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### Contextualized self: When the self runs into social dilemmas

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## Contextualized self: When the self runs into social dilemmas

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**R**esearch on the construction of self and of others has indicated that the way that individuals construe themselves and others exerts an important influence on their cognition, emotion, and even behavior. The present study extends this line of research to mixed-motive situations in which short-term individual and long-term collective interests are at odds. In addition, this study associates the importance of context interdependence, and specifically its interaction with independent self-construal, with an individual's cooperative behavior. We used a priming task to manipulate the level of self-construal and also manipulated the degree of interdependent context by giving participants a chance to assign rewards either to their group members or to themselves alone. The results showed that when participants received interdependent (as opposed to independent) self-construal priming, they consistently contributed highly, regardless of context manipulation. In contrast, those primed with an independent self-construal contributed less in the investment game, but only when placed in a context where group members were encouraged to think about their individual (versus mutual) fate. In this situation they contributed the least to the group in the game. These findings indicate that independent self-construal in a low interdependence context produces the most competitive behavior. The results also showed that how participants felt about their interaction with other group members mediated the effect of context interdependence on cooperative behavior, and possibly that was especially the case for independent self-construal. The results demonstrate that the self can be contextualized and embedded in the social contexts and symbolic systems within which people live.

**L**a recherche sur la construction de soi et d'autrui a montré que la façon dont les individus se construisent et construisent les autres exerce une influence importante sur leurs cognitions, leurs émotions et même sur leurs comportements. La présente étude étend cette ligne de recherche aux situations à double motivation dans lesquelles les intérêts individuels à court terme et les intérêts collectifs à long terme sont discordants. De plus, cette étude associe l'importance de l'interdépendance du contexte, et spécifiquement son interaction avec le construit de soi indépendant, avec le comportement coopératif d'un individu. Nous avons utilisé une tâche d'amorçage pour manipuler le niveau de construit de soi et nous avons aussi manipulé le degré de contexte interdépendant en donnant aux participants une chance d'attribuer des récompenses soit aux membres de leur groupe ou à eux-mêmes seulement. Les résultats ont montré que lorsque les participants recevaient une amorce de construit de soi interdépendant (par opposition à indépendant), ils collaboraient fortement de façon régulière, et ce, peu importe la manipulation du contexte. En contrepartie, ceux qui ont été exposés à une amorce de construit de soi indépendant ont moins collaboré dans le jeu d'investissement, mais seulement quand ils étaient placés dans un contexte où les membres du groupe étaient encouragés à penser à leur sort individuel (plutôt que mutuel). Dans cette situation, ce sont eux qui ont le moins contribué au groupe dans le jeu. Ces résultats indiquent que le construit de soi indépendant placé dans un contexte de faible interdépendance produit le comportement le plus compétitif. Ces résultats montrent aussi que la façon dont les participants se sentent à propos de leur interaction avec les autres membres du groupe agit comme médiateur sur le lien entre le contexte d'interdépendance et le comportement coopératif. Possiblement que ceci était spécialement le cas pour le construit de soi indépendant.

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Les résultats démontrent que le soi peut être contextualisé et imbriqué dans les contextes sociaux et les systèmes symboliques dans lesquels les individus vivent.

**L**a investigación sobre la construcción del self y los demás ha indicado que la forma en la que los individuos interpretan a ellos mismos y a los demás influye notablemente a su cognición, emoción e incluso comportamiento. El presente estudio extiende esta línea de investigación a situaciones de motivación mixta en las que los intereses individuales a corto plazo y los intereses colectivos a largo plazo están en desacuerdo. Adicionalmente, este estudio asocia la importancia de la interdependencia contextual y específicamente su interacción con la auto-interpretación independiente con el comportamiento de colaboración individual. Utilizamos una tarea de priming para manipular el nivel de auto-interpretación y también para manipular el grado de contexto interdependiente dando a los participantes la posibilidad de asignar premios o bien a los miembros de su grupo o bien sólo a ellos mismos. Los resultados demostraron que cuando los participantes recibían un priming de auto-interpretación interdependiente (contrario al independiente) contribuían a niveles altos de forma consistente, a pesar del contexto de la manipulación. Por el contrario, los que recibieron un priming con la auto-interpretación independiente contribuyeron menos en el juego de inversión pero solo en el contexto en el cual los miembros del grupo fueron animados a pensar sobre su destino individual (versus conjunto). Fue esta situación en la que contribuían menos al grupo en el juego. Estos resultados indican que la auto-interpretación independiente en un contexto de baja interdependencia produce el comportamiento más competitivo. Los resultados también indicaron que la forma en la que los participantes se sentían en cuanto a su interacción con otros miembros del grupo mediaban el efecto de la interdependencia contextual en el comportamiento de colaboración y posiblemente sobre todo cuando la auto-interpretación fuese independiente. Los resultados demostraron que el self puede ser contextualizado e incrustado en los contextos sociales y sistemas simbólicos dentro de los que viven las personas.

**Keywords:** Self-construal; Cooperative behavior; Social dilemmas.

In recent years, research on why people cooperate in groups has attracted widespread interest (e.g., De Cremer & van Vugt, 1999; Tyler & Blader, 2000). The actions of group members affect others as well as themselves. In general, a group member's relationship to the group can be described as a mixed-motive situation. An important example of these situations is the social dilemma, which is defined as a situation in which short-term individual and long-term collective interests are at odds (Hardin, 1968; Messick & Brewer, 1983). Cross-cultural research has shed light on our understanding of cooperative behavior in social dilemmas (e.g., Parks & Vu, 1994; Takemura & Yuki, 2007). Little, however, is known about the influence of the primed self-construal in mixed-motive dilemmas from the social cognition perspective in a collectivistic society.

### THE SELF: SOCIAL COGNITION PERSPECTIVE

In the past two decades, social psychological studies have begun to explore the ways in which an individual's self-concept can be differentially construed. Markus and Kitayama (1991), for instance, depicted self-construal as the degree to which the self is construed as being connected with

or separate from others. They divided the view of self into two types: people who saw themselves as unique, expressed themselves freely and promoted their own goals were described as having independent self-construal values, whereas those who had interdependent self-construal values expressed themselves in terms of belonging and fitting in to a group as well as promoting the goals of others. Generally speaking, individuals with interdependent self-construal are connected, attentive, and responsive to others, whereas individuals with an independent self-construal are typically characterized as having a separate, unique, and decontextualized sense of self.

From the perspective of social cognition theorists, the self is understood as a kind of memory structure because self-knowledge (e.g., traits and abilities, group identity) resides in an individual's memory (Klein, 2001). According to Kühnen, Hannover, and Schubert's (2001) explanation of the self, there are two mechanisms by which the self guides human cognition and behavior. One is the semantic application mechanism, in which independent and interdependent self-construals arise from respective semantic content areas of knowledge. That is, the semantic application mechanism is content-based, and provides a distinguishing knowledge of respective self-construals based on the relationship between self

and others. According to this mechanism, knowledge about independent self-construal in an individual's memory structure is based on autonomous characteristics, whereas knowledge about interdependent self-construal is related to context. The other mechanism is the procedural application mechanism, which provides different modes of processing information for each self-construal. In the procedural mode of thinking, an individual's self-construal may lead to making decisions that are not based on context. Because semantic and procedural application mechanisms have been demonstrated as being linked by a kind of interface (Kühnen et al., 2001), they are able to process available self-knowledge independently, yet simultaneously. Moreover, the procedural model of thinking that corresponds to the relevant semantic application strengthens as it is being utilized. If self-construals of one kind or the other are accessible in a given situation, people will most likely apply to the given judgmental tasks the modes of thinking that coincide with these self-construals.

Evidence has suggested that the accessibility of independent and interdependent self-construals can be affected by priming techniques within any single type of situation (e.g., Gardner, Gabriel, & Lee, 1999). Therefore, if independent self-construal is activated, cognitive procedures for context-independent thinking will become active, and thus such individuals will behave more independently, with more self-regard and will thus respond more competitively. In contrast, interdependent self-construal, once activated, will foster context-dependent thinking. As a result, such individuals will include others as important factors and act in a more other-regarding manner, and thus behave more cooperatively.

## THE SELF IN SOCIAL DILEMMAS

An individual's sense of self is embedded in the social contexts and symbolic systems within which they live; thus interdependence and relationship between an individual and others play important roles in the construction of their concept of self and of human nature (Brewer & Gardner, 1996).

Research has found that individuals exhibited different levels of cooperation in social dilemmas when independent versus interdependent self-construals were temporarily accessed (Utz, 2004b). Individuals primed with independence exhibited lower levels of cooperation than those primed with interdependence, thus supporting the concept that the interdependent self is more

cooperative than the independent self. This research thus demonstrates that, via such relative accessibility of different self-construals, the social situations in which individuals are involved and interact with others play an important role in the individual's behavior. It also appears that the above finding is consistent with the proposition that individuals in collectivistic cultures are more cooperative than those in individualistic cultures (Hemesath & Pomponio, 1998; Parks & Vu, 1994). Therefore it seems that possessing an interdependent self-construal will allow individuals to contribute more to the collective welfare than possessing an independent self-construal, no matter where individuals are situated.

However, activating an independent self-construal does not always imply that self-interest is activated (Utz, 2004a), so we should be careful to remember that the self can be contextualized as specified earlier. Individuals in groups are always interactive, and group members can be made to act interdependently to work toward common goals. Yamagishi, Jin, and Kiyonari (1999) argued that mutual fate control is an effective method for engendering interdependence. In their view, interdependence could be manipulated by making each participant's payoff depend on the others' allocation decisions rather than on his/her own decision. We can then reason that interdependence among group members may serve as a catalyst if it causes the self to integrate others into its own concept. The *goal transformation* explanation of this reasoning, advocated most explicitly by Brewer (1979), suggests that forming strong group relationships, i.e., gaining group salience, leads individuals to distinguish less sharply between personal and group welfare. De Cremer and van Vugt (1999) provided support for this explanation by showing that social identification has a stronger impact on the level of cooperation by participants who have a proself value orientation than on the level of cooperation by participants with a prosocial value orientation. For these reasons, we predict that enhancing context interdependence will have a much more significant effect on the cooperative behavior of people who have an independent self-construal than on those who have an interdependent self-construal. Specifically, we hypothesize that (*Hypothesis 1*) the difference in the cooperative level between the two contexts of interdependence will be higher for individuals who have an overall independent self-construal than for those with an interdependent self-construal.

Although individuals with independent versus interdependent self-construals may both exhibit a high level of cooperation (Utz, 2004a), their

psychological reaction to exerting effort in groups may be quite different. Independent self-construal can be defined in terms of the active pursuit of personal goals, whereas interdependent self-construal can be defined in terms of belongingness goals, and an avoidant or obliging interpersonal style (Sinclair & Fehr, 2005). In groups, individuals with an interdependent self-construal have a greater empathic response to relevant others than do those with an independent self-construal (White, Lehman, & Cohen, 2006). We argue that individuals with an interdependent self-construal exhibit a higher level of cooperation in social dilemmas because of their consistent predilection for a prosocial orientation, whereas those with an independent self-construal are likely to cooperate only when acting in the group makes them feel good and comfortable. That is, an altruistic orientation for people with an independent self-construal will be motivated by the maximization of their personal psychological well-being. In the present study, we explore whether context interdependence contributes to an individual's feelings when acting in a group, and thus hypothesize that (*Hypothesis 2*) the effect of self-construal and context interdependence on cooperation in social dilemmas will be mediated by how the individuals in the group feel about their interactions.

## METHOD

### Participants and design

Ninety-six undergraduates from a university in northeast China took part in the experiment. The data from eight participants were excluded from analysis because they did not fully understand the experimental requirements and/or the nature of the investment game. The mean age of the remaining 60 female and 28 male participants was 20.80 ( $SD = 1.15$ ).

The experimental design was a 2 (self-construal: interdependent vs. independent)  $\times$  2 (context interdependence: high vs. low) between-subject factorial. Participants in each experimental session were randomly assigned to one of the four experimental conditions. As an incentive, each participant was paid ¥5, and she or he received an additional gift of up to ¥5 if randomly selected.

### Procedure

In each experimental session, a group of six participants was ushered into the experimental

lab and assigned randomly to sit around an elliptical table in order to make participants believe that this was a real situation. The experiment was conducted by a female experimenter with the assistance of a male experimenter.

The study was introduced as an "Experiment on Behavioral Decision Making". Participants were told that they had been formed into a six-person group with five other, randomly selected individuals to have an opportunity to earn a group bonus. They were also told that they had been assigned a number, which had been randomly selected prior to the experiment. Actually the number for all participants was the same in each experimental session. It was emphasized that all responses must be kept secret. After that, demographic background data were collected.

### *Investment game*

Participants were presented with an investment game. Each participant was provided with a hypothetical endowment of ¥5 at the beginning of the game, which they could either keep for themselves or contribute, in whole or in part, to the group in order to have a chance to obtain a group bonus of ¥90. Thus, participants would have to decide how to allocate their endowment between a private account and a group account. In total, a combined investment of at least ¥24 was required in order to obtain the group bonus. If the group was successful, the bonus would be divided equally among the six members (i.e., ¥15 per group member), regardless of how the other group members allocated their endowments. Thereafter, a series of explanations containing the key characteristics of social dilemmas was provided to the participants. Eight questions were then asked to ensure a full understanding of the dilemma situation. Participants were instructed to answer the questions and then self-check their responses.

### *Manipulation of context interdependence*

In the high-interdependence condition, participants were told that they had a chance to assign a reward of up to ¥10 for each of the other five group members, which would be distributed in the final payoff to each group member. In the low-interdependence condition, participants were told that they had a chance to assign a reward of up to ¥10 for themselves, regardless of the other five group members, and that this assigned reward would be allotted in their own final payoff. Note that the amounts in the manipulation of context

interdependence were separate from and in addition to those that the participants were told would be distributed in the investment game. In each condition, the emphasis was that the more they were assigned (in the high-interdependence condition) or assigned only to themselves (in the low-interdependence condition), the more they could expect to receive from the experiment. Thereafter, participants were asked to fill in how much they would like to assign as a reward to each of the other five members (in the high-interdependence condition) or to themselves alone (in the low-interdependence condition). The purpose of this differential allotment of money was to arouse a sense of mutual fate and to reinforce the sense of interdependence among group members in what appeared to be a real rather than a hypothetical situation.

### **Manipulation of self-construal**

Following the manipulation of context interdependence, participants had to complete a scrambled sentences test that was designed to activate independent or interdependent self-construal. Each self-construal condition contained 25 sentences, which were selected and translated from Kühnen and Hannover's (2000) scrambled sentences test. Participants were asked to create a meaningful and grammatically correct sentence with four out of the five words presented in Chinese. The independence priming condition contained words such as autonomous, distinctive, separating, or independent; the interdependence priming condition words included such words as dependence, community, relationship, or companions. Of the 25 sentences, 22 were relevant items for priming independent or interdependent self-cognitions, and the rest were filler items.

About eight minutes after the sentences were given to the participants, the situation of the investment game was presented once again, and two key characteristics were stressed to explain the decision outcomes. Finally, participants were asked how much (from 0 to 5) of their endowment they were willing to contribute to the group. The amount of the allocation was the main dependent measure.

Participants were then asked questions pertaining to the other dependent variables and the manipulation checks. All ratings were made on seven-point scales. To check for the manipulation of context interdependence, participants were asked to indicate the strength of linkage among the six group members (1 = "loosely", 7 = "tightly"). To assess participants' feelings about the interactions in the group, three questions were

asked: "I feel that I acted naturally in this six-person group", "I feel that cooperating in this group was enjoyable", and "I feel comfortable in such a decision-making situation" (1 = "disagree", 7 = "agree"). Cronbach's alpha coefficient for the three items was 0.68, and thus the three items were averaged into a composed mean score to form an index of group members' feelings about their interaction. After that, the participants were asked to describe themselves in 20 sentences over a period of approximately 10 minutes. Responses were coded as interdependent if they described a role in an important relationship or membership in a social group. The proportion of interdependent self-descriptions that participants reported was used as a check for the manipulation of self-construal.

Following the completion of all the questions, the participants were ushered out of the lab, and were debriefed and thanked individually. An additional question was asked by one of the experimenters to check whether they fully understood the procedure of the experiment.

## **RESULTS**

### **Manipulation checks**

A 2 (self-construal)  $\times$  2 (context interdependence) analysis of variance (ANOVA) on the proportion of interdependent self-construal that participants reported in the self-description task showed self-construal to be the significant main effect,  $F(1, 84) = 18.63$ ,  $MSE = 0.20$ ,  $p < .001$ . Participants primed with interdependence described themselves with a greater proportion of interdependent self-construal ( $M = 0.23$ ,  $SD = 0.12$ ) than those primed with independence ( $M = 0.13$ ,  $SD = 0.09$ ). No effects were found for the context interdependence or its interaction with self-construal. Thus, both scrambled sentence tasks were successful in activating their respective self-construal in the current collectivistic sample.

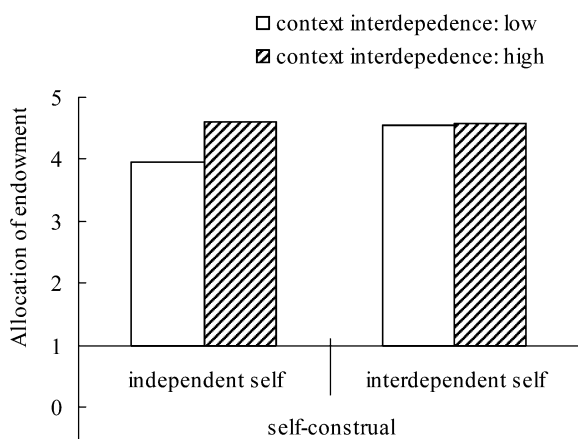
Another ANOVA was used to analyze the self-reported strength of group linkage, and the results indicated that irrespective of whether the participants were primed by independent or interdependent self-construal, those in the high-interdependence condition ( $M = 6.13$ ,  $SD = 1.22$ ) indicated a higher strength of linkage among group members than those in the low-interdependence condition ( $M = 5.33$ ,  $SD = 1.64$ ),  $F(1, 84) = 6.75$ ,  $MSE = 14.00$ ,  $p = .01$ . Other effects were not significant at the 0.05 level. This analysis revealed that the context interdependence manipulation was successful in inducing an interdependent group dynamic.

## Cooperative behavior

A  $2 \times 2$  ANOVA revealed a marginally significant self-construal main effect,  $F(1, 84) = 3.90$ ,  $MSE = 1.82$ ,  $p = .05$ , and a significant context interdependence main effect,  $F(1, 84) = 5.80$ ,  $MSE = 2.71$ ,  $p < .05$ . Most importantly, these two main effects were qualified by a significant context interdependence  $\times$  self-construal interaction,  $F(1, 84) = 4.39$ ,  $MSE = 2.05$ ,  $p < .05$ . Simple effect analysis revealed that only the allocations made by individuals who had an independent self-construal were significantly affected by the manipulation of context interdependence: Participants offered fewer endowments in the low-interdependence situation than in the high-interdependence situation,  $M = 3.95$ ,  $SD = 1.02$  vs.  $M = 4.61$ ,  $SD = 0.50$ ;  $F(1, 85) = 9.42$ ,  $MSE = 4.55$ ,  $p < .01$ . Participants with an interdependent self-construal were not significantly affected by the manipulation of context interdependence,  $M = 4.55$ ,  $SD = 0.60$  vs.  $M = 4.59$ ,  $SD = 0.50$ ;  $F(1, 85) = 0.05$ ,  $MSE = 0.02$ , *ns*. In addition, Tukey's post-hoc comparison test was used to identify the specific source of the differences. The results showed that independent self-construal priming in a situation that called for low interdependence produced, at a significant level, the lowest allocation to the group account, and thus the most competitive behavior, compared to all the other three conditions (Tukey's test,  $p < .01$ ). No significant differences, however, could be detected among the other three conditions (see Figure 1). Thus, Hypothesis 1 was supported.

## Feelings about group interaction

A 2 (self-construal)  $\times$  2 (context interdependence) ANOVA on the scale that measured participants'



**Figure 1.** Allocation of endowment as a function of self-construal and context interdependence.

feelings about their interaction revealed that there was a main effect of context interdependence,  $F(1, 83) = 4.44$ ,  $MSE = 6.88$ ,  $p < .05$ . Overall, participants in the high-interdependence condition ( $M = 5.87$ ,  $SD = 1.27$ ) felt more comfortable and more natural than those in the low-interdependence condition ( $M = 5.31$ ,  $SD = 1.28$ ). This main effect was qualified by a significant interaction between self-construal and context interdependence,  $F(1, 83) = 4.93$ ,  $MSE = 7.64$ ,  $p < .05$ . The average scores showed that when independent self-construal was activated, participants in the high-interdependence condition felt more comfortable and more natural than those in the low-interdependence condition,  $M = 6.29$ ,  $SD = 0.94$  vs.  $M = 5.13$ ,  $SD = 1.51$ ;  $F(1, 84) = 9.56$ ,  $MSE = 14.80$ ,  $p < .01$ , whereas there was no difference between those who were in the relatively high and relatively low interdependence conditions when interdependent self-construal was primed,  $M = 5.44$ ,  $SD = 1.43$  vs.  $M = 5.47$ ,  $SD = 1.04$ ;  $F(1, 84) = 0.01$ ,  $MSE = 0.01$ , *ns*.

Our prior reasoning suggested that feelings about group interaction should mediate the effects of self-construal and context interdependence on the allocations. To test for mediation, we performed a series of regressions (Baron & Kenny, 1986). First, we performed a regression analysis with self-construal, context interdependence, and self-construal  $\times$  context interdependence interaction regressed on the allocations. This analysis yielded main effects for self-construal ( $B = 0.59$ ,  $p < .01$ ), context interdependence ( $B = 0.66$ ,  $p < .01$ ), and a significant self-construal  $\times$  context interdependence interaction ( $B = -0.61$ ,  $p < .05$ ). Second, we performed a similar analysis, but now on feeling. This analysis yielded a main effect for context interdependence ( $B = 1.16$ ,  $p < .01$ ) and a significant self-construal  $\times$  context interdependence interaction ( $B = -1.19$ ,  $p < .05$ ). Third, we added feeling to our first analysis of the allocations. This analysis indicated a significant effect of feeling ( $B = 0.13$ ,  $p < .05$ ). In addition, it indicated that the main effect of context interdependence was less significant ( $B = 0.51$ ,  $p < .05$ ). Moreover, the self-construal  $\times$  context interdependence interaction ceased to be significant ( $B = -0.46$ , *ns*). In spite of this, however, the Sobel tests showed that only the effect of context interdependence was marginally significantly reduced when feeling was a simultaneous predictor ( $z = 1.76$ ,  $p = .079$ ), whereas it was not the case for the effect of the self-construal  $\times$  context interdependence interaction ( $z = 1.54$ , *ns*). Thus Hypothesis 2 was partially supported.

## GENERAL DISCUSSION AND CONCLUSIONS

The aim of this study was to examine how self-construals in a collectivistic society would affect an individual's cooperative behavior in a social dilemma, and to ascertain the role of context interdependence. The findings provide evidence for a social cognition perspective of the self in terms of self-construal.

Previous research on self-construal has validated its effects on cognition, emotion, and behavior from the perspective of social cognition and cross-cultural research (Gardner et al., 1999; Kühnen et al., 2001; Utz, 2004b). What is unique about the current experiment is the demonstration that context interdependence, as an important source of information for processing, may moderate the effect of self-construal on behavior. Independent and interdependent self-construals differ not only in their semantic content areas but also in the procedural modes of thinking that occur in the people who possess them (Kühnen et al., 2001). Our results reveal that the effect of context interdependence on cooperation is active in the independent, but not in the interdependent self-construal condition.

We believe that this competitive characteristic for those with an independent self-construal is consistent and stable. Two experiments in De Cremer and van Vugt's (1999) study showed that the social identification effect on cooperation is unrelated to whether the decision in the game was presented as continuous or categorical. This provides evidence for the current study that the possibility of a ceiling effect in the case of high context interdependence is unlikely: that is, the situation demanded a high level of cooperation regardless of the type of question presentation. Moreover, if we take a closer look at the exact allocations in each experimental situation in this current study, we find that those with an independent self-construal in the low context interdependence condition contributed about  $\frac{1}{6}$  of the required investment needed to obtain the group bonus (¥24), whereas those in the high context interdependence condition tended to violate the equality principle of allocation and contributed on the same level with those who had an interdependent self-construal in both context conditions. The effect of context interdependence on cooperation is, therefore, active in the independent but not in the interdependent self-construal condition; and most importantly, those with an independent self-construal in a high-interdependence context can also exhibit the ceiling effect. As Markus and Kitayama (1991)

proposed, people with an interdependent self-construal may need a level of consistency which may reflect a lack of flexibility, insensitivity to context, rigidity, or immaturity.

The current mediation result may imply that individuals with independent self-construal are particularly sensitive in their response to context interdependence when facing social dilemmas. In addition, they strive to construct a positive feeling to interact with others in groups by means of establishing a positive group interdependence. It appears that the presence of a positive feeling underlying the interactions among group members forms a foundation upon which individuals with independent self-construal exhibit a high level of cooperation with others. The current study thus contributes to our understanding of the role of emotion in social interactions from a social cognition perspective. We hope that this exploration will stimulate research into the fundamental mechanisms that underlie the social cognition of self in a complex social situation.

To conclude, this study demonstrated that the self can be contextualized and embedded in social interaction. This appears to be possible in particular for those with an independent self-construal, even when they are in somewhat complex social dilemma situations.

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