



# Overlap of Self, Ingroup, and Outgroup: Pictorial Measures of Self-Categorization

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*Everyday language suggests that spatial metaphors are used to describe one's relation to a group and the relation between two groups. Building on previous work in the domain of interpersonal relations, three graphical items for the overlap of self and ingroup, self and outgroup, and ingroup and outgroup are proposed. Three survey studies with different types of groups show the convergent validity of these items. Assessments of subjective interpretations of the graphical scales corroborate the correlational evidence. Finally, an experimental study confirms that the correlations between the three items are sensible indicators of self-categorization as determined by the intergroup context.*

For describing our relation to a group, we often use the language of spatial metaphors: We *enter* or *leave* a group; we *distance* ourselves from a group or are *in the inner circle*. Finally, we can be simply *in* a group, which then becomes an *ingroup*: The interrelational constructs (Higgins & Chaires, 1980) *in* and *out* denoting ingroup and outgroup are spatial metaphors. In many cases, this language fits the actual behavior in the social environment, where attitudes between social groups are expressed in spatial arrangements (Campbell, Kruskal, & Wallace, 1966). However, social psychological concepts for one's relation to a group, such as identification and self-categorization, in general ignore the spatial dimension. The present research shows that one's relation to a group and the perception of the intergroup context can be assessed with graphical measures that depict spatial relations. We will first review previous approaches in this direction, and then propose a new scale. Convergent and discriminant validity of the scale is demonstrated in four validation studies and one experimental study.

## Inclusion of Other in Self Scale

The inspiration for our approach came from research on interpersonal relations. Aron, Aron, and Smollan (1992), building upon Levinger and Snoek (1972),

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developed a graphical, nonverbal measure of the closeness of an interpersonal relation, the Inclusion of Other in Self (IOS) Scale. This one-item measure consists of seven pictures of two increasingly overlapping circles, labeled "Self" and "Other." Reviewing several studies, Aron and Fraley (1999) concluded that the IOS Scale "functions as a surprisingly effective measure of [interpersonal] closeness" (p. 142). According to the authors, several studies demonstrated its validity: The measure correlated with measures of both *feeling close* and *behaving close*; in studies of romantic relationships, it predicted whether the couple was still together three months later, and correlated significantly with measures of marital quality. Furthermore, IOS scores correlated with two more implicit cognitive measures of closeness, probability of situational attributions for actions of a close other, and reaction time interference in a self-description task (Aron, Aron, Tudor, & Nelson, 1991). The later result was replicated by Smith, Coats, and Walling (1999), who concluded that "the IOS Scale taps quantitative degrees of relationship closeness that have graded effects on the overlap of self and partner mental representations" (p. 877).

### **Adaptation of the IOS Scale for Intergroup Relations**

The reasoning for applying such a scale to the measurement of interpersonal closeness is the idea that the self can be socially extended to other persons. This idea of self-expansion has a long tradition in the psychology of interpersonal relations (cf. Aron et al., 1992). A very similar assumption is central to social identity theory (Tajfel & Turner, 1979) and self-categorization theory (SCT; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), which posit that the self can be defined at different levels, ranging from sub-personal over personal to group levels. At the group level, "the self is defined and experienced as identical, equivalent, or similar to a social class of people in contrast to some other class" (Turner, Oakes, Haslam, & McGarty, 1994, p. 454; cf. Brewer & Gardner, 1996).

Consequently, Coats, Smith, Claypool, and Banner (2000) applied the IOS Scale developed by Aron and colleagues to the realm of intergroup relations. They adapted the IOS Scale by labeling the two circles, which were of equal size, "self" and "ingroup." This item correlated (a) positively with a social identity scale, which assessed satisfaction and liking for the group, and perceived similarity of the self to the group on attitudes and values, (b) positively with an indirect measure of self-group similarity, and (c) negatively with feelings of avoidance toward the group. In a series of studies, Tropp and Wright (2001) recently extended the same approach to a graphical measure of ingroup identification. They used the same item, a self-ingroup overlap item with circles of equal size, which they called the Inclusion of Ingroup in the Self measure. They found that this item performed "as powerful as several multi-item identity measures for assessing ingroup identification in predicting support for collective action and in correlating with other related concepts," such as collective self esteem and social identity scales (p. 586). Applied to the presumably stable identification with an ethnic ingroup, the item showed a satisfying test-retest correlation of .76 within a time frame of 1 to 3 weeks. Comparable to the results from Aron and colleagues, it predicted an implicit reaction-time based measure of self-stereotyping. In sum, this graphical item seems to cover central aspects of one's relation to a group, such as social identity, self-stereotyping, emotion and social self-esteem, and support for the group's goals. We concur with Tropp and Wright that this one item measure of ingroup identification captures "the essence of interconnectedness between self and ingroup" (p. 598).

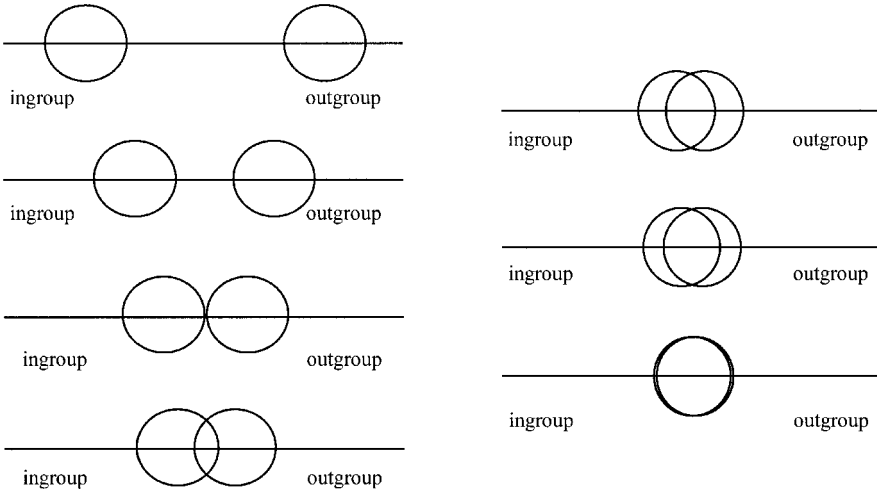
We think, however, that an adaptation of the IOS Scale to the intergroup realm needs further considerations. While, as evidence suggests, the Inclusion of Ingroup in the Self item is a good measure of identification, it does not sufficiently capture other relevant aspects of self-categorization on an intergroup level. Contrary to the interpersonal level, where two entities at the same level of abstraction (i.e., persons) merge, the self-categorization at a group level has a hierarchical structure of three elements: the self at one level, and ingroup and outgroup at a higher level of abstraction. SCT argues that the salience of a self-category depends on both the intragroup differences, including the difference between self and the ingroup prototype, and the intergroup differences. A high self-ingroup overlap has different meanings depending on whether or not the ingroup is different from the outgroup. In fact, interpreting a self-group overlap as identification presupposes that the group is an ingroup, not an outgroup, that is, that the overlap between self and ingroup is higher than the overlap between self and outgroup. Additionally, while the overlap of self and ingroup can be conceptualized as an inclusion of the ingroup stereotype in the self-concept, everyday language as cited in the introduction suggests that the relation is often experienced the other way around: Metaphorically and spatially, the own person is experienced as being included in the ingroup.<sup>1</sup> In sum, we think that a pictorial measurement of intergroup relations should include three elements: the *inclusion of the self in the ingroup*, the *inclusion of the self in the outgroup*, and the *overlap of ingroup and outgroup* at the superordinate level.

Following this reasoning, we propose a new and more extensive adaptation of the IOS Scale to the intergroup realm, building on successful earlier versions. We designed a three-item measure that assesses overlaps of 1) self and ingroup, 2) self and outgroup, and 3) ingroup and outgroup. To emphasize the inclusion of the self in a group, the circle depicting the self in the first two items is smaller than the group circle, and at the level of high overlap, the self is completely included in the group circle. Furthermore, a horizontal line symbolizes the comparison context, in which the categorization takes place (see Figure 1). This avoids problems when the diagrams are simply presented on a sheet of paper or a screen, where the context can vary accidentally; two circles with the same distance can look close or not, depending on the comparison frame (Campbell, 1958). The horizontal line avoids this ambiguity by defining the comparison context.

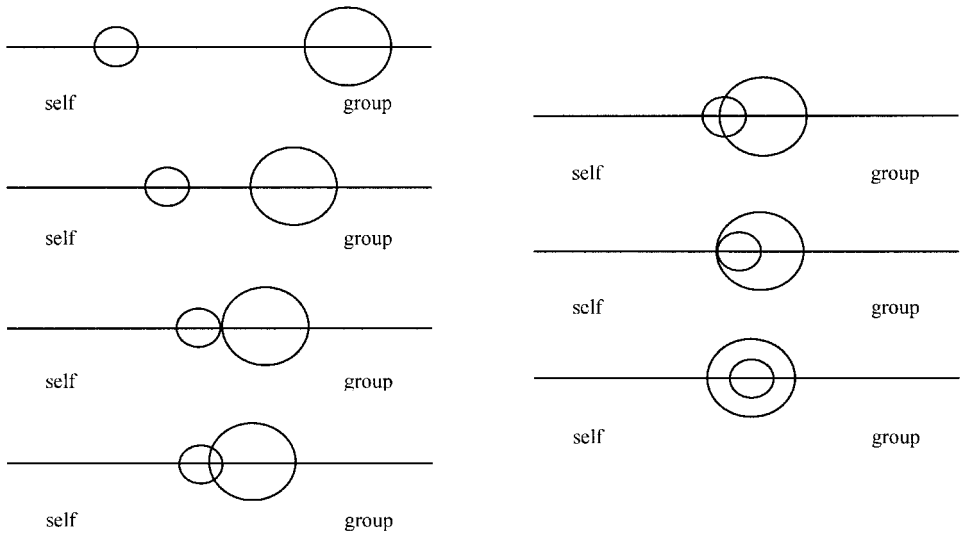
These three items, which we label Overlap of Self, Ingroup, and Outgroup (OSIO), are intended to measure the *subjective perception of the self in the intergroup situation*. Is the self defined as a member of an ingroup? How close is the ingroup to the outgroup? How is the relation between the self and the outgroup? By including all three aspects we want to cover the relevant features of a salient intergroup context more completely than earlier adaptations of the IOS Scale to intergroup level.

One way to understand what these overlap items measure is to consider the diagrams as *visual metaphors* for social categorizations. Lakoff and Johnson (1999) have argued that the ways we conceptualize, reason about, or visualize our experiences are influenced by the sensorimotor domain. In their view, conventional mental imagery from the sensorimotor domain is used to conceptualize subjective experience. Our overlap items have two central sensorimotor connotations: physical closeness and containment. Closeness is commonly used to reason about intimacy and similarity, as in “We have been *close* for years, but we are beginning to *drift* apart,” and “These colors are not quite the same, but they’re *close*” (Lakoff & Johnson, 1999, p. 50/51). Containment is used in the reasoning about perception of

**(A) Assessment of Ingroup–Outgroup Overlap**



**(B) Assessment of Self–Group Overlap**



**FIGURE 1** Overlap of self, ingroup, and outgroup (OSIO) items.

kinds; that is, categories are often understood as containers. Observing that things that go together tend to be in the same bounded region (correlation between common location and common properties, functions, or origins) leads to the acquisition of this metaphor. In the social environment, social relations often manifest themselves in spatial relations. Spatial behavior, such as seating patterns and distances, depends on the quality of relations, both on the interpersonal and the intergroup level. Physical proximity of people is used to infer and signify similarity, entitativity, and shared category membership (Campbell et al., 1966; Eckert, 1989;

Hall, 1966; McGarty, Haslam, Hutchinson, & Grace, 1995; Ryen & Kahn, 1975). We assume that the overlap items acquire their meaning from the metaphorical mapping of those experiences. In order to answer an overlap item, participants have to compare their subjective experience to the respective closeness or inclusion depicted on the item, and choose the one that fits best their experience. Thus, the overlap items depict the experienced relation to a group mapped onto the spatial dimension. This mapping may comprise several dimensions, such as sense of belonging, identification, and similarity. The mapping presumably captures what is most important for the relation to the specific group.

## **Overview of the Present Research**

In conclusion, we can expect correlations with established verbal measures of belonging, identification, and similarity. The present research investigates the convergent validity of the overlap items, comparing them to established measures. The first three studies presented here are very similar in their design. Their purpose was to evaluate convergent and discriminant validity of the overlap items in terms of correlations with other measures of intergroup perception. To examine whether the overlap items can meaningfully capture different intergroup settings, three ingroups were chosen which differed considerably with regards to status and relative group size. The fourth study investigated the content validity of the scale by assessing how the three graphical items are subjectively interpreted. Finally, the fifth study explored one theme that emerged from the preceding studies, namely the intercorrelations between the three items.

In order to evaluate the convergent validity of the overlap items, we used measures of identification with the ingroup, and identification with the superordinate category. Moreover, we assessed perceived differences and similarities on the same dimensions as the overlap items, that is between ingroup and outgroup, between self and ingroup, and self and outgroup. These measures were taken in the same manner in the first three studies. Convergent validity of the overlap items would be indicated by the following correlations: Self-ingroup overlap should correlate positively with identification with the ingroup (cf. Tropp & Wright, 2001). Furthermore, each overlap item should correlate negatively with the respective verbal measure of perceived differences. Concerning the relations between the overlap items, following SCT we expected that the self-outgroup overlap should correlate with ingroup-outgroup overlap. Furthermore, since this should only hold for categories actually used for self-definition, this correlation should decrease or vanish when the self-ingroup overlap is low. Finally, under the premise that we successfully established a salient intergroup context and self-categorization at the intergroup level in each study, we expected the perceived self-ingroup overlap to be higher than self-outgroup overlap.

## **Study 1: The Case of a Low-Status Minority**

Study 1 applied the OSIO items to the perception that East Germans have of their relation to West Germans ten years after the unification of Germany. At the time of this study, East Germans were a low status minority. Their situation was marked by low socioeconomic standards, an unemployment rate far higher than in West Germany, and an economic dependency upon the West German states.

## Method

### Participants

Participants were 52 psychology students of East German origin. Age ranged from 19 to 35, with a mean of 22.2. Forty-three participants were female. They answered the questionnaire as part of an introductory psychology class.

### Materials and Procedure

The cover page of the questionnaire informed the participants that the survey was designed to take a snapshot of the attitudes in East and West Germany ten years after the reunification. The first three questions asked for year of birth, gender and whether they grew up in East or West Germany. Next, the three OSIO items were administered (see Figure 1). First, on the ingroup–outgroup overlap item, participants were instructed to choose the picture that represented the current closeness of the two groups most precisely. The item consisted of seven diagrams. Each diagram consisted of two circles of equivalent size, vertically centered on a horizontal line. From top to bottom, the circles got closer, were tangent on the third diagram and overlapped almost totally on the seventh diagram.<sup>2</sup> The circles were labeled “East Germans” and “West Germans.” On the next page, participants had to choose the picture which best represented their “closeness to the group of East Germans.” This time, the left circle was smaller than the right circle. The small circle was labeled “self” and the larger circle was labeled “East Germans.” Again, both were centered vertically on a horizontal line, and got closer from top to bottom. They were tangent on the third diagram. In the sixth diagram, the small circle was fully inside the larger circle, but still had contact to the border of the larger circle. In this seventh diagram finally the small circle was right in the center of the larger circle. The third item was identical to the second item, but now the participants had to choose the picture that best represented their closeness to West Germans, with the smaller circle labeled “self” and the larger circle labeled “West Germans.” This order of the three items was kept constant for all participants in all studies presented here, since the goal was to measure the perception of the self in an intergroup context. Therefore, the ingroup–outgroup overlap item came first to establish this distinction. However, in order to push the intergroup differentiation not too far, self–outgroup overlap was measured last, balancing the elicitation of self-anchoring and intergroup differentiation. For all three items, we assigned a value of 1 to the first and a value of 7 to the last diagram. Thus, higher scores indicate more overlap.

The following verbal items had to be answered on 7-point Likert scales. Five items assessed the identification with the East Germans (i.e., identification, negative and positive feelings toward the ingroup, skepticism about a special East German identity, and sense of being an East German). These items have previously been used in several studies on the German and East German identity (Klink, Mummendey, & Mielke, 1998). Next, two items assessed the degree of identification with the superordinate category of Germans, with one item for the cognitive and one item for the evaluative component. All these items were anchored on a scale from *do not agree* (1) to *do fully agree* (7). Three additional items assessed the perception of differences and similarities on the same dimensions as the overlap items: between ingroup and outgroup, between self and ingroup, and between self and outgroup. These items asked whether the specific targets were seen as *very similar* (1) or *very different* (7).

## Results

### Reliabilities

The five items assessing identification with East Germany showed an internal consistency of Cronbach's Alpha = .78 ( $N = 51$  due to missing data), with items recoded where necessary. The correlation between the two items assessing identification with the superordinate category Germany was  $r = .70$ ,  $p < .001$ . Items were therefore combined into two scores, respectively. Means and correlations are presented in Table 1.

### Convergent Validity of Overlap Items

All three overlap items correlated significantly with the respective measures of perceived differences: the more overlap between the comparison objects, the less perceived differences,  $r_s < -.33$ ,  $p_s < .017$  (see Table 1). Self-ingroup overlap also correlated significantly with identification with the ingroup,  $r = .57$ ,  $p < .001$ . Self-outgroup overlap was associated with the identification with the superordinate category,  $r = .32$ ,  $p = .022$ .

### Intercorrelations Between Overlap Items

As predicted, self-outgroup and ingroup-outgroup overlap were positively associated,  $r = .31$ ,  $p = .028$ . To inspect a moderating influence of self-ingroup overlap on this correlation, a median split was performed on this variable. The correlation between self-outgroup overlap and ingroup-outgroup overlap was sustained in the group with high self-ingroup overlap,  $r = .43$ ,  $p < .034$ ,  $n = 25$ , but not in the group with low self-ingroup overlap,  $r = .12$ ,  $p > .561$ ,  $n = 27$ . The two correlations differed with Fisher's  $z = -1.14$ ,  $p = .060$  (one-tailed).<sup>3</sup>

An unexpected positive correlation emerged between self-ingroup overlap and self-outgroup overlap,  $r = .51$ ,  $p < .001$ . This seems to contradict SCT, which would expect rather the opposite or at least a null correlation. One possible explanation is the special minority situation of East Germans: Identifying (high overlap) with the majority outgroup, which stands for the superordinate category, does not necessarily mean that no identification with the subgroup is possible. We would, however, expect that this is only likely for those who do not see a strong difference between

**TABLE 1** Means and Correlations with Overlap Items, Study 1

	<i>M</i>	<i>SD</i>	<i>r</i>		
			IG-OG	S-IG	S-OG
Ingroup-outgroup overlap (IG-OG)	3.85	1.27	1		
Self-ingroup overlap (S-IG)	5.13	1.41	.10		
Self-outgroup overlap (S-OG)	3.50	1.26	.31*	.51***	
Ingroup identification	5.36	1.01	.28*	.57***	.07
Sup. cat. identification	4.68	1.70	.26	.05	.32*
Intergroup differences	4.67	1.37	-.33*	.05	-.29*
Self-ingroup differences	3.29	1.07	-.15	-.45**	-.27
Self-outgroup differences	4.90	1.12	-.16	.03	-.41**

Note. Ingroup East Germans, outgroup West Germans.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

ingroup and outgroup. We therefore conducted a second moderator analysis. A median split was performed on ingroup–outgroup overlap. As the post-hoc explanation suggests, the correlation between self–ingroup overlap and self–outgroup overlap was stronger for those with a high ingroup–outgroup overlap,  $r = .61$ ,  $p < .001$ ,  $n = 33$ , than for those with a low ingroup–outgroup overlap,  $r = .33$ ,  $p = .164$ ,  $n = 19$  (the uneven split is due to 18 participants at the median, which was 4). Fisher's  $z$  for the difference between these correlations equaled  $-1.18$ ,  $p = .060$  (one-tailed).

### **Mean Differences**

Self–ingroup overlap was significantly higher than self–outgroup overlap,  $t(51) = 8.87$ ,  $p < .001$ , indicating a salient intergroup context.

### *Discussion*

The results yield first evidence for the validity of the two new overlap items, self–outgroup overlap and ingroup–outgroup overlap, and the modified version of the self–ingroup overlap item. The two outgroup-related items were correlated with the respective perceived differences. Furthermore, the overlap with the outgroup correlates with identification with the superordinate category, which is consistent with the Common Ingroup Model (Gaertner, Dovidio, Nier, Ward, & Banker, 1999).

The mean difference between self–ingroup overlap and self–outgroup overlap and the correlation between self–outgroup overlap and ingroup–outgroup overlap confirmed the expectations. Furthermore, the later correlation was meaningfully moderated by self–ingroup overlap. An unexpected correlation emerged between self–ingroup overlap and self–outgroup overlap, but a moderation analysis supported a post-hoc explanation of this finding. We will come back to this correlation in Study 5, where it was experimentally manipulated. First, however, it is our goal to generalize the results from Study 1 to a different social context.

## **Study 2: The Case of a High Status Majority**

Very similar to Study 1, Study 2 analyzed the perception West Germans have of their relation to East Germans. Being a high-status majority, the West Germans' position in this intergroup context is markedly different from that of the East Germans, giving us the opportunity to test the overlap measures in a different type of intergroup setting.

### *Method*

#### **Participants**

Participants were 45 psychology students of West-German origin. Thirty-five of them were female; age ranged from 19 to 28, with a mean of 21.2. Six of them studied at an East German university, the remaining took courses at a West German university.

#### **Materials and Procedure**

The questionnaire was identical to that from Study 1 except for the reversal of the target groups and associated rewordings.



## Results

### Reliabilities

The identification scale's Alpha equaled .77. The correlation between the two items used to assess identification with Germany was  $r = .46$ ,  $p = .002$ . Table 2 displays means and correlations.

### Convergent Validity of Overlap Items

All three overlap items correlated significantly with the respective measures of perceived differences: the more overlap between the comparison objects, the less perceived differences,  $r_s < -.41$ ,  $p_s < .006$ . self-ingroup overlap was significantly correlated with identification with the ingroup,  $r = .49$ ,  $p = .001$ . Contrary to Study 1, self-outgroup overlap was not associated with the identification with the superordinate category,  $r = .02$ ,  $p = .890$ . A high correlation between ingroup identification and superordinate category identification,  $r = .43$ ,  $p = .004$ , suggested a strong link between (majority) ingroup and superordinate category; the respective correlation between self-ingroup overlap and superordinate category identification however was not significant,  $r = .17$ ,  $p = .280$ .

### Intercorrelations Between Overlap Items

As in Study 1, the correlation between self-outgroup overlap and ingroup-outgroup overlap was substantial,  $r = .49$ ,  $p = .001$ . A median split showed that the correlation was higher and significant when self-ingroup overlap was also high,  $r = .54$ ,  $p = .003$ , and decreased slightly when self-ingroup overlap was low,  $r = .47$ ,  $p = .091$ . This split, however, was less meaningful than in Study 1 due to a distribution skewed toward high overlap, and the difference was not significant. The correlation between self-outgroup overlap and self-ingroup overlap was not significant in this study,  $r = .16$ ,  $p = .320$ . A test of the moderating role of ingroup-outgroup overlap was not possible due to a high kurtosis of the distribution clustering on the median.

**TABLE 2** Means and Correlations with Overlap Items, Study 2

	<i>M</i>	<i>SD</i>	<i>r</i>		
			IG-OG	S-IG	S-OG
Ingroup-outgroup overlap (IG-OG)	3.84	1.30	1		
Self-ingroup overlap (S-IG)	5.70	1.24	.20		
Self-outgroup overlap (S-OG)	3.87	1.50	.49**	.16	
Ingroup identification	4.92	1.14	-.03	.49**	-.31*
Sup. cat. identification	4.66	1.36	-.09	.17	.02
Intergroup differences	3.80	1.29	-.41**	-.15	-.47**
Self-ingroup differences	3.00	1.21	-.02	-.48**	.43**
Self-outgroup differences	4.24	1.42	-.30*	.06	-.58***

*Note.* Ingroup West Germans, outgroup East Germans. Data for self-ingroup overlap are based on data from 43 cases due to missing data.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

### **Mean Differences**

Self–ingroup overlap was again significantly higher than self–outgroup overlap,  $t(42) = 7.17$ ,  $p < .001$ , indicating a salient intergroup context.

### *Discussion*

The results of Study 2 confirm the evidence for the convergent validity of the three OSIO items. The difference between the two contexts of Study 1 and Study 2 is most visible in the high correlation between ingroup identification and superordinate category identification: For the high status majority, the ingroup is virtually identical with the superordinate category (cf. Wenzel, 2000). It therefore makes sense that, when focusing on the West Germans, we did not find a correlation between self–outgroup overlap and superordinate category identification in Study 2.

### **Study 3: Intergroup Conflict on a National Level**

The previous studies were situated in a minority/majority intergroup context. To investigate the validity of the overlap items in a situation with conflicting groups of rather equal status, we took advantage of an event that stirred emotions in Germany in late 1999 and early 2000: the takeover bid from the British telecom group Vodafone Airtouch against the German telecom company Mannesmann. The takeover bid was not only hostile but the first of its kind in Germany. Extensive media coverage mirrored the unique nature of this event. The debate questioned the legal and moral status of the takeover, mixing political resentment against Great Britain with concern for the security of jobs at Mannesmann, and even included negative comments on the takeover attempt by the German chancellor. This situation provided us with a highly accessible intergroup setting at the international level. Following the lines of Study 1 and 2, we administered questionnaires with the overlap items, as well as other measures of intergroup relations.

### *Method*

#### **Participants**

One hundred twenty-eight students of an East German university were surveyed. Seventy-three of them were female. Additional 6 subjects who indicated that they had not heard of the takeover attempt before were excluded from the analysis. Age ranged from 18 to 32, with a mean of 21.1.

#### **Materials and Procedure**

Similar to Study 1 and 2, the three OSIO items were followed by measures of identification with Germans (ingroup) and Europeans (superordinate category), and perceived differences between Germans and British, self and Germans and self and British. Questionnaires were administered to students at a university campus and in an economics lecture. No cover story was used; the questionnaires were presented as surveys on the takeover attempt. Participants were eligible for a raffle, where every 20th participant won 20DM.

## Results

### Reliabilities

The five-item identification scale had an Alpha of .84 ( $n = 127$  due to missing data). The correlation between the two items used to assess identification with Europe was  $r = .49, p < .001$ . Table 2 displays means and correlations.

### Convergent Validity of Overlap Items

All three overlap items correlated as expected with the respective measures of perceived differences,  $r_s < -.30, p_s < .002$ . Self-ingroup overlap also correlated significantly with identification with the ingroup,  $r = .58, p < .001$ . As in Study 1, self-outgroup overlap was associated with superordinate category identification,  $r = .33, p < .001$ . Interestingly, in this study there was also a significant negative correlation between self-ingroup overlap and identification with the inclusive category,  $r = -.247, p = .005$ .

### Intercorrelations Between Overlap Items

Like in the two previous studies, self-outgroup and ingroup-outgroup overlap were positively associated,  $r = .40, p < .001$ . When the sample was split at the median of self-ingroup overlap, the correlation held only for the high-self-ingroup overlap group,  $r = .52, p < .001, n = 71$ , but not for the low-self-ingroup overlap group,  $r = .21, p > .120, n = 57$ . The difference was significant at Fisher's  $z = -1.97, p = .010$  (one-tailed). Unexpectedly, self-ingroup overlap and ingroup-outgroup overlap correlated significantly,  $r = .34, p < .001$ .

### Mean Differences

As illustrated in Table 3, self-ingroup overlap was again significantly higher than self-outgroup overlap,  $t(127) = 12.51, p < .001$ .

## Discussion

The basic validations of the OSIO items were again found in Study 3: The overlap items correlated with the respective difference measures, self-ingroup

**TABLE 3** Means and Correlation with Overlap Items, Study 3

	<i>M</i>	<i>SD</i>	<i>r</i>		
			IG-OG	S-IG	S-OG
Ingroup-outgroup overlap (IG-OG)	2.80	1.18	1		
Self-ingroup overlap (S-IG)	4.67	1.49	.34***		
Self-outgroup overlap (S-OG)	2.66	1.24	.40***	.12	
Ingroup identification	4.94	1.26	.08	.58***	-.08
Sup. cat. identification	4.45	1.01	.17	-.25**	.33***
Intergroup differences	4.52	1.19	-.39***	-.11	-.30**
Self-ingroup differences	3.48	1.32	-.02	-.43***	.09
Self-outgroup differences	4.95	1.16	-.25**	.11	-.30**

Note. Ingroup Germans, outgroup British.

\*\* $p < .01$ . \*\*\* $p < .001$ .

overlap correlated with ingroup identification, self–ingroup overlap was higher than self–outgroup overlap, and self–outgroup overlap and ingroup–outgroup overlap were significantly correlated. In this study, the final correlation was significantly moderated by the amount of self–ingroup overlap: Only for participants who saw a high overlap between self and ingroup, the relations between self and outgroup and ingroup and outgroup were mutually dependent.

A puzzling finding is the correlation between ingroup–outgroup overlap and self–ingroup overlap. This correlation was not significant in any other sample. Its meaningfulness is substantiated by the correlation between the respective difference items,  $r = .250$ ,  $p = .004$ ; it seems therefore due to the intergroup situation, not to the overlap items. We can only speculate that it is related to the special meaning of the German identity, which has often been observed to have a negative connotation for Germans (cf. Simon, Pantaleo, & Mummendey, 1995). This negative connotation may be attenuated by a high overlap between ingroup and outgroup, which in turn allows a higher overlap between self and ingroup.

### **Summarizing the Convergent Validity: Factor Analyses**

The correlation patterns in the three studies indicate high intercorrelations between self–ingroup overlap, identification, and perceived differences between self and ingroup. The correlations between these three constructs were substantial and significant in all three studies. On the other hand, there was a persistent correlation between self–outgroup and ingroup–outgroup overlap. To summarize how the constructs group together, we conducted three factor analyses on those constructs measured in all three studies: the three overlap items, three measures of perceived differences, and the two types of identification.

#### *Method*

For each sample, the eight variables were factorized using Principle Axis Factor Analysis. In all three samples, two factors emerged, with the third factors' Eigenvalues always below 1. They were rotated with oblique Direct Oblimin rotation,  $\Delta = 0$ . Table 4 shows factor loadings, Eigenvalues and explained variances as well as the correlations between the factors.

#### *Results and Discussion*

In all three samples, self–ingroup overlap, ingroup identification and perceived differences between self and ingroup loaded on the same factor. Also consistently, the four measures self–outgroup overlap and differences and ingroup–outgroup overlap and differences together loaded on the second factor. Identification with the superordinate category had weak loadings on both factors in Studies 1 and 2, and showed loadings above .40 on both factors in Study 3 (see Table 4).

These results confirm what has become clear throughout the first three studies: Self–ingroup overlap is linked to both ingroup identification and perceived self–ingroup differences. Self–outgroup and ingroup–outgroup overlap and differences are strongly related to each other and seem to tap a general tendency to differentiate between ingroup, to which the self belongs, and outgroup. Across studies, these two factors seem to be orthogonal, although they were rotated using an oblique method.

**TABLE 4** Factor Loadings for Principal Components Analyses of Studies 1–3

	Study 1 Factor		Study 2 Factor		Study 3 Factor	
	1	2	2 <sup>1</sup>	1	1	2 <sup>2</sup>
Ingroup identification	.771		.894	.299	.802	.128
Self-ingroup overlap	.744	-.218	.614	-.223	.749	-.134
Self-ingroup differences	-.622	.122	-.679	-.133	-.613	
Self-outgroup differences	.276	.748	.411	.772	.165	.507
Self-outgroup overlap	.387	-.673	-.238	-.737		-.606
Ingroup-outgroup differences		.623		.746	-.101	.603
Ingroup-outgroup overlap	.256	-.400		-.556	.195	-.607
Sup. cat. identification	.107	-.393	.359	.107	-.415	-.492
Eigenvalue	2.47	2.10	2.00	2.92	2.36	2.19
% explained Var.	30.81	26.23	25.05	36.51	29.45	27.40
Factor correlation	-.124		.126		.005	

Note.

<sup>1</sup>Order of factors was reversed for Study 2.

<sup>2</sup>For ease of interpretation, factor loadings for factor 2 and the factor correlation in Sample 3 were multiplied by  $-1$ .

Ingroups were East Germans, West Germans, and Germans, and outgroups West Germans, East Germans, and British, for Study 1, 2, and 3, respectively. Factor loadings below .10 are omitted.

They seem reminiscent of the two dimensions self-anchoring and intergroup differentiation proposed by Cadinu and Rothbart (1996).

While these results are very stable across the three studies, the loading of superordinate category identification changed from study to study. However, these changes are not random, but very consistent with the context in which each study was conducted. For the East German sample, identification with the superordinate group is negatively related to the differentiation between ingroup and outgroup: a recategorization effect. For the West German sample, identification with the category Germans is almost identical to the identification with the West Germans themselves; consequently, it loads on the first factor. Finally, in Study 3, the picture changes completely, with the negative loadings on both factors. Here, identifying with the superordinate category Europe means *less* identification with the ingroup, and *less* intergroup differentiation.

#### Study 4: Subjective Meanings of the Overlap Items

The previous studies demonstrated the validity of the graphical overlap items by inspecting their correlations with established measures. An alternative way to check the validity of the scale is to look at the content validity of the items. In Study 4, we therefore explored how participants interpreted the OSIO items, and checked whether these interpretations were consistent with the correlation patterns we found in the first studies. In the study, participants first filled all three overlap items with respect to a social category which was important to them, and then rated the applicability of potential interpretations of the items.

## Method

### Participants

An interviewer surveyed 24 students. Mean age was 23.9,  $SD = 2.1$ ; 13 of them female. Each participant received a chocolate bar.

### Materials and Procedure

Participants were told that the questionnaire would investigate one's relation to personally important social groups. They were given a list of eight social categorizations which could potentially be relevant to them: students versus peers who did not study, the own major versus students with other majors, nationality versus other nationalities, favorite sports versus people with other favorite sports, gender, East German versus West German, political background, and age. From this list, participants chose that dichotomy which was most important to them; to confirm their choice, they wrote down the names of their own group and the outgroup at the bottom of the page. The interviewer instructed them to answer the following overlap items with respect to these two groups.

On the next pages, participants answered the three OSIO items in the same order as in the previous studies. The instruction again asked them to indicate "closeness." Next, they were informed that we were interested in how exactly they interpreted these graphics. First, they were given a table with 11 possible interpretations of the ingroup-outgroup overlap item, and asked to rate each interpretation on a scale from *does not apply at all* (-2) to *fully applies* (2). Next to the table, a scaled down version of the overlap item was depicted as a reminder. Both the labels in the reminder picture and in the instruction referred to groups in general, not the specific groups chosen by the participants. On the next page, the same procedure was repeated for the self-group overlap item. Again, 11 possible interpretations were offered, and a scaled down example item with general labels "self" and "group" was shown next to it. Order of interpretations in both lists were random but fixed.

The lists of possible interpretations were compiled in two steps. After consulting colleagues from our social psychology department, an initial set with 8 (ingroup-outgroup overlap) and 9 (self-group overlap) interpretations was given to 45 participants in an unrelated study (not reported here), which used the OSIO items. The participants in this pilot study were asked to add further possible interpretations. These were then rated by two coders whether they were covered the initial list or not; new items were added to the list.

## Results

Of the 24 participants, 13 chose students as their most important social category. Three chose East Germany, another three chose those with a similar political worldview, and the remaining were distributed across the other categories. Two participants failed to rate all interpretations of the overlap item; the respective analyses are therefore based on data from 22 participants. For each of the two items, ratings of applicability were sorted such that the interpretation with the highest applicability came first, and entered in repeated measures MANOVAs. For each list, simple contrasts tested which interpretations differed from the most applicable one. Thus, the important result is which interpretations are most applicable, and which are significantly less applicable.

For the intergroup item, interpreting the overlap item as *demarcation* was the most prominent one ( $M=0.95$ ,  $SE=0.25$ ). Descriptively less applicable, but not significantly so, were interpretations of the overlap as signifying *similarities and differences* ( $M=0.91$ ,  $SE=0.25$ ), *existence of intergroup conflict* ( $M=0.64$ ,  $SE=0.29$ ), and *familiarity versus strangeness* between the groups ( $M=0.41$ ,  $SE=0.25$ ). The first interpretation that was significantly less applicable than *demarcation*,  $F(1, 21)=4.34$ ,  $p=.05$ , was the existence of shared goals ( $M=0.32$ ,  $SE=0.26$ ). All other interpretations, such as *being allied*, *existence of intergroup contact*, *sympathy*, and *favorableness of the ingroup*, were rated as less applicable.

For the self-group overlap item, two interpretations were equally highly applicable: interpretation of overlap as signifying *belonging* ( $M=1.50$ ,  $SE=0.16$ ) and as signifying that the self is a *part of the group* ( $M=1.25$ ,  $SE=0.17$ ). The third most applicable interpretation, that as *identification* ( $M=1.08$ ,  $SE=0.22$ ), already differed significantly from *sense of belonging*,  $F(1,23)=4.60$ ,  $p=.043$ . All other interpretations, such as *similarity* to the group, *attraction* by the group, *satisfaction* with the group, *typicality* for the group, *importance* of the group, and *commitment*, were rated as less applicable.

### Discussion

We asked the participants of this study how they interpreted the overlap items, using lists of potential interpretations which were generated by experts and participants of a pilot study. The preferred interpretations of the *intergroup overlap* were those as *demarcation*, *similarity*, *prevalence of conflict*, and *familiarity*. Less applicable were *shared goals* and *contact*, as well as *being allied* and *sympathy* between the groups. The self-group overlap item was primarily interpreted as *belonging* and *being a part of the group*; *identification*, *similarity*, *positive affect towards the group*, and *typicality* were rated as less applicable.

It is interesting that the most prominent interpretation of the intergroup overlap item is itself a spatial metaphor. Clearly, those metaphors are important for describing the relations between social categories. The high applicability of the interpretation as *similarities and differences* is consistent with the correlations found in the previous three studies. Furthermore, the quality of the relation seems to enter the interpretation, namely whether the relation is conflictual, and whether the groups are familiar with each other, or see each other as strangers. For the self-group overlap, the situation is less complex. While *similarities and differences* are clearly seen as applicable interpretations, the overlap items in our variant primarily signify *belonging to* and *being a part of the group*. This encourages us to view these items first of all as measures of self-categorization. As with the intergroup overlap item, these results are consistent with those of the previous studies. A further conclusion from these results is that the introductory term “closeness” works well as a general description the item, and that a more specific labeling of the meaning that would “explain” the spatial metaphor is not necessary.

### Study 5: Intercorrelations of Overlap Items as a Function of Intergroup Context

Taken together, the first three studies provided a challenging puzzle, namely the changing intercorrelations between the overlap measures. While self-outgroup overlap and ingroup-outgroup overlap correlated consistently above .30, the three

different contexts resulted in three different patterns for the remaining two inter-correlations. We want to focus now on the correlation between self–ingroup and self–outgroup overlap, which was significant in the East German sample (Study 1), but not significant in the other two studies. We argued that the special situation of the East German minority, which is economically dependent on the West, was responsible for this correlation. The goal of this study is to confirm that the correlation between self–ingroup overlap and self–outgroup overlap indeed depends on the relation of the two groups in the social context. We argue that this correlation should only hold when the groups are seen as striving for common goals. In such a situation, the groups are aligned, and closeness to one group predicts closeness to the other. In contrast, when the two groups are in conflict, the two variables should not correlate (as in Study 3). In the following study we manipulated the perceived intergroup relation between two groups, with either conflict or cooperation as the major theme in the intergroup context.

Study 5 had two additional goals with respect to the convergent validity of the overlap items. First, we intended to explore which component of identification perceived overlap is particularly associated with. Traditionally, a distinction has been made between a cognitive and an evaluative component (Tajfel, 1978).<sup>4</sup> Consequently, Klink et al. (1998) developed independent scales for cognitive and evaluative components of ingroup identification, which we used for this study. A second goal was to explore the relation of the overlap items to ingroup favoritism. Therefore, items assessing the attitudes towards the outgroup were added as a measurement of intergroup favoritism.

## *Method*

### **Overview and Procedure**

We manipulated whether the participating students of medical science perceived the relation between the two groups *physicians* (the high status ingroup) and *psychologists* (the outgroup) as conflictual or cooperative. The questionnaire was completed by medical students at the beginning of a sociology lecture. The participants were debriefed after they had returned the questionnaires.

### **Participants**

Ninety-five medical science students participated. Fifty-nine of them were female, mean age was 21.4,  $SD = 1.86$ , ranging from 18 to 28. There were more participants in the cooperation condition,  $n = 55$ , than in the conflict condition,  $n = 40$ . The two conditions did not differ regarding gender distribution,  $\chi^2(N = 95) = .130, p = .718$ , or age,  $t(93) = 1.15, p = .253$  (one missing value).

### **Materials**

Two versions of the questionnaires were distributed, differing with regard to how the relation between physicians and psychologists was described. Participants were randomly assigned to conditions. Depending on the experimental condition, the introductory text of the questionnaire stated that physicians and psychologists had either recently cooperated very well in the field, working hand in hand in diagnostic procedures and therapies, or that they had recently become fierce competitors who fought over scarce financial resources and questioned each other's competence. The two versions of the questionnaire differed only in these introductory statements.



It proceeded saying that in this situation, we would be interested in how the students would personally perceive the situation.

The structure of the questionnaire was largely equivalent to those used in the previous studies. Immediately after the manipulation, the participants had to answer the three OSIO items, in the order of ingroup–outgroup, self–ingroup, and self–outgroup overlap. They were followed by four manipulation check items. Two of the items were affirmative of cooperation, (e.g., “I think that physicians and psychologists can cooperate well”), and two were affirmative of conflict (e.g., “I think that physicians and psychologists are fierce rivals”). The remaining questionnaire included measures of ingroup identification, identification with the superordinate category of medical professions in general, and ingroup favoritism. For ingroup identification, we included items on two components of identification, namely cognitive and emotional identification (Klink et al., 1998). There were three items tapping cognitive identification, assessing sense of identification, feeling as a member, and sense of belonging. Four items measured evaluative identification (e.g. “I am glad to be a physician”). The favoritism measure consisted of ten attitude items with regards to the virtues of psychologists and psychotherapists in health care, and the financial support for psychologists (e.g., “Psychotherapists can work without the control and supervision of physicians,” and “Psychologists may make patients feel good. But only physicians can really heal”). These items were answered on scales from *do not agree* (1) to *do fully agree* (7). As the findings on perceived differences were unequivocal in the previous studies, these items were omitted in Study 5.

## Results

### Manipulation Check

After reversing the two manipulation check items affirmative of conflict, the four manipulation check items had an acceptable Alpha of .61, allowing the computation of a single cooperation score for each participant. As expected, participants in the cooperation condition perceived more cooperation between the two groups  $M = 4.56$ ,  $SD = .94$  than participants in the conflict condition  $M = 4.16$ ,  $SD = .97$ ,  $t(93) = 2.02$ ,  $p = .046$ . While both scores were descriptively above the midpoint of the scale (4), this was only significant in the cooperation condition,  $t(54) = 4.43$ ,  $p < .001$ , but not in the conflict condition,  $t(39) = 1.06$ ,  $p = .300$ .

### Reliabilities

The three items intended to tap cognitive identification had a satisfactory internal consistency,  $\text{Alpha} = .87$ . The four items assessing evaluative components of identification had an Alpha of .74. Two scores for cognitive and evaluative identification were formed out of these items, respectively. The correlation between these scores was  $r = .43$ ,  $p < .001$ . The ten favoritism items were scored such that higher values indicated more ingroup favoritism. Cronbach's Alpha equaled .74, allowing the combination into a single favoritism score.

### Manipulation Effects on Overlap Items and their Intercorrelations

We checked for effects on both the means of the overlap items and their intercorrelations.<sup>5</sup> None of the means of the three overlap measures differed between the experimental conditions,  $t_s < 1$  (see Table 5). As in the previous studies, self–ingroup overlap was significantly higher than self–outgroup overlap,  $F(1,93) = 205.34$ ,

**TABLE 5** Means and Correlations with Overlap Items Depending on Intergroup Context, Study 5

Context		<i>M</i>	<i>SD</i>	<i>r</i>		
				IG-OG	S-IG	S-OG
Cooperation	IG-OG overlap	3.33	.98	1		
	S-IG overlap	5.40	1.47	.04		
	S-OG overlap	2.80	1.18	.22	.52***	
	Cognitive ident.	5.86	1.07	-.10	.59***	.22
	Evaluative ident.	6.54	.64	.06	.22	.20
	Sup. cat. ident.	5.85	1.20	-.14	.05	.24
	Favoritism	3.87	.94	.06	-.04	-.27*
Conflict	IG-OG overlap	3.18	1.01	1		
	S-IG overlap	5.20	1.54	.09		
	S-OG overlap	2.98	1.48	.40*	.16	
	Cognitive ident.	5.36	1.36	.09	.69***	-.08
	Evaluative ident.	6.35	.76	-.14	.40*	.01
	Sup. cat. ident.	5.69	1.05	.09	-.08	.00
	Favoritism	3.47	.91	.00	.32*	-.36*

*Note.* Ingroup physicians, outgroup psychologists. IG-OG = ingroup-outgroup, S-IG = self-ingroup, S-OG = self-outgroup; ident. = identification; sup. cat = superordinate category.

\* $p < .05$ . \*\*\* $p < .001$ .

$p < .001$ , tested in a  $2$  (condition)  $\times 2$  (self-ingroup versus self-outgroup overlap) MANOVA, with repeated measures on the second factor. The experimental manipulation did not moderate this difference,  $F(1,93) = 1.24$ ,  $p = .268$ .

More important to the present hypothesis, however, are the correlations between the three overlap items. We predicted that self-ingroup overlap and self-outgroup overlap would correlate only in the cooperation condition. Confirming this prediction, this correlation was significant in the cooperation-condition,  $r = .52$ ,  $p < .001$ , but not in the conflict condition,  $r = .16$ ,  $p = .320$ . The direct comparison showed that these two correlations differed significantly, Fisher's  $z = 1.91$ ,  $p = 0.028$ . Moreover, a second difference emerged: While in the conflict condition ingroup-outgroup overlap and self-outgroup overlap correlated significantly with  $r = .40$ ,  $p = .010$ , they did not correlate significantly in the cooperation condition,  $r = .22$ ,  $p = .110$ . The direct comparison of these two correlations, however, was not significant, Fisher's  $z = 0.93$ ,  $p = 0.175$ .

### **Manipulation Effects on Identification and Ingroup Favoritism**

The experimental manipulation had a significant effect on cognitive identification,  $t(93) = 2.01$ ,  $p = .047$ , but not on evaluative identification,  $t(93) = 1.29$ ,  $p = .199$ . Unexpectedly, cognitive identification was *higher* in the cooperation condition,  $M = 5.86$ ,  $SD = 1.07$ , than in the conflict condition,  $M = 5.36$ ,  $SD = 1.36$ . Analogously, the favoritism measure showed more ingroup favoritism in the cooperation condition,  $M = 3.87$ ,  $SD = .94$ , than in the conflict condition,  $M = 3.47$ ,  $SD = .90$ ,  $t(93) = 2.10$ ,  $p = .038$ .

### **Convergent Validity of Overlap Items**

Self-ingroup overlap correlated in both conditions with cognitive ingroup identification, both  $r_s > .59$ ,  $p_s < .001$ . The correlation with evaluative ingroup identification failed to reach significance in the cooperation condition,  $r = .22$ ,  $p = .106$ , but was significant in the conflict condition,  $r = .40$ ,  $p = .011$ . (Note, however, that these correlations did not differ significantly, Fisher's  $z = .90$ ,  $p = .180$ .) The correlation between self-outgroup overlap and inclusive category identification failed to reach significance in the cooperation condition,  $r = .24$ ,  $p = .072$ , and was remarkably low in the conflict condition,  $r = .003$ . In both conditions, favoritism as measured by the attitude items was negatively correlated with self-outgroup overlap,  $r = -.27$ ,  $p = .044$  for cooperation, and  $r = -.26$ ,  $p = .024$ , for conflict. In the conflict condition, it additionally correlated with self-ingroup overlap,  $r = .33$ ,  $p = .040$ .

### *Discussion*

The main goal of this study was to test whether the intercorrelations between the overlap variables are sensible to the intergroup context, as suggested by the first studies. Indeed, the results show that when the intergroup relation was framed as cooperative, the correlation between ingroup-outgroup overlap and self-outgroup overlap decreased slightly, and the correlation between self-ingroup overlap and self-outgroup overlap became significant. The opposite pattern occurred in the conflict situation. Here, closeness to the ingroup was not associated with closeness to the outgroup—both are basically independent. At the same time, the relations of self to outgroup and ingroup to outgroup become more strongly aligned, as indicated by the higher correlation between the two overlap scores.

A striking finding of this study was that in the cooperation condition, both cognitive ingroup identification and ingroup favoritism were higher, while the means of the overlap items did not differ between the conditions. Apparently, the cooperation instruction rendered the ingroup's distinctiveness and the status differentiation less positive than desired, and the participants counteracted this threat by favoring the ingroup and expressing more ingroup identification (see also Brewer, 1999, p. 436, for a similar observation on the possibility of increased intergroup conflict elicited by anticipated cooperation). We must ask, then, why was this not manifest on the means of the overlap items? We can only give a speculative answer here. It seems that the overlap items primarily assessed how the participants *perceived* the situation. Thus, they answered how close to one another they actually *saw* ingroup, outgroup, and self. In contrast, the cognitive identification items and especially the favoritism measure may rather assess variance which is due to a *reaction* to that situation, or to what the participants made of this situation: Being threatened by the lack of status differentiation from a previously inferior outgroup, they identified more strongly with the ingroup, and favored it over the outgroup. This speculation points to a possible dissociation between *perceiving* an intergroup context, and *acting* in it, with the overlap items tapping especially the perception. The difference we speculate about here is similar to a recent distinction proposed by Spears, Jetten and Scheepers (2002), who argued that one has to distinguish between *reflective* and *reactive* distinctiveness between groups. In the simplest case, reflective distinctiveness refers to the perceived reality, and mirrors the perception of real differences or similarities between groups. Reactive distinctiveness, however, comes into play when group distinctiveness is threatened by comparison with a similar outgroup. Spears et al. posit that in order to fulfill an identity function of

distinctiveness, one is then motivated to *create* distinctiveness, which was apparently the case in our cooperation condition.

Despite this observed dissociation, the correlational analyses again show the convergent validity of the overlap items. There is a consistent correlation between self–ingroup overlap and cognitive identification, which was measured separately from evaluative identification in the current study. The correlation between self–ingroup overlap and evaluative identification was significant only in the conflict condition. Similarly, self–ingroup overlap correlated with ingroup favoritism only in the conflict condition. It seems that there is a stable association between self–ingroup overlap and cognitive identification, but that with a changing intergroup context the overlap—or the closeness—gains additional significance related to a positive evaluation of the ingroup, its emotional significance, and its favorableness.

## General Discussion

The goal of the present research was to test whether graphical measures of overlap between ingroup, outgroup, and self are useful tools for research on intergroup relations. We presented evidence showing convergent validity of the items with previously established measures, and evidence that illustrates how the overlap items function as a sensitive barometer in different intergroup contexts.

With respect to the convergent validity, the overlap items show stable correlations with respective measures of perceived similarities and differences, and self–ingroup overlap was always correlated with ingroup identification, especially its cognitive component. Self–outgroup overlap was negatively related to ingroup favoritism in Study 5. The results of the factor analyses across the first three studies yield a stable two-factor structure, with the self–ingroup items loading on one factor, and the self versus outgroup and ingroup versus outgroup items loading on the other factor. Adding to the convergent validity, the correlations between both self–outgroup and ingroup–outgroup overlaps with superordinate category identification depended meaningfully on the intergroup context. These results were corroborated by the subjective interpretations assessed in Study 4. The prominent meanings of the items mirror closely the interpretation of intergroup overlap as demarcation and as perceived differences between the groups, and the interpretation of self–group overlap as belonging to the group.

The function of the overlap items as a sensitive barometer for self-categorization in intergroup contexts is first and foremost demonstrated by the relations between the items themselves. Across all samples we found that self–ingroup overlap was significantly higher than self–outgroup overlap. Furthermore, a salient intergroup situation is indicated by a correlation between self–outgroup overlap and ingroup–outgroup overlap, and the absence of a correlation between self–ingroup overlap and self–outgroup overlap. This was found in moderation analyses in the first studies, and substantiated experimentally in Study 5. There, the framing of the intergroup context as either close cooperation or conflict had an impact on the intercorrelations, and the salient intergroup pattern was observed only in the conflict condition.

### *Comparison to Verbal Measures*

Proposing a new measure and validating it by showing correlations with established measures provokes the question what advantage this new measure has. First of all,

we want to stress that we do *not* see the OSIO items as a *replacement* for established verbal measures of identification and salience of an intergroup situation, but rather as an addition and extension of the researcher's tool kit. Compared to established verbal measures, the overlap items have several properties which may make them useful for intergroup research. First, they are easy to use. We have observed during the research that the items are easily comprehended by the participants, and are often answered more confidently than verbal identification items. We also suspect that the graphical nature of the items may make the measures useful for assessing the relation that *children* have to certain groups. Second, the OSIO items can be easily adapted to new contexts. Identification items are notoriously difficult to adapt to certain groups that may be important for an individual, but where phrases such as "I identify with . . ." are not applicable. One example are outgroups, where participants are frequently uneasy with traditional measures of identification. Here, the OSIO items offer a direct assessment of the difference between closeness to an ingroup and closeness to an outgroup. Third, an interesting feature of the present items is that they depict the group as a single entity, rendering the individual members less important for the answer.<sup>6</sup> This may be especially important in minimal group studies, where participants typically do not encounter members of ingroup or outgroup, but have a representation of the groups as a whole.

Concurring with Tropp and Wright (2001), we contend that the central advantage of the overlap items is that their graphical nature gives metaphorical access to the subjective experience of one's relation to a group. Aron et al. (1992, p. 610) noted that "on the surface, the IOS Scale may seem to be just a fancy version of a simple question of how close one feels to the other." On the basis of their results, however, they concluded that pictorial measures were both empirically and conceptually different from verbal measures. We argued above that the reason why closeness of circles can represent interpersonal relations, or, in our case, social and self-categorizations, is a metaphorical mapping of the relation to the group onto the spatial dimension. This mapping captures central aspects of one's relation to a group by virtue of being one of the most important dimensions of our everyday relations to groups and their members. In the terms of Barsalou (1999), the overlap items are *grounded* in the perceptual domain. The dissociation observed in Study 5, where the correlations between the overlap items followed the situation described in the manipulation, while identification and ingroup favoritism items probably reflected a strategic answer to a possible threat, may be due to this special grounding of the overlap items. However, more extensive research has to show whether graphical representations offer a pipeline to intergroup perception that includes less variance that is due to strategic considerations.

In sum, after having established basic convergent validity with established verbal measures of identification, similarity and belonging, we propose that the OSIO items can serve as a easily applicable, comprehensive, and very sensitive assessment of the salient self-categorization at a social level. While the OSIO items may provide less resolution of specific aspects of one's relation to a group such as belonging versus similarity, they may capture the kernel of the subjective experience of one's identification with a group. Whether the collapsing of the finer dimensions is seen as a virtue or as a problem clearly depends on the research question. We however know of no single verbal item that can capture one's relation to a group as comprehensive as an overlap item can.

### Coda

As a final point, we want to draw attention to the precise metaphor depicted in the OSIO items. As noted before, we did not depict an inclusion of the ingroup in the self, but rather an inclusion of the self in the ingroup. This is at odds with recent definitions of ingroup identification as “inclusion of ingroup in the self” (Tropp & Wright, 2001), or an “ingroup becoming part of the self” (Smith & Henry, 1996). These formulations are certainly in the successful tradition of a cognitive approach to group phenomena, which analyzes social groups as they are mentally represented by their members. However, this theoretical focus may not always be consistent with the subjective experience. At least for some group contexts, the critical experience may be that the self is included in and becomes part of the group, rather than that the “group becomes part of the self.” The first aspect is exactly what the OSIO items intend to measure.

### Notes

1. Note that while Tropp and Wright call their measure “Inclusion of Ingroup in the Self,” this phrase is not mentioned in the instruction to the participants. Thus, their item metaphorically refers to a nondirectional overlap, instead of an inclusion.
2. Note that in Aron et al. (1992) and Tropp and Wright’s (2001) overlap item, the circles are tangent already in the first picture, and then overlap increasingly. We changed that in order to make a more “distanced” relation measurable.
3. In this and all following analyses, we favor median splits over regressions with interaction terms for ease and shortness of presentation, and since they do not require an assumption about the causal direction between self–outgroup overlap and ingroup–outgroup overlap.
4. Note that some researchers have drawn even finer distinctions between different components of identification (e.g., Ellemers, Kortekaas, & Ouwerkerk, 1999; Jackson & Smith, 1999), but that we stay at this more general level for the present purposes.
5. Tests for normality showed non-normal distributions for all three overlap items, with Kolmogorov-Smirnov-Zs  $> 1.752$ ,  $ps < .005$ . Distributions of both self–outgroup and ingroup–outgroup overlap were skewed in the direction of lower overlap. Distribution of self–ingroup overlap was skewed in the direction of higher overlap. We tried to counter the skewed distributions with several transformation methods. A square-root transformation worked best, but Kolmogorov-Smirnov-Zs still showed non-normal distributions. Analyses performed with the transformed values showed virtually the same results as those reported in the text.
6. We thank Kai Sassenberg for this observation.

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