

Running head: I AM YOU

I am you and we are all together:  
The impact of an independent self-construal on self-  
group overlap

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### **Abstract**

Our thesis sought to discover how self-construals affect self-group overlap when it is combined with the projection of either self-anchoring or self-stereotyping. We primed participants with either an independent or interdependent self-construal and manipulated the projection of either self-anchoring or self-stereotyping with a questionnaire. Our hypotheses were that an independent self-construal causes more self-group overlap and social identification when it is combined with self-anchoring than when combined with self-stereotyping. Additionally, we predicted a similar effect for an interdependent self-construal and self-stereotyping. Conclusively, we found an interaction between gender and our two independent variables, which show that the hypothesized pattern applied for males but is reverted for females. Implications and limitations are discussed.

*Keywords:* self-construal, self-anchoring, self-stereotyping, self-group overlap, social identification

I am you and we are all together: The impact of an independent self-construal on  
self-group overlap

Different cultures have evolved in relative isolation throughout centuries and never before in the history of humankind has there been such worldwide overlap with different cultures - a term coined multiculturalism. Cultures still tend to differ, among other things, with regard to how they perceive individuals and groups. It has been widely recognized that the Western cultures – North America and Europe - could be defined as individualistic whereas the cultures of Far East, South America, and Africa to name some, are usually regarded as collectivistic (Triandis, 1989; Hofstede 1980, Hofstede & McCrae, 2004). Individualistic cultures emphasize individual freedoms, and most people living in individualistic countries tend to act in an individualistic, or *independent* manner. The opposite is true for collectivistic cultures where most people tend to value and think of terms of their group over the needs of individuals (Triandis 1989) and are thus *interdependent*.

These differences between cultures are also reflected on individuals' self-concepts. Self-concepts affect the need to belong, which has been recognized as a universal need among people (Baumeister & Leary, 1995). What we desire to pursue with our research is how exactly an independent or interdependent *self-construal* affects the sense of belonging to a group, as it is unclear how people with different self-construals fulfil this need. We also look at two different cognitive processes that create a mental bond with the group, namely, *self-stereotyping* and *self-anchoring* and how they interact with different self-construals. Our research question is thus, how does an individual's self-construal affect self-group overlap when it interacts

with the projection of self-anchoring and self-stereotyping. From hereon, we are brought to discuss the definition of self-construals.

### **Self-construals**

While cultures are usually categorized as individualistic or collectivistic people are referred to as being independent or interdependent in their self-construals (Markus & Kitayama, 1991). Independent self-construal refers to a behavioural pattern of a person that promotes dismissing group's priorities in favour of personal priorities and being more unaffected, *independent* of the group. An individual with an independent self-construal acts on one's own internal states, not as a consequence of the groups state.

An interdependent self-construal on the other hand promotes group priorities over personal priorities, a sense of responsibility to and from the group where the self is *interdependent* with it. Here the individual's cognitions, motivations, and emotions implicate that the self is what reacts to the group. Thus, behaviour is perceived more situationally sparked, that it is primarily caused by the groups influence. The concept of self-construals is closely linked to social identity, as the differences in self-construals define what an individual's social identity is like in group situations.

### **Personal and social identity**

As has been shown by the Social Identity Theory and the Self-Categorization Theory, people tend to have a separate sense of self when they are involved in groups (SIT; Tajfel & Turner 1979; SCT; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). Following these theories, self-stereotyping emerged as the primary process

explaining how individuals identify with their group, which is further discussed later on.

The personal identity is unique in a sense that the personal identities of individuals exist independently of their group memberships. A person can describe one's personal identity in terms of one's own dispositions, whereas the social identity resembles the group one belongs to. The social identity is more homogenous and more assimilated to the behaviours of the group, contrary to the personal identity that describes the person when one is not involved in a group situation. This brings us to the actual projection of social identity, and how an individual creates a mental bond with their group.

### **Self-stereotyping and self-anchoring**

Self-stereotyping and self-anchoring are considered as the theoretical mechanisms of social identification, or how one's social identity is formed. Self-stereotyping refers to the process of describing oneself in terms of the characteristics of a group one belongs to. For example, a psychology student may see him or herself as "sensitive" because he or she is a member of the group of psychology students. Self-anchoring on the other hand is the process of inferring group characteristics from personal dispositions (Cadinu & Rothbart 1996).

While self-stereotyping has been viewed as the primary process explaining the overlap between the self and group concepts and how it ascends (SIT; Tajfel & Turner 1979; SCT; Turner, et al., 1987), later research has identified self-anchoring as a qualitatively different process, that also accounts for self-group overlap (Cadinu & Rothbart, 1996). The studies on Minimal Group Paradigm showed that self-stereotyping could not account for the mental overlap between self and group, as no

group prototypes were available for the participants beforehand. Thus, self-anchoring was considered to be a factor that influenced the participants' perception, as it could not be accounted for by self-stereotyping.

The first evidence that self-anchoring has a distinctively different impact on an individual's social identification was discovered in a study by Van Veelen, Otten, and Hansen (2011). An implication of this research is, as quoted "our research might have implications for social identification in diverse groups. One could argue that self-anchoring might facilitate identification in heterogeneous groups, because it offers the opportunity to acknowledge individual differences between group members" (Van Veelen et al, 2011). From this we may draw that individuals may identify with their group even in situations that embark individuality instead of group based conformity.

Whereas self-anchoring and self-stereotyping can be regarded as the processes that emerge social identification and self-group overlap, self-construals act as the basis from where it stems. To clarify, we hypothesize that a person who is initially independent in one's self-construal to display more self-group overlap and identification when one is engaged in self-anchoring because of the preoccupation on oneself in the self-construal and the projection of one's own traits to the group creates a match between the two concepts. For self-stereotyping and interdependent self-construal the prediction is opposite, as the focus of the self-construal is on the group and the projection concerns the reflection of prototypical group traits to oneself. What we have left to define are the concepts of social identification, entitativity, group heterogeneity, and self-group overlap what we seek to measure as outcome variables.

**Social identification, self-group overlap, entitativity, and group heterogeneity**

The extent to which people identify with their own culture is connected to the amount in which they behave according to the culture's norms about individualism or collectivism (Jetten, Postmes & McAuliffe, 2002). That is, a highly identified person in an individual culture, for example the United States, is more independent than either a low identifier of the same culture or a high identifier from a collectivistic culture. People with independent self-construals are more commonly found in individualistic cultures and they tend to emphasize individual goals and self-reliance over in-group benefits (Kashima, Yamaguchi, Kim, Choi, Gelfand, & Yuki, 1995; Triandis, McCusker, & Hui, 1990). Interdependent people are the opposite, and they are more commonly found in collectivistic cultures.

Social identification is the extent to which an individual identifies with the group one belongs to (Smith & Henry, 1996). Closely intervening with this is self-group overlap, or how close the self and group are perceived, which has been shown to instigate social identification (Tropp & Wright, 2001).

In a study by Van Veelen, Otten, and Hansen (2012), it was discovered that self-anchoring can predict social identification and entitativity in ambiguously defined groups. Entitativity refers to the extent a group is perceived as "one", that is, how unified the group is seen (Campbell, 1958). Contemporary research has shown that entitativity may be based on the relationship between the self and the group (Lickel, Hamilton, Wierzchowska, Lewis, Sherman, & Uhles, 2000), thus making the measuring of entitativity relevant to the self-group overlap.

Group heterogeneity, in essence, is how diverse the group is perceived (Oyserman & Lee, 2008). The relevance of this to identification is that it may pose as



a basis in the facilitation of identification through self-anchoring (Van Veelen, Otten, & Hansen, 2012)

### **The present research**

In our research we seek to investigate the impact of differences that an individual's self-construal has on individual's social identification. Our first hypothesis is that participants with independent self-construal will show more overlap between the self and the group through self-anchoring, than through self-stereotyping. The effect of self-construal to social identification is moderated by self-stereotyping and self-anchoring. We predict that priming people with either an independent or interdependent self-construal results in more self-group overlap of the individual when the self-construal interacts with the matching projection. To clarify, an independent self-construal that is combined with self-anchoring is hypothesized to create more self-group overlap rather than when it is combined with self-stereotyping. For an interdependent self-construal the opposite is true, where the predicted greater self-group overlap results with self-stereotyping.

Our second hypothesis concerns the moderating processes of self-anchoring and self-stereotyping, where self-anchoring is hypothesized to lead to more identification and entitativity with the group among participants with independent self-construal, compared to participants with an interdependent self-construal. As has been shown by past research, an interdependent self-construal tends to be connected with the individual being more group oriented, which in our study is predicted to lead to more self-stereotyping, that is, the individual describes him or herself as prototypical of his or her group. Independent self-construal on the other hand is predicted to lead to more self-anchoring, where the individual describes his or her

group in terms of his or her own personal dispositions. Further, we seek to investigate if group heterogeneity has an effect in creating more identification for self-anchoring.

## PILOT STUDY

In our thesis we expect that participants primed with an interdependent self-construal will display more overlap between the self and the group via self-stereotyping than self-anchoring. In contrast, we expect that participants primed with an independent self-construal will display more overlap between the self and the group via self-anchoring compared to self-stereotyping. In our second hypothesis we assume a similar pattern but with identification as a dependent variable. To investigate these processes, we need a list of traits on which participants can rate themselves and the group, in both the self-anchoring and self-stereotyping condition.

The purpose of the pilot study was therefore to test a list of traits in their perceived stereotype-relevance or irrelevance for psychology students. For investigating self-stereotyping, a list of stereotypical traits for psychology students is needed. For investigating self-anchoring, we need a list of ambiguous traits, to minimize the possibility of participants using group stereotypes to create self-group overlap.

## Method

### Participants and design

Twenty-eight psychology students participated in our pilot study, of which sixteen were female and twelve were male. Fourteen participants were Dutch and they completed the questionnaire that was in their native language. Of the fourteen international participants who filled the English questionnaire, twelve were from Germany, one from the USA and one from Saudi-Arabia. The age of the participants varied between 20 and 27, with a mean age of 22,68 ( $SD = 1,79$ ).

## **Procedure and measures**

A questionnaire was used for our pilot study. Participants were recruited in the canteen of the psychology faculty and were asked to fill out a questionnaire. The Dutch participants filled out a Dutch version of the questionnaire and the non-Dutch participants filled out an English version. The questionnaire consisted of two parts. In the first part we asked the participants to come up with four traits that they thought were typical for psychology students. They also had to think of four traits that were not at all typical for psychology students. They were asked to evaluate the valence of all of these traits on a 7-point Likert scale.

In the second part of the questionnaire, participants were asked to rate 68 given traits on a 7-point Likert scale (1 = not at all applicable to psychology students; 7 = very applicable to psychology students) and to evaluate the valence of all 68 traits on a 7-point Likert scale, 1 being negative and 7 being positive. Forty-nine of these traits were taken from a study by van Veelen, Otten & Hansen (2011), who also investigated self-anchoring and self-stereotyping among psychology students. In addition, we added 19 traits ourselves potentially being stereotypical or ambiguous with respect to psychology students.

## **Results and Discussion**

### **Stereotypical versus ambiguous traits**

We conducted a t-test on the 68 traits from the pilot study and investigated whether their mean deviated significantly from the midpoint of the scale (test-value = 4). Traits that did not deviate from the midpoint were perceived neither as stereotypical nor counter-stereotypical (ambiguous). The traits had to be significantly stereotypical or ambiguous in both languages, both Dutch and English, to qualify for

our projection measure. Some traits were stereotypical among Dutch participants, but not among the English participants, and vice versa and were thus excluded. Using this method, we found 23 traits for the self-anchoring condition and 20 traits for the self-stereotyping condition.

### **Valence**

After that, we looked at the valence of the 43 traits that we found to be stereotypical or ambiguous in both the Dutch and English questionnaires. We wanted to avoid significant difference between the valence of the stereotypical traits and the valence of the ambiguous traits. This is because people have a tendency to rate themselves and their in-group higher on positive traits, and this could bias the results. A t-test was conducted on the average valence of traits selected for self-anchoring and self-stereotyping, to potentially remove traits that were significantly positive or significantly negative on valence. From the 43 selected traits for SA and SST, we narrowed down a final trait list consisting of 11 ambiguous traits and 11 stereotypical traits. We compared the mean valence of ambiguous traits and stereotypical traits and found that the stereotypical traits were rated more positive ( $M = 5.18$ ,  $SD = 0.46$ ) compared to the ambiguous ( $M = 4.93$ ,  $SD = 0.62$ ) but the one-way analysis of variance (ANOVA) did not yield significant results  $F(1, 54) = 3.08$ ,  $p = 0.09$ . See Appendix 1 for the final list of traits.

## **PRESENT STUDY**

### **Method**

In our present research we sought to investigate how an independent or interdependent self-construal affects self-group overlap obtained via either self-anchoring or self-stereotyping. We expect that participants primed with an

interdependent self-construal will display more overlap between the self and the group via self-stereotyping than self-anchoring. In contrast, we expect that participants primed with an independent self-construal will display more overlap between the self and the group via self-anchoring compared to self-stereotyping. This was investigated by priming participants with an independent or interdependent self-construal and projecting either self-anchoring or self-stereotyping, and finally measuring the extent of perceived self-group overlap.

In our second hypothesis, we assume that those with an independent self-construal identify higher with a group in the self-anchoring condition compared to a self-stereotyping condition. Conversely, we expect those with interdependent self-construal to identify higher when they are in a self-stereotyping compared to a self-anchoring condition.

### **Participants and design**

For the present study, our participants were 209 psychology students, of which 146 were female and 61 were male (two gender unknown). Seventy-seven participants filled out the Dutch questionnaire and 132 filled out the English equivalent. The nationality of the participants varied greatly with eighty participants born in the Netherlands and 129 born elsewhere, namely 108 in Germany, four in the United Kingdom, two in Finland and one in each of the following countries: Brazil, France, Greece, Hungary, Israel, Japan, Malaysia, Mexico, Romania, South Korea, Spain, Sweden, and Turkey, with one unreported. Participants were aged from 17 to 32 with a mean age of 20,02 ( $SD = 1,75$ ).

We excluded five of the participants from the analysis because they did not circle any words in the first part of our study, in which we manipulate self-construal

(see 'Procedure and materials'-section below). This way we ended up with 75 Dutch participants and 129 non-Dutch participants, of which 144 were female and 59 were male (one gender unknown). The mean age of the participants without the five excluded participants is 19.97 ( $SD = 1.69$ )

There were six versions of the questionnaire because of our 2 x 3 design; two group projection strategies to create self-group overlap (self-stereotyping or self-anchoring; moderator) and three different self-construal primes, (independent, interdependent or neutral; independent variable). With the questionnaire we aim to measure the dependent variables, which are self-group overlap, identification, entitativity and perceived group-heterogeneity.

### **Procedure and materials**

The participants were given a paper and pencil test they had to fill it out in an individual cabinet in the basement of the Heymans building. The questionnaire consisted of two parts. They were instructed that the two questionnaires were unrelated, while in reality they were both part of the same study. The Dutch participants filled out a Dutch version of the questionnaire and the non-Dutch participants filled out an English version.

The first part of the questionnaire was used to prime participants with either an independent, interdependent or neutral self-construal. The participants were told they were taking part in a study about 'language and sentence construction'. For the priming of the participants the Pronoun Circling Task by Brewer & Gardner (1996) was used. Participants read a short story about living in the city, either with a perspective and emphasis on 'I', or 'We', and related words, which the participants had to circle. We added a control condition to the questionnaire ourselves, where the

emphasis was on articles, such as ‘a’ or ‘the’. To make the independent or interdependent self-construal more salient, we also asked participants to write statements about themselves (independent condition) or their group (interdependent condition). This procedure was adapted from a prime by Goncalo & Staw (2006). We added a control condition to this procedure in which participants had to write statements about animals in the zoo.

Subsequently, participants were presented with a second questionnaire, which was explained to be independent of the first, while in fact it was related to the first questionnaire. The second part of our study consisted of four parts. In the first part of the questionnaire, the self-construal of the participants was measured using the short version of the Self-Construal Scale by Gudykunst et al. (1996) as a manipulation check. It consisted of six items about independence (example item: “I take responsibility for my own actions”.  $\alpha = .65$ ) and six items about interdependence (example item: “I consult others before making important decisions”;  $\alpha = .68$ ). They had to indicate on a 7-point Likert-scale the extent to which the statements were applicable to them (1 = not at all; 7 = very).

In the subsequent part of our questionnaire we measured self-anchoring or self-stereotyping, based on a procedure adapted from van Veelen, Otten, & Hansen (2011). For this part we used the stereotypical/ambiguous traits that we selected in the pilot study (see appendix 1). In the self-anchoring condition, participants first had to come up with three traits that they thought were very applicable to them as a person. After that, they had to indicate to what extent the 11 ambiguous traits found with the pilot study, were applicable to them as a person on a 9-point Likert scale (1 = not at all; 9 = very). Then they had to rate the same 11 non-stereotypical traits on



the applicability to psychology students. By having the participants rate themselves first on the ambiguous traits, and subsequently on the group ‘psychology students’, we aimed to direct the participants to create self-group overlap based on the projection of personal traits on the group (i.e. self-anchoring).

In the self-stereotyping condition, participants first had to think of three traits they thought are very applicable to psychology students. Then they had to indicate to what extent the 11 stereotypical traits selected in the pilot study, were applicable to psychology students on a 9-point Likert scale (1 = not at all; 9 = very). After that, they had to indicate to what extent the same 11 traits were applicable to themselves on the same 9-point Likert scale. By having the participants rate the group first on the stereotypical traits, and subsequently rate themselves on these traits, we expected participants to use the group-stereotypes to create self-group overlap by projecting stereotypical traits from their in-group on themselves (i.e. self-stereotyping).

*Dependent variables.* After the participants had rated themselves and their group on the traits, they had to fill out another questionnaire, which was built out of various scales. First, participants filled out the social identification scale by Leach et al., (2008). This scale was used to measure to what extent the participants identified with psychology students. We used an adapted version of the social identification scale, consisting of 7 items in total ( $\alpha = 0.83$ ). There were three items about ‘solidarity’ (e.g. “I feel a bond with psychology students”) and four items about ‘satisfaction’ (e.g. “I am glad to be a psychology student”). Participants had to indicate to what extent the statements were applicable to them on a 7-point Likert-scale (1 = not at all; 7 = very).

In addition to this, we added a measure of perceived entitativity from a study by Lickel, Hamilton, Wierzchowska, Lewis, Sherman & Uhles (2000). This scale consisted of 4 items ( $\alpha = 0,84$ ). Entitativity was measured by statements indicating 'oneness' among psychology students. For example: "Psychology students are a unity".

Finally, perceived group heterogeneity of psychology students was measured with two items ( $r = 0,59$ ,  $p = .00$ ). An example of an item is "Psychology students are very different from each other". A high score on this scale means a high perceived heterogeneity among psychology students, thus a high perceived diversity among psychology students.

## Results

*Descriptive statistics.* Below an overview of the descriptive statistics of every continuous variable in our research model (Table 1).

*Table 1: Descriptive statistics for self-construal, identification, entitativity and group-heterogeneity.*

<b>Variable</b>	<b>Mean</b>	<b>Std. Deviaton</b>	<b>N</b>
<i>Independent self-construal</i>	5.59	.68	204
<i>Interdependent self-construal</i>	5.13	.75	204
<i>Identification</i>	5.24	.83	204
<i>Entitativity</i>	3.81	1.14	204
<i>Group Heterogeneity</i>	4.67	1.19	203

As can be derived from Table 1, participants score higher than average (average = 4) on both independent self-construal and interdependent self-construal. The mean independent self-construal ( $M = 5.59$ ,  $SD = .68$ ) was higher than the mean interdependent self-construal ( $M = 5.13$ ,  $SD = .75$ ).

The mean score for identification is above average ( $M = 5.24$ ,  $SD = .83$ ). This means that participants overall identify more than average with the group psychology students. The mean score of entitativity lies slightly below the average of the scale ( $M = 3.81$ ,  $SD = 1.14$ ). This means that participants overall do not really perceive the group ‘psychology students’ as a unity. This also shows in the mean score of perceived group heterogeneity ( $M = 4.67$ ,  $SD = 1.19$ ), which lies above the average

of the scale. This means that participants in general view the group ‘psychology students’ as a heterogeneous group.

In Table 2, the correlations between every dependent variable are given. The significance of the correlations is also marked in the table.

Table 2. Correlation matrix for self-construal, identification, entitativity and group-heterogeneity.

Variable	Independent self-construal	Interdependent self-construal	Identification	Entitativity	Group Heterogeneity
Independent self-construal	1	-.09	.13†	-.03	.14†
Interdependent self-construal		1	.21*	.12†	.00
Identification			1	.50**	-.07
Entitativity				1	-.19**
Group heterogeneity					1

\*\* Correlation is significant at  $p < .01$

\*Correlation is significant at  $p < .05$

† Correlation is significant at  $p < .10$

Looking at Table 2, we see that independent self-construal is positively correlated to both identification ( $r = .13, p = .07$ ) and to group heterogeneity ( $r = .14, p = .05$ ); though both marginally.

Interdependent self-construal is even more positively correlated to identification and this correlation is also more significant ( $r = .21, p < .05$ ). In addition, interdependent self-construal is also positively correlated to entitativity. This means that having an interdependent self-construal has a relation with group-identification and also makes participants perceive the group more as a unity.

Identification has a relatively strong and significant positive correlation with entitativity ( $r = .50, p < .01$ ). This means that the more a participant identifies with the group, the more he/she perceives the group as a unity.

Lastly, entitativity has a significant negative correlation with perceived group-heterogeneity ( $r = -.19, p < .01$ ). This means that as a participant perceives the group more as an entity, he/she is less likely to perceive the group as heterogeneous.

*Manipulation check.* In order to check if our prime for self-construal worked, we used the Self-Construal Scale by Gudykunst et al. (1996). Specifically, we conducted a one-way ANOVA to investigate the impact of our self-construal prime on measures of self-construal. Among the participants primed with independent self-construal, there were no differences in the level of independence between the different priming conditions ( $F(2, 201) = .33, p = .72$ ). Among the participants primed with interdependent self-construal, there were no differences in the level of interdependence between the different priming conditions either ( $F(2, 202) = .03, p = .97$ ). In sum, this means that there were no significant differences between the different primes in self-construal measured with the Self-Construal Scale.

### **First hypothesis**

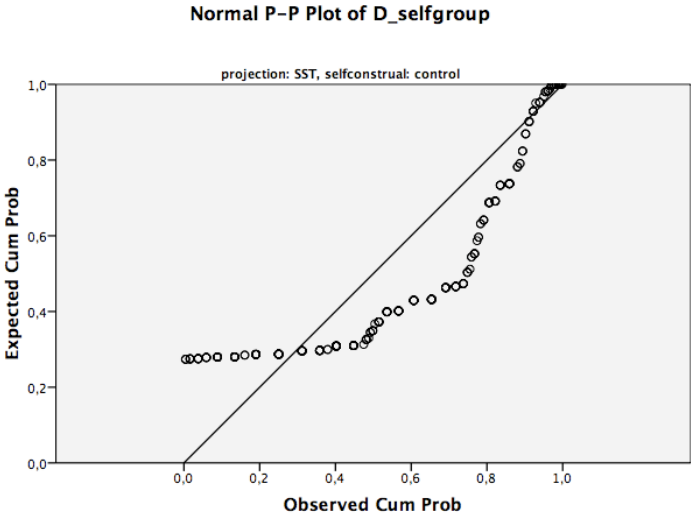
We expected that participants primed with an interdependent self-construal would display more overlap between the self and the group via self-stereotyping than self-anchoring. In contrast, participants primed with an independent self-construal were expected to display more overlap between the self and the group via self-anchoring than self-stereotyping. To investigate this hypothesis, we created a data-file in which we could measure the overlap between the self-ratings and group-ratings on the traits. To do that, we first calculated Z-scores for the trait-ratings on

applicability for both self and group. We created a difference variable to calculate the squared difference between the ratings on the self and the group for every trait. This way we can measure the overlap for every participant between ratings on the self and the group. Importantly, a larger score means more difference between self and group, hence less overlap.

Based on the difference score we conducted an ANOVA with projection (self-anchoring, self-stereotyping) and self-construal (independent vs, interdependent, vs control) as independent variables, and the level of self-group overlap as a dependent variable. In addition, we also included gender (male/female) a factor in our design, to investigate potential differences between men and women.

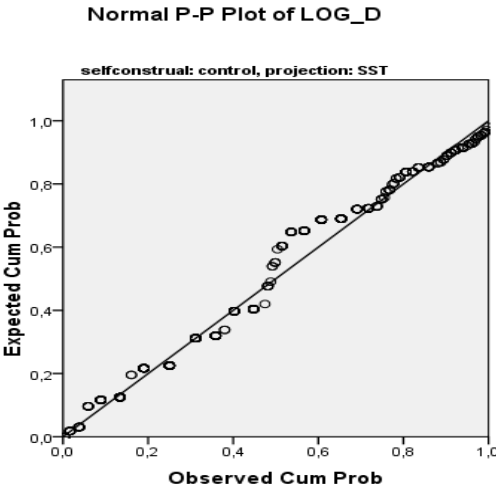
*Assumption checks.* There are three assumptions that should be fulfilled in order to reliably conduct an ANOVA. First, there is the assumption of independence of observations. We fulfilled this assumption by making the participants fill out the questionnaire in separate cabinets.

Secondly, we had to check the assumption of normality. Normality of the distribution in each of the conditions was violated, when looking at the dependent variable as a difference variable. Thus, we calculated a logarithm variable of self-group overlap in order to make the distribution more linear, as the original distribution tended to be heavily exponential. See figure 1.1 for a P-P plot with the difference variable, where it can be seen that the normality assumption is violated.



**Figure 1.1** *P-P Plot of self-group overlap in the self-stereotyping projection in control condition*

In figure 1.2 below you can see the P-P plot with the logarithm variable. As can be seen, the distribution is more normal.



**Figure 1.2.** *P-P Plot of self-group overlap in self-stereotyping projection in control condition with the logarithm variable*

Third, the assumption of homogeneity of error variances was tested with Levene's test of homogeneity. This test tests the null hypothesis that the error variance of the dependent variable is equal across groups. The assumption is violated  $F(5, 2238) = 2,692, p < .05$ . This is likely due to the fact that the number of participants in each cell is not the same, because we had 144 women compared to 59 men.

*Main analyses.* One-way ANOVA analyses revealed a significant main effect for projection ( $F(1, 2221) = 5.22, p < .05$ ). We also found a significant interaction-effect between self-construal, projection and gender ( $F(2, 2221) = 5.10, p < .01$ ). To be able to interpret this three-way interaction effect, we split our file to look at the data pattern for men and women separately.

1. From the control condition it becomes evident that the amount of self-group overlap is generally higher in the self-stereotyping, compared to the self-anchoring condition, for both males ( $\Psi = -.45; F(1,643) = 1.76, p < .19$ ), and females ( $\Psi = -.36; F(1, 1578) = 3.80, p = .05$ ).
2. However, the effect of the projection manipulations is quite reversed for males and females.

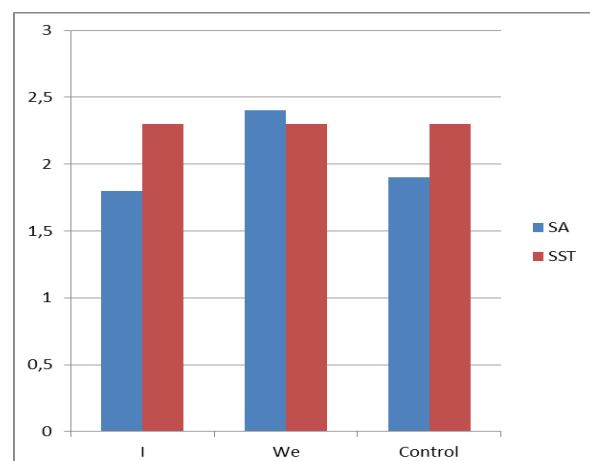
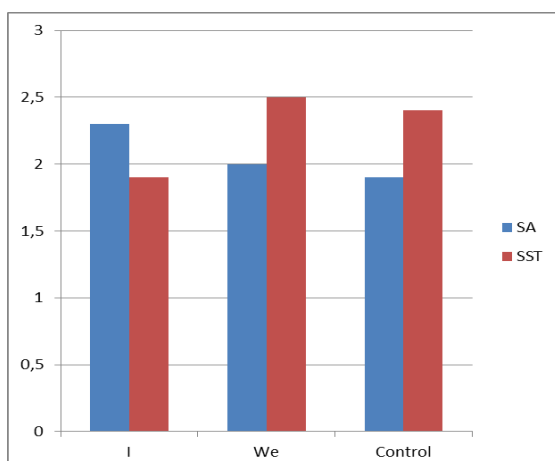
For males, as you can see in the left figure below the effect of self-construal is as expected. Males display more overlap between the self and the group in the independent condition compared to the interdependent condition, when self-anchoring is used, although this effect is not significant ( $\Psi = -.265; F(1, 643) = 0.50, p = .48$ ). Males also display more overlap in the interdependent



condition (we) than in the independent condition (I) when self-stereotyping is used ( $\Psi = .634$ ;  $F(1, 643) = 5.32, p < .05$ ). The contrast between the independent condition (I) and the control condition is also significant, when self-stereotyping is used ( $\Psi = .568$ ;  $F(1, 643) = 4.28, p < .05$ ). The rest of the contrasts were not significant among the group of males.

For the female group of our participants, the effects of the projection manipulation were quite opposite. There was a significant contrast between the independent condition (I) and the interdependent condition (we) when self-anchoring is used ( $\Psi = .656$ ;  $F(1, 1578) = 15.75, p < .01$ ). This means that there is more overlap between self and group in the interdependent condition (we) than in the independent condition (I), when self-anchoring is used. This effect is the opposite of what we expected. There was also a significant contrast between the interdependent condition (we) and the control condition in the self-anchoring condition ( $\Psi = -.52$ ;  $F(1, 1578) = 8.45, p < .01$ ). The rest of the contrasts were not significant among the group of females.

See figure 3.1 and figure 3.2 for the difference between self-and group in every condition (I, We or control) for each gender.

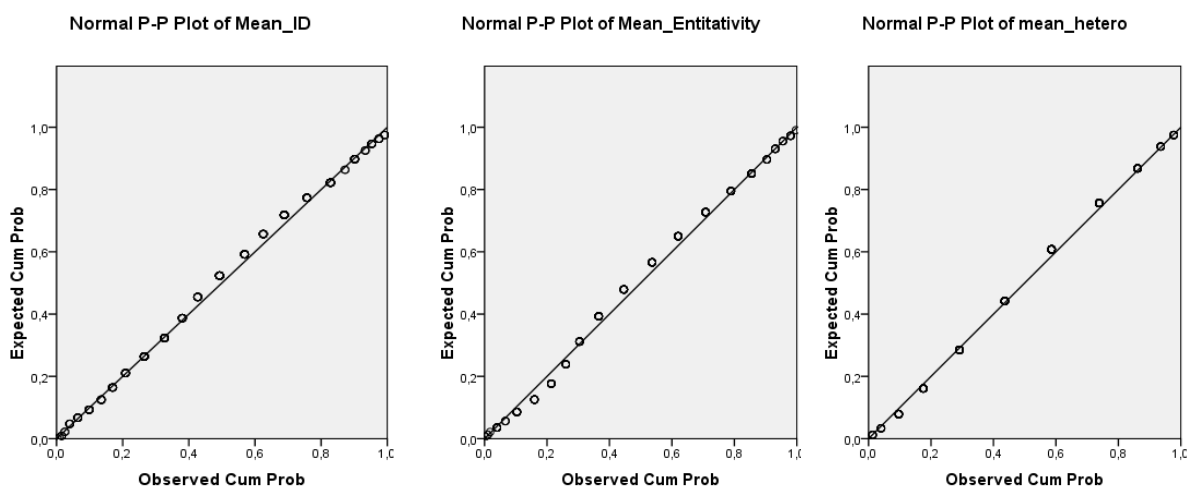


*Figure 3.1 and figure 3.2: Amount of overlap between self and group for males (left) and females (right)*

## Second hypothesis

To investigate the second hypothesis we conducted a Univariate Analysis of Variance to discover whether or not the self-construal and projection conditions displayed differences in mean identification, mean entitativity, and group heterogeneity. In our second hypothesis we predicted that self-anchoring would lead to more identification with the group among participants with an independent self-construal, compared to participants with an interdependent self-construal.

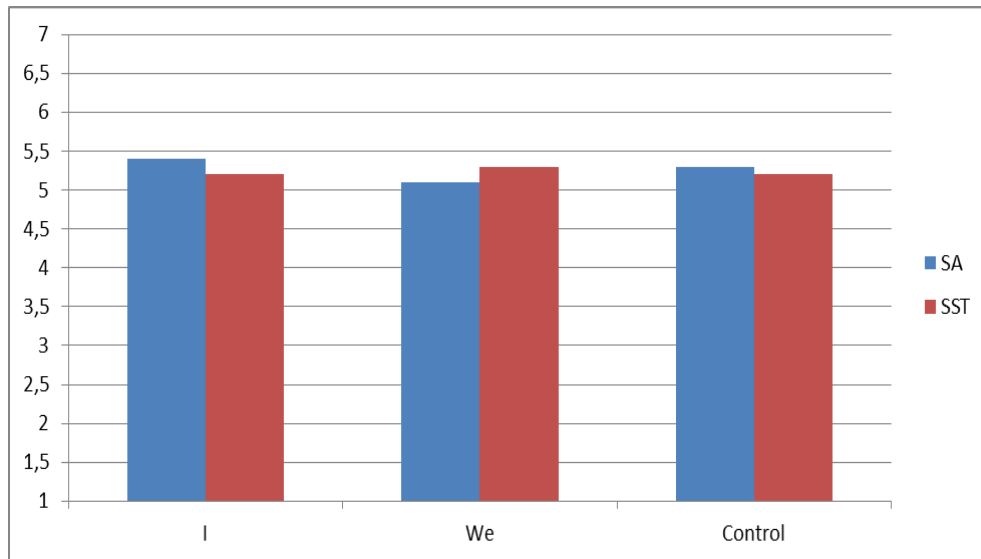
*Assumption checks.* As you can see in the figure 4.1 the assumption of normality is not violated for the identity-scale. Also, in figure 4.2 you can see that the assumption of normality for the entitativity scale nor group heterogeneity is violated.



*Figure 4.1, 4.2 and 4.3. P-P Plots of the Identity Scale, Entitativity Scale and the Heterogeneity scale.*

The assumption of homogeneity of error variances was tested with Levene's test of homogeneity. This test tests the null hypothesis that the error variance of the dependent variable is equal across groups. The assumption is not violated for the identification scale ( $F(5, 198) = .20, p = .96$ ). For the entitativity scale the assumption for homogeneity was not violated either ( $F(5, 198) = .78, p = .57$ ).

*Main analyses.* We measured the effects of self-construal and projection on mean identification, mean entitativity, and group heterogeneity. The Univariate Analysis of Variance did not yield significant main effects for identification, entitativity, nor group heterogeneity. The results for the one-way ANOVA for mean identification yielded no significant effect for self-construal ( $F(2, 204) = .27, p = 0.76$ ), projection ( $F(1, 204) = .19, p = 0.74$ ), or interaction between self-construal and projection ( $F(2, 204) = .52, p = .59$ ). For entitativity, the results are similar for the effect of self-construal ( $F(2, 204) = 1.66, p = 0.19$ ), projection  $F(1, 204) = 1.4, p = 0.24$ ), or interaction effect between self-construal and projection on perceived entitativity ( $F(2, 204) = .002, p = .998$ ). For group heterogeneity, there were also no significant results found for self-construal ( $F(2, 203) = .87, p = .42$ ), projection ( $F(1, 203) = .2, p = .66$ ), or the interaction of the two ( $F(2, 203) = .07, p = .93$ ). This concludes that our second hypothesis could not be confirmed in any of the conditions and variables used.



**Figure 5.** *The amount of identification for every priming condition (I, we or control) in the two projection conditions (self-anchoring or self-stereotyping)*

## Discussion

Our research question was how does a person's self-construal affect overlap with one's group through the projection of self-anchoring and self-stereotyping. In detail, the goal of our research was to find evidence that an individual's self-construal produces more self-group overlap and identification through one projection than the other. We firstly hypothesized that participants primed with an interdependent self-construal would display more overlap between the self and the group via self-stereotyping than self-anchoring. Conversely, we expected that participants primed with an independent self-construal would display more overlap between the self and the group via self-anchoring compared to self-stereotyping.

The main analysis provided results for a differential effect of self-anchoring and self-stereotyping among independent and interdependent primes but the results were highly dependent on gender. For our second hypothesis, we predicted that self-anchoring would lead to more identification with the group among participants with an independent self-construal via self-anchoring than via self-stereotyping. In addition, we expected the same effect for interdependent self-construal via self-stereotyping. We did not find results to support our hypothesis that priming or projection would have an effect for identification nor entitativity.

Whereas our research failed to report results that would be in line with our first hypothesis about the mechanisms of self-anchoring and self-stereotyping in general, we noticed that when gender was taken into account, males and females showed a different pattern. For males, the interdependent prime combined with self-stereotyping appeared to provide higher scores of self-group overlap than when combined with self-anchoring. In addition, effect was larger in comparison to the

independent condition for self-stereotyping or the interdependent condition for self-anchoring, as we predicted. For females however, the opposite pattern was true.

While the second hypothesis could not be confirmed, correlation coefficients did provide some evidence for the hypothesized relations. From the results we see that independent self-construal is positively correlated with both identification and group heterogeneity. So having an independent self-construal correlates with identification with the group and is also linked to participants perceiving the group as more heterogeneous. This could be explained by the process of self-anchoring, as group characteristics are drawn from individual features (Cadinu & Rothbart, 1996), given that the participants are aware of the diversity of psychology students while they still identify with their group.

### **Implications and additional findings**

We did not predict a difference between the genders and it is suggested that further research take into account this phenomenon. Further, the mean independent self-construal was higher than the mean interdependent self-construal which can be explained by the fact that most of our participants lived in the Netherlands or Germany, which are both seen as individualistic countries and are thus more likely to be related to independent self-construal (Hofstede, 1980, Jetten, Postmes & McAuliffe, 2002).

Even though we could not find evidence to support our hypothesis that priming or projection would have an effect for identification, the mean score for identification is above average and from this we may imply that participants overall identify more than average with the group psychology students. The mean score of entitativity lies slightly below the average of the scale. This shows that participants

overall do not really perceive the group 'psychology students' as a unity. This is also not surprising, as the group 'psychology students' is a large and rather diverse group.

The results of our study show a different pattern in self-construal with self-anchoring and self-stereotyping for men and women. An implication of this is that females may not be as prone to engage in the processes of self-anchoring and self-stereotyping as has been previously predicted. Further, research by Cadinu & Galdi (2012) showed that implicit self-categorization was related to more self-stereotyping in females, which is contrary to what our research displayed. We predicted that an interdependent prime would result in more self-group overlap via self-stereotyping but the results show an opposite effect for females. This might pose an interesting field of research, given that future studies can replicate the findings we encountered.

While in our research we did not seek to find differences between people from different nationalities, we curiously discovered that international students were significantly more independent in their self-construal compared to Dutch students. We predict that this is because the international students have chosen to study abroad contrary to the Dutch students, which could have an underlying explanation with being more independent. Another implication of this is that self-construal might not be as flexible as we presumed because despite our attempts at priming self-construal, being international had a significant impact on the participants' self-construal, making them consistently more independent in comparison to the Dutch students.

### **Methodological limitations**

In our study we encountered some methodological limitations. Firstly, as our participant pool consisted exclusively of psychology students, generalizability of the results to other groups of people is not guaranteed.



Further, our self-construal manipulation check, where we applied a questionnaire by Gudykunst (1996) to measure the extent of independent and interdependent self-construals, failed to show reliable results. A main effect was discovered between the self-construal prime and self-group overlap, that is, the self-construal prime increased the amount of self-group overlap in interaction with the projection, so we may consider that the manipulation check did not match the prime we used.

Moreover, we believe that the prime was too implicit for the manipulation check to unearth explicit information about the self-construal prime, even though the prime had an effect for self-group overlap, a more implicitly measured factor. Further research should incorporate either a more implicit manipulation check or have the initial manipulation be in a more explicit form.

### **Conclusion**

As a conclusion for our study, we found that an independent self-construal prime creates more self-group overlap via a self-anchoring projection than through self-stereotyping and that the opposite pattern is true for interdependence and self-stereotyping but that the results are only prevalent in males. Thus, we partially confirmed our first hypothesis but extensive research on gender differences should be considered.

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## APPENDIX A. Final list of traits

## Stereotypical traits:

1. Sensitive
2. Thoughtful
3. Athletic (counter)
4. Self-critical
5. Emotional
6. Religious (counter)
7. Thinker
8. Talker
9. Concern for others
10. Fond of traveling
11. Accomodating

## Ambiguous traits:

1. Fashionable
2. Envirionmentally conscious
3. Pragmatic
4. Artistic
5. Progressive
6. Organized
7. Nature lover
8. Tidy
9. Straightforward
10. Animal lover
11. Punctual