ones comprising sportsmanship, civic virtue and conscientiousness.

To conclude, OCB comprises behavioral aspects that are voluntarily displayed, that benefit the organization's effective functioning and which constitute extra-role

behavior. However, it comprises both elements that involve interaction with others and some that do not.

This interactional aspect seems yet particularly relevant when it comes to cooperation. Dimensional approaches to cooperation list behaviors like helping, communication and coordination (Argyle, 1991) or resource and information exchange, giving assistance, constructive discussion of problems and conflicts as well as mutual support and encouragement (Tjosvold, 1988). So, in that OCB constitutes voluntary, extra-role behavior that benefits the organization *and* involves interaction with others, it overlaps with cooperative behavior (Chen, 1998).

2. Individualism – collectivism and its relation to cooperation

Individualism-collectivism is the dimension that has been investigated most when cultures other than the so-called Western one were researched. It was found to play a role in a great variety of topics such as conflict behavior (e.g. Forbes, Collinsworth, Zhao, Kohlman & LeClaire, 2011), competitiveness (e.g. Houston, Edge, Anderson, Lesmana & Suryani, 2012), brand loyalty (e.g. Wu, 2011) work-values (e.g. Hartung, Fouad, Leong & Hardin, 2010), empathy (e.g. Duan, Wei & Wang, 2008), subjective well-being (e.g. Suh, 2002) and the question if cultures are becoming more individualistic over time is also investigated (e.g. Hamamura, 2012) – to name only a few aspects.

Its definition, however, is fairly complex, and often no clear distinction is drawn between its *attributes* and its *consequences*. In addition to that, there is a whole clutch of different instruments measuring – or attempting to measure – individualism-collectivism. Therefore, a review of the different theoretical definitions and measures will be given in the following sections, as well as its possible relations to cooperation will be summarized.

2.1 What is individualism-collectivism?

Hofstede (1980) is oftenly considered the godfather of the construct individualism-collectivism, as he was the first one to examine systematically and cross –culturally with a large set of data the dimensions along which cultures can be described and distinguished. Individualism-collectivism (I/C) was one of these four (and later five) dimensions he identified in his work. However, though he initiated a huge amount of research on this topic by emphasizing that the distinction between individualism-collectivism has become the main challenge to the universal applicability of Western psychological theories, he has not been the first nor the last one to use this term and to try to define it. The roots of this concept date back to the ancient Greeks, when Aristoteles, in his individualist-leaning *Politics*, criticized Plato's collectivistic vision in *Republic*. Later, Weber (1958) and also Fromm (1941) described how Protestantism was both a result of the breaking down of collectivistic medieval societal structures and how at the same time it promoted individualistic tendencies, leading to more self-reliance and increasing the focus on the pursuit of personal interests.

2.1.1 Individualism – collectivism according to Hofstede

In his seminal work „Culture's consequences“ (1980/2001), Hofstede presents the findings from a survey he conducted in a large multinational business organization in 53 countries, in which he collected data in 1968 and 1972 producing over 116,000 questionnaires. From the results he obtained there, he derived four (and later five) dimensions along which cultures can be distinguished: power distance, masculinity, uncertainty avoidance, long- versus short-term orientation and individualism-collectivism. Individualism-collectivism is here considered on a cultural level, that is to say that the unit of examination are cultures/societies, not individuals and – consequently – he computed an Individualism Index (INV) for each of the 53 countries (Hofstede, 2001) (for further details concerning the level of analysis, see section 2.1.5). In this perspective, individualism and collectivism are considered the opposite ends of one single dimension, that is to say that the more collectivistic a country is, the less individualistic it is at the same time, and vice versa.

Right in the beginning of the book, i.e. in the summary, Hofstede states that individualism – collectivism is the „degree to which individuals are supposed to look after themselves or remain integrated into groups, usually around the family. Positioning itself between these poles is a very basic problem all societies face“ (Hofstede, 2001, p. XX). It thus describes the „relationship between the individual and the collectivity that prevails in a given society [...], it is reflected in the way people live together [...], and it has many implications for values and behavior“ (Hofstede, 2001, p. 209)

Individualism is characterized by a „loosely knit social framework in which people are supposed to take care of themselves and of their immediate families only“ while collectivism is characterized by a „tight social framework in which people distinguish between ingroups and outgroups, they expect their ingroup to look after them, and in exchange for that they feel they owe absolute loyalty to it“ (Hofstede, 1980, p. 45, as cited in Kirkman, Lowe and Gibson, 2006)

He summarizes a number of different aspects that may be seen as reflecting individualism-collectivism or, at least, as being closely linked to I/C. For one, it is reflected in the complexity of the family units that people live in (i.e. if they live in nuclear or extended families). Second, it affects various institutions aside from the family (political, educational and religious ones, for instance) via societal norms. Third, in the Chinese tradition (as an example of a collectivistic culture), there is no equivalent for the Western construct of „personality“ as a separate entity that is distinct from society and culture (Hofstede, 2001).

The concept of individualism-collectivism is also related to the difference between cultures that emphasize shame versus those which emphasize guilt: since shame is a feeling that requires an audience, shame cultures rely on sanctions (Benedict, 1946), thus they fit the description of collectivistic societies (Hofstede, 2001). Guilt cultures, on the contrary, rely on an „internalized conviction of sin“ (Benedict, 1946, p. 222). Therefore, guilt does not require an audience since „a man may suffer from guilt though no man knows of his misdeed“ (Benedict, 1946, p. 222). Hence, guilt cultures fit the description of individualistic societies.

Another aspect of individualism-collectivism, according to Hofstede (2001), is the distinction between high- and low-context communication, introduced by Hall

(1976). In low-context communication, the bulk of information is made explicit, which is typical for individualistic cultures, while in high-context communication, most of the information is in the physical environment or it is internalized in the persons, which is typical for collectivistic cultures (Hofstede, 2001).

Triandis and his colleagues (Kim, Triandis, Kagitcibasi, Choi & Yoon, 1994; Triandis, 1995; Triandis, 1996; Triandis et al., 1998) have then made some major contributions to the research in the field of individualism-collectivism and changed the perspective from the cultural level to the individual (see section 2.1 5).

2.1.2 Vertical and horizontal aspects of I/C

The most important theoretical extension of the construct of individualism-collectivism introduced by Triandis and colleagues (Singelis, Triandis, Bhawuk & Gelfand, 1995; Triandis, 1995) consisted in distinguishing vertical and horizontal aspects of individualism-collectivism, thus establishing *four* instead of *two* categories: vertical individualism (VI), vertical collectivism (VC), horizontal individualism (HI), and horizontal collectivism (HC) (Singelis, et al., 1995; Triandis, 1995; Triandis et al. 1998). The vertical versus horizontal dimension refers to the extent to which people perceive and accept inequalities in social relationships, especially concerning status. That is to say that horizontal collectivism (HC) is a cultural pattern, where individuals see themselves as an aspect of an in-group and as closely tied to this group, but they consider themselves as equal to others while in vertical collectivism (VC) people accept that some members of their in-group have more status than others and, thus, serving and sacrificing for this in-group is an important aspect. Accordingly, in horizontal individualism (HI) the self is seen as autonomous but equal to others and self-reliance is stressed, while in vertical individualism (VI) people are seen as different from each other and inequalities are expected, thus competition plays an important role. In other terms, the vertical aspect concerns power (in vertical collectivism) or achievement values (in vertical individualism) and the horizontal aspect consists of benevolence (in horizontal collectivism) or universalism (in horizontal individualism) (Paquet & Kline, 2009).

This additional dimension of horizontal versus vertical I/C has been theoretically related to the independent-interdependent and same-different self-construal as suggested by Markus and Kitayama (1991) in their seminal work on culture and the self. It is argued that vertical individualism (VI) represented an independent/different self-construal and horizontal individualism (HI) an independent/same self-construal, while vertical collectivism (VC) reflected an interdependent/different and horizontal collectivism (HC) an interdependent/same self-construal (e.g. Li et al., 2007).

Other authors, however, see the horizontal/vertical (HV) typology in relation to Hofstede's power distance dimension since both these constructs refer to the extent to which individuals emphasise hierarchy or perceive and are willing to accept inequalities within a group or society (e.g. Chiou, 2001; Kaushal und Kwantes, 2006). Thus, it is argued that the vertical aspects of I/C reflected high and the horizontal aspects of I/C reflected low scores on Hofstede's power-distance dimension (Triandis, 1995).

This additional horizontal – vertical dimension of individualism-collectivism has proved to be of good use in cross-cultural research. Chen, Meindl & Hunt (1997) found preliminary evidence in support of the validity and the usefulness of the horizontal – vertical dimensions in I/C (see also Li and Aksoy, 2007).

2.1.3 The four main aspects of I/C according to Triandis and colleagues

The second major contribution made by Triandis (1995) to the individualism-collectivism literature consists in the specification of the main dimensions of I/C. According to him and his colleagues, it concerns primarily four different aspects: the self, goal priority, norms versus attitudes as predictors of social behavior and the importance of relationships: While individualist see themselves as autonomous from groups, collectivists define themselves as parts of a group. This aspect of I/C relates to the distinction between the independent (in individualists) and the interdependent (in collectivists) self, as described by Markus et al. (1991). Individualists, i.e. people with an independent self, view themselves as a separate unit that is distinct from other people. The identity of this kind of self stems from its inner attributes, which are

considered unique, stable across situations and self-contained, i.e. they evolve from the individual and not her/his interactions or relations with others (Heine, 2012). Collectivists, i.e. people with an interdependent self, can be viewed as a „relational entity that is fundamentally connected to, and sustained by, a number of significant relationships“ (Heine, 2012, p. 202). The experience of identity of this kind of self depends on its position relative to others and the relationship with these others.

Second, collectivists have personal goals that overlap or are even aligned with those of their in-group and in case there is a conflict between the two, they give priority to the group's goal since they are more concerned with group harmony (Chen et al., 2007). Individualists' personal goals, on the contrary, may or may not overlap with those of their in-group, i.e., they may even be inconsistent with their in-group's goals (Gelfand, Triandis & Chan, 1996) and in case of discrepancy they find it obvious that the personal goal should have priority.

Third, norms, obligations and perceived duties best predict collectivists' social behavior while individualists' behavior is mostly governed by their own values and attitudes (Suh, 2002), their personal needs and rights or by contracts (Triandis, 1995). Bontempo and Rivero (1992, as cited in Triandis, 1995, p. 44) found a correlation of .73, $p < .001$ between Hofstede's (1980) individualism score of a country and the relative importance of norms and attitudes.

The fourth and last aspect consists in that collectivists tend to stay in relationships, even if the costs exceed the benefits, i.e. when they are disadvantageous. Individualists, on the contrary, tend to analyze rationally the advantages and disadvantages of maintaining a relationship and drop relationships when being disadvantageous (Kim et al., 1994; Triandis, 1995).

2.1.4 Further characteristics of individualism-collectivism

Again, it is Triandis and colleagues (e.g. Kim et al., 1994; Triandis, McCusker and Hui, 1990) who describe a whole slew of attributes defining individualism-collectivism. Most fundamental is the sharp distinction that collectivists draw between in- and outgroups, which individualists do not: collectivists pay more attention to ingroups and behave differently and apply different value standards, depending on

whether they deal with in- or outgroup members, that is to say they are particularistic. Individualists, by contrast, treat ingroup and outgroup members rather similarly and apply the same value standards to all, i.e. they are more universalistic (Fadil, Williams, Limpaphyom & Smatt, 2005). Collectivists have few but stable in-groups within which harmony and hierarchy play an important role since „the ingroup is supposed to be homogeneous in opinion, and no disagreement should be known to outgroups“ (Triandis et al., 1990, p. 1007). Therefore, their behavior is determined by these ingroups via norms. Individualists, by contrast, have many ingroups which they form and leave easily. Since there are so many ingroups and these may give contradictory advice or make contradictory demands, their behavior is therefore not influenced by the norms of their ingroup but by their personal attitudes (see above).

Consequently, the basic unit of analysis for collectivists are groups (in- versus outgroups) while for individualists it is individuals. In this context, Triandis et al. (1990) found collectivists to perceive their ingroups as more homogeneous than their outgroups, while individualists perceive their ingroups as more heterogeneous and their outgroups as more heterogeneous.

When horizontal relationships (e.g. spouse-spouse) are in conflict with vertical ones (e.g. parent-child), the latter takes priority over the former in collectivistic cultures while the opposite is the case in individualistic cultures (Triandis et al., 1990).

How influential the concept of individualism-collectivism is in cross-cultural psychology, can be seen in the fact that its relation to or even effect on various other constructs like trust, communication and accountability has been extensively investigated. For instance, in collectivistic cultures cognitive-based trust, i.e. trust that stems from the fact that the other person fulfills his/her responsibilities is only valued in out-group relations, while in-group relations necessitate affect-based trust. That is to say a kind of trust that indicates a socioemotional bond between the partners: their goodwill towards each other goes beyond role expectations and includes personal concern for the other (Chen, Chen & Meindl, 1998).

Suh (2002) investigated identity consistency in different cultural contexts and found it not to be a *universal* basic requirement for subjective well-being: while identity consistency does affect subjective well-being and leads to positive social

evaluations in the U.S. as an individualistic country, it is not related to well-being and positive social evaluations in collectivistic cultures such as Korea.

2.1.5 Individualism-collectivism as one or two dimensions? – The level of analysis issue

Hofstede considers individualism-collectivism on a cultural level, that is to say that the unit of examination is the number of cultures/countries, not the number of individuals (individual level). In this vision, that is to say when culture is the level of analysis, individualism and collectivism are considered the opposite ends of a single cultural dimension. Consequently, any measure of individualism is considered a measure of collectivism as well. At this cultural level, results from factor analysis support this view that individualism and collectivism are unidimensional.

On the contrary to this conception of individualism-collectivism, Triandis and his colleagues (Gelfand et al., 1996; Kim et al., 1994; Triandis, 1995; Triandis, 1996; Triandis et al., 1998) shift the focus from culture to individuals, that is to say that the level of analysis changes. In this perspective, I/C is considered as two distinct dimensions that are both multidimensional and that may coexist: collectivism may exist in a predominantly individualistic culture and a person can be collectivistic in one situation and individualistic in another. On this individual level of analysis, results from factor analysis often yield several orthogonal factors that reflect individualism and collectivism, suggesting a conceptualization of I/C as two separate and orthogonal constructs. These results imply that individuals who score high on collectivism do *not* necessarily score low on individualism. Therefore, endorsing both collectivistic *and* individualistic values does not constitute a contradiction (Kemmelmeyer et al., 2003). This conception of I/C on the individual level has been confirmed by recent research. Paquet et al. (2009) compared three different measures of I/C, including one that resulted from a meta-analysis of I/C studies of the last twenty years (Oyserman, Coon & Kemmelmeier, 2002). The results show that the average correlation between the two constructs (individualism and collectivism) is -.25, which supports the assumption that the two constructs are separate and orthogonal. It was also demonstrated via confirmatory factor analysis and using Triandis' and Gelfand's scale (1998) that a single factor solution has a quite poor fit

to the data, while the model assuming two different constructs (individualism and collectivism) with two dimensions (vertical and horizontal) generated reasonable fit to the data (Li et al., 2007).

It is therefore necessary to distinguish between the cultural and the individual level of analysis and this is also the reason why a different terminology is used, when speaking of individualism-collectivism at the individual level: here, the term *idiocentrism* is used as the equivalent of individualism and *allocentrism* as the equivalent of collectivism (Triandis, Leung, Villareal & Clack, 1985).

2.2 Measurement instruments of individualism-collectivism

Over the past 30 years, an overabundance of instruments (mostly self-report scales) measuring individualism-collectivism has been published and many researchers have constructed their own measures of I/C for the purpose of their studies – despite the fact that the measurement of I/C in cross-cultural psychology is far from being easy. There are, however, four rather well established measures that are widely used in empirical studies and which have been examined for their psychometric quality not only by the authors themselves but also by others. Three of these scales have been constructed by Triandis and colleagues, all measuring horizontal and vertical individualism-collectivism (Singelis et al., 1995; Triandis, 1996; Triandis et al., 1998). A general concern of these authors is what Cronbach (1990) called the „bandwidth versus fidelity dilemma“ (p. 208) which describes the fact that depending on how general or specific the operationalized construct is, a measurement has either a high fidelity (i.e. high consistency of the answers it obtains) or a high amount of information („bandwidth“), but not both since these two aspects are reversely related to one another. Therefore, an intermediate level of generality of the construct is desirable: with individualism and collectivism being very broad constructs, high alphas are difficult to obtain. Their specific factors, on the other hand, however, do not provide enough information („bandwidth“). Therefore, according to Singelis et. al. (1995), the distinction of horizontal and vertical aspects of individualism and collectivism present the optimal level of measurement.

Classical items of these three scales, intended to measure horizontal individualism, are, for instance, „I often do ‚my own thing‘ “ or „ I enjoy being unique and different from others“. Example items of vertical individualism are „It annoys me when other people do better than I do“ or „Competition is the law of nature“. Common horizontal collectivism items are „The well-being of my co-workers is important to me“ and „I like sharing little things with my neighbours“. Vertical collectivism items regularly contained in these three scales are, for instance, „I usually sacrifice my self-interest for the benefit of my group“ or „I would do what pleases my family, even if I detested that activity“.

The fourth main measurement is a scale resulting from a meta-analysis on various I/C-scales developed in the 1980s and 1990 (Oyserman et al., 2002). The authors proposed seven individualist and eight collectivist domains. Paquet et al. (2009) used one sample item of each domain to construct two scales (individualism-collectivism) and examined this measurement with regard to its psychometric properties. Sample items were very similar to the ones from the scales developed by Triandis and colleagues (see above), e.g. „I tend to do ‚my own thing‘“ as an individualistic item. Paquet et al. (2009), however, found these two scales not to consistently measure one single construct. In addition to that and concerning its validation via confirmatory factor analysis, they report that none of the individualism items from the Oyserman et al. (2002) study loaded on its respective factor, hence there seem to be problems concerning the dimensionality of this scale (Paquet et al., 2009).

On the contrary to these findings, the authors – who assessed also the psychometric properties of the Triandis scale from 1996 (Triandis, 1996) – report acceptable reliabilities of the four subscales of this latter (VI, HI, VC, HC) with $\alpha > 0.7$. Moreover, the correlations between the constructs supported the assumption of individualism-collectivism being two orthogonal and separate dimensions instead of two opposite ends of single continuum (Paquet et al., 2009). In addition to that, this scale presented the most coherent factor structure, at least when including the horizontal and vertical subdimension.

The 1998 version of the I/C scale developed by Triandis and colleagues (Triandis et al., 1998) was examined by Li et al. (2007) with regard to its

psychometric properties using confirmatory factor analysis. They found the conceptualization of I/C as separate constructs with multiple dimensions, i.e. vertical and horizontal aspects, to be superior to all other models (one or two factors only). To conclude, both of these studies confirmed the four factor structure suggested by Triandis and colleagues.

2.3 Which role does individualism-collectivism play with regard to cooperation?

There are three different approaches trying to explain the role of culture and, more specifically, individualism-collectivism concerning cooperation: one that suggests a direct relation between I/C and cooperation, one that assumes a mediating role and a third one stating that I/C played a moderating role.

2.3.1 Is there a direct relation between I/C and cooperation?

According to the first one, collectivists are generally more cooperative than individualists, that is to say culture directly affects cooperation (Mead, 1976; Triandis, 1990). Wagner (1995) assumed both such a direct relation between I/C and cooperation and a moderating role of I/C (see section 2.1.3). Concerning the direct relation between I/C and cooperation he argues that cooperation is in accordance with collectivists' definition of the self since they privilege the pursuit of group interests, especially when working with in-groups of close peers or colleagues and when cultural traditionalism is abated compared to modernity. He conducted an experiment with undergraduate students in the U.S, in which participants had to work together in groups for about 18-20 hours in order to analyze a case and prepare a presentation on this case analysis. Cooperation was measured via peer assessment and I/C via a self-constructed questionnaire taking items from Wagner and Moch (1986), Erez and Earley (1987) and Triandis et al. (1988). In this study, Wagner (1995) found the expected main effect of individualism-collectivism on cooperation.

Similarly, but defining social loafing as the opposite of cooperation, Early (1989) observed social loafing for individualists but not for collectivists and Matsui, Kukuyama and Onglacto (1987) showed that collectivists' performance was higher when working in a group than when working alone, indicating that collectivists might be generally more cooperative.

Dávila de Leon et al. (2011) found collectivism but not individualism to be correlated with organizational citizenship behavior (OCB), attributing their finding to different conceptions of job demands: for collectivists, helping is part of the job and not an extra-role behavior. Similarly, other researchers found people holding collectivistic values and norms to be more likely to perform OCB (Mooreman et al., 1995; Van Dyne, Vandevall, Kostova, Latham & Cummings, 2000).

However, the literature assuming a direct relation between I/C and cooperation is more heterogeneous than it might appear from this first look: Chen et al. (2005) who had their participants play a two-shot prisoner's dilemma game, found that vertical *individualism* had a negative influence on cooperative decision-making, while horizontal individualism had a positive effect – with neither vertical nor horizontal *collectivism* predicting cooperativeness.

Contrary to that but investigating the relation between I/C and cooperation as a *conflict resolution style*, Boros et al. (2010) had their participants work together for a whole semester, writing a group paper for a real course and assessing their conflict styles and levels of individualism-collectivism via a questionnaire at the end of the project. They found a strong positive influence of horizontal collectivism on cooperation. And also Komarraju, Dollinger and Lovell (2008) found both vertical and horizontal collectivists to prefer an integrating (i.e. cooperating) conflict resolution style.

Thus, evidence for this first approach on the relation between individualism-collectivism and cooperation is highly inconsistent, which may – at least in part – be due to both the various ways of defining and operationalizing cooperation as well as the various ways of measuring individualism-collectivism.

2.3.2 Does individualism-collectivism mediate the relation between culture and cooperation?

The second approach states that certain cooperation mechanisms are identical to some of the defining attributes of I/C, thus *mediating* how culture affects cooperation. For instance, since collectivists tend to have a stronger group identity and to give priority to the in-groups' goals, they are expected to cooperate more than individualists. Probst, Carnevale and Triandis (1999) found vertical collectivists to cooperate more in a prisoner's dilemma game when it was in the best interest of the group, while vertical individualists cooperated only when it was in their own best interest. These findings support the idea, that the relation between culture and cooperation is mediated by the defining attributes of cultural dimensions, in this case vertical aspects of I/C. Interestingly, *horizontal* collectivists' as well as individualists' cooperation was not affected by the difference between self and group interested – presumably due to the emphasis they place on equality – showing the theoretical as well as empirical importance of distinguishing not only individualism-collectivism but also its horizontal and vertical aspects.

2.3.3 Does individualism-collectivism moderate the relation between culture and cooperation?

While this latter conception still posits a relatively deterministic effect of culture on cooperation, some authors propose a third view, namely a contingency perspective: culture *moderates* the effects of various cooperation mechanisms (Chen et al., 1998). They argue that the effectiveness of a certain cooperation mechanism can be best predicted by the differences in the motive patterns of individualists and collectivists. Therefore, they assume, for instance, that since affect-based trust plays such an important role in collectivist cultures, it should enhance cooperation there more than in individualistic cultures (Chen et al., 1998). Interestingly, while many authors argue that collectivists are more sensitive to social clues (Chen et al., 2007; Chen et al., 2005; Suh, 2002), at the same time many expect a number of cooperation mechanisms (e.g. accountability, group size, shared responsibility, task interdependence, etc.) – which constitute social clues as well – to have larger effects on individualists than on collectivists (Wagner, 1995).

However, such a moderating effect of I/C could be shown in a study by Probst et al. (1999), where vertical collectivists cooperated more, when the *group* outcome was maximized, while vertical individualists cooperated more, when their *personal* outcome would be maximized. Likewise, in the aforementioned experiment, Wagner (1995) found that I/C moderated the relationship between accountability as well as small group size and cooperation in that accountability and group size had larger effects on individualists' cooperation than on the one of collectivists. He argues that these two factors constrain the individualists' leaning towards the pursuit of personal interest, thus „forcing“ them to cooperate.

In a study investigating the relation between group norm and cooperation, Chen et al. (2007) found this relation to be moderated by idiocentrism and allocentrism (i.e. individualism and collectivism on an individual level, Triandis, 1989) in that a cooperative group norm was related to more cooperation in allocentric people. According to the authors, these findings indicate that collectivists are not more cooperative in general, but that they are highly sensitive to social clues. Chen et al. (2005) draw a similar conclusion by following Yamagishi's (2003) idea of an *institutional* view of culture: the feeling of working with an in-group implies an informal sanction system which, in return, generates more cooperation in collectivists. This is to say that collectivists are not intrinsically motivated to cooperate but that they feel obliged to do so in in-groups while individualists - according to the authors - seem aloof to the situation or rather the question whether they are dealing with an in- or an out-group. However, as mentioned before, it appears that individualists are not *generally* independent of social clues or situational factors since they do behave differently accordingly to group size or the degree of accountability.

Chatman and Barsade (1995) found both the cultural level (IC) and the individual level (i.e. allocentrism-idiocentrism) to be predictive of cooperation: Allocentric people in collectivistic situations were most cooperative, while both idio- and allocentric people in individualistic situations were least cooperative and idiocentric people in collectivistic situations were somewhat cooperative.

To conclude, the difference between individualists and collectivists seems to lie rather in the fact that they react to *different* situational clues: collectivists' behavior is guided by perceived group norms and obligations in order to maintain group

harmony, while individualists are guided by their personal values and beliefs, which apparently is synonymous with the pursuit of self-interest in many cases.

Besides these results one must keep in mind that the miscellaneous instruments used to measure I/C were found to be neither completely independent nor entirely synonymous, hence one must be cautious in drawing cumulative conclusions from studies having used different measures (Wagner, 1995).

3. Reward interdependence as a means of fostering cooperation?

With cooperation having been recognized to be very important to work groups and, therefore, to organizations, too, the question of how it could possibly be fostered has attracted a great deal of attention. Accountability/identifiability, i.e. the question whether or not an individual's contribution to task completion can be identified, has been investigated as a potential factor to promote cooperation (Wagner, 1995), as well as group size (e.g. Alencar et al., 2007; González Beltrán, 2007; Wagner, 1995), group identity (e.g. Chen, 1996), and communication (e.g. Kerr & Kaufman-Gilliland, 1994) – to name only a few among the many that have been researched.

In organizational psychology, interdependence as a situational factor that might foster cooperation has also been intensively investigated. According to Wageman (1995) several forms of interdependence can be distinguished: task interdependence, process interdependence, goal interdependence and reward interdependence.

Task interdependence is the „degree to which an individual's performance depends upon the efforts or skills of others“ (Wageman et al., 1997, p.141), or, as Van der Vegt, Emans and Van De Vliert (1998) put it: „The interconnection between tasks such that the performance of one definite piece of work depends on the completion of other definite pieces of work“ (p. 127). According to some researchers, it constitutes the necessity of each member to *take action* for other members and has to be distinguished from *resource* interdependence in which each member can fulfill her/his part of the work alone, but resources such as information are shared and the group work is only complete when every member has finished

her/his part of the whole (Johnson & Johnson, 1989, as cited in Wageman, 1995). While task interdependence is a form of *input* interdependence (Wageman et al., 1997), goal interdependence (i.e. the way goals are defined and achieved) and reward interdependence (i.e. when individual rewards are contingent on collective performance) constitute forms of *outcome* interdependence, i.e. – in a more general way – a situation in which the outcome that an individual receives depends on the performance of the outcome of others (van der Vegt et al., 1998; Wageman, 1995).

In this section, different kinds of reward distribution, the relation between reward interdependence and cooperation as well as preferences for certain reward distribution rules among individualists and collectivists will be depicted.

3.1 Different types of reward structure and different types of rewards

Generally, three rules according to which rewards are distributed can be distinguished: First, there is *equity*, which means that rewards are distributed among the members of a group as a function of the recipient's input, performance or contribution to the achievement of a task. Within this norm, a series of different rules exist, depending on the definition of „contribution“: this may be education, job responsibility, seniority, or – the most important one in organizations – job performance. According to the *equality* rule, rewards are divided equally among all members, disregarding the respective contribution of each member. And following the *need*-based allocation rule, rewards are allocated according to members' needs (He, Chen & Zhang, 2004).

In addition to that, allocation rules can be distinguished into two different types, according to whether they increase status differences between the recipients of the rewards (so called „differential rules“) or whether they reduce such differences (so called „equalitarian rules“) (He et al., 2004). While equity rules tend to be differential (e.g. rewards based on performance, job position or job-related needs), equality rules tend to be more equalitarian (e.g. rules based on personal needs, equality among individuals or across groups) (Martin & Harder, 1994).

Concerning the *types* of rewards to be allocated Martin et al. (1994) distinguished between financial and socioemotional rewards. Following this distinction, monetary/ material and socioemotional rewards have been systematically investigated (Chen, 1995).

Furthermore, while some studies examine solely *preferences* for certain reward allocation rules, i.e. where recipients of a reward are asked to indicate what kind of reward structure they preferred (He et al., 2004), most others focus on reward allocation *behavior*, that is to say on the allocators of a reward who may or may not be recipient of this given reward at the same time (Chen, 1995; Chen, Meindl & Hui, 1998; Fischer & Smith, 2003; McLean Parks, Conlon, Ang & Bontempo, 1999).

3.2 The role of reward structure in fostering cooperation

As mentioned above, two types of structural interdependence can be distinguished: task and reward interdependence (Wageman, 2001). While task interdependence, i.e. the necessity to work together in order to accomplish a task, as a form of *input* interdependence has been investigated relatively extensively with regard to its potential to promote cooperation (Allen, et al., 2003; Van Der Veg et al., 1998; Wageman, 1995; Wageman et al., 1997), less attention has been paid to reward interdependence as as form of *outcome* interdependence.

The findings on the effect of reward interdependence on cooperative behavior are very miscellaneous and one main problem in assessing the role of reward interdependence as a cooperation mechanism is the separation of task and reward interdependence: Creating a scenario or a situation in which a group of people working together, but where every member can fulfill his/her task without the others, and where yet the reward for this task will be allocated to each member equally, is far from being easy. Earlier studies, both experimental research and field studies, (Campion, 1996; Pritchard, Jones, Roth, Stuebig & Ekeberg, 1988) that found increased cooperation under conditions of reward interdependence and that did not make this distinction, could therefore not make clear if the results found were due to task or reward interdependence or both of them (DeMatteo, Eby & Sundstrom, 1998; Van der Vegt & Van de Vliert, 2002). For instance, results of a field study conducted

on 270 supervisor-employee dyades using questionnaires suggest that both task and reward interdependence are positively and significantly related to OCB, with the relation between task interdependence and OCB being stronger. However, both of these relations were fully mediated by group cohesion (Chen, Tang & Wang, 2009).

Early studies that did make the distinction between task and reward interdependence (Leibowitz & Tollison, 1980, as cited in Van de Vegt et al., 2002) found that high outcome interdependence produced free-riding when task interdependence was low, thus showing an interaction effect between the two. Similarly, but outside the laboratory, Wageman (1995) separated task from reward interdependence and manipulated group, individual and hybrid tasks and rewards in a large U.S. corporation, that is to say she used a 3x3-design in order to assess the differential effects of both kinds of interdependence. In doing so, she demonstrated that groups performed best when there was congruency between task and reward structure. However, according to this study, it was task interdependence that was related to cooperation, while reward interdependence was related to effort.

This result was later confirmed in a laboratory experiment (Wageman et al., 1997) where pairs of participants had to correct three types of errors in an article (general errors, reference errors or errors in tables and headers). Again, three levels of task and reward interdependence were created (high, low and moderate): These pairs of participants were first trained in APA format – one for references and the other one for tables, headers and equations – and informed about the proportion of the types of errors in their respective articles, which was varied, thus creating task interdependence. Reward interdependence was manipulated by varying the pay-off scheme, i.e. they either received 50 Cent for each error corrected on their *own* article or 25 Cent for each error corrected on their own or their partner's sheet or 35 Cent for errors on their own and 15 Cent for errors on their partner's sheet. Between the training and the task they were given three minutes during which they had the opportunity to cooperate in any way (e.g. trade training sheets, teach each other what they had learnt or agree to exchange articles after a certain time). Here, again, it was task interdependence that led to increased cooperation, while it was reward interdependence that was important to performance, but not to cooperation – neither to the extent nor to the nature of cooperative strategies.

This procedure was adopted by Allen et al. (2003) who distinguished only between high and low task/reward interdependence, thus using a 2x2 design. Their results confirmed the earlier findings of Wageman et al. (1997): perceived helping behavior as one aspect of cooperative behavior was higher, when task interdependence was high and this regardless of the level of reward interdependence.

It might seem logical, however, that not only task interdependence increases cooperation but also reward interdependence since the latter creates a sense of common fate and should therefore lead to more motivation to cooperate (Fan & Gruenfeld, 1998).

And, referring to the two studies mentioned above, Moser & Wodzicki (2007) point out that given that working in the high task interdependence condition required more interaction between group members and was perceived as more complex, this condition was not comparable to the low task interdependence condition with regard to task difficulty. In addition to that, they criticise that in the settings used above (Allen et al., 2003; Wageman et al., 1997) high rewards depended directly on cooperation in the high task interdependence condition, which may have caused ceiling effects in the dependent variables (Moser et al., 2007) while in the low task interdependence condition participants could not influence the other members' performance, thus reward interdependence could not serve as an additional motivator to cooperate. To conclude, the operationalization of the two types of interdependence was not completely independent and, therefore, the effect that is exclusively due to reward interdependence could not be examined in these designs.

In order to remedy these insufficiencies, Moser et al. (2007) designed a university-based scenario permitting to investigate the solely effect of reward interdependence on cooperation intentions by completely excluding any kind of task interdependence (Moser et al., 2007). Using vignettes for manipulating reward interdependence (low vs. high) and questionnaires in order to assess the intention to cooperate as the dependent variable on a sample of 28 undergraduate and graduate students at the University of Zurich, their results indicate that willingness to help and to share information are higher under high than low reward interdependence. Consequently, this study provides preliminary evidence that not only task, but also reward interdependence can serve as a means of fostering cooperation intentions – at

least when cooperation is an option and not necessary to fulfill the task as it is the case for high task interdependence.

However, in this context, it is noteworthy that the relation between cooperation and the means of fostering it becomes tautologic or at least intertwined in the case where cooperation is defined as positively related goals (e.g. Deutsch, 1986) and reward/goal interdependence as a means of fostering these positively related goals: Cooperation and goal structure then become synonymous with each other (Yifeng & Tjosvold, 2008). Therefore and for the purpose of this study, cooperation in terms of interrelated goals will not be considered as a definition.

3.3 Reward-allocation preferences and individualism – collectivism

Reward-allocation preference denotes the attitude (both of a recipient or an allocator) toward various rules concerning their appropriateness for the allocation of a given reward (Leventhal, Karuza & Frey, 1980, as cited in He et al., 2004). This attitude needs to be distinguished from reward-allocation *behavior*, which designates only the allocator's behavior (e.g. Chen et al., 1998; Fischer et al., 2003; McLean Parks et al., 1999; Sama & Papamarcos, 2000), thus not taking into account the recipient. The reward – allocation preference oftenly also reflects the distributive justice norm prevalent in an organization (He et al., 2004).

With equity rules rewarding individual performance and contribution and with individualists focusing on individual goals and achievement, it may be assumed that individualists prefer equity-based reward allocation. Collectivists, on the contrary, can be expected to prefer equality-based rules (e.g. Hui, Triandis & Yee, 1991, as cited in Chen, Chen & Meindl, 1997) since they are considered to be more concerned with the goals and the welfare of their group than with their individual interests (Triandis, 1995) and fear differential rewards that enlarge status differences among group members (Reis, 1984) which, thus, might disturb group harmony. This hypothesis, however, was not confirmed (e.g. McLean et al., 1999) and appears to be overly simplistic.

Since collectivists tend to make a very clear distinction in their behavior between in-group and out-group members – in contrast to individualists who treat all

in a rather similar way –, other studies expected collectivists to prefer equalitarian rules for *in-group* members, but differential rules for out-group members. This hypothesis was confirmed – with collectivists' preference for differential rules for out-group members being even stronger than individualists' ones (Leung & Bond, 1984). Similarly, Sama et al. (2000) found in a meta-analysis examining eleven studies published between 1982 and 1992, that collectivists preferred equality- or need-based reward allocation rules for in-group members and equity with out-group members, while individualists generally preferred equity-based reward allocation. Hence, the relationship between I/C and reward-allocation preferences was moderated by whether in- or out-group members were involved.

Another possible distinction constitutes the type of reward being allocated: Chen (1995) found Chinese employees to prefer equity rules over equality rules for both material and socioemotional rewards, thus being rather economically oriented. U.S. employees, on the contrary, seemed more humanistically oriented, preferring equity rules only for material rewards and equality rules for socioemotional ones.

More recent studies, however, taking into account the vertical and horizontal dimensions of collectivism, found *vertical* collectivists to prefer equity rules and horizontal collectivists to prefer equality rules (Che et al., 1997; He et al., 2004: here, the effect of vertical collectivism on differential preferences was, however, mediated through productivity orientation, while the effect of horizontal collectivism on equalitarian preferences was not.).

A meta-analysis examining reward allocation behavior across different cultures conducted by Fischer et al. (2003) even comes to the conclusion that it is Schwartz' hierarchy and Hofstede's power distance dimension that best explain cross-cultural differences, while individualism-collectivism is not related to effect sizes.

Given these highly ambiguous results, Fadil et al. (2005), conceptually examined the role of individualism-collectivism in the cross-cultural applicability of equity-theory. They come to conclude that by focusing on the cognitive views of the *receiving subordinates* concerning equity and equality (rather than on the managers' allocation decisions) will enable empirical research to provide valuable insight in the cross-cultural application of equity-theory.

However, there are no studies so far that examine the role of cultural orientation (i.e. individualism-collectivism) in the relation between reward interdependence and cooperation.

4. Current study

4.1 Research question and hypothesis

Studies conducted in Western countries found that reward interdependence lead to more cooperative behavior (Moser & Wodzicki, 2007), thus it can be a mechanism for fostering cooperation in individualistic cultures. Literature examining the influence of culture on cooperative behavior, focusing on individualism-collectivism arrives at the conclusion that collectivists are not generally more cooperative than individualists, but that the extent to which they cooperate depends on whether they work with in-group or out-group members (Chen et al., 2005; Early, 1989)

Assuming that culture plays a moderating role (Chen et al., 1998) concerning the way how possible cooperation mechanisms influence cooperative behavior and that one main aspect of collectivism-individualism is the extent to which people draw distinctions between in-group and out-group members (James, 1993; Probst et al., 1999), this study assesses the question if the effectiveness of reward interdependence as a means of fostering cooperation is moderated by culture, i.e. individualism-collectivism. It is hypothesized that, first, since individualists do not draw a distinction in their behavior dependent on whether they work with in- or out-group members, the extent to which they cooperate will be influenced by the reward structure, i.e. they will cooperate more in situations of reward interdependence than when rewards are distributed according to the equity rule. Second, since collectivists make a clear distinction between in-group and out-group members, this aspect will guide their behavior more than the reward structure, thus, when working with in-group members, the extent to which they will cooperate does not depend on the structure of the reward allocated to the group.

4.2 Method

4.2.1 Sample and procedure

The sample consisted of 269 psychology students from the University of Vienna (199 females and 70 males) with an average age of 23.4 (ranging from 18 to 51; SD= 3.8) and 269 Chinese and foreign language students from the University of Qingdao, province Shandong, China (229 females and 40 males) with an average age of 22.1 (ranging from 19 to 40; SD= 1.78). A sample from China was chosen because according to Hofstede (1980) and Oyserman (2002), people there show large effects with regard to I/C, that is to say they score low on individualism and high on collectivism. Chinese were not expected to be collectivists per se on a cultural level as suggested by Hofstede (1980), hence the aim was not to compare Chinese versus Austrians (who generally may be expected to be rather individualistic) when testing the hypothesis. The inclusion of Chinese participants in the study rather served the purpose to increase variability in the sample when measuring I/C on an individual level.

4.2.2 Vignettes and manipulation check

Reward interdependence was manipulated using two versions of a vignette describing a university seminar scenario adapted from Moser and Wodzicki (2007). In these latter, participants were asked to imagine that for the purpose of the seminar, they had to write a term paper and give a presentation on a certain topic, working in a group with two other students. This necessitated a previous literature research. By indicating that this project would last for the whole semester, a long-term perspective was introduced in order to create an ingroup-feeling. In order to separate reward from task interdependence, it was stressed that they were free to choose whether they wanted to do this literature research together or by themselves. In one of the scenarios it was highlighted that marks for both the presentation and the term paper were group-based, i.e. all members of a group would get the same mark, independently of their respective contribution (reward interdependence). In the other version, on the contrary, it was pointed out that group members would get their marks individually,

contingent on their respective contribution to the presentation and the term paper (no reward interdependence).

After having read the vignette, participants were then asked to answer four questions on how they perceived the described situation with regard to task interdependence and another three on whether or not they perceived reward interdependence in the scenario. Example items in this manipulation check were „We have to closely coordinate our work in order to work effectively“ (task interdependence) or „My mark for the presentation and the term paper is primarily dependent on the evaluation of the group as a whole“ (reward interdependence). Answers were rated on a 5-point Likert-type scale ranging from 0 (absolutely not true) to 4 (absolutely true).

4.2.3 Measures

Cooperation. In order to assess the intention to cooperate as the dependent variable, questions from Moser et al. (2007) were adapted and additional items were constructed. Example items were „One of your group members is not sure if she/he cited correctly in her/his part of the term paper and asks you to proofread it with regard to citation rules. How likely is it that you tell her/him that you have much to do yourself anyway and that it is not your task to do her/his work?“ or „During literature research you find an article that might be relevant to another group member's work. How likely is it that you pass it on to her/him?“. This scale contained 16 items and answers were rated on a 5-point-Likert scale ranging from 0 (very unlikely) to 4 (very likely).

Individualism-collectivism. Items were taken from the Horizontal and Vertical Individualism and Collectivism scale developed by Triandis (1996) which Paquet et al. (2009), who compared three I/C-measures, deemed the best measure of the constructs. The horizontal individualism subscale originally contained seven items and had a reliability of $\alpha=.81$, the vertical individualism subscale originally contained eight items and had a reliability of $\alpha=.82$, the horizontal collectivism subscale originally contained eight items and had a reliability of $\alpha=.80$, and the vertical collectivism subscale originally contained eight items and had a reliability of $\alpha=.73$.

Some of these items were adapted and additional ones were constructed in order to make them easier to understand and more applicable to a university setting. For instance, the item „I like sharing little things with my neighbours“ was reformulated and split into two items: „I like sharing little things with my fellow students“ and „I like sharing little things with my friends“. In the item „It is important to me to respect the decisions made by my groups“ for instance, it was added in the end „e.g. friends, colleagues, etc.“ to make the reference point clearer. The horizontal and the vertical individualism subscales then still contained seven and eight items respectively, the horizontal collectivism subscale was expanded to nine items and the vertical collectivism subscale was reduced to seven items.

4.2.4 Pretest and translation procedure

A pretest was conducted on a sample of 40 psychology students from the University of Vienna in order to assess the quality of the measures. Reliability of the cooperation scale showed nonsatisfying results with $\alpha = .68$, even after eliminating five out of eleven items. The same held true for two out of the four I/C – scales with $\alpha = .52$ for the VC – scale (after eliminating two items), an $\alpha = .68$ for the HI – scale (also after eliminating two items). The reliabilities of the HC – and the VI – scale were satisfying with $\alpha = .75$ (also after eliminating two items) and $\alpha = .80$ respectively.

Therefore, as mentioned above, both for the scale on individualism-collectivism and the one on cooperation, additional items were constructed and some other items were restated, thus ensuring their applicability to the university context.

For the administration of this final questionnaire on the Chinese sample, it was then translated by two independent Chinese native speakers and these two versions were then compared by a third translator, a German native speaker who is fluent in Chinese and who established a final translation out of these two previous translations with regard to the original phrasing in German.

4.3 Results

4.3.1 Psychometric properties of the measures

Both the cooperation measure and the four scales measuring vertical and horizontal aspects of individualism-collectivism were assessed with respect to their factor structure and their reliabilities for each sample separately. This was necessary in order to test measurement equivalence, that is to say check whether the scales measured the same constructs in China and in Austria.

Cooperation scale. Given that, first, it is not a well established measure yet and that, secondly, additional items were constructed after the pretest, principal component analysis (PCA) was conducted on the 16 items with orthogonal rotation (varimax) – and this for the Austrian and the Chinese sample separately in order to examine whether there was the same factor structure in both samples.

The sampling adequacy for the analysis was verified by the Kaiser-Meyer-Olkin measure, $KMO = .59$ (Austria) and $KMO = .71$ (China), hence, both being above the acceptable limit of .5. According to Bartlett's test of sphericity the correlations between the items were sufficiently large to conduct PCA with $\chi^2(120) = 575.53, p < .001$ (China) and $\chi^2(120) = 521.54, p < .001$ (Austria).

The screeplot, which can be used for factor extraction with 200 or more participants (Field, 2009) – for the Chinese as well as for the Austrian sample – clearly suggested a one factor solution (see figure 1 and 2 below). However, this first factor in both sample accounts for only for 19.5 and 15.8 of the total variance respectively and 6 (respectively 7) factors with eigenvalues greater than 1 were being extracted.

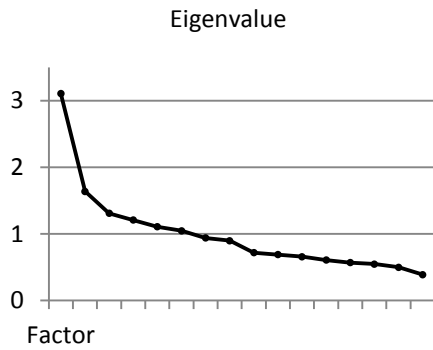


Figure 1 – One factor solution for the cooperation scale in the Chinese sample

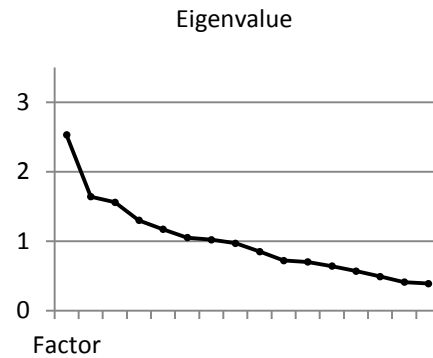


Figure 2 – One factor solution for the cooperation scale in the Austrian sample

Principal component analysis thus reveals that the factor structure of the cooperation scale is similar in both the Austrian and the Chinese sample. Therefore, the assessment of the scale with regard to its reliability was conducted on the whole sample, not separating the Chinese from the Austrian parts of the sample. Using all 16 items, Cronbach's Alpha was only $\alpha = .40$. After eliminating items in several steps, reliability of $\alpha = .64$ was reached with eight items remaining in the final scale.

Individualism-collectivism. Unrotated principal component analysis (PCA) was conducted on the 31 items– and this for the Austrian and the Chinese sample separately in order to examine whether there was the same factor structure in both samples.

The sampling adequacy for the analysis was verified by the Kaiser-Meyer-Olkin measure, $KMO = .73$ (China) and $KMO = .72$ (Austria), hence, both being above the acceptable limit of .5. According to Bartlett's test of sphericity the correlations between the items were sufficiently large to conduct PCA with $\chi^2(465) = 1975,78, p < .001$ (China) and $\chi^2(465) = 1818,96, p < .001$ (Austria).

The screeplot, which can be used for factor extraction with 200 or more participants (Field, 2009) suggested a four factor solution for the Chinese sample and a three factor solution for the Austrian sample (see figure 3 and 4 below). These

factors account for 38.1 and 30.5 of the total variance respectively and 10 factors with eigenvalues greater than 1 were being extracted (in both samples).

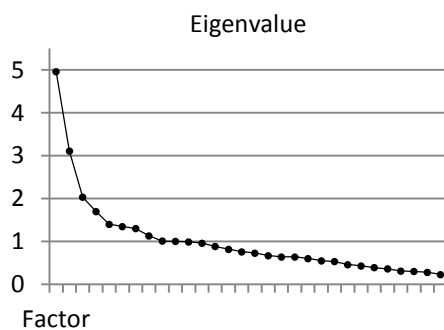


Figure 3 – Four factor solution for the I/C scale in the Chinese sample

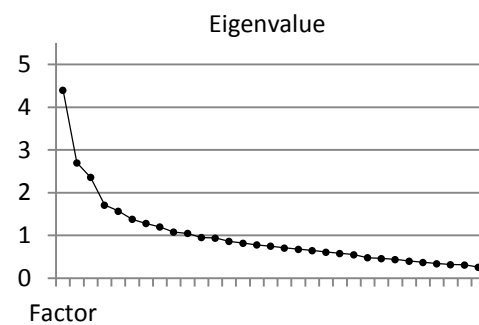


Figure 4 – Three factor solution for the I/C scale in the Austrian sample

Given that there was a different number of factors for the two samples, factor loadings of the items were closely examined.

For the Chinese sample, this revealed that all of the horizontal collectivism items had loadings greater than .4 on the first factor which accounted for 16.0 percent of the total variance. On the second factor, 5 out of the 7 horizontal individualism items had loadings greater than .4 with this factor accounting for 10.0 percent of the total variance. On the third factor, three vertical collectivism and three vertical individualism items had loadings greater than .4, with this factor accounting for only 6.5 percent of the total variance. The fourth factor accounted for 5.5 percent of the total variance and only HC – item had a factor loading greater than .4.

Thus, while the first two factors seem to reflect collectivistic and individualistic aspects of a *horizontal* orientation, the third factor globally reflects both collectivistic and individualistic aspects of a *vertical* orientation.

For the Austrian sample, this revealed that seven out of the eight vertical individualism items had loadings greater than .4 on the first factor which accounted for 14.2 percent of the total variance. On the second factor, three horizontal individualism items and two horizontal collectivistic items had loadings greater than .4 with this factor accounting for 8.7 percent of the total variance. On the third factor, three vertical individualism and one vertical collectivism item had loadings greater than .4, with this factor accounting for 7.6 percent of the total variance. Thus, in the

Austrian sample, while the first factor seems to represent vertical individualism, the second one contains mostly horizontal and the third one mostly vertical items.

To conclude, the factor structure between the two samples not only differs with regard to the number of factors but also with regard to what the factors represent.

Concerning the scales' reliabilities, these were, again, assessed for both samples separately since the items might not correlate in the same way in both cultures and thus not form scales (Hofstede, 1980).

Chinese sample. Cronbach's Alpha for the vertical individualism scale was $\alpha = .51$ when all of the originally eight items were included. Reducing the scale to 5 items increased it only to $\alpha = .59$. (Items VI 8, VI 2 and VI 5 were eliminated). Reliability for the vertical collectivism scale was only $\alpha = .46$ when all of the originally seven items were included. Reducing the scale to 5 items increased it only to $\alpha = .59$. (Items VC 2 and VC 3 were eliminated). As for the horizontal individualism scale, Cronbach's Alpha including all seven items was $\alpha = .65$ which increased to $\alpha = .73$ when items HI 1 and HI 4 were excluded. All nine items of the horizontal collectivism scale were retained with $\alpha = .79$.

Austrian sample. All eight items of the vertical individualism scale were retained with $\alpha = .78$ and further item elimination did not increase it anymore. Reliability for the vertical collectivism scale was only $\alpha = .50$ when all of the originally seven items were included and exclusion of items did not increase the reliability either. As for the horizontal individualism scale, Cronbach's Alpha including all seven items was $\alpha = .66$ which increased to $\alpha = .68$ when item HI 1 was excluded. Elimination of item HC 4 increased the reliability of the horizontal collectivism scale from $\alpha = .67$ only to $\alpha = .68$.

However, since a scale needed to be constructed to measure I/C in both samples, reliabilities for the whole sample were calculated as well. The resulting Cronbach's Alphas for the four scales were $\alpha = .75$ for VI (after eliminating VI 3 and VI 1), $\alpha = .56$ for VC (after eliminating VC 2 and VC 1), $\alpha = .68$ for HI (after eliminating HI 1 and HI 4), and $\alpha = .72$ for HC with no item being excluded.

4.3.2 Descriptive statistics

Cooperation. The mean for the cooperation scale in the Chinese sample was slightly lower ($M= 2.39$; $SD= 0.39$) than in the Austrian sample ($M= 3.03$; $SD= 0.47$). Though this difference was significant $t(520)= - 17,13$, $p< .01$., the effect was very small.

Individualism-collectivism. The mean for the vertical individualism scale was higher in the Chinese than in the Austrian sample ($M= 2.34$; $SD= 0.47$ and $M= 1.42$; $SD= 0.71$ respectively). This was also the case for the vertical collectivism scale where the mean was higher in the Chinese than in the Austrian sample ($M= 2.36$; $SD= 0.39$ and $M= 1.83$; $SD= 0.52$ respectively). With Levene's test being significant for both these constructs, homogeneity of variances lacked and t-test could not be interpreted.

On the horizontal scales, however, the opposite held true: here, Austrians scored on average higher than Chinese, both on horizontal individualism ($M= 2.73$; $SD= .65$ and $M= 2.63$; $SD= 0.68$ respectively) and on horizontal collectivism ($M= 3.09$; $SD= 0.44$ and $M= 3.01$; $SD= 0.45$ respectively). Though these differences were significant (for the HI – score $t(530)= - 1,77$, $p< .05$ and $t(524)= -2,12$, $p<.05$ for the HC – score) the effects were very small.

4.3.3 Manipulation check

Two-way ANOVA (country x reward interdependence condition) was conducted to check whether the reward interdependence manipulation had been successful. With post-hoc Levene's test being significant, homogeneity of variances was not fulfilled and significant main or interaction effects could not be interpreted. However, from the means certain tendencies became obvious: In the Austrian sample the manipulation appeared to have been successful with participants in the reward interdependence condition scoring generally significantly higher than their counterparts in the no – reward interdependence condition ($M= 2.90$; $SD= 0.59$ and $M= 1.50$; $SD= 0.80$ respectively). In the Chinese sample, on the contrary, difference of means between the reward interdependence condition and the no – reward interdependence condition ($M= 2.45$; $SD= 0.60$ and $M= 2.37$; $SD= 0.57$ respectively)

was almost not existent, hence indicating that some of the participants had not understood the manipulation (see figure 5).

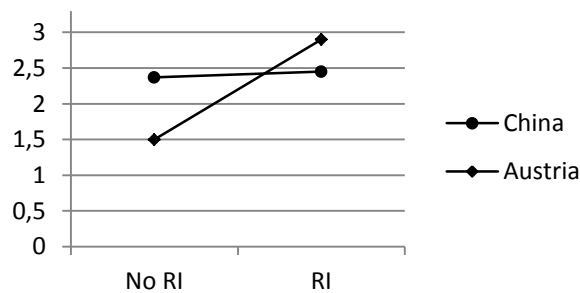


Figure 5 – Perceived reward interdependence in the two conditions in China and Austria

In order to determine more exactly – and exclude – those participants where the manipulation had not been successful, the score of the perceived reward interdependence was linked to the actual condition. That is to say only those in the RI – condition with a score of *perceived* reward interdependence above 2.25 and those in the no – RI – condition with such a score below 1.57 (i.e. about half a SD below and above the theoretical mean of 2.0) were included. This resulted in a distribution of cases over the two conditions and two samples as shown in table 1 below.

Table 1- Sample sizes before and after the manipulation check

		Condition		Total
Country		Reward interdependence	No Reward interdependence	
	China	8 (131)	60 (135)	68 (266)
	% of total	3.4%	25.3%	28.7%
	Austria	64 (131)	105 (135)	169 (266)
	% of total	27.0%	44.3%	71.3%
Total		72 (262)	165 (270)	237 (532)
		30.4%	69.6%	

N.B.: Numbers in brackets indicate the size of the (sub-) sample before the manipulation check

From this it is obvious that what gave cause for concern were the Chinese participants in the N RI – condition with only eight cases left. On the one hand, such a small size of a subsample makes inference statistical analysis actually impossible. But, on the other hand, using the whole sample, i.e. including those who were not aware of the manipulation, renders the manipulation in itself obsolete. Hence, in the following section, both hypotheses will be tested twice: once using the whole sample, once only including the cases in which manipulation was successful.

4.3.4 Hypotheses testing

The two hypotheses suggest individualism-collectivism to affect the strength of the relation between reward interdependence as the predictor and cooperation intentions as the criterion variable, that is to say I/C is a moderator. With individualism-collectivism being not one continuum but two (or rather four) distinct dimensions, every participant's score on each of the four scales (i.e. horizontal individualism, vertical individualism, horizontal collectivism and vertical collectivism) was calculated. Since answers had been measured on a 5-point Likert scale ranging from 0 to 4, it was defined a cut-off point, that is to say that a person scoring above two on one of these four scales would be considered as falling into this category. For instance, a participant with a score of 2.5 on the horizontal individualism scale would be considered a horizontal individualist, while a person with a score of 1.5 would be considered *not* to be a horizontal individualist. Thus, with each of the two (respectively four) I/C – dimensions being split into two groups, and with type of reward allocation being a dichotomous variable, according to Baron and Kenny (1986), a 2 x 2 x 2 factorial ANOVA could be conducted in order to test the two hypotheses. Sex was included as a covariate to account for possible effects of the uneven sex distribution.

Including the whole sample disregarding the manipulation check results

Horizontal aspects of individualism/collectivism as a moderator to the relation between reward interdependence and cooperation:

There was a non-significant three-way interaction effect of horizontal collectivism, horizontal individualism and reward interdependence on cooperation, $F(1, 498) = .04, p > .05$, partial $\eta^2 = .00$. In addition, none of the two-way interactions was significant (horizontal collectivism and horizontal individualism on cooperation, $F(1, 498) = .26, p > .05$, partial $\eta^2 = .001$; horizontal individualism and reward interdependence on cooperation, $F(1, 498) = .31, p > .05$, partial $\eta^2 = .001$; horizontal collectivism and reward interdependence on cooperation, $F(1, 498) = 2.06, p > .05$, partial $\eta^2 = .004$). However, there was a significant main effect of horizontal collectivism, $F(1, 497) = 11.99, p < .05$, partial $\eta^2 = .02$, which could be interpreted given that the interaction effects were not significant (Bortz & Döring, 2002): those participants scoring high on horizontal collectivism cooperated significantly more ($M = 2.73$; $SD = .53$) than those scoring low ($M = 2.16$; $SD = .52$). Yet, this effect was very small.

Vertical aspects of individualism/collectivism as a moderator to the relation between reward interdependence and cooperation:

There was a non-significant three-way interaction effect of vertical collectivism, vertical individualism and reward interdependence on cooperation, $F(1, 497) = 1.02, p > .05$, partial $\eta^2 = .002$. The two-way interaction of vertical collectivism and vertical individualism on cooperation was non-significant as well, $F(1, 497) = .34, p > .05$, partial $\eta^2 = .001$, as was the two-way interaction of reward interdependence and vertical individualism on cooperation, $F(1, 497) = .002, p > .05$, partial $\eta^2 = .00$. However, there was a significant hybrid two-way interaction of reward interdependence and vertical collectivism on cooperation, $F(1, 497) = 4.00, p < .05$, partial $\eta^2 = .01$. (See figures 6 and 7) That is to say that those who scored low on vertical collectivism (VC) cooperated significantly more in the reward interdependence condition than in the no – reward interdependence condition, while

those scoring high on VC cooperated approximately to the same extent in both conditions. This effect was, however, extremely small.

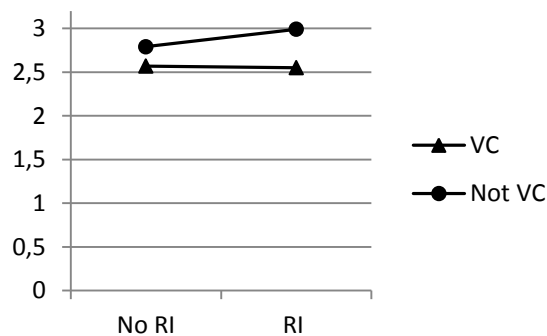


Figure 6 – Significant two-way interaction effect of vertical collectivism and reward interdependence condition (I)

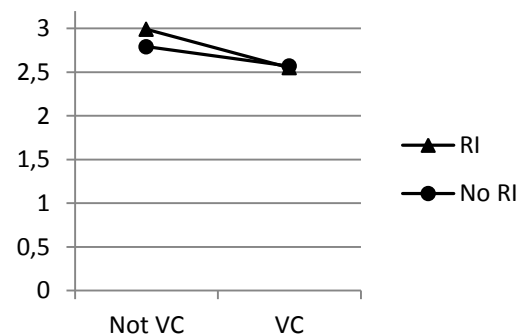


Figure 7 – Significant two-way interaction effect of vertical collectivism and reward interdependence condition (II)

In addition, there was a significant main effect of vertical individualism, $F(1, 497) = 69.83$, $p < .05$, partial $\eta^2 = .12$, with those participants scoring low on vertical individualism cooperating significantly more ($M = 2.91$; $SD = .48$) than those scoring high ($M = 2.50$; $SD = .51$). However, this effect was, again, very small.

Including only those participants for whom the manipulation was successful

Horizontal aspects of individualism/collectivism as a moderator to the relation between reward interdependence and cooperation:

The three-way interaction of horizontal collectivism, horizontal individualism and reward interdependence on cooperation could not be calculated since there were no participants who scored low both on horizontal collectivism *and* horizontal individualism. Thus, with one subgroup missing, three-way interaction could not be assessed (Bortz et al., 2002). In addition, none of the three two-way interactions was significant (horizontal collectivism and horizontal individualism on cooperation, $F(1, 415) = .04$, $p > .05$, partial $\eta^2 = .00$; horizontal collectivism and reward interdependence on cooperation, $F(1, 415) = .02$, $p > .05$, partial $\eta^2 = .00$; horizontal individualism and reward interdependence on cooperation, $F(1, 415) = .01$, $p > .05$, partial $\eta^2 = .00$). Therefore, the interpretation of the main effect of horizontal collectivism was feasible, $F(1, 415) = 8.12$, $p < .05$, partial $\eta^2 = .02$. Those scoring high on horizontal

collectivism cooperated significantly more than those scoring low. This effect was, however, extremely small.

Vertical aspects of individualism/collectivism as a moderator to the relation between reward interdependence and cooperation:

There was a non-significant three-way interaction effect of vertical collectivism, vertical individualism and reward interdependence on cooperation, $F(1, 412) = 2.45, p > .05$, partial $\eta^2 = .01$. However, there was a significant hybrid two-way interaction of reward interdependence and vertical individualism on cooperation, $F(1, 412) = 4.86, p < .05$, partial $\eta^2 = .01$, which shows that while the extent to which those scoring low on vertical individualism was high in both conditions (reward interdependence versus no – reward interdependence), those scoring high on vertical individualism cooperated significantly less in the reward interdependence condition than in the NRI-condition. (See figures 8 and 9)

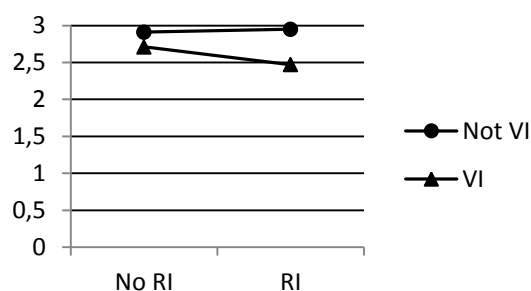


Figure 8 – Significant two-way interaction effect of vertical individualism and reward interdependence condition (I)

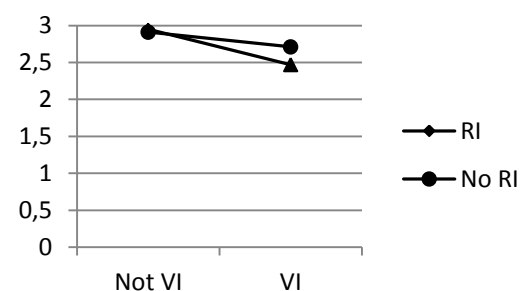


Figure 9 – Significant two-way interaction effect of vertical individualism and reward interdependence condition (II)

Since the interaction is hybride, the main effects of these two factors cannot be interpreted (Bortz et al., 2002). However, there also was a main effect of the third factor, vertical collectivism ($F(1, 412) = 2.10, p < .05$, partial $\eta^2 = .02$) with those scoring low on VC cooperating significantly more ($M = 2.91$; $SD = .43$) than those scoring high ($M = 2.60$; $SD = .51$). Again, the effect was extremely small.

Table 2 – Summary of results

	Whole sample	Manipulation check successful
Horizontal I/C	Main effect of HC	Main effect of HC
Vertical I/C	- Interaction of VC and RI - Main effect of VI	- Interaction of VI and RI - Main effect of VC

5. Discussion

5.1 Summary of results

It was hypothesised that individualism-collectivism would have a moderating effect on the relation between reward structure and cooperation. However, no support was found in the results. Both when including the whole sample and when considering only those cases where the manipulation had been successful, there was a main effect, however, of horizontal collectivism, suggesting that horizontal collectivists cooperate more than those people who cannot be considered HC. Thus there seems to be a direct relation between HC and cooperation, just as it is assumed in some parts of the literature (e.g. Wagner, 1995). Also, it seems noteworthy, that on the horizontal dimension of I/C, reward structure did not play a role at all with relation to cooperation.

The results comparing individualism and collectivism in its *vertical* dimensions with regard to reward structure were inconsistent between the sample as a whole and the part where the manipulation check had been successful: in the former, the interaction between reward structure and vertical collectivism was significant, showing that the reward structure had a greater effect on those scoring low on VC than those who can be considered vertical collectivists. Thus, it appears that VC is rather a hindrance when using reward structure as a means to foster cooperation. In this part of the sample, a main effect was found for vertical individualism, with participants scoring low on VI cooperating significantly more than those who can be

considered vertical individualists. Hence, here it is vertical individualism that appears to be generally hindering cooperation.

In the latter part of the sample, on the contrary, the opposite results were found: reward structure interacted with vertical individualism in that vertical individualists cooperated significantly *less* in the reward interdependence condition than in the NRI-condition, while the amount of cooperation of those scoring low on VI was the same in both conditions – which was also above the VI's ones. This was somewhat unexpected since it suggests that reward interdependence has a negative effect on vertical individualists with regard to cooperation. The main effect of VC found in this part of the sample was, on the contrary, less surprising, suggesting that vertical collectivists cooperate generally more than those who have no VC-orientation.

However confusing these results may seem, a possible explanation might be that – instead of considering I/C – it is *vertical* orientations that rather hinder the use of reward interdependence as a means of promoting cooperation.

Another possible explanation for the fact that I/C had no mediating effect on the relation between reward interdependence and cooperation may be that though collectivists' behavior was expected to be influenced more by the fact that they were dealing with ingroup members than by the reward structure (thus showing no difference in the amount of cooperation), it might as well be possible that since collectivists are said to be more sensitive to situational clues, they may have reacted more to reward structure than expected – thus covering the effect of the in-group/ out-group distinction.

Even though there is a lot of research that supports the hypothesis according to which I/C are rather two distinct dimensions instead of two opposite points of a single continuum, with regard to the *vertical* aspects of I/C, the findings from both parts of the sample rather suggest that those scoring low on VI and those scoring high on VC cooperate more – as if low (vertical) individualism was equivalent to high (vertical) collectivism.

5.2 Strengths and limitations

The first main limitation of the study is that both the Austrian and the Chinese sample consisted of undergraduate students, thus the results found cannot be generalized to the whole population. The fact that college students are not representative of the whole population – especially not in China, where only a very small percentage of an age-group gets into university via a highly competitive nationwide entry exam (gaokao 高考) – may also have influenced the outcome of the I/C-scales: Chinese did not appear to be more *collectivistic* than their Austrian counterparts. Rather they appeared to be more *vertical*. However, when looking at the items measuring vertical individualism and collectivism (e.g. „Without competition, it is not possible to have a good society“ and „Self-sacrifice is virtue“ respectively) another interpretation is that this result reflects what is socially desirable in both countries rather than the participants’ actual attitudes. Competing openly may be socially more accepted in China than it is in Austria.

With regard to the miscellaneous results concerning the vertical aspects of I/C, one major limitation of the current study is that this may be due to measurement problems given that the reliability for the VC-scale was dramatically low ($\alpha = .56$). This apparent difficulty in assessing vertical collectivism (while the other three scales show satisfactory reliabilities) not only is a problem in the current study but also in many others (Boros et al., 2009, Chen et al., 2005). The question is whether this is due to the fact that the respective items concern questions that risk being socially desirable and may therefore be biased (e.g. „We should keep our aging parents with us at home“, Triandis, 1996). Or does the construct of vertical collectivism simply not exist? This brings up a very general question concerning the I/C dimension and its measurement: Do the different instruments assess this construct insufficiently or is there no such thing as individualism/collectivism? This discloses a limit inherent to the classical test theory approach since here, reliability is dependent on the variance in a given population (Formann, 2004), thus the sample used influences the reliability of the instrument.

Another testtheoretical concern is the „bandwidth versus fidelity dilemma“ described by Cronbach (1990, p. 208): since individualism and collectivism are very

broad constructs, this oftenly results in low reliabilities, as it was the case in the current study. Therefore, a choice has to be made between obtaining high reliabilities by using questions that focus on only some aspects of the construct and – on the other side – increasing the number of situations that the construct has implications for (i.e. the bandwidth).

In addition to that, given that the (Chinese) sample size was heavily reduced when including only those participants for whom the manipulation check had been successful and the poor measurement quality of the VC-scale, all those subgroups in this sample where VC was low (i.e. low VC combined with VI high or low), were extremely small. This was also the case for the subgroups containing low HC as a variable. Again, this may be due to the fact that both these scales contain items that are very likely to be biased by social desirability. As pointed out by Triandis et al. (1998), measuring cultural tendencies with attitude items is generally problematic due to pressure for social desirability.

Moreover, in the current study, social desirability is also a problem with regard to the measurement of cooperation. Since it was not actual *behavior* that was assessed but behavior *intentions*, a construct like this – which is extremely socially desirable – thus is very likely to be biased when investigated using a self-report questionnaire and it remains unclear if cooperation was measured or its social desirability. In addition to that it must be noted that there where measurement problem concerning the cooperation scale which originally had a reliability of only $\alpha = .40$, reflecting how heterogeneous this construct is and how difficult it thus is to operationalize. The best reliability that could be attained was $\alpha = .64$ which is still relatively low. Therefore, assessing cooperative *behavior* using experimental methods would be largely preferable. However, the problem of cooperation being a very heterogeneous construct that has been defined very differently by different authors, still remains.

Another important limitation is the unsuccessful manipulation, especially in the reward interdependence condition in the Chinese sample. Due to this, interviews were conducted with several Chinese students who had participated in the study, in order to find out how they had perceived the questionnaire and what kind of difficulties they had met. According to them, one reason for the failure of the

manipulation might be the fact that working in groups is very uncommon in nowadays' Chinese universities and schools, and so is giving *one* mark to the group as a *whole* and that, thus, it is very hard to imagine a situation that appears so „weird“. Moreover they reported difficulties with the style of the language which, according to them, was rather technical, complex and packed. Since the scenario was unfamiliar and the language difficult, many of them worked in groups which may have biased the variance in the Chinese sample. Also, many participants had to fill in the questionnaire as a homework for a course and therefore did it partly at night after all the other work was done. In addition to that, they reported that participants may not have been very engaged since it was only *hypothetical* scenarios.

The scenario being unusual from the Chinese students' perspective and the fact that the translation of the questionnaire into Chinese was not felicitous, refers to methodological problems that are generally met in cross-cultural research: According to Triandis (1985), there are four different kinds of equivalence in cross-cultural research: conceptual/functional equivalence, equivalence in construct operationalization, item equivalence, and scalar equivalence. These four can be seen as a hierarchy in that the latter kinds of equivalence imply that the former ones are attained. The difficulties with the scenario itself and the following cooperation scale as well as with the translation of the questionnaire illustrate problems with equivalence in construct operationalization since this requires that the operationalization is „equally meaningfully “ (p.133) in both cultures, which apparently was not the case here.

From the fact that a series of studies found that collectivists tended more than individualists to leave a group when there is social loafing, Yamagishi (2003, as cited by Chen et al., 2005) suggested an *institutional* view of culture. This is to say that collectivists are not *intrinsically* motivated to stay in groups, but they only do so because and when there is a system of formal and informal mutual monitoring and sanctioning. This is the case for so called in-groups. However, such in-groups are formed through long-term interaction, which is practically impossible to „create“ in experiments (Chen, et al. 2005). This holds true all the more for questionnaires using vignettes since the *imagining* of a certain situation (i.e. working with one's in-group) is even more abstract than an experimentally created in-group situation. The Chinese students interviewed after having filled in the questionnaire indicated that they had

never taken part in studies such as this one. This lack of experience with studies using questionnaires may, for one, explain why the manipulation of the two different situations did not work in the Chinese sample. And second, this may be another reason why the in-group manipulation via a long-term relationship did not work in the questionnaire: the vignette may have been too abstract for creating a feeling of a long-term relationship including mutual control (i.e. a sufficient in-group feeling), therefore not leading to differences between the collectivists and the individualists in the extent to which they intended to cooperate depending on the reward structure. This interpretation is consistent with the findings of Aritzeta and Balluerka (2006) who also found a significant interaction effect of reward interdependence and vertical individualism-collectivism only after (real) teams had been working for one year.

Despite the many limitations of the current study mentioned above, there are also some strengthes. This is the first study that not only investigated reward structure *or* individualism-collectivism with regard to cooperation but assessed a possible moderating effect that I/C may have. On the contrary to various other studies (e.g. Chen, 1995; Suh, 2002), this study assessed differences in I/C on the individual level in two countries that could be assumed to differ significantly with regard to this dimension. So, instead of explaining observed differences in different countries *post hoc* by using the levels of I/C found in previous *culture-level* studies (Fischer et al., 2003), such as the one by Hofstede (1980/2001), a well founded cross-cultural comparison has been rendered possible.

Moreover, the sample size was reasonably large, thus allowing to generalize the findings, if not to the population as a whole, but to students in the two respective countries.

5.3 Contributions and implications for future research

Chen et al. (2005) suggest that collectivists do not cooperate more in in-groups voluntarily, but because this in-group serves as an informal sanction system since members know each other, know what the others do or have done and will meet them again, maybe even very oftenly. Similarly, Chen, Wast and Triandis (2007) come to

the conclusion that collectivists only cooperate more when there is a group norm prescribing cooperation. Hence, the question is whether – concerning collectivists – it is rather about *exacting* cooperation than about fostering it. Future research should therefore make a clearer distinction between forced and deliberate cooperation.

What still remains unclear after the current study is which aspect is more relevant for collectivists' behavior: the ingroup-outgroup distinction or the high sensitivity to situational clues. Therefore, future research should use designs that allow for the separate assessment of these two dimensions in order to determine their respective contribution.

One fundamental problem still lies in the heterogeneity of definitions and operationalizations of both the cooperation and the I/C construct. Depending on the author's idea of man, cooperation is defined in very different ways and consequently it is also operationalized and measured in diverse ways: via prisoner's dilemma/ public good games (e.g. Chen et al., 2007; Probst et al. 1999) and other experiments including experimenter's observation and self-report as a measurement (Wageman et al., 1997), questionnaires and field studies including peer assessment of cooperation (Wagner, 1995). Similarly, there is a huge variety of instruments pretending to measure individualism/collectivism (e.g. Erez et al., 1987; Oyserman et al. 2002; Singelis, 1994; the INDCOL scale by Singelis et al., 1995; Triandis, 1996; Triandis, Bontempo, Villareal, Asai & Luca, 1988; Triandis & Gelfand, 1998; Wagner et al., 1986) and Paquet et al. (2009) found these instruments to be more different than similar, making comparisons between the different studies difficult or even impossible. Hence, improving the measures of I/C and establishing a more homogeneous definition of cooperation that can be operationalized in a standardized way (other than by using social dilemmas with a low external validity) are main challenges to future research.

Undergraduate students are far from being representative of the whole population, yet they are used in (cross-cultural) psychological research almost exclusively. The problems met in the current study underline once more that research including more heterogeneous samples is urgently needed, both with regard to the psychometric qualities of measures and the generalizability of the findings.

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List of figures

Figure 1 – One factor solution for the cooperation scale in the Chinese sample	p. 39
Figure 2 – One factor solution for the cooperation scale in the Austrian sample	p. 39
Figure 3 – Four factor solution for the I/C scale in the Chinese sample	p. 40
Figure 4 – Three factor solution for the I/C scale in the Austrian sample	p. 40
Figure 5 – Perceived reward interdependence in the two conditions in China and Austria	p. 43
Figure 6– Significant two-way interaction effect of vertical collectivism and reward interdependence condition (I)	p. 46
Figure 7– Significant two-way interaction effect of vertical collectivism and reward interdependence condition (II)	p. 46
Figure 8– Significant two-way interaction effect of vertical individualism and reward interdependence condition (I)	p. 47
Figure 9– Significant two-way interaction effect of vertical individualism and reward interdependence condition (II)	p. 47

List of tables

Table 1 - Sample sizes before and after the manipulation check	p. 43
Table 2 – Summary of results	p. 48

Appendix

Individualism-collectivism items (adapted from Triandis, 1996)

Vertical collectivism ($\alpha=.56$)

- I would do what would please my family, even if I detested that activity. (VC 1)
- We should keep our aging parents with us at home. (VC 2)
- It is important to me that I respect the decisions made by my groups. (VC 3)
- I would sacrifice an activity that I enjoy very much if my family did not approve of it. (VC 4)
- I usually sacrifice my self-interest for the benefit of my group. (VC 5)
- Self-sacrifice is a virtue. (VC 6)
- It annoys me if I have to sacrifice activities that I enjoy to help others (reverse scoring). (VC 7)

Horizontal collectivism ($\alpha=.72$)

- The well-being of my fellow students is important to me. (HC 1)
- I like sharing little things with my friends. (HC 2)
- If a fellow student I am friends with were in financial difficulty, I would help within my means. (HC 3)
- It is important to consult close friends and get their ideas before making a decision. (HC 4)
- If a fellow student I am friends with gets a prize, I would feel proud. (HC 5)
- It is important to me to maintain harmony within my group. (HC 6)
- The well-being of my friends is important to me. (HC 7)
- I like sharing little things with my fellow students. (HC 8)
- The well-being of my family is important to me. (HC 9)

Vertical individualism ($\alpha=.75$)

- It annoys me when other people perform better than I do. (VI 1)
- Competition is the law of nature. (VI 2)
- Some people emphasize winning; I'm not one of them (reverse scoring). (VI 3)
- It is important that I do my job better than others. (VI 4)
- I enjoy working in situations involving competition with others. (VI 5)
- Winning is everything. (VI 6)
- When another person does better than I do, I get tense and aroused. (VI 7)
- Without competition, it is not possible to have a good society. (VI 8)

Horizontal individualism ($\alpha = .68$)

- I often do "my own thing." (HI 1)
- I enjoy being unique and different from others. (HI 2)
- My personal identity, independent from others, is very important to me. (HI 3)
- I rely on myself most of the time; I rarely rely on others. (HI 4)
- I'd rather depend on myself than on others. (HI 5)
- Being a unique individual is important to me. (HI 6)
- I am a unique person, separate from others. (HI 7)

Vignette and items measuring cooperation (adapted from Moser et al., 2007)

Vignette (German original)

In naher Zukunft könnte es in der Studienorganisation einige Veränderungen geben. Es gibt Überlegungen, Seminare aufeinander aufzubauen und *Zulassungsvoraussetzungen* für Folgeseminare einzuführen. Es wird zudem darüber diskutiert, die *Benotung eines Fachgebietes* aus verschiedenen Einzelleistungen zusammenzusetzen. Im Folgenden wird eine Studiensituation beschrieben, wie sie nach diesen Überlegungen vorstellbar ist.

Bitte versetze Dich so gut wie möglich in diese Situation hinein. **Lass Dir dafür ruhig ein wenig Zeit und gehe erst dann weiter zur nächsten Seite.**

Schreiben einer Semesterarbeit

Du hast im kommenden Semester die Aufgabe, für ein Seminar eine Semesterarbeit zu schreiben, deren Grundlage eine Literaturrecherche ist. Du sollst dafür mit 2 weiteren Studierenden eine Arbeitsgruppe bilden, in der Ihr Euch das Thema gemeinsam erarbeitet. Eine Aufteilung der Recherchearbeit ist dabei möglich, aber nicht notwendig. Der Dozent/ die Dozentin erwartet von Euch, dass jede/r einen Teil der Semesterarbeit alleine schreibt. Zudem soll jede/r ihren/seinen Teil am Ende des Semesters in der Lehrveranstaltung präsentieren.

Nach Abschluss der Semesterarbeit und der Präsentation wird **jede/r** von Euch eine Note für **ihren/seinen** Teil der Arbeit erhalten.

(Oder:

Nach Abschluss der Semesterarbeit und der Präsentation wird die **Gruppe eine gemeinsame Note** erhalten, die **gleichzeitig** für jede/n von Euch die **individuelle** Note darstellt.)

Eine gute bis sehr gute Note (mind. 2) ist die **Zulassungsvoraussetzung** zu einem Seminar im folgenden Semester, das Dich sehr interessiert und an dem Du unbedingt teilnehmen willst. Zudem geht die Note in die **Abschlussnote** des Faches ein.

Items measuring cooperation

(German original; items in bold were the ones retained in the final scale)

- 1.) Nun werden 3 verschiedene Weisen vorgeschlagen, wie man bei der Literaturrecherche bezüglich der Unterthemen vorgehen könnte. Wie bereits gesagt, ist eine Aufteilung der Recherchearbeit möglich, aber nicht notwendig. Bitte schätze jeweils die Wahrscheinlichkeit ein, mit der Du die Vorgehensweisen wählen würdest.
 - a. **Jedes Gruppenmitglied sollte für sich suchen. Ein Austausch ist nicht nötig.**
 - b. Erst sollte jedes Gruppenmitglied unabhängig voneinander eine Literaturrecherche machen und dann sollten wir überprüfen, ob wir alle das Gleiche gefunden haben und ggf. Artikel untereinander austauschen.
 - c. Wir sollten die Literaturrecherche gemeinsam machen, und anschliessend die gefundenen Artikel für das Lesen und Schreiben von Zusammenfassungen untereinander aufteilen. Die Zusammenfassungen werden anschliessend untereinander ausgetauscht.
- 2.) Ihr habt euch dafür entschieden, dass jede/r für seinen/ihren Teil der Arbeit getrennt recherchiert. Ein Gruppenmitglied kommt zu dir. Es hat noch nie eine Literaturrecherche durchgeführt und bittet dich um Hilfe. Was tust du?
 - a. **Ich würde das Gruppenmitglied auf andere Anlaufstellen für Hilfe aufmerksam machen.**
 - b. **Ich würde ihm meine Unterstützung anbieten und ihm in Ruhe zeigen, wie man bei der Literaturrecherche vorgeht.**
- 3.) Du stösst auf einen Artikel, der für ein anderes Gruppenmitglied interessant sein könnte. Wie wahrscheinlich ist es, dass Du den Artikel weitergibst?
 - a. **(0= sehr unwahrscheinlich bis 4= sehr wahrscheinlich)**
- 4.) Ein Gruppenmitglied ist sich nicht sicher, ob es die Regeln für korrektes Zitieren gut genug beherrscht und fragt, ob jemand von Euch zweien seinen/ihren Teil diesbezüglich Korrektur-Lesen könnte. Wie reagierst Du?
 - a. Ich zögere und sage, dass es mir lieber wäre, wenn es das dritte Gruppenmitglied machen würde, dass ich es notfalls aber übernehmen würde
 - b. Ich schicke ihm/ihr per E-Mail eine Übersicht der wichtigsten Zitierregeln, damit er/sie es selber korrigieren kann.

- c. **Ich sage ihm/ihr, dass ich selbst schon genug zu tun habe und es eigentlich nicht meine Aufgabe ist, mich um seinen/ ihren Teil auch noch zu kümmern**
- 5.) Eines der anderen zwei Gruppenmitglieder arbeitet an seinem Teil der Arbeit. Deiner Meinung nach nicht gut genug und sollte sich mehr Mühe geben, um sich der Qualität Eurer Beiträge anzupassen. Wie wahrscheinlich ist es, dass Du etwas unternimmst?
 - a. (0= sehr unwahrscheinlich bis 4= sehr wahrscheinlich)
- 6.) Schliesslich steht auch die Entscheidung über die formale Gestaltung der Präsentation an. Bist du eher dafür, ein gemeinsames Layout zu entwickeln oder würdest du dir die Zeit lieber sparen, in dem jede/r ihr/sein eigenes Layout macht?
 - a. (0= „sicher Gruppen-Layout“ bis 4= „sicher mein eigenes Layout“)
- 7.) Wie bei den meisten Gruppenarbeiten kommt es auch hier immer wieder zu kleinen Meinungsverschiedenheiten. Wie stehst Du diesen gegenüber?
 - a. Ich unterstütze immer das Mitglied, das inhaltlich die besseren Argumente hat.
 - b. Wichtiger als inhaltliche Argumente ist mir, darauf zu achten, dass dabei niemand zum Außenseiter wird.
- 8.) Die anderen zwei Gruppenmitglieder sind nur mässig engagiert und scheinen vor allem am eigenen Vorankommen orientiert zu sein. Im Folgenden sind 3 mögliche Reaktionen dargestellt. Bitte schätze jeweils die Wahrscheinlichkeit ein, mit der Du diese Reaktionen wählen würdest.
 - a. Ich engagiere mich so stark wie möglich für die Zusammenarbeit. Ich bin mir sicher, dass sich die Anderen dann auch entsprechend engagieren werden.
 - b. **Ich bringe mich auch nur insoweit ein, wie es mir für meinen Teil der Arbeit von Nutzen ist.**
 - c. **Ich halte mich zurück und versuche, vom Engagement der Anderen zu profitieren, um besser zu sein als sie.**

Abstract - English

The question of how cooperation in work groups can be fostered has generated a fairly large amount of literature, investigating different cooperation mechanisms, such as superordinate goals or reward interdependence. This latter describes a situation in which the reward for a group work is not allocated according to the contribution each member made to the achievement of the task (so called equity rule), but to each member equally (therefore called equality rule or reward interdependence). Studies conducted in Western countries found that reward interdependence lead to more cooperative behavior (Moser & Wodzicki, 2007, Wageman et al., 1997), thus is a mechanism for fostering cooperation in individualistic cultures. Literature examining the influence of culture on cooperative behavior, focusing on individualism-collectivism arrives at the conclusion that collectivists are not generally more cooperative than individualists, but that the extent to which they cooperate depends on whether they work with in-group or out-group members (Early, 1989). This study examines the question if the effectiveness of reward interdependence as a means of fostering cooperation is moderated by culture, i.e. individualism-collectivism. It is hypothesized that, first, since individualists do not make a distinction in their behavior dependent on whether they work with in- or out-group members, the extent to which they cooperate will be influenced by the reward structure, i.e. they will cooperate more in situations of reward interdependence than when rewards are distributed according to the equity rule. Second, since collectivists make a clear distinction between in-group and out-group members, this aspect will guide their behavior more than the reward structure, thus, when working with in-group members, the extend to which they will cooperate does not depend on the structure of the reward allocated to the group.

The results showed no such moderating effect with the three-way ANOVA (reward structure x individualism x collectivism) not being significant. This may be due to severe measurement problems both with regard to the cooperation scale and the vertical collectivism scale. Moreover, the manipulation was not successful with many participants of the Chinese sample in the reward-interdependence condition, which reduced one subgroup of the sample dramatically. Depending on whether the whole sample was considered or only those where the manipulation had worked, a significant two-way interaction was found, indicating that either vertical collectivism

or individualism may even be a hindrance when using reward interdependence as a means of fostering cooperation. Another possible explanation may be the fact that collectivists are more sensitive to situational clues (Chen et al., 2005), thus overshadowing the influence of the ingroup-outgroup distinction.

Future research should therefore further examine two questions: if „verticalism“/“horizontalism“ is more important in explaining cross-cultural differences in cooperative behavior than I/C and, second, which aspect is more relevant for collectivists' behavior: the ingroup-outgroup distinction or the high sensitivity to situational clues. In addition to that, theoretical specification of the cooperation and the I/C constructs as well as more reliable measures for both these constructs are needed.

Abstract - Deutsch

Zur Frage, wie kooperatives Verhalten in Arbeitsgruppen gefördert werden kann, besteht eine umfangreiche Literatur, welche unterschiedliche, sogenannte Kooperations-Mechanismen untersucht, wie beispielsweise übergeordnete Ziele oder gegenseitige Abhängigkeit bezüglich der Belohnungsstruktur (reward interdependence). Letztere beschreibt Situationen, in denen die Belohnung für eine Gruppenarbeit nicht entsprechend des Beitrages, den jedes einzelne Gruppenmitglied zur Aufgabenerfüllung geleistet hat, vergeben wird (sogenannte Equity – Regel). Vielmehr wird dabei die Belohnung unter allen Gruppenmitgliedern gleich aufgeteilt (sogenannte Equality – Regel bzw. reward interdependence). Studien aus westlichen Ländern kommen zu dem Ergebnis, dass reward interdependence zu mehr Kooperation führt (Moser & Wodzicki, 2007, Wageman et al., 1997), d.h., dass sie in individualistischen Kulturen einen Mechanismus zur Förderung von Kooperation darstellt. Forschung, die den Einfluss von Kultur, insbesondere von Individualismus – Kollektivismus, auf kooperatives Verhalten untersucht, zeigt, dass Kollektivisten nicht grundsätzlich kooperativer sind als Individualisten, sondern dass das Ausmaß ihrer Kooperation davon abhängt, ob sie mit Mitgliedern einer ingroup oder einer outgroup zusammenarbeiten (Early, 1989). Die vorliegende Studie untersucht die Frage, ob die Effektivität von reward interdependence als Kooperations-Mechanismus durch kulturelle Faktoren, d.h. Individualismus – Kollektivismus, moderiert wird. Zum einen wird angenommen, dass das Ausmaß kooperativen Verhaltens bei Individualisten von der Belohnungsstruktur beeinflusst wird, da sie nicht zwischen ingroups und outgroups unterscheiden: sie kooperieren vermutlich mehr bei der Equity- als bei der Equality – Regel. Bei Kollektivisten hingegen, sollte das Ausmaß kooperativen Verhaltens eher von der Frage bestimmt sein, ob sie mit ingroup- oder outgroup-Mitgliedern arbeiten und nicht von der Belohnungsstruktur. Das heißt, wenn sie mit ingroup-Mitgliedern arbeiten, wird das Ausmaß, zu dem sie kooperieren, nicht von der Belohnungsstruktur beeinflusst.

Die Ergebnisse der dreifaktoriellen Varianzanalyse (Belohnungsstruktur x Individualismus x Kollektivismus) waren nicht signifikant und konnten somit keinen solchen moderierenden Effekt zeigen. Dies könnte an schwerwiegenden Messproblemen gelegen haben, sowohl was die Kooperations – als auch was die Individualismus – Kollektivismus-Skala betrifft. Zudem war die Manipulation in der

reward interdependence – Bedingung in der chinesischen Stichprobe nicht erfolgreich, sodass der Ausschluss der entsprechenden Teilnehmer den Umfang dieser Teilstichprobe stark reduzierte. Je nach dem, ob die gesamte Stichprobe betrachtet wurde oder nur jene Teilnehmer, welche die Manipulation verstanden hatten, zeigten sich signifikante Interaktionseffekte in der zweifaktoriellen Varianzanalyse, die darauf hin deuten, dass bei vertikalem Individualismus (bzw. Kollektivismus) reward interdependence sogar ein Hindernis darstellen kann bezüglich der Kooperationsbereitschaft. Eine ganz andere mögliche Erklärung für dieses Ergebnis könnte der Umstand sein, dass Kollektisten stärker auf situationale Hinweisreize (z.B. Belohnungsstruktur) reagieren (Chen et al., 2005) und dies den Einfluss der ingroup als entscheidendem Faktor überschattet.

Zukünftige Forschung sollte demnach insbesondere zwei Fragen genauer untersuchen: Erstens, ob die Unterscheidung zwischen vertikalen und horizontalen Orientierungen entscheidender als jene zwischen individualistischen und kollektivistischen, wenn es darum geht, kulturelle Unterschiede in der Kooperationsbereitschaft zu erklären. Und zweitens, welcher Aspekt für das Verhalten von Kollektisten wichtiger: die Unterscheidung zwischen ingroup- und outgroup-Mitgliedern oder die besondere Sensibilität für situationale Hinweisreize. Zudem ist die weitere theoretische Präzisierung sowohl des Kooperations-, als auch des Individualismus – Kollektivismus-Konstrukts vonnöten. Schließlich sind auch reliablere Messinstrumente für beide Konstrukte dringend erforderlich.

Lebenslauf

* 27. August 1981
in München

Bildung

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Oktober 2001 – Juli 2002	Sprachaufenthalt in Paris mit Erwerb des Sprachdiploms DALF (Diplôme Approfondi de Langue Française) des französischen Bildungsministeriums

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September 2010	1-monatiges Praktikum beim Zentraler Psychologischer Dienst der Bayrischen Polizei in München
August – Oktober 2009	6-wöchiges Praktikum in der Klinik für Psychosomatik der Charité – Universitätsmedizin in Berlin
Juni – Juli 2005	1-monatiges Praktikum im Deutschen Bundestag (bei dem Vorsitzenden der Ausschüsse „Bildung und Forschung“ und „Kultur und Medien“) in Berlin

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Januar 2012	Leistungsstipendium der Universität Wien
Juli 2011	Förderungsstipendium der Universität Wien

EIDESSTATTLICHE ERKLÄRUNG

Ich versichere, dass ich die Diplomarbeit ohne fremde Hilfe und ohne Benutzung anderer als der angegebenen Quellen angefertigt habe, und dass die Arbeit in gleicher oder ähnlicher Form noch keiner anderen Prüfungsbehörde vorgelegen hat. Alle Ausführungen der Arbeit, die wörtlich oder sinngemäß übernommen wurden, sind als solche gekennzeichnet.

Wien, den 18. Juli 2012

(Constanze Volkmann)