Self-Infiltration: Confusing Assigned Tasks as Self-Selected in Memory

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Two studies examined determinants of self-infiltration (i.e., false self-attribution of externally controlled goals or activities). According to Personality Systems Interactions (PSI) theory, a sad mood was expected to reduce access to integrated self-representations and to lead to self-infiltration for participants who have an impaired ability to cope with negative affect (i.e., state-oriented participants). Consistent with expectations, state-oriented participants had a tendency toward self-infiltration (as indexed by higher rates of false self-ascription of assigned activities) when reporting higher levels of sadness (Study 1) and after the experimental induction of a sad mood (Study 2). Participants who are able to downregulate negative affect (i.e., action-oriented participants) did not show this tendency. Theoretical and practical implications of the process of self-infiltration are discussed.

Keywords: *implicit self; self-access; internalization; PSI theory; state and action orientation*

Why do we sometimes feel free and in control of our own thoughts and behaviors and at other times compelled and alienated? If the self participates in so many useful functions, such as regulating affect (Linville, 1987; Showers & Kling, 1996), stopping rumination (Koole, Smeets, van Knippenberg, & Dijksterhuis, 1999), promoting intrinsic motivation (Deci & Ryan, 1985; Sheldon & Kasser, 1995), protecting individuals from self-infiltration (Kuhl & Kazén, 1994), and reducing suggestibility effects (Scheier, Carver, & Gibbons, 1979), the question arises why people cannot always take advantage of this resource. To answer this question, more static self-aspects (e.g., interindividual differences in the structure and organization of self-knowledge) need to be supplemented by more dynamic self-aspects (e.g., access to the self-system). Our central assumption is that access to the self-system, providing a variety of different functions, is

modulated through affect. More specifically, self-access is proposed to be reduced by negative affect unless it can be "downregulated." In the following paragraphs, we want to (a) specify the term "self-system" and our measure of self-access and elaborate on (b) the negative affect modulation assumption of Personality Systems Interaction (PSI) theory (see Kuhl, 2000) and (c) our hypotheses in further detail. Understanding the process by which people are invaded by the intentions of others has important implications for theories of internalization, self-regulation, and motivation.

SELF-INFILTRATION AS A MEASURE OF ACCESS TO THE SELF-SYSTEM

Although much research has focused in the past on the more explicit, conscious aspects of the self (i.e., self-concepts), there is an increased shift toward the study of unconscious or implicit self-aspects (Epstein, 1994; Greenwald & Banaji, 1995). Self-concepts are cognitive representations of the self that need to be distinguished from the entity (self) they refer to. In PSI theory, the self is conceived of as a high-level parallel-processing system operating on implicit self-representations and according to connectionist principles that are largely inaccessible to introspection because of the extensiveness of the autobiographical networks that form the basis of the self-

system (Kuhl, 2000). This conceptualization allows us to summarize a variety of functions associated with the self under a single system term. In the present article, we focus on the ability to discriminate in memory between self-selected and assigned goals as a measure of self-access (Kuhl & Kazén, 1994) and a tendency toward rumination as one of the phenomenological correlates of self-infiltration (Kuhl & Baumann, 2000).

In everyday life, individuals are confronted with many different expectations, goals, and wishes of other persons. To decide whether they want to fulfill these social expectations, they have to compare them with their own goals and wishes. This self-compatibility checking determines whether a goal can be internalized and how deeply it can be integrated into the self. Self-infiltration or introjection are cases of a low self-integration. As an example of self-infiltration, imagine a law student who would have loved to become a musician but confused her parents' expectation of her as an attorney-at-law with her own wishes and needs. Despite her great academic abilities, she feels that she has to invest unproportionally high effort and experiences unwanted rumination indicating (indirectly) the lack of self-compatibility of her career goal. Although there are often phenomenological correlates of introjection, for example, task engagement in spite of low perceived choice, low interest/enjoyment (Deci, Eghrari, Patrick, & Leone, 1994), or goal striving because one would feel ashamed or guilty if one did not (Sheldon & Elliot, 1998), a nonreactive (implicit) measure of self-infiltration may have some advantages. In the context of the self-infiltration experiments described here, feeling not interested or guilty does not appear a useful measure of self-infiltration (i.e., our dependent or criterion variable) because this operationalization would run the risk of predictor-criterion contamination: Feelings of low interest or guilt are similar to sad or depressed feelings that are our independent or predictor variables.

Kuhl and Kazén (1994) have developed the nonreactive method applied here to assess self-infiltration by experimentally varying the objective self-other status of goals. They simulated a working day in an office. Participants taking the role of a secretary selected 9 out of 27 options from a list of activities for later enactment (e.g., "sharpening pencils," "sorting letters"). The experimenter taking the role of the boss assigned an additional nine activities to them while nine activities remained unchosen. There was an unexpected memory test for the initial source of the goals. Participants were instructed to classify the activities as previously self-selected, assigned by the boss, or remaining. A tendency to falsely ascribe more originally assigned activities as self-selected than remaining activities was interpreted as self-infiltration. In the present studies, unwanted rumi-

native thoughts about assignments were assessed as an additional indicator of low self-compatibility.

AFFECT MODULATION ASSUMPTIONS OF PSI THEORY

PSI theory describes different modes of volitional action control through the interaction pattern of four cognitive systems (intention memory, behavioral output control, extension memory, and an object recognition system) and assumes that their activation is modulated by affect (see Kuhl, 2000; Kuhl & Fuhrmann, 1998). The negative affect modulation assumption[1] describes the inhibitory influence of negative affect on the implicit extension memory system that is necessary to have an overview of extended semantic fields, self-defining abstractions from relevant episodes experienced (Wheeler, Stuss, & Tulving, 1997), and integrated self-representations (Kuhl, 2000). This type of extended memory networks seems to be supported more by the right than by the left hemisphere of the human brain (Beeman, Friedman, Grafman, Perez, Diamond, & Lindsay, 1994). It is called extension memory because of the extended nature of the underlying global associative networks and it provides intuitive-holistic representations of internal states and integrated implicit representations of one's own feelings, needs, and emotional preferences. Access to this network system makes a great number of preferences and action alternatives simultaneously available so that a person can choose goals that satisfy multiple constraints and easily feel priorities. The self-related implicit representations are called the "self" or "self-system." Negative affect is proposed to reduce self-access and to increase perceptual sensitivity for elementary sensations (isolated "objects") and unexpected or incongruent stimuli. According to the negative affect modulation assumption, a sad mood should render a valid self-compatibility checking of social expectations more difficult and increase a tendency toward self-infiltration and rumination.

In addition to mood effects, the present two experiments investigated the moderating effect of a personality disposition toward state versus action orientation indicating individual differences in the ability to reduce (downregulate) negative affect. This ability is important because negative affect should render self-compatibility checking more difficult only when it perseverates, that is, when the ability to downregulate negative affect is impaired. State orientation is conceived of as a difficulty to terminate negative affect and, as a result, to stop ruminating about a past, present, or future negative state rather than focusing on potential actions for changing that state when facing difficulties or threatened by failure. In contrast, action orientation is considered a tendency to focus on options for action that overcome diffi-

culties or prevent unpleasant events (Kuhl, 1994b). Whereas daydreaming and rumination per se can be controllable or uncontrollable (Klinger, 1981; Martin & Tesser, 1989), state orientation is associated with the uncontrollable form of rumination. A large body of research supports the conceptualization of state orientation as a low ability to volitionally control perseveration of negative affect and intrusive thoughts elicited by it (e.g., Kuhl & Baumann, 2000; Kuhl & Beckmann, 1994b). Evidence for the close relationship between rumination and negative affect also has been obtained by Nolen-Hoeksema and Morrow (1993), who found a ruminative coping style to exacerbate and prolong depressed mood.

The low ability to regulate negative affect (i.e., state orientation) can be distinguished, both conceptually and empirically, from sensitivity to negative affect as conceptualized in constructs such as anxiety, neuroticism, and so forth (Baumann & Kuhl, 2002; Kuhl, 2000). Even people having a high threshold for experiencing negative affect (e.g., people scoring low on anxiety scales) can be state-oriented, that is, they can have difficulty reducing (downregulating) negative affect when situational stressors are strong enough for them to develop anxious or otherwise unpleasant feelings. In contrast, action orientation is the ability to reduce negative affect once it is present by means of a compensatory self-activation. Using the self as a coping mechanism to downregulate negative affect (Linville, 1987; Showers & Kling, 1996) enables action-oriented individuals to maintain self-access even under adverse conditions (Kuhl, 2000).

HYPOTHESES

Our self-infiltration hypothesis predicts a personality and mood interaction: State-oriented participants are expected to show self-infiltration when in a sad mood but to be able to discriminate self-selected and assigned activities when not in a sad mood. Action-oriented participants are expected to be less influenced by their mood state and to discriminate self-selected and assigned activities in either mood state with a tendency toward even better self-discrimination in response to a negative experience because they use self-activation as a means to downregulate negative affect that should, according to PSI theory, facilitate self-discrimination (as long as downregulation is successful).

Notice that the self-infiltration hypothesis concerns the comparison between two different sources of error (false self-ascription of assigned vs. remaining low attractive activities) irrespective of absolute memory performance. Predictions are stated for low attractive activities only. The overall rate of false self-ascriptions is expected to be increased for high compared to low attractive activities. However, this error type is associated with the pro-

cess of identification rather than infiltration. Because of the greater intrinsic value of highly attractive goals they can more easily be integrated into the self. Consistent with organismic theories (Ryan, 1995), false self-ascriptions of high attractive goals reflect a positively biased and "healthy" internalization process (Sheldon, Houser-Marko, & Arndt, 2001). Our hypothesis does not concern potential differences between rates of false self-ascription of assigned versus remaining highly attractive activities.

To summarize, self-infiltration (as indexed by a tendency toward false self-ascription) and unwanted rumination (as a phenomenological correlate of self-infiltration) are expected to occur given (a) negatively valenced activities, (b) a negative mood state, and (c) a dispositional deficit in the ability to self-regulate negative affect (i.e., state orientation).

STUDY 1

The study tested the hypothesis that state-oriented participants in a sad mood show higher rate of false self-ascriptions of assigned compared to remaining low attractive activities and tend to ruminate about these possible introjects. The study focused on a naturally occurring sad mood as assessed by an adjective checklist.

Method

PARTICIPANTS

Participants were 63 volunteer undergraduate university students[2] (30 women, 33 men) who were recruited through flyers at the University of Osnabrück and paid DM 20 (U.S.$10) for their participation. Their mean age was 24 years (range = 18-36 years).

MATERIALS

Four negative (sad, depressed, anxious, sorrowful) items were used as a mood adjective checklist. The 7-point scale ranged from 0 (*not at all*) to 6 (*very strongly*). The Action Control Scale (ACS-90) (Kuhl, 1994a) was administered at the beginning of the experiment. Example items on the preoccupation scale are as follows: "When I am told that my work has been completely unsatisfactory: (a) I don't let it bother me for too long or (b) I feel paralyzed"; and "When I have to put all my effort into doing a really good job on something and the whole thing doesn't work out: (a) I don't have too much difficulty starting something else or (b) I have trouble doing anything else at all." In these two example items options, "a" reflect the action-oriented and options "b" the state-oriented response alternatives. The scale ranges from 0 to 12, with lower scores indicating higher state orientation. It has a sufficient internal consistency (Cronbach's α > .70) across many studies (Kuhl & Beckmann, 1994b). Theoretically expected relationships

have been demonstrated between state orientation and operationalizations of rumination, alienation, procrastination, and other indications of impaired volitional control over cognitive and emotional processes when exposed to stressful circumstances (Kuhl & Beckmann, 1994b), supporting the construct validity of the ACS-90.

The program PANTER (Process-Analytic Neuroticism Test for Adults)[3] was used to assess self-infiltration. It is an elaborated computer version of the paper-and-pencil method used by Kuhl and Kazén (1994).

PROCEDURE

Participants were tested individually. First, participants were asked to rate their momentary mood and to fill out the ACS-90. Similar to Kuhl and Kazén (1994), the cover story of the experiment dealt with the simulation of a working day of a secretary and the ability to efficiently organize schedules. Participants were introduced to the PANTER program and asked to rate the attractiveness of 48 office activities (e.g., "sealing letters," "sharpening pencils," or "looking up a telephone number") on a 19-point scale, ranging from –9 (*very unattractive*) to +9 (*very attractive*). PANTER automatically split items according to the median of this rating into high and low attractive items, representing the within-participants factor Item Attractiveness.

Self-selection. Participants were asked to select activities they would be willing to carry out at the end of the experiment. Items were grouped into lists of six activities. Participants were asked to always select half of the activities of each list for later enactment, even if none of the activities in a list was very attractive.

External assignment. Participants were informed that part of a secretary's job was to enact the assignments of the boss. As to the cover story, the experimenter (the boss) had previously selected half of the activities he or she wanted them to do. All items were presented sequentially on the screen in a new random order. The 24 external assignments were indicated by an asterisk next to the activities, at their left side. To equate salience of external assignment and self-selection, participants were asked to read aloud each item and press a key corresponding to the assignment status ("assigned by the boss" vs. "not assigned by the boss").

The combination of self-selection and external assignment resulted in four categories as the actual source of items: (a) both, that is, self-selected by participants and assigned by experimenter; (b) self, that is, only self-selected by participants; (c) other, that is, only assigned by experimenter; and (d) remaining, that is, neither self-selected nor assigned. Through presentation of homogeneous item lists for self-selection and built-in algorithms for external assignment, PANTER completely balanced the three factors of self-selection, external assignment, and item attractiveness within participants. Thus, there were six subjectively high attractive and six subjectively low attractive activities in each of the above-listed four categories.

As a filler activity to weaken memory of the self- and other-selections, participants filled out a questionnaire for about 15 min and were asked to rate their momentary mood again. Then, they were introduced to unexpected memory tasks regarding the source of the activities. In a "self-classification task," participants were asked to decide whether they had previously self-selected the activities for later enactment. In a separate "other-classification task," they were asked whether they had been assigned to do the activities by the experimenter. For each task, PANTER sequentially presented the 48 items in a new random order. The order of presentation of the classification tasks was balanced across participants. Before the supposed enactment of office activities, participants were asked to read and evaluate a text about Yoga. The alleged reason was to design material that would promote healthy spare time activities among office employees and to assess efficiency in text reading during office hours. Participants were asked to signal any lack of concentration or any interfering thought during the text reading activity by pressing the space bar (online measure of rumination). Subsequently, they were presented a list of all 48 office activities and were asked to mark those—if any—that had come to their mind during text reading (retrospective measure of rumination about uncompleted office activities). Finally, participants were paid and debriefed. The experimental session lasted about 90 min.

OVERVIEW OF DATA ANALYSIS

Data can be described using the 4×2 matrix shown in Table 1. The rows stand for the objective source of the activity (self- and other-selected = both, self-selected, other-selected, or remaining), whereas the columns stand for participants' subjective classification (self-selected or other-selected). Within the 4×2 matrix, the first two cells of the first column and the first and third cells of the second column represent correct classifications of item source, whereas all other cells stand for different types of classification errors. Rates of false self-ascription (FSA) and false other-ascription (FOA) were calculated as percentages of the total number of activities per cell. For example, a 33.3% FSA rate of low attractive assignments indicated that two out of six activities in that category were misperceived as self-selected.

Results

DESCRIPTIVES

State orientation scores covered the full scale range. Applying the norms of the preoccupation dimension

TABLE 1:   Source Classification Tasks Using the PANTER Program

Actual Source	Reported Source	
	Self-Selected	*Other-Selected*
Both	Correct	Correct
Self-selected	Correct	FOA
Other-selected	FSA	Correct
Remaining	FSA	FOA

NOTE: The rows represent actual item source, whereas the columns represent subjective classifications made by participants. FSA = false self-ascription, FOA = false other-ascription, PANTER = Process-Analytic Neuroticism Test for Adults.

(Kuhl, 1994a), half of the participants were classified as more state oriented because their score was below the median of the norms (i.e., lower than 5, indicating a stronger disposition to preoccupy, $M = 2.3$, $SD = 1.2$) and the other half as more action-oriented because their score was above the median of the norms (i.e., a score of 5 or higher, $M = 7.3$, $SD = 1.9$). Sadness scores covered the lower half of the scale range (from 0 to 3.25). Applying a median split, 33 participants were classified as low in subjective sadness ($M = .3$, $SD = .3$) and 30 participants were classified as high in subjective sadness ($M = 1.7$, $SD = .7$). State- and action-oriented participants were about equally represented in both groups. There was no significant correlation between state orientation and sadness ($r = .09$, $p > .50$).

FALSE SELF-ASCRIPTIONS

An exploratory data analysis using the Levene test showed a significant departure of homogeneity of variance of FSA rates across groups. This lack of homogeneity could be removed by using the following transformation recommended by Winer (1971, pp. 399-400): $FSA' = 2 \arcsin (FSA/100)^{1/2}$. The transformed FSA rates were analyzed using a Personality (state vs. action orientation) × Subjective Sadness (low vs. high) × Item Attractiveness (low vs. high) × Source (assigned vs. remaining) mixed analysis of variance (ANOVA), with the last two as within-participant factors. Results yielded a highly significant main effect for item attractiveness, $F(1, 59) = 65.56$, $p < .001$. High attractive activities were misperceived more often as self-selected than low attractive activities (high attractive: 36.3% vs. low attractive: 14.9%).[4] More important, the Personality × Subjective Sadness × Item Attractiveness × Source interaction was significant, $F(1, 59) = 4.25$, $p < .05$. No other results were significant.

Because our central hypothesis concerned low attractive activities and no predictions were made for high attractive activities, separate Personality × Subjective Sadness × Source analyses were carried out for FSA rates of low and high attractive items to further explore the nature of the higher order interaction. The predicted

Personality × Subjective Sadness × Source interaction was significant for low attractive items, $F(1, 59) = 9.09$, $p < .005$. As shown in Table 2, state-oriented participants reporting high sadness had significantly higher FSA rates of externally assigned compared to remaining low attractive activities, $t(12) = 2.31$, $p < .05$, whereas state-oriented participants reporting low sadness had even slightly lower FSA rates of externally assigned compared to remaining low attractive activities, $t(17) = -1.97$, $p < .07$. Action-oriented participants showed no significant differences between FSA rates of externally assigned and remaining low attractive activities ($p > .18$). Analysis of high attractive items yielded no significant effects. The experimenter's assignment did not significantly increase the tendency to misperceive high attractive activities as self-selected compared to the baseline of remaining activities, irrespective of personality and level of sadness (see Table 2).[5]

FALSE OTHER-ASCRIPTIONS

One might argue that state-oriented participants did not have a specific tendency toward false self-ascription of originally assigned activities but a more global memory deficit concerning self and other. In this case, they should show a tendency toward false other-ascription of originally self-selected activities (i.e., externalization). To test this alternative hypothesis, transformed FOA rates were analyzed using a Personality (state vs. action orientation) × Subjective Sadness (low vs. high) × Item Attractiveness (low vs. high) × Source (self-selected vs. remaining) mixed ANOVA, with the last two as within-participant factors. Results yielded a significant main effect for source, $F(1, 59) = 5.78$, $p < .02$. Self-selected activities were misperceived more often as assigned than remaining activities (self-selected: 44.6% vs. remaining: 35.4%). No other results were significant. Separate Personality × Subjective Sadness × Source analyses were carried out for FOA rates of low and high attractive items. There were no significant interactions including personality ($p > .17$). Results did not indicate a general memory deficit for state-oriented participants in a sad mood.

RUMINATION

There was a significant correlation between action orientation and the on-line measure of rumination ($r = -.31$, $p < .02$): The higher the state orientation score (i.e., the lower the action orientation score) the more often participants pressed the space bar during a text reading phase. More important, retrospective ratings indicated that participants actually ruminated about the office activities during text reading. They marked about 5% of the list of 48 activities as being involved in ruminative thoughts during text reading. To test whether rumination about office activities was stronger for state-oriented participants and more likely about possible introjects,

TABLE 2: **False Self-Ascription (FSA) Rates (%) as a Function of State and Action Orientation, Subjective Sadness, Item Attractiveness, and Source in Experiment 1**

	Low Sadness Group				High Sadness Group			
	Low Attractive		High Attractive		Low Attractive		High Attractive	
	Other	Remaining	Other	Remaining	Other	Remaining	Other	Remaining
State-oriented								
M	8.4	16.7	43.4	45.3	19.2[a]	9.0[a]	30.8	38.5
SD	14.3	20.5	32.9	24.8	22.4	20.0	25.4	30.0
Action-oriented								
M	21.2	15.7	35.5	23.3	11.9	17.7	38.2	32.4
SD	29.9	29.2	31.3	12.1	11.4	20.0	22.6	20.8

NOTE: Self-infiltration is indicated by significantly higher false self-ascription rates of low attractive items originally assigned by the experimenter (other) compared to remaining.
a. $p < .05$ (two-tailed) between cells sharing the same superscript.

retrospective ratings of low attractive activities were analyzed using a Personality (state vs. action orientation) × Subjective Sadness (low vs. high) × Source (other vs. remaining) ANOVA, with the last one as a within-participant factor. There was a significant Personality × Source interaction, $F(1, 59) = 5.58$, $p < .025$. State-oriented participants thought more often about assigned than remaining low attractive activities during text reading (other: 8.1% vs. remaining: 1.1%), whereas action-oriented participants rarely thought about low attractive activities at all (other: 1.6% vs. remaining: 2.6%).

Discussion

Study 1 examined the effects of naturally occurring moods on self-infiltration of social expectations (e.g., performing menial tasks). Consistent with our hypothesis, state-oriented participants who described themselves as sad misperceived more assigned than remaining low attractive activities as self-selected. State-oriented participants who were not sad seldom confused others' expectations with their own goals (cf. Table 2). In contrast, action-oriented participants were less influenced by different mood states. Even when negative affect was present, they did not misperceive assigned goals more often as self-selected than remaining goals. Presumably, negative affect triggered a compensatory activation of the self-system in action-oriented participants.

Overall, there was a stronger tendency toward false self-ascription of high attractive compared to low attractive activities. This tendency indicates a "healthy" bias toward identification with positive goals and is consistent with organismic theories of personal growth (Ryan, 1995). Such a positive bias is not surprising when studying normal, well-adapted university students as in the present study. In a similar vein, Sheldon et al. (2001) found higher rates of false self-ascription for intrinsic compared to extrinsic goals. Whereas intrinsic values are

proposed to directly satisfy important psychological needs and are positively related to indices of well-being, extrinsic goals have been related to less well-being (e.g., Kasser & Ryan, 1996). However, in the present study, a specific false-self-ascription effect was found for external suggestions and low attractive activities in the state-oriented group only. This effect, which occurred over and above the global self-ascription effect for high attractive activities, indicates a tendency toward introjection or self-infiltration that can be distinguished from identification (Deci et al., 1994). Low attractive goals lack the emotional support needed for an integration into the self-system when no rationale or meaning other than an external assignment is provided. In "self-expansion" research (Aron, Aron, Tudor, & Nelson, 1991), self-other confusions are discussed as individual efforts to expand the self by including aspects of the other in the self. However, this process occurs in the context of a positive relationship, love and the experience of closeness (i.e., identification), whereas the specific self-other confusions observed in the present study occurred with a stranger, playing the role of an authority figure, and were restricted to low attractive activities (i.e., introjection).

The online measure of rumination supported the face and content validity of the preoccupation scale of the ACS, which uses self-reports of uncontrollable ruminations to infer impaired ability to terminate negative affect. State-oriented participants reacted with more distracted behavior during a text reading phase. More important, retrospective ratings indicated that rumination was in part due to thoughts about the uncompleted activities. Although rumination about office activities was rare, it was not random. State-oriented participants were preoccupied exactly with the type of goals they tended to introject: social expectations of low intrinsic value. This finding further validates FSA rates as a measure of conflict-laden introjection and discounts a possi-

ble alternative interpretation of FSA rates as indicating conflict-free identification. Intrusive thoughts can be described as an automatic attentional orienting toward conflict-arousing or incongruent information (Kuhl & Beckmann, 1994a). The conflict between conscious beliefs of self-compatibility and (unconscious) negative affect associated with objectively self-alien goals can elicit such an automatic attentional orienting, which may be subjectively experienced as intrusive rumination.

Another possible alternative interpretation of state-oriented participants' increased FSA rates as a specific tendency toward self-infiltration is that it indicates a more global memory deficit concerning information about self and other or distinguishing "reality" from "fantasy" (Johnson & Raye, 1981). If state-oriented participants in a sad mood would have a more general deficit they should not only have a tendency to internalize assignments but also a tendency to externalize self-selections. This alternative interpretation was discounted by results for the other-classification task: State-oriented participants did not show higher rates of false other-ascriptions (FOA) of self-selected compared to remaining activities.

In line with theories of mood and memory, one might try to explain higher FSA rates of low attractive activities in a sad mood as a mood-congruency effect (Bower, 1981). According to Bower's associative network theory, the emotion during recall activates an emotion unit in memory that spreads activation selectively to events associated with it. Therefore, mood-congruent concepts are preactivated and more easily accessible during retrieval. A supposedly higher accessibility of low attractive activities in a sad mood could lead participants to classify them more often as self-selected. Provided that action-oriented participants tend to reduce negative affect, one could even explain the differential effects for state-oriented and action-oriented participants. However, this alternative explanation does not account for the differences between assigned and remaining activities. State-oriented participants did not show generally higher FSA rates of low attractive activities in a sad mood but specifically higher FSA rates of assigned low attractive activities. Thus, false self-ascriptions cannot be reduced to a pure retrieval phenomenon such as a mood-congruency effect. The self-classification task does not only ask participants to recall previously learned material but requires "online computation" of self-representations and renewed self-compatibility checking (Kazén, Baumann, & Kuhl, in press).

To summarize, results of Study 1 were consistent with our central hypothesis that state-oriented individuals have a tendency toward self-infiltration when in a sad mood. However, there remain open questions. So far, this research has demonstrated that self-infiltration does

occur when participants experience a sad mood. One could argue, though, that a person who often pursues self-alien goals becomes sad after a while. Accordingly, sadness would not be the cause of false self-ascription but its effect. The findings are correlational so far. If false self-ascription is actually caused by a sad mood, self-infiltration should occur after the experimental induction of a sad mood.

STUDY 2

The aim of Study 2 was to investigate the effects of experimentally induced mood states on the tendency toward self-infiltration. To induce different mood states, participants were exposed to a sad or happy film sequence. The effectiveness of the selected film sequences was investigated in a pretest. Because induced mood states tend to quickly vanish over time, the mood manipulation was carried out directly before the assessment of the dependent variable (i.e., the classification tasks).

Method

PARTICIPANTS

Thirty-two participants (19 women, 13 men) were recruited through flyers at the University of Osnabrück. They participated voluntarily in the study and received detailed feedback on their personality measures in exchange for their participation. The mean age of the sample was 29 years (range = 20-40 years).

MATERIALS

A mood adjective checklist with four positive (happy, joyful, sociable, interested) and four negative (sad, depressed, anxious, sorrowful) items was administered. The 10-point scale ranged from 0 (*not at all*) to 9 (*very strongly*). The ACS-90 and the PANTER were used. Two 14-min film sequences were presented as a mood induction: A report about the terrible living conditions of orphan children in a Romanian orphanage was presented to induce a sad mood (Aust, 1995) and three sketches from the English comedian "Mr. Bean" (Driscoll, Curtis, Atkinson, & Davies, 1993) were presented to induce a happy mood.

PROCEDURE

Manipulation pretest. To test the effectiveness of the selected films as a mood induction method, 52 participants (27 women, 25 men) were recruited through flyers at the University of Osnabrück. The mean age of the sample was 24 years (range = 15-57 years). Participants were randomly assigned to watch one of the two films for 14 min. Mood ratings were assessed prior to and immediately following film presentation.

Main study. Participants were tested individually. First, they filled out the ACS-90. The cover story of PANTER dealt with the development of an "Intelligence Test in Everyday Life." A variety of everyday situations were to be simulated by small activities. Participants were asked to rate the attractiveness of 96 activities. Example activities were "solving crossword-puzzles," "paint a self-portrait," "counting letters," and "disentangle paper-clips." Brief descriptions and necessary materials were provided for each activity. The experimenter typed in participants' ratings. In contrast to Study 1, the PANTER procedure of self-selection and external assignment was continued with 48 low attractive items only. This was done to double the number of low attractive items in the critical cells of the matrix shown in Table 1 (other vs. remaining). The selection procedures resulted in 12 subjectively low attractive activities in the categories both, self, other, and remaining.

As a mood induction and filler activity before the memory tasks, a sad or happy film was presented for 14 min. Participants were asked to simply watch the film and get into it. Later on, they would have the opportunity to comment on it. Participants were randomly assigned to one of two mood-induction conditions. Next, participants carried out the unexpected memory tasks regarding the source of the activities.

As in Study 1, there was a text reading phase before the supposed enactment of activities. Finally, participants were debriefed and given detailed feedback on their scores on the personality measure. The experimental session lasted about 90 min.

Results

MANIPULATION CHECK

Mean pretest-ratings on the "sad" and "happy" scales prior to and immediately following film presentation were analyzed using an Experimental Condition × Time ANOVA, with repeated measures on the last factor. The analysis of the sad scale revealed a highly significant Experimental Condition × Time interaction, $F(1, 50) = 37.39$, $p < .001$. Participants watching the Orphanage Report became sadder (mean scores before: 1.9 vs. after: 5.7), whereas participants watching the comedian Mr. Bean became less sad (mean scores before: 1.3 vs. after: 0.3). The analysis of the happy scale revealed a highly significant interaction as well, $F(1, 50) = 31.22$, $p < .001$. Participants watching Mr. Bean became happier (mean scores before: 1.7 vs. after: 6.1), whereas participants watching the Orphanage Report did not change in happiness (mean scores before: 1.7 vs. after: 1.4). In addition, a discriminant analysis was calculated using mood ratings after film presentation as predictors of mood induction condition. The percentage of correctly classi-

fied cases was 94.2%. Results indicate that the selected films were able to induce the predicted moods.

FALSE SELF-ASCRIPTIONS

Transformed FSA rates were analyzed using a Personality (state vs. action orientation) × Mood Induction (happy vs. sad) × Source (assigned vs. remaining) mixed ANOVA, with the last one as a within-participant factor. Consistent with our hypotheses, the Personality × Mood Induction × Source interaction was significant, $F(1, 28) = 4.72$, $p < .04$. As can be seen in Table 3, state-oriented participants in a sad mood induction condition had significantly higher FSA rates of low attractive activities assigned by the experimenter compared to remaining, $t(7) = 3.55$, $p < .01$. In contrast, state-oriented participants in a happy mood induction condition had even lower FSA rates of assigned compared to remaining activities. A dependent t test was not significant, $p > .38$. Action-oriented participants were less influenced by mood induction conditions. Neither a sad nor a happy mood induction increased their FSA rates of assigned low attractive activities. The pattern replicated the findings in Study 1.[6]

FALSE OTHER-ASCRIPTIONS

To examine whether FSA rates of state-oriented participants in a sad mood can be attributed to a more global memory deficit, transformed FOA rates were analyzed using a Personality (state vs. action orientation) × Mood Induction (happy vs. sad) × Source (self-selected vs. remaining) mixed ANOVA, with the last one as within-participant factor. As in Study 1, there were no significant results. The absence of a Personality × Mood Induction × Source interaction does not support the idea of a global memory deficit in sad state-oriented participants.

RUMINATION

Retrospective ratings indicated that participants thought about 5% of the low attractive activities during text reading. To test whether they ruminated more often about possible introjects than about neutral items, retrospective ratings of low attractive activities were analyzed using a Personality (state vs. action orientation) × Mood Induction (happy vs. sad) × Source (other vs. remaining) ANOVA, with the last one as within-participant factor. There was a significant Personality × Mood Induction × Source interaction, $F(1, 28) = 5.74$, $p < .025$. State-oriented participants ruminated more often about low attractive assignments compared to low attractive remaining activities after a sad mood induction (other: 10.4% vs. remaining: 7.3%), whereas they did not ruminate about low attractive assignments after a happy mood induction (other: 0% vs. remaining: 1.0%). In contrast, action-oriented participants ruminated even

TABLE 3: False Self-Ascription Rates (%) of Low Attractive Activities as a Function of State and Action Orientation, Mood Induction, and Source in Experiment 2

	Happy Induction		Sad Induction	
	Other	Remaining	Other	Remaining
State-oriented				
M	22.9	30.2	28.1[a]	14.6[a]
SD	10.7	17.8	13.3	10.7
Action-oriented				
M	21.9	22.9	13.5	18.8
SD	13.3	18.8	6.2	11.6

NOTE: Self-infiltration is indicated by significantly higher false self-ascription rates of items originally assigned by the experimenter (other) compared to remaining.
a. $p < .05$ (two-tailed) between cells sharing the same superscript.

less about low attractive assignments compared to baseline activities after a sad mood induction (other: 1.0% vs. remaining: 3.2%), whereas they ruminated slightly more about low attractive assignments compared to baseline activities after a happy mood induction (other: 6.3% vs. remaining: 4.2%). Findings were consistent with Study 1.

Discussion

The purpose of the present study was to investigate the causal role of a sad mood in the tendency toward self-infiltration. Pretest results clearly demonstrated that the selected films were able to elicit the expected changes in mood. Consistent with hypotheses, state-oriented participants had significantly higher FSA rates of assigned compared to remaining low attractive activities after the induction of a sad mood. The finding supports the assumption of PSI theory that a sad mood plays a causal role in the tendency toward self-infiltration because negative affect reduces self-access and renders a valid self-compatibility checking of assigned goals with implicit representations of own needs, wishes, and goals more difficult. In contrast to state-oriented participants' self-infiltration effect, action-oriented participants had low FSA rates of assigned activities after the induction of either mood state. Results are compatible with the assumption of a compensatory activation of the self-system for action-oriented participants as a coping reaction to negative affect (Kazén et al., in press). Evidence for this downregulation of negative affect also has been found in event-related potentials in the EEG. Action-oriented individuals show "extra processing" in form of a P600 component after exposure to personally negative words that is not found in state-oriented individuals (Haschke & Kuhl, 1993; Rosahl, Tennigkeit, Kuhl, & Haschke, 1993).

As in Study 1, the self-infiltration effect could not be accounted for by alternative theories. First, an interpretation of FSA rates as identification could be ruled out because the effect occurred for low attractive activities that cannot easily be integrated into the self and not for highly attractive activities that are more amenable to self-integration. The finding that state-oriented participants ruminate exactly about activities they tend to falsely self-ascribe further points to a conflict associated with introjection instead of identification. Second, the self-infiltration effect does not indicate a global memory deficit in state-oriented participants after a sad mood induction because increased FSA rates of assigned activities did not go along with increased FOA rates of self-selected activities. Third, the self-infiltration effect cannot be explained as a simple mood-congruency effect during retrieval because state-oriented participants specifically classified assigned (instead of all) low attractive activities as self-selected when in a sad mood.

GENERAL DISCUSSION

To further explore the nature of self-infiltration, it would be interesting to study the false self-ascription effect in the domain of personal goals (Sheldon & Elliot, 1998). Fuhrmann and Kuhl (1998) took a first step in that direction by applying the self-other selection procedure to personal goals concerning a healthy diet (e.g., "eating more broccoli" or "eating less french fries"). Consistent with present findings, state-oriented participants had a lower self-other discrimination and were more compliant to experts' recommendations than to own goal choices. In addition, they were highly efficient in the implementation of recommended dietary goals due to "self-punishing" strategies. Despite this short-term success in controlling their dietary behavior, self-punishing strategies are expected to induce negative mood and to further reduce self-access and the integration of self-compatible goals in the long run (Kuhl & Beckmann, 1994a).

Self-infiltration of goals, values, and norms not compatible with implicit needs may be one of the mechanisms establishing the low correlation between implicit and explicit motive measures (McClelland, Koestner, & Weinberger, 1989). There is evidence that one of the determinants of self-infiltration presented in this article (i.e., state orientation) is involved in building commitment to motive-incongruent goals: Whereas action-oriented participants are more strongly committed to goals that fit their implicit motives, state-oriented participants are as strongly committed to goals that are incongruent to their motive dispositions (Brunstein, 2001). Commitment to goals that do not satisfy one's needs is associated with reduced emotional well-being (Brunstein, Lautenschlager, Nawroth, Pöhlmann, & Schultheiß, 1995) and might be established through the process of self-infiltration.

NOTES

1. The positive affect modulation assumption describes the facilitating influence of positive affect on the connectivity between intention memory and its output system (see Kuhl & Kazén, 1999). Conscious reflections about the self (e.g., explicit self-concepts) are supported by intention memory.

2. From the original 64 participants of this experiment, one was excluded from the analyses because the overall classification rate (considering all classification tasks) was at chance level.

3. The label of the PANTER (Process-Analytic Neuroticism Test for Adults) program is based on the idea that self-infiltration is a central factor associated with neuroticism (Perls, 1973). The German word for adults is *Erwachsene*. Readers interested in carrying out research using nonreactive measures of self-infiltration can request a copy of the English version of the PANTER program by writing directly to the authors.

4. For better clarity, results are reported in percentages.

5. Because dichotomization of "continuous" variables has been criticized (e.g. Cohen, 1983), hierarchical regression analyses were carried out, with false self-ascription (FSA) rates of originally assigned activities as the dependent variable, FSA rates of remaining activities entered as Block 1, Personality and Subjective Sadness entered as Block 2, and their interaction term entered as Block 3. These additional analyses yielded the same pattern of results. For low attractive activities, there was a significant Personality × Subjective Sadness interaction, $\Delta F(1, 58) = 6.85$, $\Delta R = .06$, $p < .02$. For high attractive activities, there was no significant interaction.

6. A hierarchical regression analyses of FSA rates of assigned low attractive activities on Personality (using "continuous" action orientation scores) and Mood Induction ("dummy coded"), as well as the interaction term of these first-order predictors, controlling for FSA rates of remaining low attractive activities, yielded a significant Personality × Mood Induction interaction, $\Delta F(1, 27) = 6.21$, $\Delta R = .16$, $p < .02$.

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