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Feeling Out of Place: Internalized Age Stereotypes Are Associated with Older Employees'  
Sense of Belonging and Social Motivation

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## Abstract

Older employees are not only confronted with subtle negative stereotypes about cognitive decline but they also tend to internalize these negative stereotypes (i.e., they approve that intellectual performance declines in old age and they feel affected by this decline). Previous research has shown that internalizing negative age stereotypes has detrimental effects on work-related outcomes. Little is known about how internalized negative stereotypes shape older employees' social emotions and social motivation. In the present research, we argue that older adults who internalize negative age stereotypes feel insecure about their belongingness in the workplace which has negative motivational consequences. Four out of five studies and an aggregate analysis with a total of  $N = 1,306$  older employees (age 50–76 years) supported this hypothesis. Internalized age stereotypes were negatively related to social approach motivation toward coworkers through reduced sense of belonging in the workplace and low positive affect. In addition, internalized age stereotypes were positively related to social avoidance motivation. Investigations of the causality of these relationships revealed mixed results. We discuss these findings from the perspective of socio-emotional aging and the need to belong. In sum, the present research adds to knowledge on the role of internalized negative stereotypes for older employees' social lives and, potentially, also their success in the work domain.

*Keywords:* stereotypes, social identity threat, older workers, sense of belonging, positive and negative affect, social approach and avoidance motivation

## Feeling Out of Place: Internalized Age Stereotypes Are Associated with Older Employees' Sense of Belonging and Social Motivation

Increased longevity, declining fertility, and the aging of “baby boom” generations have reshaped age distributions around the world. In both developed and developing countries these factors have resulted in higher absolute numbers of older people, a larger proportion of older population, and relatively fewer people in the workforce. For example, the ratio of non-workers to workers in Germany is predicted to grow from 1.27 in 2005 to 1.47 in 2025. This is accompanied by a decrease of 8% in hours worked per week per capita. Such developments have created challenges for the economy as well as health-care and pension systems (Bloom, Boersch-Supan, McGee, & Seike, 2011), and have prompted calls to include older people in the workforce more systematically (Vaupel & Loichinger, 2006). These suggestions about keeping older people in the workforce longer are also based on the fact that older people today—due to medical advances and healthier lifestyles—live a larger part of their lives unimpeded by disease and disability, which effectively prolongs their potential working lifespans (Freedman, Shoeni, Martin, & Cornman, 2007; Fries, Bruce, & Chakravarty, 2011).

Despite the increasing need for, and ability of older people to participate in the workforce, there are persisting stereotypes about older people which are at odds with the role of an employee. For example, older people are seen as slow (Finkelstein, Ryan, & King, 2013), forgetful (Hess, Auman, Colcombe, & Rahhal, 2003), and generally lacking competence (Cuddy, Norton, & Fiske, 2005). Negative age stereotypes are not the only a cause for discriminatory behavior by others. Merely the feeling of being judged in light of negative stereotypes carries consequences for an individual. Research has highlighted the detrimental effects that the concern of possibly confirming a negative age stereotype can have on performance (known as *stereotype threat*; Armstrong, Gallant, Li, Patel, & Wong, 2017; Lamont, Swift, & Abrams, 2015; Meisner, 2012).

It has been proposed that stereotype threat is only one kind of a broader concept of *social identity threat* (defined as the concern people have in situations in which the [positive] image of their ingroup is threatened; Steele, Spencer, & Aronson, 2002) with effects going beyond performance. However, such effects are not yet well understood. In the present research, we build on this proposition and investigate how the impression that one conforms to negative age stereotypes shapes older workers' feelings of belonging in the workplace. Sense of belonging expresses one's "feeling that one fits in, belongs to, or is a member of the ... community in question" (Good, Rattan, & Dweck, 2012; p. 700). In addition, sense of belonging is also reflected in one's positive and negative affect: Positive affect denotes feelings of happiness and comfort reflecting one's belongingness; negative affect denotes feelings of nervousness and distress reflecting one's lack of belongingness (Good, et al., 2012; for a similar conceptualization of sense of belonging in organizations see Riketta, 2005; van Dick, 2001). In other words, sense of belonging includes a cognitive component (i.e., *membership*) and an affective component (i.e., *positive and negative affect*). We investigate how negative stereotypes affect both components. Moreover, we examine motivational consequences of feelings of belonging. Specifically, we explore whether feelings of belonging relate to older workers' social approach and avoidance motivation (defined as the approach of positive and the avoidance of negative social outcomes respectively; e.g., Gable, 2006). We argue that a reduced sense of belonging in reaction to stigmatization reduces older workers' social approach and enhances their social avoidance motivation and, thus, jeopardizes their positive social relationships in the workplace.

### **Social Identity Threat**

Despite some early indications that social identity threat has effects beyond performance (Steele et al., 2002), exploring other consequences of social identity threat has received somewhat less attention. However, existing evidence suggests that social identity threat can have negative effects on a broad range of outcomes. For example, women in

traditionally male-dominated jobs (i.e., the legal profession) who are concerned about confirming negative stereotypes report higher turnover intentions as well as lower career aspirations and job satisfaction (von Hippel, Issa, Ma, & Stokes, 2011). Similarly, men in traditionally female-dominated jobs (i.e., primary school teacher) who experience identity threat report more negative job attitudes (Kalokerinos, Kjelsaas, Bennetts, & von Hippel, 2017). Feelings of social identity threat were also related to more negative job attitudes, poorer work mental health, and higher intentions to resign among older employees (von Hippel, Kalokerinos, & Henry, 2013). In an experimental study, confronting older workers with negative stereotypic information led to higher early retirement intentions (Gaillard & Desmette, 2010).

Some studies suggest that members of stigmatized groups do not only disengage from the stereotyped domain but might also avoid people associated with the domain. Members of stigmatized groups may be more uncertain about their social belonging in mainstream institutions like school and work, where stereotyping often occurs, and may construe experiences of social identity threat as evidence that they do not belong to the group of people associated with the threatened domain (Walton & Cohen, 2007, 2011). Accordingly, several studies have found that social identity threat reduces the sense of belonging to the communities associated with the stereotyped performance domain. Women's sense of belonging in computer science was reduced after interacting with a stereotypical role model (Cheryan, Drury, & Vichayapai, 2012) or after being exposed to a computer science classroom decorated with stereotypical objects (Cheryan, Plaut, Davies, & Steele, 2009). Gender exclusive language (i.e., *he* as opposed to *he or she* or *one*) during a mock job interview (Stout & Dasgupta, 2011) or wording in job advertisements that is associated with male stereotypes (i.e., *leader, competitive, dominant*; Gaucher, Friesen, & Kay, 2011, Study 5) caused women to feel less belonging to the corresponding work domain. Reminding female university students of the stereotype that women do worse in math than men resulted in the

female students' lower sense of belonging to the university and other students (Martiny & Nikitin, 2018). In a longitudinal study, perceptions of being negatively stereotyped reduced sense of belonging to math and the desire to pursue math in the future for women enrolled in a college calculus course (Good et al., 2012, Study 3). Regarding ethnic minorities, non-White participants felt a lower sense of belonging to a virtual world when viewing a set of predominantly White avatar profiles instead of racially diverse ones (Lee & Park, 2011). High school students from marginalized ethnic minorities experienced reduced sense of belonging to their school when their racial identity was made salient (Mello, Mallett, Andretta, & Worrell, 2012).

### **The Role of Social Identity Threat for Older Workers' Sense of Belonging**

In summary, social identity threat does not only have negative consequences for work motivation, satisfaction, and attitudes, but also for people's sense of belonging in the stereotyped domain. Despite the evidence regarding gender and racial stereotypes, to the best of our knowledge, no study to date has tested whether feelings of being stereotyped diminish older workers' sense of belonging in the workplace. Previous results from other social groups (gender, race) might not necessarily generalize to age groups. One reason for the limited generalization is outlined in the Socioemotional Selectivity Theory (SST; Carstensen, Isaacowitz, & Charles, 1999). The SST proposes that as people move through life they become increasingly aware that time is limited, which motivates them to forego long-term pay-offs and to pursue more immediate emotion-related goals. This shift towards emotion-regulation goals causes older people to selectively allocate cognitive resources towards positive and away from negative information, which is known as the "positivity effect" (Mather & Carstensen, 2005). As predicted by the positivity effect, older compared to younger adults are less sensitive to rejection experiences such as social exclusion (Hawkey, Williams, & Cacioppo, 2011; Löckenhoff, Cook, Anderson, & Zayas, 2013). Furthermore, emotion regulation is less cognitively taxing for older adults (Scheibe & Blanchard-Fields,

2009) and may not always necessitate their full cognitive control (Allard & Isaacowitz, 2008). These findings indicate that older adults may be well equipped to cope with the emotional consequences of social identity threat. Thus, it is an open question whether the findings derived from research on gender and racial stereotypes replicates with respect to negative age stereotypes. We test this question in the present research.

In addition, the majority of the research on stereotypes and sense of belonging do not differentiate between the cognitive (i.e., membership) and the affective (i.e., positive and negative affect) component of sense of belonging. Rather sense of belonging is operationalized as an overarching construct that entails both components (e.g., Good et al., 2012). Although this operationalization may be justified for some research questions, we argue that it is important to differentiate between the components in the present research. Specifically, we hypothesize that although both positive and negative affect are linked to the cognitive component of sense of belonging, they differentially predict social approach and social avoidance motivation. We elaborate on this proposition in the following section.

### **Sense of Belonging and Social Motivation**

We investigate whether social identity threat has motivational consequences for older workers via sense of belonging. A long research tradition in the motivational domain has demonstrated that social motivation (i.e., the motivation to establish and maintain social relationships) has two fundamental orientations: (1) the orientation towards the approach of positive social outcomes such as love, acceptance, and positive social encounters (i.e., *social approach motivation*), and (2) the orientation towards the avoidance of negative social outcomes such as conflict, rejection, and negative social encounters (i.e., *social avoidance motivation*; Boyatzis, 1973; Gable & Berkman, 2008; Mehrabian & Ksionzky, 1974; Nikitin & Schoch, 2014). It has been argued that social approach and avoidance motivation are two largely independent and separate motivational systems that operate simultaneously to influence social behavior, cognition and experience through different processes (e.g., Gable

and Berkman; 2008; Gable, 2006; Nikitin & Schoch, 2014). Relevant in the context of the current research, previous research has shown that a person's social approach motivation and approach behavior are rooted in positive affect, whereas a person's social avoidance motivation and avoidance behavior are rooted in negative affect (for a meta-analysis, see Phaf, Mohr, Rotteveel, & Wicherts, 2014). Based on this research, we argue that greater positive affect, indicating high levels of sense of belonging, predicts greater social approach motivation. In contrast, greater negative affect, indicating low levels of sense of belonging, predicts greater social avoidance motivation. A lack of belonging to a social group and uncertainty about being included in positive social relationships (Walton & Cohen, 2007, 2011) signals that positive social outcomes are unlikely to be attained in this context (Geen, 1991). Under such unfavorable circumstances, individuals might be hindered from pursuing social approach goals and motivated to pursue social avoidance goals. Social approach motivation is beneficial and social avoidance motivation detrimental for establishing and maintaining positive social relationships in general (Gable & Berkman, 2008; Nikitin & Schoch, 2014) and in the working context in particular (Sparrowe, Liden, Wayne, & Kraimer, 2001). We argue that not feeling a sense of belonging, as a reaction to experiencing the threat of possible stigmatization, reduces older workers' social approach, and increases their social avoidance motivation. Ultimately, this can jeopardize older workers' positive social relationships in the workplace.

Having positive relationships at work is favorable for several reasons. First, building and maintaining a positive social network at the workplace, through which advice can be exchanged, is positively related to individual as well as team performance (Sparrowe et al., 2001). This seems to be especially true for individual performance in knowledge-intensive fields of work (Cummings & Cross, 2004), but is likely to be relevant for most workers. Second, older compared to younger workers may benefit even more from maintaining positive relationships with their colleagues because such positive relationships may reduce



older worker's concerns about being the subject of age stereotypes. Supporting this argument, intergenerational contact has been found to reduce vulnerability to stereotype threat for older people (Abrams, Eller, & Bryant, 2006). Finally, frequent contact reduces negative stereotypes about older workers. For example, managers who were in frequent contact with older employees tended to hold less negative views of older workers and found it more desirable to keep older workers in employment (Henkens, 2005). These positive effects cannot occur when older employees' social identity and social motivation are reduced by negative age stereotypes, rendering social identity threat a potential risk for older adults in the work context.

### **The Present Research**

We test the hypothesis that social identity threat diminishes older workers' sense of belonging in the workplace and, consequently, affects their social motivation in the work context. We hypothesize two different paths from social identity threat to social motivation (see Figure 1): (1) A path via the cognitive component of sense of belonging (i.e., membership) and the associated positive affect to social approach motivation, and (2) a path via the cognitive component of sense of belonging and the associated negative affect to social avoidance motivation. Specifically, we hypothesize that social identity threat diminishes older workers' sense of belonging in the workplace and the associated positive affect and, thus, leads to lower levels of social approach motivation. Similarly, we hypothesize that social identity threat diminishes older workers' sense of belonging in the workplace and enhances the associated negative affect, which leads to higher levels of social avoidance motivation. We tested our hypotheses in one correlational (Study 1) and four experimental studies (Study 2a and 2b, Study 3a and 3b) that were conducted online, which allowed us to reach a relatively large sample of older workers. Online experiments have been shown to replicate laboratory experiments well and can therefore be deemed a valid research tool (Horton, Rand, & Zeckhauser, 2011). In line with previous studies, we define older workers as being 50 years

or older (Finkelstein et al., 2013; Kooij, de Lange, Jansen, & Dijkers, 2008; von Hippel et al., 2013). We recruited the participants through online paneling services.

In the experimental studies, we aimed to activate the widespread stereotype that older people are less intellectually capable (Cuddy et al., 2005), which has been successfully used in eliciting stereotype threat in previous studies (Abrams et al., 2006). A general decline in intellectual performance is likely to affect the majority of life domains but especially work, where intellectual challenges typically arise. Additionally, this stereotype may be the root cause for other more work-specific but closely related stereotypes, which characterize older workers as slow (Finkelstein et al., 2013) and poorly performing (Ng & Feldman, 2008). Consequently, older workers who are confronted with the negative age stereotype of declining intellectual performance should experience threat towards their identity as part of the working population. We need to mention here that the manipulations of social identity threat in the present studies were generally ineffective. As such, they did not have the anticipated effects on both social approach and avoidance motivation and sense of belonging. Thus, although we report the experimental analyses, we add correlational analyses at the end of the results section, in order to test whether the correlational findings from Study 1 replicate in the subsequent experimental studies.

For the correlational analyses, we measured older workers' internalization of negative age stereotypes. This was based on the idea that the more strongly older workers accept that negative age stereotypes are true for themselves the more threatening those stereotypes are for their work identity (for a review, see Barber, 2017). In other words, older workers with highly internalized age stereotypes are habitually threatened in their identity as members of the working population. Conceptually, we drew upon the multi-threat framework (Shapiro, 2011; Shapiro & Neuberg, 2007) that distinguishes different types of stereotype threat depending on the source and target of the threat. We argue, in line with a recent examination of age stereotypes within the multi-threat framework (Barber, 2017) that there are two main ways in

which age stereotypes can threaten older people. On the one hand, older people are likely to generally endorse age stereotypes, which makes them concerned about confirming the stereotype in their own minds (self-concept threat; Shapiro & Neuberg, 2007). On the other hand, they might fear to confirm the negative stereotypes in the eyes of others (the in- or the outgroup, own-reputation threat; Shapiro & Neuberg, 2007). Both threats might be even more pronounced for the specific group of older people because older people tend *not* to see themselves as old, but they might have experienced others seeing them as old. Thus, they are placed by others into a social category they do not want to belong to. This tendency not to identify with their supposed ingroup also makes older people particularly unlikely to be concerned that their actions might negatively reflect on older people in general (group-as-target threat; Shapiro & Neuberg, 2007). Therefore, we assessed the internalization of negative age stereotypes as the belief that (a) cognitive decline in old age is inevitable, (b) such a decline has been noticed within oneself, and (c) others have noticed age-related cognitive decline in the person. Thus, we used a combination of self-concept threat and own-reputation threat. Because the distinction between own-reputation threat arising from the perception of in- or outgroup members is not relevant for the present research question, we forewent this distinction.

## Study 1

### Method

**Participants and design.** The sample consisted of older workers ( $N = 214$ , 48.6% females,  $M_{\text{age}} = 55.5$ ,  $SD_{\text{age}} = 4.0$ , age range 50–66 years) from Germany, who were recruited through an online sampling provider ([www.respondi.com](http://www.respondi.com)) with access to one hundred thousand Germans, 27% of which are in the desired age group of 50 years or older. An initial filter question excluded participants with a work quota of less than 80% from participating in the study (a work quota of 40 hours per week is considered full-time employment in Germany), ensuring that paid work was a substantial part of their life.

**Sense of belonging.** Sense of belonging was assessed with a version of the Sense of Belonging to Math Scale (Good et al., 2012) that was adapted to fit the workplace environment (e.g., “I feel that I belong to the organization”). The scale consisted of 28 items, which can be divided into 6 subscales (Membership, Acceptance, Positive Affect, Negative Affect, Trust, Desire to Fade; all items can be found in the Supplemental Materials, Table S1). Participants read the following instruction: “The following questions refer to your experiences in your work environment. By work environment, we mean the broad group of people in your organization, including your colleagues. Please indicate to what extent you feel like you belong to this community, when you are in such an environment.”

We treat the four items of the Membership subscale (e.g., “I consider myself a member of the organization”) as the cognitive component of sense of belonging in all following analyses. We measured the affective components of sense of belonging (i.e., Negative Affect: “I feel anxious”; Positive Affect: “I feel comfortable”) using four items each. When examining the underlying factor structure of the Membership, Positive Affect, and Negative Affect subscales together in exploratory and confirmatory factor analyses, a three-factor solution was consistently preferred over a two- or one-factor solution. This was true for each individual study as well as the aggregated data across all studies (see Supplemental Materials, p. 1). This supports the subscales’ empirical distinctiveness, despite their substantial correlations (see Table 1). The Acceptance, Trust, and Desire to Fade subscales were not incorporated in further analyses, as no hypotheses regarding these facets had been formulated. In order to prevent confusion among participants, response scales were kept consistent across measures wherever possible in all studies. Responses were given on a 7-point Likert scale ranging from 0 (*do not agree at all*) to 6 (*completely agree*) for all measures unless indicated otherwise.

**Social motivation.** We measured social motivation with the Belongingness Orientation Scale (Lavigne, Vallerand, & Crevier-Braud, 2011), which was adapted to fit the

workplace context. Participants were asked to indicate why the relationships to their colleagues are important to them. The scale is composed of the Growth-Orientation and Deficit-Reduction subscales, each consisting of five items (see Supplemental Materials for all items, Table S2). The former assesses social approach motivation (e.g., “I have a sincere interest in them [the colleagues]”) and the latter measures social avoidance motivation (e.g., “I don’t want to be alone”).

**Internalized stereotypes.** Based on the multi-threat framework (Shapiro, 2011; Shapiro & Neuberg, 2007), we used three items to assess the internalization of negative age stereotypes as the belief that (a) cognitive decline in old age is inevitable (Item 1: “Generally, intellectual performance declines in old age.”), (b) such a decline has been noticed within oneself (Item 2: “I have noticed an age related decline in my intellectual performance.”), and (c) others have noticed age-related cognitive decline in the person (Item 3: “Others have noticed an age related decline in my intellectual performance.”).

**Procedure.** The online sampling provider invited only adults older than 50 years of age to participate in the study without informing the participants about this selection criterion. This procedure prevented activation of any age-related stereotypes. The invitation contained a link to the experiment which was implemented in SoSci Survey (Leiner, 2017). Only after confirming that they work at least 80% of full-time hours, were participants allowed to proceed with general information about the study and provide informed consent. Subsequently, participants answered questions on sense of belonging, social approach and avoidance motivation, and, finally, stereotype internalization. We assessed stereotype internalization last because assessing stereotypes reminds participants that negative stereotypes exist which may already induce social identity threat. Finally, participants provided work-related information and sociodemographic information, such as age and gender. At the end of the study, participants were debriefed and redirected back to the online sampling provider.

## Results and Discussion

Means, standard deviations, Cronbach's alphas, and intercorrelations for all measures under investigation in all studies are reported in Table 1. We combined items into the respective scales through averaging and modeled regression paths between the scales according to the theoretical model depicted in Figure 1. This structural equation model was implemented in R (R Core Team (Institution/Organization), 2019) with the help of the lavaan package (Rosseel, 2012). The parameter estimates for the relationships between the variables are shown in Table 2.

We tested our hypotheses that stereotype internalization is related to social approach and avoidance motivation via the cognitive and affective components of sense of belonging by analyzing the indirect paths within the model depicted in Figure 1. Specifically, for the association between stereotype internalization and social approach motivation we examined the indirect effects mediated through (a) sense of belonging, (b) positive affect, and (c) sense of belonging as well as positive affect. In addition to the individual indirect paths, we also tested the summed effect of these paths (Table 3). Similarly, we tested the corresponding paths and their summed effect for the indirect relationship between internalized stereotypes and social avoidance motivation via sense of belonging and negative affect.

The results supported our general hypothesis that social identity threat in the form of internalized age stereotypes is related to social motivation through sense of belonging. As predicted, stereotype internalization was negatively associated with social approach motivation via the positive affective and membership components of sense of belonging (Table 3). Similarly, stereotype internalization was positively related to social avoidance motivation through the negative affect and membership components (Table 3).

In addition, we tested alternative indirect paths linking stereotype internalization and social motivation, via negative affect to social approach motivation, and via positive affect to social avoidance motivation (Table 4). We then compared the predicted and the alternative

models (Table 5). In other words, we compared the saturated model that estimates all parameters (i.e., the alternative model) with the model constraining the relationship between positive affect and avoidance motivation and the model constraining the relationship between negative affect and approach motivation to zero (i.e., the hypothesized models). The Tucker-Lewis index (TLI) and root mean square error of approximation (RMSEA) revealed poor absolute fit for the model restricting the association between negative affect and social approach motivation (TLI = 0.900 and RMSEA = 0.123). Compared to the saturated model, this constraint significantly reduced model fit,  $\chi^2(1) = 4.23, p = .040$ , indicating that the saturated model is preferable. Similarly, the model restricting the association between positive affect and social avoidance motivation revealed signs of misspecification in absolute (TLI = 0.697 and RMSEA = 0.214) and relative fit compared to the saturated model,  $\chi^2(1) = 10.73, p = .001$ . Thus, contrary to our hypotheses, positive affect was not only positively associated with approach but also with avoidance motivation. Likewise, negative affect was also positively associated with approach motivation. However, this association did not reach statistical significance in the structural model (see Table 2).

Although our theoretical model assumes causal relationships between the variables, the results should be interpreted with caution, as the constructs were not measured in the order in which the process is assumed to operate and no experimental manipulation took place (Fiedler, Schott, & Meiser, 2011). Thus, we conducted experimental studies to test the causal effect that social identity threat in the form of stereotype internalization has on sense of belonging and social motivation.

## **Study 2**

After finding correlational evidence that internalized age stereotypes affect social motivation via the cognitive and affective components of sense of belonging, we tested the causal relationship between these constructs in a series of experiments. We used a variety of different manipulations to induce social identity threat (for an overview, see Table S4 in the

Supplemental Materials). All studies in this series relied on a between-subject design with two groups: the identity-threat group and the control group. Study 2a and 2b employed a classic subtle manipulation to induce identity threat that highlights age-group membership by asking participants to indicate their age at the beginning of the experiment (i.e. identity threat condition; Steele & Aronson, 1995).

## Study 2a

### Method

**Participants and design.** Two hundred and thirty-five older workers (49.4% females,  $M_{\text{age}} = 55.9$ ,  $SD_{\text{age}} = 4.3$ , age range 50–65 years) from Germany were recruited through the same online sampling provider as in Study 1. Participants were randomly assigned to one of two experimental conditions (social identity threat:  $n = 121$  vs. control:  $n = 114$ ).

**Manipulation of social identity threat.** We adapted a classic stereotype threat manipulation from Aronson and Steele (1995, Study 4) that was originally used to prime a racial stereotype about academic ability by asking participants to list their race before a performance test. Similarly, we asked participants in the social identity threat condition to indicate their age at the beginning of the questionnaire (after participants had provided informed consent). This procedure should render age-group membership salient and, thereby, evoke age-related stereotypes. Participants in the control condition indicated their age at the end of the questionnaire (before the debrief). To intensify the manipulation, participants were presented with a drop-down menu with options ranging from 18 to 65 years, which required them to scroll through all younger ages before selecting their own age.

**Materials and procedure.** The measures for sense of belonging, social motivation, and stereotype internalization were the same as in Study 1. The procedure was identical to Study 1, except for the presentation of the age assessment (i.e. either before or after the dependent measures).

### Results and Discussion



**Experimental findings.** First, we tested whether stereotype internalization was affected by the experimental condition using a paired samples t-test. No significant difference between the experimental ( $M = 1.86, SD = 1.53$ ) and the control group ( $M = 1.58, SD = 1.39$ ) was detected,  $t(232.58) = -1.43, p = .15$ . Subsequently, we adapted the structural model used in Study 1 (Figure 1) by replacing stereotype internalization with the experimental condition to investigate whether the individual components of sense of belonging and social motivation may have been affected by the manipulation (Table 6). Notably, condition predicted the membership component of sense of belonging, which, in turn, predicted social approach motivation, resulting in a marginally significant indirect effect ( $\beta = .093, 95\% CI [.007, .195], p = .05$ ). However, contrary to our hypothesis, sense of belonging was higher in the social identity threat condition ( $M = 4.68, SD = 1.39$ ) than in the control group ( $M = 4.18, SD = 1.50$ ),  $t(228.5) = -2.62, p = .01$ . Consequently, the positive indirect effect implies that social identity threat increases social approach motivation by raising sense of belonging. In order to rule out that the unexpected results were due to chance, we tried to replicate these findings with a larger, independent sample in an additional study (i.e., Study 2b).

## Study 2b

### Method

**Participants and design.** Five hundred and ten older workers (49.8% females,  $M_{\text{age}} = 55.8, SD_{\text{age}} = 4.3$ , age range 50–65 years) from Germany were recruited with the help of the online sampling provider Toluna ([www.toluna.com](http://www.toluna.com)). Toluna reports having access to 375,000 Germans, 13% of which are between the ages of 45 to 55 and 12% older than 55. Participants were randomly assigned to one of two experimental conditions (social identity threat:  $n = 254$  vs. control:  $n = 256$ ).

**Procedure and materials.** The measures for sense of belonging, social approach motivation, and stereotype internalization were the same as in the previous studies. The procedure was identical to Study 2a.<sup>1</sup>

## Results and Discussion

**Experimental findings.** An independent samples *t*-test revealed that sense of belonging did not differ between the social identity threat condition ( $M = 4.39$ ,  $SD = 1.46$ ) and the control group ( $M = 4.37$ ,  $SD = 1.53$ ),  $t(507.2) = -0.16$ ,  $p = .87$ . Thus, the finding of Study 2a, that social identity threat increases sense of belonging, could not be replicated in Study 2b. As the procedures were virtually identical across the two studies, except that Study 2b had a larger sample, we conclude that the unpredicted findings in Study 2a were based on chance. Furthermore, the experimental ( $M = 2.01$ ,  $SD = 1.49$ ) and control group ( $M = 1.89$ ,  $SD = 1.51$ ) did not differ in their levels of stereotype internalization,  $t(514.87) = -.91$ ,  $p = .36$ .

To explore how the individual components of sense of belonging and social motivation may have been affected by the manipulation we again employed the same adapted structural model that was used in Study 2a (Table 6). The social identity threat condition was significantly related to social approach motivation, indicating that social approach motivation was higher under social identity threat ( $M = 4.29$ ,  $SD = 1.13$ ) than in the control group ( $M = 4.06$ ,  $SD = 1.33$ ),  $t(504.13) = -2.06$ ,  $p = .040$ . No indirect effect or sum of indirect effects proved to be statistically significant ( $ps \geq .15$ ). Thus, the increase in social approach motivation was not driven by an increase in sense of belonging.

**Combined analyses across Study 2a and 2b.** As Study 2a and 2b used identical method, we combined the data and ran the analyses across both studies. The combined analyses allowed us to test the robustness of the findings from each individual study. None of the effects of the individual studies were replicated in the combined analyses (all  $ps \geq .078$ ), indicating that the findings from the single studies were not sufficiently robust.

In summary, Study 2a and 2b provided some counterintuitive evidence that social approach motivation is enhanced by the activation of age-group membership (i.e., by making the age of the participant salient). Although this finding is in line with some previous studies showing that perceived age discrimination can enhance age-group identification in older

adults and, consequently, older adults' psychological well-being (Garstka, Schmitt, Branscombe, & Hummert, 2004), the evidence was inconsistent in the present research and not supported by the combined analyses across both studies. As such we will refrain from speculation about its possible meaning.

More importantly, neither study found an effect of the manipulation on self-reported negative age stereotypes. This implies that the manipulation was not successful with regard to the main goal of the studies—the experimental induction of social identity threat. This leaves the question open as to whether our unsuccessful manipulation is responsible for the present inconsistency in effects. In Study 3a and 3b we used a different set of manipulations that were aimed at activating stereotype internalization more directly.

### **Study 3**

In Study 3a and 3b we adapted methods from previous research that increased agreement with statements on specific traits (Clarkson, Otto, Hirt, & Egan, 2016; Job, Dweck, & Walton, 2010). In the present study, we sought to induce agreement with self-perceptions of conforming to a negative age stereotype. Agreeing with a statement regarding one's own traits prompts people to scan their memory for instances in which their actions supported such a response and motivates them to behave in ways that are consistent with the trait in the future (cf., Petrocelli, Martin, & Li, 2010). Forcing older workers to agree with statements describing them as stereotypically old should evoke memories of intellectual lapses, which should prompt feelings of being old and produce behavior consistent with this perception. In Study 3a, agreement with negative age stereotypes about the self was either facilitated (stereotype threat condition) or impeded (control condition) by varying the strength of the wording, weak versus strong respectively. In Study 3b, participants were forced to agree with negative age stereotypes regarding themselves by manipulating scale anchors. Participants in the social identity threat group had no means of disagreeing with the stereotype as the lowest scale point already indicated that they “somewhat agreed”. Conversely, participants in the

control group were free to indicate their disagreement but were unable to express full agreement due to complementary restrictions in the response scale.

### Study 3a

#### Method

**Participants and design.** One hundred and ninety-two older workers (44.8% females,  $M_{\text{age}} = 56.2$ ,  $SD_{\text{age}} = 5.0$ , age range 50–76 years) from Germany were recruited through the same online sampling provider as in Study 1. Participants were randomly assigned to one of two experimental conditions (social identity threat condition:  $n = 101$  vs. control condition:  $n = 91$ ).

**Materials and procedure.** The measures for sense of belonging, social approach motivation, and stereotype internalization were the same as in the previous studies. The procedure followed Study 1 closely except for the addition of the stereotype-internalization manipulation at the beginning of the experiment. In other words, participants first completed one of the two stereotype-internalization manipulations, and then completed the same measures of sense of belonging, social approach motivation, and the three-item measure of stereotype internalization as in Study 1.

**Stereotype-internalization manipulation.** We constructed an extended version of our stereotype-internalization measure with nine items (e.g., “I notice that I used to comprehend things faster when I was younger.”; for all items see Table S3 in the Supplemental Materials). Each facet of the construct included three items. Based on the extended scale, two versions were created that deviated minimally in their wording. In the experimental condition, the items were worded weakly (e.g., “I notice that I used to comprehend things *a little* faster when I was younger.”;  $\alpha = .95$ , not italic in the original wording of the item). This was done in order to facilitate agreement with such items, hence promoting feelings of stereotype internalization. Analogous to this, the items in the control condition were worded strongly (e.g., “I notice that I used to comprehend things *considerably* faster when I was younger.”;  $\alpha$

= .94), so that agreement and subsequent feelings of stereotype internalization would be impeded relative to the weakly worded scale. Responses were given on a 7-point Likert scale ranging from 0 (*do not agree at all*) to 6 (*completely agree*)

## Results and Discussion

**Experimental findings.** First, we tested whether the wording of the items affected how the scales were used. Contrary to our expectation, participants in the stereotype threat condition (who responded to the weakly worded items) did not report significantly greater responses on their version of the scale ( $M = 1.56, SD = 1.42$ ) than participants in the control condition ( $M = 1.28, SD = 1.15$ ),  $t(190.00) = -1.49, p = .14$ . There was also no difference between the stereotype threat condition ( $M = 1.67, SD = 1.36$ ) and the control condition ( $M = 1.58, SD = 1.39$ ) regarding the original short version of stereotype internalization measure which served as a manipulation check,  $t(188.06) = -0.46, p = .65$ . To explore how the individual components of sense of belonging and social motivation may have been affected by the manipulation we employed the same adapted structural model used in Study 2a (Table 6). There were no significant direct ( $ps \geq .070$ ) or indirect effects ( $ps \geq .085$ ) of condition. This means that the manipulation we used to activate negative age stereotypes, in fact, does not seem to have evoked social identity threat.

## Study 3b

### Method

**Participants and design.** One hundred and sixty-five older workers (47.3% females,  $M_{\text{age}} = 56.0, SD_{\text{age}} = 4.5$ , age range 50–75 years) from Germany were recruited through the same online sampling provider as in Study 1. Participants were randomly assigned to one of two experimental conditions (identity threat condition:  $n = 83$  vs. control condition:  $n = 82$ ).

**Materials and procedure.** The measures for sense of belonging, social approach motivation, and stereotype internalization were the same as in the previous studies. The

procedure was identical to Study 3a except for a different stereotype-internalization manipulation at the beginning of the experiment.

**Stereotype-internalization manipulation.** The extended version of the stereotype internalization measure with neutral wording (initially constructed for Study 3a) was used as the basis of this manipulation. While the wording remained the same for all participants in this experiment scale anchors varied across conditions. In the stereotype threat condition, participants were unable to disagree with the statements regarding age-stereotype internalization as the anchors of the 7-point Likert scale ( $\alpha = .94$ ,  $M = 1.89$ ,  $SD = 1.45$ ) ranged from 0 (*somewhat agree*) to 6 (*completely agree*). Participants in the control condition, on the other hand, were unable to show agreement with the items as the anchors of the scale ( $\alpha = .94$ ,  $M = 1.56$ ,  $SD = 1.35$ ) ranged from 0 (*completely disagree*) to 6 (*somewhat agree*). As the anchors differed from all other scales used in the study, we displayed the anchors of this instrument in bold letters to highlight the importance of the anchors to the participants. The same was done for the subsequent measure to signify that anchors had changed.

## **Results and Discussion**

**Experimental findings.** First, we tested whether the manipulation affected participants' responses on the short version of the internalization scale that served as a manipulation check. Participants who were forced to agree with the age-related statements exhibited higher levels of stereotype internalization ( $M = 2.31$ ,  $SD = 1.63$ ) than those who were able to indicate their disagreement ( $M = 1.73$ ,  $SD = 1.40$ ),  $t(158.8) = 2.44$ ,  $p = .02$ .<sup>2</sup> We proceeded to test whether the manipulation affected the individual components of sense of belonging and social motivation by employing the same adapted structural model used in Study 2a (Table 6). There were no significant direct ( $ps \geq .221$ ) or indirect effects ( $ps \geq .275$ ) of condition. Together, these findings indicate that our attempt to manipulate feelings of stereotype internalization was partially successful. Removing participants' option to disagree with negative age stereotypes about themselves induced higher ratings of stereotype

internalization. However, despite this significant effect, the manipulation of stereotype internalization did not influence participants' sense of belonging or social motivation.

### **Correlational Findings and Aggregate Analysis**

Given the lack of consistent experimental findings from Studies 2 and 3, we explored whether the correlational findings in Study 1 replicated in Studies 2 and 3 (Table 2). Additionally, in order to test the robustness of the correlational findings and to gain more reliable estimates for the relationships between the variables of interest we aggregated the data of all five studies and repeated the correlational analysis in an aggregate analysis (Table 2, two last columns). This resulted in a total sample of  $N = 1,306$  participants. Because the design and procedure of the studies were not identical we also included the studies as covariates in this analysis (dummy coded: -1 = no participant of study, 1 = participant of study).

Our hypothesis that social approach motivation is indirectly predicted by stereotype internalization via sense of belonging and the associated positive (but not negative) affect was supported across almost all studies and in the aggregate analysis (Table 3). Stereotype internalization was negatively related to the membership subscale of sense of belonging and the associated positive affect. Both membership and positive affect were, in turn, positively associated with social approach motivation. There was no direct path from stereotype internalization to social approach motivation (with the exception of Study 1). However, the sum of the indirect paths was significant across all studies (with the exception of Study 2a) and the aggregate analysis (Table 3). The indirect effect was sometimes driven by the membership subscale (Study 2a, 3a, and 3b), sometimes by the positive affect subscale (Study 2b and 3b), and sometimes by their combination (Study 2b). In contrast, there was no single significant indirect effect in the alternative model (i.e., from stereotype internalization via the negative affect subscale; Table 4). Accordingly, a comparison between the model constraining the relationship between negative affect and social approach motivation to zero

(i.e., the hypothesized model) and the unrestricted model (i.e., the alternative model), revealed the restricted model was preferred in each individual study as well as the aggregate analysis (with the exception of Study 1; see Table 5). These results support our hypotheses regarding social approach motivation.

The relationship between stereotype internalization and social avoidance motivation was more complex. In contrast to our hypothesis, there were no consistent indirect effects from stereotype internalization to social avoidance motivation via negative affect (see Table 3). Although some of the indirect effects were significant in some studies, the sum of these effects was neither consistently significant across the studies (with the exception of Study 1), nor in the aggregate analysis. In contrast, there was a consistent indirect effect from stereotype internalization via positive affect both in the single studies (with the exception of Study 2a), and in the aggregate analysis (Table 4). Stereotype internalization was negatively associated with the membership subscale of sense of belonging and the associated positive affect. Positive affect, in turn, was *positively* associated with avoidance motivation.

Constraining the relationship between positive affect and avoidance motivation to zero resulted in significant model misfit across all studies and in the aggregate analysis (Table 5). This indicates that the alternative model is preferred. Interestingly, the direct path between stereotype internalization and social avoidance motivation was positive. This suggests that stronger stereotype internalization is associated with more avoidance motivation, which is contrary to the indirect effects. We discuss these ostensibly contradictory findings in the General Discussion.<sup>3</sup>

In order to rule out the influence of actual age-related cognitive decline on our model, we repeated the aggregate analysis with chronological age as an additional covariate. Chronological age was significantly related to all subscales of sense of belonging but not to social approach ( $\beta = -.005$ , 95% CI [-.021, .010],  $p = .482$ ) or avoidance motivation ( $\beta = .011$ , 95% CI [-.004, .026],  $p = .160$ ). In addition, chronological age was positively related to the



positive affect ( $\beta = .029$ , 95% CI [.015, .043],  $p < .001$ ) and membership subscales ( $\beta = .023$ , 95% CI [.002, .045],  $p = .034$ ) of sense of belonging and negatively related to the negative affect subscale ( $\beta = -.019$ , 95% CI [-.033, -.006],  $p = .006$ ). These associations with chronological age are contrary to those of stereotype internalization and can therefore not be the driving force behind the observed relationships. Older employees may have a stronger general sense of belonging to their workplace due to longer tenure. In the aggregate sample, the correlation between chronological age and stereotype internalization is small and negative ( $r[1,306] = -.06$ ,  $p = .02$ ), indicating that these variables are not strongly related and that stereotype internalization decreases with age. Thus, it is unlikely that stereotype internalization reflects personal experiences with actual cognitive decline. Most importantly, the inclusion of the covariates had no detectable effect on the estimation of the standardized regression coefficients in the structural model (Table 2, last column).

### **General Discussion**

Research on stereotype threat (Steele & Aronson, 1995; Steele et al., 2002) has revealed that merely the concern of possibly confirming a negative stereotype has detrimental effects on an individual's performance. This occurs even in the absence of any discriminatory behavior by others. More recent studies on social identity threat have examined a variety of negative consequences beyond performance. Social identity threat has been linked to turnover intentions for stereotyped workers (Gaillard & Desmette, 2010; Kalokerinos et al., 2017; von Hippel et al., 2011, 2013) and a reduced sense of belonging to the communities associated with the stereotyped domain (Cheryan et al., 2012, 2009; Gaucher et al., 2011; Good et al., 2012; Lee & Park, 2011; Mello et al., 2012; Stout & Dasgupta, 2011). The present research adds to these findings by demonstrating a relationship between social identity threat and social motivation via sense of belonging. Four out of five correlational studies and an aggregate analysis across all five data sets revealed that social identity threat, in the form of internalized negative age stereotypes, is negatively associated with social approach

motivation towards coworkers. Furthermore, this relationship was mediated by older workers' reduced sense of belonging and the positive affect associated with the workplace. For social avoidance motivation, the relationship was more complex. As hypothesized, the more participants' internalized stereotypes the greater their reported avoidance motivation. However, the indirect effects revealed that all three components of sense of belonging predicted social avoidance motivation, but in contradictory ways. These results are discussed in further detail below.

Given the importance of social approach and avoidance motivations for establishing and maintaining social relationships (Nikitin & Schoch, 2014) the present findings indicate the potential cost that internalization of negative stereotypes can have for older workers. Building and maintaining a positive social network at the workplace is positively related to, in turn, work performance (Sparrowe et al., 2001), reduced vulnerability to stereotype threat for older people (Abrams et al., 2006), and reduced negative stereotypes against older workers (Henkens, 2005). Taken together, our research suggests that when older workers experience social identity threat based on negative age stereotypes they seek less contact to people in the work domain, which may contribute to upholding negative age stereotypes. In addition, social withdrawal from the workplace may be a key contributing factor in the decision to resign or retire.

### **Social Identity Threat, Sense of Belongingness, and Social Motivation**

With regard to social approach motivation, we consistently found the expected indirect correlational path from internalized stereotypes to social approach motivation via reduced sense of belonging (see Martiny & Nikitin, 2018, for similar findings). Likewise, social approach motivation was consistently predicted by positive but not negative affect. This finding is consistent with previous findings showing that social approach motivation is a motivational system that works through the processing of positive (but not negative)

information and positive (but not negative) emotions (for summaries see Gable and Berkman, 2008; Nikitin & Schoch, 2014).

The findings for social avoidance motivation were more complex. Although, as predicted, social avoidance motivation was associated with internalized stereotypes via reduced belongingness and enhanced negative affect, it was also consistently positively associated with positive affect. Although not predicted the relationship between avoidance motivation and positive affect is consistent with previous research on older adults. For example, Nikitin and Freund (2019a) found that avoidance goals in peripheral social relationships were positively associated with daily well-being in older (but not younger) adults. The authors argued that the positive association between social avoidance goals and daily well-being is driven by an age-differential adaptivity of social avoidance goals. Social avoidance goals are detrimental for young adults because they make it difficult to achieve the important developmental goals of young adulthood (such as finding a romantic partner or establishing an adult social network; Nikitin & Freund, 2008). However, as we age social avoidance goals become more adaptive. This is the case because older adults profit more from the avoidance of negative social encounters (Charles, Piazza, Luong, & Almeida, 2009), as such encounters elicit more sustainable physiological arousal in older adults (Rook & Charles, 2017). Accordingly, the positive association of social avoidance motivation and positive affect in the present studies might be an expression of the changing adaptivity of social avoidance goals with increasing age. Note, however, that social avoidance motivation in the present studies was also associated with negative affect and with internalized negative age stereotypes. This points to the limits of its adaptivity in older adulthood. One possible explanation is that social avoidance motivation does not always lead to the actual avoidance of negative social encounters. In fact, when they cannot avoid a negative social interaction, older adults suffer more emotionally when they are avoidance motivated (Nikitin, Schoch, &

Freund, 2014). It is an interesting question for future research to disentangle the possible different consequences of social avoidance motivation in older adulthood.

In addition, social approach and avoidance motivation were positively correlated in the present studies. This suggests that when participants reported higher levels of social approach motivation they also reported higher levels of social avoidance motivation. This positive correlation might indicate the importance of the social domain for some participants. It seems plausible that people who highly value social relationships might be motivated both to approach positive outcomes but also to avoid possible threats in their social relationships (for a similar conclusion, see Nikitin & Freund, 2019b). Future research is needed to unpack the importance and the valence components of social approach and avoidance motivation.

### **Social Identity Threat as a Multi-Faceted Construct**

Although the present studies reliably demonstrated a correlational relationship between social identity threat and social motivation via sense of belonging, the causal examination of these relationships did not reveal the expected effects. This is surprising given that a causal effect has been found for negative stereotypes about women in academia (Martiny & Nikitin, 2018). One possible explanation is that social identity threat is not a singular construct across groups and domains (Barber, 2017). Barber argued that “factors that predispose women to experience stereotype threat about their math abilities may be different than the factors that predispose older adults to experience stereotype threat about their memory abilities” (p. 63).

The multi-threat framework (Shapiro & Neuberg, 2007) proposes six qualitatively different forms of social identity threat depending on the source and target of the threat. An important determinant of threat in the context of the current studies is the extent of identification with the stereotyped group (Barber, 2017; Shapiro, 2011). Older people differ from women (and other stereotyped groups such as ethnic minorities) in this regard. This is because age stereotypes are encountered early in life when people are not personally affected

by these stereotypes (Levy, 2003, 2009). As people get older negative age stereotypes begin to threaten their self-views (Kornadt, Voss, & Rothermund, 2017). In order to defend against these negative self-views, older people tend to avoid identification with the older age group by setting progressively higher thresholds for being old as they age (Chopik, Bremner, Johnson, & Giasson, 2018; Kornadt & Rothermund, 2011; Taylor, Morin, Parker, Cohn, & Wang, 2009) and by distancing themselves from their age group when they are threatened (Weiss & Freund, 2012; Weiss & Lang, 2012). However, group identification must be high in order to experience self-identity threat that is based on group membership (Shapiro & Neuberg, 2007). Consequently, when social identity threat manipulations address group membership, older people might distance themselves from the group of older adults. This distancing could reduce the likelihood of experiencing enhanced identity threat.

Barber (2017) argues that older adults need to be concerned that the stereotype is true of themselves to be affected by it, which is in line with the correlational findings of the present research. As such, future research is needed to explore whether social identity threat manipulations that are more personally relevant (e.g., interpreting actual memory lapses as being indicative of age-related cognitive decline) lead to different results than less personally relevant manipulations. This would also further support the argument that mechanisms and moderators of social identity threat may vary across groups and domains (Barber, 2017).

### **Social Identity Threat in Light of Socio-Emotional Aging**

Another explanation for different consequences of social identity threat for older adults compared to other stereotyped groups is based on Socioemotional Selectivity Theory literature (Carstensen, Isaacowitz, & Charles, 1999). As we discussed previously, the shift towards emotion-regulation goals enables older, compared to younger, adults to better regulate their emotions and to manage rejection experiences such as social exclusion. These findings indicate that participants in the present studies may be well equipped to cope with the emotional consequences of social identity threat.

In addition, for older compared to younger adults, relationships to coworkers may be more easily replaced by close personal relationships (i.e., long-term friendships, familial or spousal relationships). Thus, it is likely that when their belongingness is threatened in the working domain older adults attempt to restore it by approaching social interactions with people outside the domain. In fact, older adults not only seek social contact with peripheral social relationship partners (i.e., co-workers) less frequently than younger adults do (Sander, Schupp, & Richter, 2017), but they also extract relatively less meaning from these interactions than from interactions with close social partners (Charles & Carstensen, 2010). Moreover, people prefer to connect with new relationship partners instead of reconnecting with the person who rejected them (Maner, DeWall, Baumeister, & Schaller, 2007). Future studies should explore whether the possibility to socialize with close people reduces the effects of social identity threat on older adults' social approach and avoidance motivation.

### **Limitations and Future Directions**

Despite various manipulations to induce social identity threat that were based on previous research (Clarkson et al., 2016; Job et al., 2010; Steele & Aronson, 1995) social identity threat manipulations in the present research were largely ineffective. One possible reason is that our samples were relatively young (50 years of age and older). Although this threshold for old age is common in organizational-psychology research (Finkelstein et al., 2013; Kooij et al., 2008; von Hippel et al., 2013), there is empirical evidence showing that people perceive a person of 50 years of age as not old (Taylor et al., 2009). Therefore, the concern of showing stereotypical signs of aging may not yet be relevant enough to evoke social identity threat. Nonetheless, Gaillard and Desmette (2010) found in two relatively young samples that confronting workers aged 46 to 58 years with information regarding age stereotypes already affected their early retirement intentions. It is important to note that these stereotypes were work-specific, as opposed to the broader age stereotype of general intellectual decline that was used in the present studies. Employing context-specific age

stereotypes may be a key factor in making such stereotypes relevant to relatively young older adults. Supporting this conclusion, Kornadt and Rothermund (2011) found that the age at which a person is considered to be old is context-specific. The use of such a work-specific stereotype may change participants' frame of reference for age—shifting it from the whole lifespan to the working lifespan (i.e. until retirement at 65). Manipulating participants' frame of reference in this way might encourage them to see themselves as “older” at a younger chronological age.

Utilizing an online sampling provider to recruit older workers may have introduced some selection bias that could have reduced the effectiveness of our manipulations. In addition, the fact that the studies were conducted online may have affected the effectiveness of the experimental manipulations in the present studies. Although online experiments have been shown to replicate findings of laboratory experiments (Horton et al., 2011) there are some shortcomings compared to experiments in the laboratory or the field. For example, instructions in online experiments may be read with insufficient care by some participants, rendering these participants less affected by written manipulations (Chandler, Mueller, & Paolacci, 2014; Clifford & Jerit, 2014). Further, participants in online experiments cannot ask an experimenter for assistance if instructions are unclear. There is also uncertainty about the precise identity of the participant in online experimentation. One person could participate in the study several times without the experimenter's knowledge by creating multiple accounts with an online sampling provider. Finally, negative stereotypes might only elicit effects when they occur in a social context (e.g., in the presence of an experimenter). In the online setting, there is no witness who could judge the older person for their potential cognitive limitations, rendering the social identity threat manipulation less socially relevant and possibly less effective. Despite these shortcomings, online experiments allow access to large numbers of specific groups of participants (as in the present research), and, thus, are a valuable complement of lab studies. Moreover, the consistency of the correlational findings across the

five studies in the present research is an indication of high data quality. We acknowledge that the present findings would benefit from replication in a more controlled lab environment studies in the lab before making strong conclusions about their meaning.

### **Conclusions**

The present results contribute to the existing research literature demonstrating that social identity threat is associated with negative consequences beyond performance decrements. To our knowledge, this research is the first series of studies to provide evidence that social identity threat in the form of age-stereotype internalization is associated with a lower sense of belonging in the workplace for older workers. Overall, the results reveal a robust correlational pattern that links stereotype internalization to reduced social approach motivation towards coworkers, which is mediated by sense of belonging. The findings for social avoidance motivation were more complex and need to be clarified by further research. In sum, the present findings reveal an important relationship between internalized age stereotypes and the intention to socially isolate oneself with far-reaching consequences. A lack of social connections affects general well-being negatively and is detrimental to the dismantling of prejudice. Through a better understanding of social identity threat we will be able to create effective interventions in the long run. Such interventions will enable older people to have fulfilling social relationships in the workplace as well as utilize their full career potential. Increasing the participation of older people in the workforce will not only benefit older workers, but could also help to solve the economic and societal challenges associated with recent demographic changes.



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## Footnotes

<sup>1</sup> Before starting the experiment some participants worked on a writing task designed to induce self-affirmation (Steele, 1988). This manipulation did not produce any main or interaction effects on sense of belonging or social approach motivation ( $ps \geq .26$ ).

<sup>2</sup> Note that the answers given on the extended internalization measure, that was used for the manipulation, were not compared between experimental groups because the different scale anchors in each group make it difficult to interpret a comparison of the relative position on these scales meaningfully.

<sup>3</sup> In addition, we reran the analyses separately for each of the three items of the stereotype-internalization scale (see Tables S5-S7 in the supplemental materials). The results were almost identical across the three items.

Table 1

*Means, Standard Deviations, Cronbach's Alphas, and Bivariate Correlations for All Studies*

Variable	<i>M</i>	<i>SD</i>	$\alpha$	1	2	3	4	5
Study 1								
1. SI	2.35	1.53	.83					
2. SB: Membership	4.34	1.57	.97	-.17*				
3. SB: PA	3.77	1.42	.88	-.19**	.71***			
4. SB: NA	1.79	1.48	.87	.42***	-.59***	-.61***		
5. Approach	4.08	1.37	.93	-	.43***	.46***	-.28***	
6. Avoidance	3.45	1.20	.78	.04	.29***	.29***	.01	.60***
Study 2a								
1. SI	1.73	1.47	.82					
2. SB: Membership	4.43	1.46	.97	-.08				
3. SB: PA	4.00	1.32	.78	-	.54***			
4. SB: NA	1.33	1.23	.84	.33***	-.35***	-.61***		
5. Approach	4.06	1.32	.92	-.08	.36***	.41***	-.31***	
6. Avoidance	3.37	1.35	.83	.10	.20***	.21***	-.03	.60***
Study 2b								
1. SI	1.62	1.38	.82					
2. SB: Membership	4.41	1.61	.97	-	.22***			
3. SB: PA	4.23	1.33	.86	-	.75***			
4. SB: NA	1.10	1.17	.85	.37***	-.46***	-.62***		
5. Approach	4.31	1.38	.94	-.14	.47***	.45***	-.23***	
6. Avoidance	3.31	1.28	.79	.11	.25***	.24***	.05	.60***
Study 2c								
1. SI	2.03	1.55	.87					
2. SB: Membership	4.23	1.78	.97	-	.23***			
3. SB: PA	3.95	1.35	.87	-	.61***			
4. SB: NA	1.37	1.26	.84	.41***	-.41***	-.65***		
5. Approach	4.08	1.41	.94	-.18*	.54***	.49***	-.29***	
6. Avoidance	3.42	1.34	.83	.10	.34***	.27***	-.06	.65***
Study 3								
1. SI	1.95	1.50	.86					
2. SB: Membership	4.36	1.50	.97	-	.18***			
3. SB: PA	3.96	1.29	.86	-	.68***			
4. SB: NA	1.38	1.33	.87	.32***	-.47***	-.62***		
5. Approach	4.17	1.24	.92	-	.51***	.49***	-.30***	
6. Avoidance	3.45	1.26	.81	.12**	.30***	.24***	-.05	.63***

Aggregate Analysis

1. SI	1.94	1.50	.84					
2. SB: Membership	4.36	1.56	.97	-				
				.17***				
3. SB: PA	3.97	1.33	.97	-				
				.28***	.66***			
4. SB: NA	1.40	1.32	.86	.37***	-.46***	-.62***		
5. Approach	4.14	1.32	.93	-				
				.16***	.47***	.46***	-.29***	
6. Avoidance	3.41	1.28	.81	.10***	.28***	.24***	-.02	.61***

*Note.* SI = stereotype internalization, SB = sense of belonging, PA = positive affect, NA = negative affect. \*\*\* $p < .001$ . \*\* $p < .01$ . \* $p < .05$ .

Table 2

*Parameter Estimates for Structural Model Describing the Relationships between Stereotype Internalization, Sense of Belonging, and Social Motivation*

	Study 1	Study 2a	Study 2b	Study 3a	Study 3b	Aggregate	Aggregate with Covariates
SI–Membership	<b>-.171</b> [-.320, <b>-.033</b> ]	-.080 [-.219, .060]	<b>-.175</b> [-.265, <b>-.088</b> ]	<b>-.252</b> [-.418, <b>-.096</b> ]	<b>-.266</b> [-.459, <b>-.077</b> ]	<b>-.180</b> [-.237, <b>-.123</b> ]	<b>-.176</b> [-.233, <b>-.129</b> ]
SI–PA	-.070 [-.167, .018]	<b>-.143</b> [-.248, <b>-.031</b> ]	<b>-.145</b> [-.210, <b>-.093</b> ]	<b>-.137</b> [-.260, <b>-.031</b> ]	<b>-.255</b> [-.379, <b>-.140</b> ]	<b>-.154</b> [-.195, <b>-.113</b> ]	<b>-.143</b> [-.184, <b>-.103</b> ]
SI–NA	<b>.319</b> [.204, <b>.437</b> ]	<b>.257</b> [.145, <b>.365</b> ]	<b>.220</b> [.143, <b>.302</b> ]	<b>.236</b> [.123, <b>.363</b> ]	<b>.272</b> [.136, <b>.393</b> ]	<b>.265</b> [.219, <b>.314</b> ]	<b>.250</b> [.204, <b>.297</b> ]
Membership–PA	<b>.625</b> [.498, <b>.735</b> ]	<b>.471</b> [.375, <b>.584</b> ]	<b>.572</b> [.496, <b>.626</b> ]	<b>.577</b> [.458, <b>.679</b> ]	<b>.411</b> [.288, <b>.539</b> ]	<b>.536</b> [.490, <b>.582</b> ]	<b>.531</b> [.487, <b>.576</b> ]
Membership–NA	<b>-.507</b> [-.624, <b>-.388</b> ]	<b>-.271</b> [-.391, <b>-.170</b> ]	<b>-.388</b> [-.461, <b>-.292</b> ]	<b>-.256</b> [-.363, <b>-.156</b> ]	<b>-.237</b> [-.356, <b>-.130</b> ]	<b>-.338</b> [-.390, <b>-.289</b> ]	<b>-.336</b> [-.387, <b>-.287</b> ]
SI–Approach	<b>-.193</b> [-.327, <b>-.054</b> ]	.014 [-.114, .125]	-.002 [-.079, .055]	-.009 [-.151, .121]	.000 [-.172, .141]	-.034 [-.083, .014]	-.035 [-.086, .014]
Membership–Approach	<b>.216</b> [.054, <b>.370</b> ]	<b>.177</b> [.023, <b>.318</b> ]	<b>.260</b> [.135, <b>.394</b> ]	<b>.279</b> [.060, <b>.479</b> ]	<b>.312</b> [.157, <b>.460</b> ]	<b>.252</b> [.185, <b>.319</b> ]	<b>.252</b> [.186, <b>.319</b> ]
PA–Approach	<b>.337</b> [.189, <b>.514</b> ]	<b>.247</b> [.054, <b>.461</b> ]	<b>.263</b> [.177, <b>.397</b> ]	<b>.269</b> [.017, <b>.550</b> ]	<b>.305</b> [.090, <b>.529</b> ]	<b>.281</b> [.199, <b>.363</b> ]	<b>.282</b> [.197, <b>.365</b> ]
NA–Approach	.160 [-.004, .327]	-.101 [-.291, .091]	.016 [-.060, .131]	.042 [-.195, .267]	.069 [-.116, .251]	.036 [-.032, .102]	.037 [-.031, .103]
SI–Avoidance	-.004 [-.122, .113]	.105 [-.031, .237]	<b>.154</b> [.069, <b>.230</b> ]	<b>.141</b> [.010, <b>.268</b> ]	<b>.195</b> [.036, <b>.345</b> ]	<b>.125</b> [.075, <b>.177</b> ]	<b>.124</b> [.072, <b>.174</b> ]
Membership–Avoidance	<b>.222</b> [.085, <b>.347</b> ]	.112 [-.037, .242]	<b>.214</b> [.112, <b>.328</b> ]	.125 [-.026, .274]	<b>.205</b> [.059, <b>.323</b> ]	<b>.181</b> [.121, <b>.231</b> ]	<b>.181</b> [.120, <b>.245</b> ]
PA–Avoidance	<b>.262</b> [.127, <b>.425</b> ]	<b>.253</b> [.058, <b>.461</b> ]	<b>.182</b> [.029, <b>.335</b> ]	<b>.325</b> [.095, <b>.535</b> ]	<b>.301</b> [.054, <b>.515</b> ]	<b>.240</b> [.157, <b>.321</b> ]	<b>.236</b> [.153, <b>.319</b> ]
NA–Avoidance	<b>.299</b> [.167, <b>.429</b> ]	.136 [-.052, .318]	<b>.112</b> [.017, <b>.217</b> ]	<b>.270</b> [.104, <b>.441</b> ]	.168 [-.006, .335]	<b>.170</b> [.107, <b>.231</b> ]	<b>.171</b> [.108, <b>.234</b> ]
Approach–Avoidance	<b>.713</b> [.497, <b>.915</b> ]	<b>.881</b> [.604, <b>1.000</b> ]	<b>.737</b> [.589, <b>.854</b> ]	<b>.782</b> [.511, <b>1.000</b> ]	<b>.843</b> [.510, <b>1.000</b> ]	<b>.787</b> [.687, <b>.884</b> ]	<b>.788</b> [.687, <b>.880</b> ]
PA–NA	<b>-.346</b> [-.535, <b>-.158</b> ]	<b>-.606</b> [-.813, <b>-.396</b> ]	<b>-.457</b> [-.571, <b>-.329</b> ]	<b>-.342</b> [-.485, <b>-.194</b> ]	<b>-.517</b> [-.737, <b>-.305</b> ]	<b>-.478</b> [-.558, <b>-.397</b> ]	<b>-.455</b> [-.533, <b>-.375</b> ]

*Note.* SI = stereotype internalization, PA = positive affect, NA = negative affect. Aggregate analysis with covariates contains study and age as such. Significant parameter estimates ( $p < .05$ ) are presented in bold. 95% confidence intervals are presented in brackets.

Table 3

*Parameter Estimates for Hypothesized Indirect Effects of Internalized Stereotypes on Social Motivation via Sense of Belonging*

	Study 1	Study 2a	Study 2b	Study 3a	Study 3b	Aggregate
SI-M-Approach	-.037 [-.091, -.003]	-.014 [-.045, .012]	<b>-.049</b> [-.087, -.022]	<b>-.070</b> [-.137, -.014]	<b>-.083</b> [-.169, -.023]	<b>-.045</b> [-.003, .048]
SI-PA-Approach	-.027 [-.063, .009]	-.035 [-.082, -.001]	<b>-.039</b> [-.065, -.018]	-.037 [-.090, -.001]	<b>-.079</b> [-.145, -.020]	<b>-.043</b> [-.061, -.028]
SI-M-PA-Approach	-.036 [-.082, -.006]	-.009 [-.041, .010]	<b>-.026</b> [-.048, -.011]	-.039 [-.108, -.001]	<b>-.033</b> [-.079, -.005]	<b>-.027</b> [-.041, -.016]
Sum Approach	<b>-.108</b> [-.191, -.024]	-.059 [-.125, -.012]	<b>-.115</b> [-.169, -.069]	<b>-.146</b> [-.264, -.055]	<b>-.194</b> [-.298, -.090]	<b>-.132</b> [-.147, -.087]
SI-M-Avoidance	-.038 [-.090, -.007]	-.009 [-.040, .008]	<b>-.038</b> [-.071, -.014]	-.032 [-.082, .006]	<b>-.055</b> [-.109, -.011]	<b>-.033</b> [-.049, -.019]
SI-NA-Avoidance	<b>.095</b> [.045, .164]	.035 [-.010, .092]	<b>.026</b> [.003, .051]	<b>.064</b> [.021, .114]	.046 [-.001, .101]	<b>.045</b> [.028, .064]
SI-M-NA-Avoidance	<b>.026</b> [.005, .057]	.003 [-.003, .014]	.008 [-.013, .029]	<b>.017</b> [.005, .039]	.011 [-.001, .030]	<b>.010</b> [.006, .017]
Sum Avoidance	<b>.083</b> [.020, .153]	.029 [-.027, .092]	-.004 [-.045, .033]	.050 [-.023, .114]	.002 [-.085, .079]	.023 [-.065, -.028]

*Note.* SI = stereotype internalization, M = membership, PA = positive affect, NA = negative affect. Significant parameter estimates ( $p < .05$ ) are presented in bold. 95% confidence intervals are presented in brackets.

Table 4

*Parameter Estimates for Alternative Indirect Effects of Internalized Stereotypes on Social Motivation via Sense of Belonging*

	Study 1	Study 2a	Study 2b	Study 3a	Study 3b	Aggregate
SI-NA-Approach	.051 [.001, .112]	-.026 [-.085, .025]	.008 [-.013, .029]	.010 [-.039, .071]	.019 [-.031, .070]	.010 [-.008, .027]
SI-M-NA-Approach	.014 [.000, .037]	-.002 [-.012, .003]	.002 [-.004, .010]	.003 [-.013, .021]	.004 [-.009, .020]	.002 [-.002, .007]
Sum Approach	.065 [.001, .140]	-.028 [-.093, .025]	.010 [-.017, .038]	.013 [-.052, .087]	.023 [-.040, .083]	.012 [-.010, .034]
SI-PA-Avoidance	-.018 [-.049, .005]	-.036 [-.094, -.004]	<b>-.028</b> [-.054, -.004]	-.044 [-.105, -.006]	<b>-.077</b> [-.140, -.011]	<b>-.037</b> [-.035, -.022]
SI-M-PA-Avoidance	-.028 [-.064, -.005]	-.010 [-.037, .008]	<b>-.019</b> [-.039, -.002]	<b>-.047</b> [-.103, -.010]	-.033 [-.081, -.002]	<b>-.023</b> [-.036, -.013]
Sum Avoidance	<b>-.046</b> [-.097, -.010]	-.046 [-.110, -.007]	<b>-.047</b> [-.088, -.006]	<b>-.092</b> [-.178, -.023]	<b>-.110</b> [-.197, -.018]	<b>-.060</b> [-.084, -.038]

*Note.* SI = stereotype internalization, PA = positive affect, NA = negative affect. Significant parameter estimates ( $p < .05$ ) are presented in bold. 95% confidence intervals are presented in brackets.



Table 5

*Model Comparisons between Restricted and Unrestricted Model*

	Model Restricting Relationship of Negative Affect and Approach Motivation and Unrestricted Model					Model Restricting Relationship of Positive Affect and Avoidance Motivation and Unrestricted Model				
	TLI	RMSEA	$\Delta df$	$\Delta\chi^2$	$p$	TLI	RMSEA	$\Delta df$	$\Delta\chi^2$	$p$
Study 1	0.900	0.123	1	4.23	.040	0.697	0.214	1	10.73	.001
Study 2a	0.979	0.047	1	1.52	.217	0.724	0.171	1	7.79	.005
Study 2b	1.030	0.000	1	0.18	.669	0.727	0.198	1	8.44	.004
Study 3a	1.020	0.000	1	0.51	.475	0.728	0.198	1	7.35	.006
Study 3b	1.005	0.000	1	0.61	.434	0.892	0.125	1	9.02	.003
Aggregate Analysis	0.998	.016	1	1.34	.247	0.784	0.173	1	40.10	<.001

*Note.* TLI = Tucker-Lewis index. RMSEA = root mean square error of approximation.  $\Delta$  = difference to unrestricted model.

Table 6

*Parameter Estimates for Structural Model Describing the Relationships between Experimental Condition, Sense of Belonging, and Social Motivation*

	Study 2a	Study 2b	Study 3a	Study 3b	Aggregate
Condition–Membership	<b>.501</b> [.111, .881]	.047 [-.223, .347]	-.178 [-.640, .252]	.198 [-.359, .747]	.128 [-.054, .313]
Condition–PA	.017 [-.280, .281]	-.130 [-.303, .031]	.074 [-.187, .334]	.173 [-.150, .493]	-.027 [-.144, .088]
Condition–NA	.008 [-.307, .305]	.023 [-.179, .226]	-.266 [-.569, .018]	-.144 [-.500, .215]	-.052 [-.187, .083]
Membership–PA	<b>.482</b> [.377, .592]	<b>.588</b> [.519, .648]	<b>.618</b> [.504, .712]	<b>.460</b> [.331, .580]	<b>.550</b> [.503, .597]
Membership–NA	<b>-.293</b> [-.416, -.177]	<b>-.413</b> [-.497, -.320]	<b>-.338</b> [-.456, -.224]	<b>-.290</b> [-.412, -.175]	<b>-.352</b> [-.406, -.297]
Condition–Approach	-.154 [-.452, .146]	<b>.239</b> [.064, .421]	.139 [-.201, .459]	.221 [-.108, .610]	.127 [-.004, .259]
Membership–Approach	<b>.186</b> [.034, .321]	<b>.271</b> [.164, .385]	<b>.275</b> [.044, .484]	<b>.312</b> [.167, .454]	<b>.256</b> [.185, .330]
PA–Approach	<b>.247</b> [.048, .484]	<b>.277</b> [.148, .415]	<b>.268</b> [.150, .409]	<b>.298</b> [.077, .542]	<b>.275</b> [.186, .370]
NA–Approach	-.095 [-.288, .097]	.034 [-.054, .127]	.098 [-.127, .327]	.072 [-.103, .257]	.019 [-.051, .090]
Condition–Avoidance	-.027 [-.352, .339]	.162 [-.038, .377]	-.127 [-.493, .195]	-.069 [-.423, .331]	.032 [-.119, .175]
Membership–Avoidance	.118 [-.037, .259]	<b>.219</b> [.102, .333]	.117 [-.036, .280]	<b>.212</b> [.055, .347]	<b>.182</b> [.113, .251]
PA–Avoidance	<b>.250</b> [.044, .495]	<b>.165</b> [.010, .321]	<b>.303</b> [.060, .512]	<b>.238</b> [.000, .469]	<b>.211</b> [.112, .315]
NA–Avoidance	.177 [.001, .362]	<b>.163</b> [.075, .255]	<b>.335</b> [.169, .505]	<b>.225</b> [.045, .400]	<b>.201</b> [.133, .269]
Approach–Avoidance	<b>.882</b> [.614, 1.000]	<b>.715</b> [.577, .847]	<b>.800</b> [.546, 1.000]	<b>.847</b> [.506, 1.000]	<b>.792</b> [.679, .903]
PA–NA	<b>-.685</b> [-.901, -.465]	<b>-.527</b> [-.639, -.407]	<b>-.421</b> [-.593, -.242]	<b>-.668</b> [-.897, -.416]	<b>-.580</b> [-.670, -.491]

*Note.* SI = stereotype internalization, PA = positive affect, NA = negative affect. Significant parameter estimates ( $p < .05$ ) are presented in bold. 95% confidence intervals are presented in brackets.

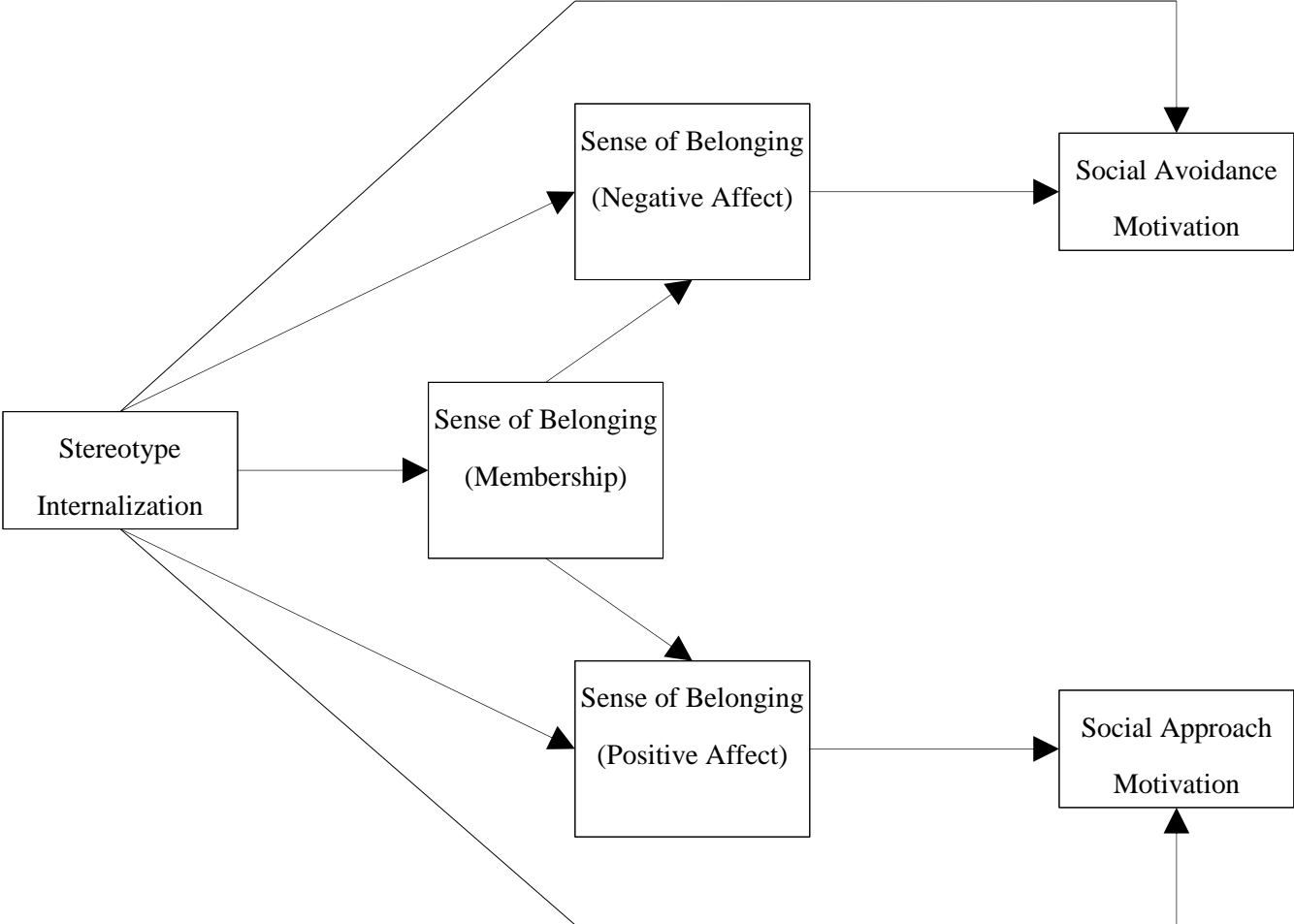


Figure 1. Hypothesized paths from stereotype internalization to social motivation via sense of belonging.