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The Motivational Paradox of Chasing the Wrong Goals: Conceptual Replications of the Self-Infiltration Effect

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Life's a marathon, not a sprint.

(Dr. Phil McGraw)

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<u>To my family:</u>

Anna Jais

Eva Sophia Jais

Lea Emilia Jais

Acknowledgments

No duty is more urgent than that of returning thanks.

(James Allen)

Thinking back to all these years of hard work makes me proud yet humble. Why? Because I have had the good fortune to have met a great number of simply amazing people who inspired, supported, and pushed me throughout the process. Could I have done it without every single one of them? As I may be suffering a bit from an imposter syndrome, I genuinely believe that the answer is no. But work is also way more fun with someone at your side.

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a) General abbreviations

Accuracy$_{assigned}$	=	Rate of assigned activities correctly recalled as assigned
Accuracy$_{self\text{-}selected}$	=	Rate of self-selected activities correctly recalled as self-selected
AOD	=	Decision-related action orientation
AOT	=	Threat-related action orientation
cf.	=	Confer
e.g.	=	Exempli gratia
et al.	=	Et alii
FOA$_{remaining}$	=	Rate of false other-ascription of remaining activities
FOA$_{self\text{-}selected}$	=	Rate of false other-ascription of self-selected activities
FSA$_{assigned}$	=	Rate of false self-ascription of assigned activities
FSA$_{remaining}$	=	Rate of false self-ascription of remaining activities
i.e.	=	Id est
IBC	=	Intuitive Behavior Control
IM	=	Intention Memory
OIT	=	Organismic Integration Theory
OR	=	Object Recognition
PSI theory	=	Personality Systems Interactions Theory
SDT	=	Self-Determination Theory
vs.	=	Versus

b) Measurement methods

ACS	=	Action Control Scale
IPANAT	=	Implicit Positive and Negative Affect Test
SAF	=	Self-Access Form

Abstract

The present dissertation deals with the motivational paradox of chasing the wrong goals. One possible approach for unraveling this motivational paradox is offered by research on self-infiltration. Sometimes, individuals mistake other people's expectations for desirable, self-chosen goals, even when such expectations are incompatible with one's own personal preferences, needs, and values that are stored in the integrative self. This unaware form of introjection—a conflicting, self-alien form of goal internalization—has been coined self-infiltration. Motivated by the significance of the phenomenon for motivation, psychological functioning, health, and well-being and convinced of the existing empirical support, the present dissertation can be considered another step toward confirming and strengthening self-infiltration's scientific value.

Accordingly, my goals in conducting the present studies were to (a) conceptually replicate the main findings on self-infiltration using comparably large sample sizes in order to rule out possible validity and reliability issues, such as random effects in light of the ongoing replication crisis in psychological research, (b) apply novel controlled variations of the original self-infiltration paradigm in order to test the boundary conditions and robustness of the self-infiltration phenomenon across varying experimental situations, and (c) examine novel variables that are relevant in the context of self-infiltration in order to better understand the complex and dynamic process underlying its emergence.

In a first experimental study ($N = 247$), I intended to conceptually replicate the frequently found positive relationship between state orientation and self-infiltration using a sample size that was considerably larger than used in most previous research. In line with the idea behind conceptual replications, several adaptations to the original self-infiltration paradigm were made with the intentions to (a) facilitate the examination of multiple participants simultaneously, (b)

improve the paradigm's effectiveness in increasing participants' proneness to self-infiltration, and (c) test self-infiltration's boundary conditions. Among others, Cyberball-induced ostracism was applied as a novel way to induce negative affect. This approach was supposed to be particularly effective due to the inherent social nature of self-infiltration. In addition, I tested the mediating role of low levels of trait self-access in the relationship between high state orientation and increased self-infiltration, as this mediation effect has been theoretically assumed before but not yet directly or empirically demonstrated. Even though the effects turned out to be small in comparison with previous research on self-infiltration, all hypotheses were supported.

In a second experimental study ($N = 179$), I intended to conceptually replicate the first study while further adapting the experimental paradigm, especially concerning the limitations that may have contributed to smaller effects. Among other changes, a neutral control condition for Cyberball was added to test the effect of Cyberball-induced negative affect on self-infiltration directly. Accordingly, I hypothesized that participants in the negative affect condition would disclose higher rates of self-infiltration than participants in the control condition. Furthermore, I expected state orientation to moderate the relationship between the experimental manipulation and self-infiltration. Congruent with the first study, I also tested for the mediating role of self-access in the relationship between state orientation and self-infiltration. The conceptual replication attempt failed. That is, in contrast to the first study, no hypotheses were supported.

In a third experimental study ($N = 322$), I made another attempt to conceptually replicate the first study while (a) incorporating further adaptations into the experimental paradigm of the second study and (b) aiming to obtain a sample size that was comparable to the first study. Among other changes, an alternative film-sequence-based negative affect manipulation was employed that has been shown to be effective in self-infiltration research before. The hypotheses were congruent

with the second study. Again, the conceptual replication attempt failed to the extent that no hypotheses were supported.

Consequently, the present dissertation failed to conceptually replicate previous research on self-infiltration. Even though the hypotheses in the first study were supported, the effects turned out to be comparably small, and therefore, they should be evaluated with caution. In the general discussion, I took into account three potential causes of (conceptual) replication failure: theoretical maturity, features of the original studies, and features of the replication studies. I concluded that the unsuccessful replication attempts in the present dissertation may have resulted from of an interplay of all three areas. However, and congruent with the idea behind conceptual replications, the present dissertation should not be considered a failure but as another step toward developing a better understanding of the dynamic and complex process behind the important phenomenon of self-infiltration. The devil is in the details.

1 Introduction

Imagine Anna, who likes to spend her free time after school engaging in her passion for acting. She intends to turn her passion into a career. However, her parents are both attorneys at law who believe that their profession is more suitable for finding a "solid job." After finishing high school, Anna decides to study law, truly believing that this is what she really wants to do. Although Anna knows how important good grades are, she experiences little joy in studying law subjects. Suffering from a lack of motivation and forcing herself to engage in college-related activities, such as preparing for exams, she becomes increasingly frustrated. Ultimately, she begins to ruminate and question her choice of career. Is it possible that Anna did not pay close attention to her emotions and personal preferences, allowing her "self" to become "infiltrated" by her parents' expectations?

Chasing the wrong goals can be seen as a motivational paradox: Why do individuals set and pursue goals that are accompanied by feelings of aversion, frustration, mental fatigue, compulsion, and alienation? Why do we strive for goals that are not personally enjoyable and do not even bring gratification after a long and effortful path to attainment? How do individuals know what they want, and why do they think they want something they clearly do not like? Why are we sometimes *strangers to ourselves* (Wilson, 2004)? These crucial questions about accurate self-knowledge, self-fulfillment, and striving for the "right things" are perennial in literature and film, but they have received relatively little attention in research. However, during the last 40 years, research on personal goals and idiographic goal striving has become a rich tradition in the area of motivation and personality psychology (e.g., Emmons, 1989; Kehr, 2004b; Klinger, 1977; Kuhl, 2000, 2001; Little, 1983; McAdams, 1996; McClelland, 1985; Ryan & Deci, 2000; Sheldon, 2004; Sheldon & Kasser, 1995). Consequently, there have been several answers to the question of why

individuals paradoxically want and pursue the "wrong things" (e.g., Grund et al., 2018; Sheldon, 2014). Some of these answers are still valid today, whereas others are not. Some of them are more specific, whereas others are more universal.

The present dissertation is aimed at contributing to one approach that is geared toward unraveling this motivational paradox: research on self-infiltration (Kuhl & Kazén, 1994). Social beings grow up in close interaction with others and hence have some tendency to align their goals with other people's expectations. Often, this social alignment is incongruent with an individual's true emotional preferences, motives, personal goals, or values that are stored in the integrated self (Baumann, Kazén, & Quirin, 2018; Kuhl et al., 2015; Ryan & Deci, 2000, 2017). Due to their self-incongruent status, these goals are typically called introjects (Ryan & Deci, 2000, 2017). Previous research has demonstrated that individuals might not be aware of the self-incongruent status of a goal as they misconceive others' expectations as self-chosen goals in memory and believe that such goals are aligned with their personal preferences. Such a nonconscious form of introjection has been coined self-infiltration (Kuhl & Kazén, 1994; for an overview, see Baumann, Kazén, & Quirin, 2018).

Research on self-infiltration goes back to 1994 when Kuhl and Kazén published their first self-infiltration experiments in the prestigious Journal of Personality and Social Psychology. Since then, more publications have followed (Baumann, Kuhl, & Kazén, 2005; Baumann & Kuhl, 2003; Kaufmann et al., 2020; Kazén et al., 2003; Quirin et al., 2009), confirming and strengthening the scientific value of self-infiltration research in various areas (e.g., Sheldon, 2014). Self-infiltration can be considered to be of fundamental interest to motivation, personality, and social psychologists, first, because it may constitute a central mechanism that underlies the motivational paradox that individuals set and strive to achieve unpleasant goals (e.g., Baumann, Kazén, Quirin,

& Koole, 2018; Grund et al., 2018; Kehr, 2004b; Ryan & Deci, 2000, 2017; Sheldon, 2014).

Second, a considerable body of research has suggested that, both directly and as a nonconscious form of introjection, self-infiltration has detrimental effects on motivation, psychological functioning, health, and well-being (e.g., Baumann, Kaschel, & Kuhl, 2005; Baumann & Kuhl, 2003; Kaufmann et al., 2020; Kazén et al., 2003; Kehr, 2004b, 2004a; Kuhl & Kazén, 1994; Ryan & Deci, 2000).

Motivated by the significance of the self-infiltration phenomenon and convinced of the promising findings from the past, the present dissertation can be considered another step forward in empirically replicating and extending this line of research to increase its scientific value even further. Accordingly, the goals of the present dissertation were threefold. First, I aimed to conceptually replicate (in contrast to direct replications; see Derksen & Morawski, 2022) the main findings on self-infiltration using comparably large sample sizes to rule out possible validity and reliability issues, such as random effects in light of the ongoing replication crisis in psychology (e.g., see Nosek et al., 2021, for a current overview of the replication crisis in psychology). Second, I aimed to apply novel controlled variations of the original self-infiltration paradigm to test the boundary conditions and robustness of the self-infiltration phenomenon across varying experimental situations. Third, I aimed to examine novel variables that are relevant in the context of self-infiltration in order to better understand the complex and dynamic process underlying its emergence.

Accordingly, the present dissertation contributes to research by confirming and extending existing theoretical and empirical knowledge about the functional mechanism behind the phenomenon of self-infiltration. In addition, by investing time and effort in replicating well-established and published effects, the dissertation can be seen as another step toward increasing

research integrity in psychological science, as this integrity has been damaged by the ongoing replication crisis.

Because self-infiltration is the central topic of this dissertation, Chapter 2 gives an overview of the theoretical concepts and studies that are relevant for deciphering the emergence and consequences of self-infiltration. First, I introduce personality systems interactions (PSI) theory (Kuhl, 2000, 2001) and the constructs that are necessary for understanding self-infiltration's roots. Second, I provide profound information on self-infiltration itself, including (a) an introduction to self-determination theory (SDT; Ryan & Deci, 2000, 2017), PSI theory's sibling theory, which is essential for understanding the motivational and health-related consequences of self-infiltration, (b) a theoretical review of self-infiltration's antecedents, consequences, and underlying causal mechanisms, and (c) an empirical review of related research to carve out what is known about self-infiltration. Chapter 3 gives a brief summary of the present dissertation, including information on (a) why research on self-infiltration is considered necessary and (b) the ongoing replication crisis in psychology, both of which are necessary for understanding the dissertation's research approach, course of action, and derived hypotheses. Chapters 4 to 6 comprise the three empirical studies that were conducted. For each empirical study, separate introduction and discussion sections are provided, in which hypotheses are derived and discussed. Chapter 7 reviews all empirical studies in a broader setting and ends with a brief conclusion for the present dissertation.

2 Theoretical Framework

2.1 Personality Systems Interactions (PSI) Theory

Research on self-infiltration has predominantly been guided by personality systems interactions (PSI) theory, which is rooted in German volition psychology (Kuhl, 2000, 2001; Kuhl & Kazén, 1994; for a recent overview, see Baumann, Kazén, Quirin, & Koole, 2018). PSI theory is a broad theory that integrates the psychology of motivation and volition into a broader cognitive science framework. Its basic assumption is that a number of (neuro)cognitive systems interact with each other and with motivational-affective processes differentially in individuals to produce human experience and enable efficient and self-congruent goal pursuit and behavior. PSI theory thus represents a comprehensive functional systems approach to motivation and dynamic (rather than static) personality functioning (Kuhl et al., 2021).

PSI theory distinguishes between four cognitive personality systems, namely, intuitive behavior control (IBC), intention memory (IM), object recognition (OR), and the integrative self (or briefly the "self"). These four systems can be classified (a) according to their processing level into lower level or elementary systems (IBC and OR) versus higher level or complex systems (the self and IM) and (b) according to their operating mode into explicit systems (IM and OR) versus implicit systems (the self and IBC; see Figure 1). Because higher level personality systems cannot make direct contact with the external world or be expressed in behavior, they must interact in a top-down manner with lower level personality systems to regulate an individual's actions. These dynamic interactions between lower and higher level systems are essential for adaptive personality functioning and are modulated by positive and negative affect. Therefore, PSI theory takes a systematic, third-person perspective on motivation and volition, postulating that well-functioning

interactions between the four systems that are regulated by affect contribute to physical and mental health. I briefly introduce the four macro systems in the following (see Kazén & Quirin, 2018, for more information).

IBC is a lower level, implicit personality system responsible for executing automatized behavioral routines and implementing intended behavior. It is energized by positive affect, which signals that conditions are favorable and an individual's needs are being met (Kazén & Kuhl, 2005; Kuhl & Kazén, 1999). In agreement with IM, IBC can translate an intention into action. However, when difficulties arise and positive affect drops, IM becomes activated.

IM is a higher level, explicit personality system involved in initiating and maintaining prospective goal-directed intentions whenever actions cannot be immediately carried out through learned behavioral routines within IBC (Goschke & Kuhl, 1993). Thus, the antagonistic activation of IM inhibits IBC and prevents premature, impulsive actions ("think before acting"; Kazén & Kuhl, 2005; Kuhl & Kazén, 1999). Instead, the activation of IM opens a time window for reflection, the planning of sequential actions, and a delay of gratification by closely collaborating with analytical thinking. IM is characterized by logical-sequential processing and benefits from strong associations of information in small networks. IM will remain active until an action plan has been developed and a favorable situation for enacting that plan appears. The release of the inhibitory impact of IM in order to implement intentions can be facilitated by restoring positive affect and, thus, reenergizing IBC.

OR is a lower level, explicit personality system specialized in detecting perceptual or conceptual information that is discrepant with an individual's expectations or needs, typically as a response to unexpected events. Consequently, OR reacts by concentrating attention on single salient objects or stimuli (e.g., novel or dangerous situations) and extracting these discrepant

details from the full context ("tunnel vision"). OR is energized by negative affect (especially emotional pain and fear; Bradley, 2009; Schomberg et al., 2016), which signals that the situation is potentially threating or incongruent with immediate expectations or needs. Once the threatening situation has been defused or left behind, negative affect drops, and this drop, in turn, facilitates the activation of the integrative self.

The integrative self is a higher level, implicit personality system of special importance. The self as part of the extension memory is defined as a large parallel processing network of integrated autobiographical information and implicit representations of needs, goals, values, preferences, and other self-relevant information (Kuhl, 2000; Kuhl et al., 2015; Quirin et al., 2019; Quirin & Kuhl, 2018; see Baumann, Kazén, & Quirin, 2018, for a recent overview of the self). The term *integrative* refers to the self's unique ability to strongly interconnect novel (or even conflicting) self-relevant experiences with existing mental self-representations. Rather than a mere passive storage of interconnected experiences, the integrative self can be considered an active operating system. Different from IM, the self processes information that is linked to emotions, which allows for numerous psychological functions (see Quirin et al., 2019, for an extensive overview). Among the most important functions are the motivation of action processes by generating positive affect (self-motivation) and the internalization of novel experiences by downregulating negative affect (self-relaxation). Both concepts will be discussed further in the upcoming chapters.

Figure 1

The Cognitive Systems Involved in Personality Systems Interactions (PSI) Theory and Their

Modulation by Affect
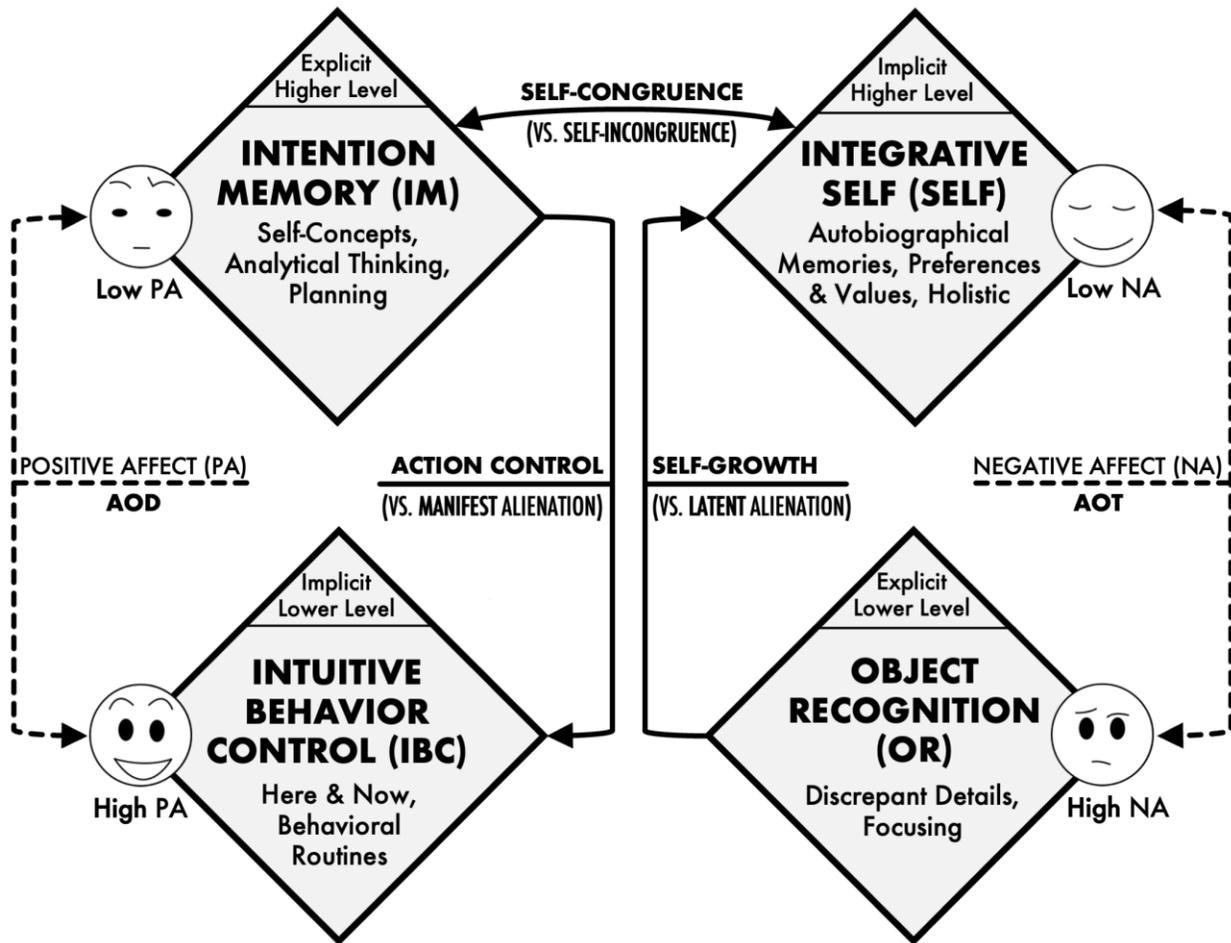
Note. This version was adapted from Kazén and Quirin's (2018) visual demonstration.

Bold arrows indicate antagonisms between cooperating systems. Dashed arrows indicate affective

changes from low to high positive/negative affect that foster action control/self-growth and reduce

manifest/latent alienation. Emotion icons represent the affective states connected to the activation

of a respective system. Demand-related action orientation (AOD) facilitates changes in positive

affect. Threat-related action orientation (AOT) facilitates changes in negative affect.

2.1.1 The Fully Functioning Person

PSI theory has its roots in the analysis of human motivation and personality and is aimed at identifying objective core competencies that enables an individual to operate as a meaningful, purposive agent endowed with personality—or, in different terms, to operate as a *fully functioning person*. Inspired by Rogers' (1961) personality theory, PSI theory explains from its perspective what it takes to become a fully functioning person (Kuhl et al., 2015). Accordingly, a mature and fully functioning person should be able to accomplish two main tasks, namely, action control and self-growth (see Quirin & Kuhl, 2022, for a recent publication).

The first task is action control, which means an individual can form concrete plans through reasoned deliberation and put these plans into action via a top-down interaction between IM and IBC (see Figure 1; Kuhl & Kazén, 1999). According to PSI theory's *first modulation assumption* (or action control assumption), this switch between the two antagonistic systems is modulated by positive affect. When positive affect is present (e.g., feelings of happiness or joy), an action will be controlled by automatic behavioral IBC routines, which facilitate intuitive, spontaneous, and creative behavior (Bledow et al., 2013; Bolte et al., 2003). When facing a difficult intention that IBC cannot directly execute, positive affect is inhibited (e.g., the individual experiences feelings of frustration) together with the activation of IM to store and maintain the uncompleted intention. The underlying idea is that dampened positive affect signals to an individual that existing, learned behavioral routines are insufficient in the current situation. The resulting inhibition of IBC prevents impulsive behavior by disconnecting thought from action, allowing an individual to engage in the analytical thinking necessary for resolving anticipated difficulties and forming a concrete and feasible action plan. Presumably, the exertion of executive control is experienced as effortful under these conditions. When an appropriate solution to the problematic intention is

found, positive affect is restored. In turn, the inhibited connection between IBC and IM is reconnected, thereby allowing the individual to translate an intention into action. Many well-controlled experiments have directly confirmed the first modulation assumption (e.g., Kazén & Kuhl, 2005; Kuhl & Kazén, 1999; see also Baumann & Scheffer, 2010).

The second main task for the fully functioning person to achieve is self-growth, which means that an individual is open to facing their errors and other aversive events, integrating these new experiences, and adopting coping strategies into existing networks of autobiographical knowledge, thus facilitating profound learning (see Figure 1; Koole & Kuhl, 2003). Self-growth requires the interaction between OR, which explicitly focuses on undesired or painful details, and the self, which has the capacity to interconnect these details and novel experiences with existing mental self-representations. According to PSI theory's *second modulation assumption* (or self-growth assumption), this switch between the two antagonistic systems is modulated by negative affect. When persistent negative affect is present (e.g., feelings of fear, anxiety, or sadness), the resulting activation of the discrepancy system OR blocks access to the self (Baumann & Kuhl, 2002; Kazén et al., 2003). The underlying idea is that perceived negative affect activates an individual's alert system, signaling that existing self-knowledge and prior experience are insufficient for defusing the current critical situation. The resulting inhibition of the self allows an individual to shift their attention to newly available information that is potentially discrepant with existing, learned knowledge, values, and beliefs. Consequently, the individual loses their holistic overview of the situation and focuses exclusively on isolated objects and details in the environment, such as potential threats ("tunnel vision"). Once the aversive situation has been resolved and new information is acquired, dropping negative affect deactivates OR and its blockage-inducing effect on the self, facilitating integration. A (re)activation of the self is a

precondition for integrating novel, unexpected, undesired, or painful experiences perceived by OR into the larger autobiographical network of the self. In this way, the self, with its extended network of integrated personal experiences, goals, values, and preferences, can become increasingly complex and differentiated, which constitutes a functional definition of self-growth (Kuhl et al., 2015; Linville, 1987; Rothermund & Meiniger, 2004; Showers & Kling, 1996).

Both action control and self-growth, which characterize a fully functioning person from the perspective of PSI theory, require dynamic changes in positive and negative affect to flexibly switch between the four personality systems. Hence, the ability to intentionally regulate these changes from one affective state to another is deemed vital for unlocking an individual's full potential (Kuhl & Koole, 2008).

2.1.2 Unlocking One's Full Potential: Self-Regulation of Affect

In general, PSI theory distinguishes between two main routes for the self-regulation of affect (or briefly self-regulation) that is necessary to modulate the four cognitive systems. The first route runs via external support, which is typically derived from the social environment (e.g., family, friends, or colleagues). From a developmental perspective, this route can be seen as primary, considering that children require the support and encouragement of their caregivers to engage in self-regulation and to facilitate learning (Feldam, 2007). However, external support in self-regulation is not limited to children but is also of great value for adults when they are, for instance, confronted with major life demands or stressful life events (Butler & Randall, 2013; Rimé, 2009).

The second route for the self-regulation of affect runs via developed and learned affect regulation skills and abilities (e.g., Fox & Calkins, 2003). According to PSI theory, flexible and efficient self-regulation abilities are built when individuals experience successful affect regulation

in an environment that is sensitive to an individual's needs and desires, which allows for the activation of the self. Only when the self is activated can an associative link between a successful affect regulation strategy and the self be formed to facilitate learning and the development of stable self-regulation abilities (Kuhl, 2000). However, not every individual has the good fortune of living in and interacting with a sensitive environment; and thus, differences in the ability to self-regulate affect will emerge. In PSI theory, these individual differences in self-regulation abilities are described by the personality disposition of *action* versus *state orientation* (Kuhl, 1994b, 1994a). In this context, self-regulation literally means affect regulated by activating and accessing the self and its wide network of integrated autobiographical information. PSI theory further subdivides action and state orientation into two dimensions (see Diefendorff et al., 2000, for a discussion of ACS dimensions). Whereas decision-related action orientation refers to the regulation of positive affect, threat-related action orientation refers to the regulation of negative affect. Accordingly, the abilities to self-regulate positive versus negative affect have different implications for personality functioning.

Decision-related action orientation (AOD; also known as demand-related action orientation) refers to the ability to self-regulate positive affect, which modulates the interaction between the two cognitive systems IM and IBC (see Figure 1). According to PSI theory, state-oriented individuals have difficulties upregulating dampened positive affect, especially in tedious or difficult situations (action control; see Figure 1). Because this upregulating is necessary to implement intentions, their hesitation at both the cognitive and behavioral level results in procrastination, that is, the prospective task is not carried out, even though all requirements to take advantage of the favorable situation are fulfilled (Beswick & Mann, 1994; Blunt & Pychyl, 1998). In order to restore positive affect, these individuals may need external support and encouragement

from their social environment, which, for instance, reminds them of the favorable outcomes that can be obtained by taking action. On the other hand, action-oriented individuals can self-generate positive affect by activating and accessing the self. The self as an extended network of self-relevant information can restore positive affect by, for instance, providing meaning to an action or disclosing action alternatives that finally remove the inhibitory effect of IM on IBC (see Figure 1). This central function of the self in upregulating positive affect in order to enact an intention is called self-motivation (e.g., Quirin et al., 2019).

Threat-related action orientation (AOT; also known as failure-related action orientation) refers to the ability to self-regulate negative affect, which modulates the interaction between the two cognitive systems of the self and OR (see Figure 1). Whereas state-oriented individuals struggle to downregulate negative affect when exposed to threatening or unexpected events, action-oriented individuals can downregulate an increase in negative affect by activating and accessing the self. State-oriented individuals are thus reliant on external support in downregulating negative affect in contrast to action-orientated individuals who profit from their access to the self and the extended overview of past life experiences to overcome negative affect. This overview of past experiences that they are able to generate allows them to search for possible, previously successful solutions to defuse the current threat and resolve the narrow view or "tunnel vision" on a problem by deactivating OR (e.g., see Koole & Jostmann, 2004; Quirin et al., 2011, for empirical evidence). This central function of the self in downregulating negative affect when confronted with a threat is called self-relaxation (e.g., Quirin et al., 2019).

PSI theory further differentiates between affect sensitivity and the self-regulation of affect (see Baumann et al., 2007, for a comprehensive overview). Whereas affect sensitivity refers to how quickly an individual enters a positive or negative affective state, the self-regulation of affect

refers to the extent to which an individual can leave a particular affective state once aroused. A strong ability to volitionally control perseveration and the downregulation of negative affect (i.e., AOT) does not imply that action-oriented individuals do not experience negative affect in the first place. By contrast, action-oriented individuals were found to be even more sensitive to negative affect than state-oriented individuals (Rosahl et al., 1993). Consequently, affect sensitivity (e.g., extraversion and neuroticism according to the Big Five taxonomy; Costa & McCrae, 1992) and self-regulatory abilities (e.g., action and state orientation according to PSI theory) are supposed to represent functionally different dimensions. Self-regulation abilities may even function as moderators of affect sensitivity, that is, self-regulation in terms of self-motivation and self-relaxation are especially important for an individual's psychological functioning and well-being when sensitivity to positive affect is low or sensitivity to negative affect is high. In line with these theoretical differentiations, Baumann et al. (2007) found that individuals with low sensitivity to positive affect reported reduced well-being only when the ability to self-generate positive affect (i.e., self-motivation) was low. The same pattern was found for negative affect. Individuals with a high sensitivity to negative affect reported reduced well-being only when the ability to downregulate negative affect (i.e., self-relaxation) was low. Furthermore, Thakur et al. (2022) showed that self-critical individuals, who are, by definition, characterized by high sensitivity to negative affect, were found to show fewer psychological symptoms when they also scored high on action orientation (vs. state orientation). Hence, a differentiation between an individual's first and second reactions to positive and negative affect is crucial because it offers a more complete picture of personality functioning.

2.1.3 The Central Role of the Self

The integrative self plays a central role in PSI theory (see Baumann, Kazén, & Quirin, 2018, for detailed information). According to its definition as part of an extended, parallel-distributed network system (i.e., extension memory) that integrates autobiographical information and implicit representations of personal needs, goals, preferences, and other self-relevant information (Kuhl, 2000; Kuhl et al., 2015), the self is considered to operate on a rather unconscious level that is largely inaccessible to introspection (Greenwald & Banaji, 1995). In line with this definition, the self is also called the *implicit self* (see also Devos & Banaji, 2003) in contrast to consciously available *self-concepts* (e.g., Wylie, 1974), which are based on sequential processes that are limited to a small number of semantic, verbalized units (Strack & Deutsch, 2004) and the activation of conceptual self-knowledge in working memory (stored in IM; see Figure 1), thus not representing the full spectrum of actual experience (Epstein, 1994; Koole & DeHart, 2007; Lieberman et al., 2004). Although individuals can consciously reflect on themselves and develop a conceptual understanding of the self (Markus & Nurius, 1986; Swann et al., 2007), actual *self-knowledge* (literally, knowledge about one's implicit self) is difficult to achieve. Consequently, one's self-concept needs to be considered separately from the self it refers to (Baumeister, 1998; James, 1890).

Although the integrative self operates on an implicit rather than an explicit level (see Figure 1), in PSI theory, the self is not conceptualized as a mere entity or "illusion" (Quirin et al., 2019). Because parts of the self can be extracted and transferred to explicit cognitive system (e.g., to IM for self-motivation), the self is supposed to be an active system that exerts influence on other cognitive systems and vice versa. A healthy interaction of the self with other cognitive systems allows for numerous psychological functions that are essential for personality functioning,

adaptive behavior, and well-being (e.g., self-growth, self-motivation, and self-relaxation as mentioned in previous chapters; see Quirin et al., 2019, 2021, for more psychological functions). However, individuals differ in the ability to access self-referential information, labeled *self-access* and defined "as the degree to which people are able to be aware of self-representations such as personal needs, life goals, values, emotions, and past experiences" (Quirin & Kuhl, 2018, p. 9).

According to PSI theory (Kuhl, 2000, 2001), the integrative self can be in a state of relative activation or inhibition. Activation of the integrative self enables the manifest expression of psychological functions, whereas inhibition disables them—mechanisms that strongly contribute to variability in behavior and experience (Kuhl et al., 2015; Quirin et al., 2021). PSI theory suggests that excessive and persistent negative affect inhibits access to the self. The relationship between self-access and negative affect can be described by a parabolic (i.e., inverted u-shaped) relationship (Quirin et al., 2019): Whereas low to moderate levels of negative affect are believed to activate the self in order to facilitate successful coping (see AOT), excessive levels of negative affect inhibit self-access (see also Bisby et al., 2018; Quirin, Koole, et al., 2009). For individuals with high self-regulation abilities (i.e., AOT), the inhibition threshold is supposed to be higher (Baumann & Kuhl, 2002, 2003; Kazén et al., 2003). Inhibition of the self (and simultaneous activation of OR) as a consequence of excessive negative affect signals to individuals that prior experience and self-knowledge are insufficient for coping with current, challenging conditions. By inhibiting the self, an individual can take in new information that is potentially at odds with what has been experienced before. Once this new information is acquired and the challenging situation is resolved, the self may become activated again to integrate this new information into the existing network, which, in turn, stimulates the further downregulation of negative affect. That is, PSI theory characterizes the relationship between self-access and negative affect as mutually

inhibitory: With increasing negative affect, the self becomes increasingly inhibited (e.g., Baumann & Kuhl, 2002, 2003; Kazén et al., 2003; Koole & Jostmann, 2004), whereas the activation of the self (e.g., after receiving external support) downregulates negative affect (e.g., Koole & Jostmann, 2004; Kuhl et al., 2015; Quirin et al., 2011; Showers & Kling, 1996).

Supported by various lines of research, access to the self constitutes a major, structural prerequisite for a fulfilling, satisfied, and self-determined life because self-access allows individuals to bring their actions in line with their true needs, goals, and attitudes (e.g., Baumann, Kaschel, & Kuhl, 2005; Grund et al., 2018; Kehr, 2004b; Ryan & Deci, 2000, 2017; Sheldon, 2014). The resulting level of so-called s*elf-congruence* (see Figure 1)*,* defined as the degree to which the self-concept (stored in IM) overlaps with implicit parts of the self, is associated with many health-related aspects (see Baumann, Kazén, & Quirin, 2018, for a comprehensive overview of positive and negative outcomes related to self-congruence in general), such as emotion regulation (Koole & Jostmann, 2004; Kuhl & Baumann, 2000), meaning (Schlegel et al., 2009), or well-being (Quirin & Kuhl, 2008). According to PSI theory, self-congruence is facilitated by another core function of the integrated self in cooperation with IM, namely, *self-decision*. In close interaction with IM, an activated self can facilitate self-congruent decision making (e.g., goal choices) by providing a holistic overview of advantageous behavioral options, including indicators of how an option is related to personal values, needs, competencies, and other self-aspects (Quirin et al., 2021). Therefore, individuals high in self-access profit from self-decision by either knowing or having an intuitive feeling about what is most important, real, or authentic to them, which, in turn, allows for self-congruent actions that are in line with implicit preferences stored in the self (Baumann & Kuhl, 2002; Kuhl, 2001; Quirin & Kuhl, 2018). On the contrary, reduced self-access is supposed to impair the ability to sense the degree to which an action is self-congruent. When

the communication between IM and the self is disrupted by low positive affect (overactivation of IM) or negative affect (inhibition of the self), individuals are less likely to form valid representations of implicit needs and preferences in terms of self-congruent goals and actions. Therefore, limited self-access increases the extent to which an individual is prone to *alienation* in terms of failure to act upon one's true needs, values, and preferences (Guevara, 1994; Kuhl & Beckmann, 1994a).

2.1.4 Manifest Versus Latent Alienation

PSI theory distinguishes between two forms of alienation, namely, manifest and latent alienation (Baumann, Kazén, & Quirin, 2018; Kazén & Quirin, 2018). Kuhl and Beckmann (1994a) used the term *manifest alienation* (see Figure 1) for directly observable cases of alienation, that is, observable failures to act upon one's personal needs, preferences, and values, even though such self-congruent behavior does not conflict with any deliberate intention. In operational terms, manifest alienation has been assessed by measuring observable free-choice behavior in experimental set-ups. Continuing with a task that a participant finds relatively unattractive (e.g., waiting for the experimenter to return) when the participant has the opportunity to engage in a personally more interesting activity is regarded as an instance of manifest alienation (Baumann & Kuhl, 2005). From a theoretical perspective, manifest alienation is linked with deficits in self-motivation (i.e., decision-related state orientation) because of the pivotal role that positive affect plays in action control (see Figure 1; Kuhl & Kazén, 1999). In line with this hypothesis, individuals with decision-related state orientation under conditions of either monotony (watching an outdated lottery drawing vs. an interesting travel report; Kuhl & Beckmann, 1994a) or external control (vs. autonomy; Baumann & Kuhl, 2005) have shown increased proneness to manifest alienation.

Action-oriented individuals, on the contrary, tended to show a higher tendency to act upon their preferences across conditions.

In comparison with manifest alienation, Kuhl and Beckmann (1994a) used the term *latent alienation* (see Figure 1) for preference-enactment failures in which the individual is (currently) not aware of their true preferences (i.e., impaired self-access). Latent alienation is therefore not directly observable and requires a valid approximation of one's "true" implicit preferences that are stored in the self. A solution to this measurement problem can be found when considering that the integrative self can be in a state of relative activation and inhibition; that is, access to implicit preferences varies as a function of conditions. Whereas excessive or persistent negative affect inhibits access to implicit preferences, relaxed circumstances foster self-access. In operational terms, one way of assessing latent alienation is to compare preference judgments under relaxed conditions as a proxy for true, implicit preferences with the judgments that are made after an experimental induction of negative affect. Inconsistencies in preference judgments before and after the experimental induction serve as indicators of latent alienation. In contrast to manifest alienation, latent alienation is linked to deficits in self-relaxation (i.e., threat-related action orientation) because the ability to downregulate negative affect plays a central role in restoring self-access. In line with these assumptions derived from PSI theory, individuals with threat-related state orientation under aversive conditions (Guevara, 1994) or conditions of low self-relevance (Kuhl & Beckmann, 1994a) have shown increased proneness to latent alienation in contrast to action-oriented individuals.

2.2 Self-Infiltration

The term latent alienation, defined as failures to enact preferences due to poor access to true, implicit preferences (or reduced self-access), has been around for more than 20 years.

However, most research in the realm of PSI theory has primarily focused on a specific form and operationalization of latent alienation, namely, self-infiltration (Kuhl & Kazén, 1994; see also Baumann, Kuhl, & Kazén, 2005; Baumann & Kuhl, 2003; Kaufmann et al., 2020; Kazén et al., 2003; Quirin et al., 2009). Self-infiltration can be defined as the outcome of a process that makes individuals mistake the expectations of others (e.g., parents, friends, supervisors, or media) for self-chosen goals. These individuals believe that these expectations are congruent with their own preferences and needs when they are actually alien to the self (Kuhl & Kazén, 1994). What follows is that, in the case of self-infiltration, an individual's self-concept (i.e., cognitive representations of the self stored in IM) becomes "invaded" by external expectations, goals, and intentions that are incongruent with the person's true preferences, which are stored in the integrative self. According to its definition, self-infiltration is characterized by a "cognitive confusion" (Kuhl & Kazén, 1994, p. 1103) about the assumed self-congruent but actually incongruent status of a putatively self-chosen goal. Due to this cognitive confusion, individuals experience a discrepancy between their expectations and beliefs about a self-infiltrated goal (e.g., joy, gratification, or happiness) and their true emotional response (e.g., unwanted intrusion and rumination). Self-infiltration can therefore be considered an insidious form of latent alienation, as this cognitive confusion obscures an individual's understanding of why they suffer from a lack of motivation or well-being, thereby rendering functional goal disengagement unlikely.

Returning to the introductory example, Anna's frustration and rumination about her putatively self-chosen goal of becoming an attorney at law is supposedly caused by precisely this cognitive confusion. While having high expectations and pleasant anticipations (e.g., affective forecasting; Wilson & Gilbert, 2003) about studying law, she does not realize the incongruence of this putatively self-chosen but, in fact, self-infiltrated goal, which is incompatible with her personal

preferences and needs. Hence, self-infiltration as an example of an invalid self-concept (i.e., incongruent with integrated aspects of the self) represents a conflict-laden type of internalization, coined introjection according to Ryan and Deci's self-determination theory (SDT; Ryan & Deci, 2000, 2017)—a "sibling theory" of PSI theory (Ryan, 2018, p. 237). SDT offers a widely researched and empirically validated concept of motivation closely connected to PSI theory (see Koole et al., 2019, for a review of the ways in which the two theories converge and diverge) and expands the understanding of the detrimental effects of self-infiltration on personality functioning, motivation, health, and well-being.

2.2.1 Self-Determination Theory

Self-determination theory (Ryan & Deci, 2000, 2017; see van den Broeck et al., 2021, for a recent review and meta-analysis on SDT), a macro-level theory of motivation rooted in humanistic psychology, is based on the proposition that human motivation is not a unidimensional construct (in terms of "the more motivation, the better"); rather, it is a multidimensional construct that accounts for different types of motivation (also "regulations") or, put differently, unique reasons for why to set and pursue certain goals. These types of motivation range from amotivation (i.e., no intentional behavior), to extrinsic motivation (i.e., to achieve a separable outcome), to intrinsic motivation (i.e., out of inherent interest or pleasure) that can be consistently ordered along a continuum of self-determination (also "volition"), thereby determining the level of autonomous versus controlled motivation the person experiences. According to the Organismic Integration Theory (OIT), one of SDT's mini-theories, high versus low perceived motivation and self-determination are contingent upon the level at which a goal is internalized. *Internalization* is defined as the internal psychological process of taking in values, beliefs, or goals from external sources, transforming them into one's own, and integrating them into the larger autobiographical

network of the (integrated) self (Ryan et al., 1985). What follows is that the higher a goal's internalization level (see Figure 2), the more motivated, authentic, and self-determined the individual feels during goal pursuit. Vice versa, when goals are internalized into the self only weakly, they are considered more controlled or external, thus leading to demotivation, feelings of alienation, and decreased well-being. This view is supported by PSI theory, which linked the internalization level to the degree to which goals are neurally connected with core representations of the integrative self (Kuhl et al., 2015). Hence, a highly internalized goal benefits from the various psychological functions of the integrative self that are essential for personality functioning, adaptive behavior, and well-being (e.g., Quirin et al., 2021).

Figure 2 gives an overview of all the different types of motivation. As depicted at the far left in Figure 2, SDT acknowledges the possibility that individuals might not be motivated at all. *Amotivation* describes a state in which individuals lack the intention to engage in goal-oriented behavior, as they do not find any value, rewards, or meaning in the goal itself. Thus, SDT proposes that the main difference between amotivation and motivation lies in the intentionality of behavior and that motivated behaviors are consciously or unconsciously intentional.

Furthermore, SDT distinguishes between four qualitatively different types of *extrinsic motivation*. First, as the major and most studied type of extrinsically motivated regulation, *external regulation* describes goal-directed behavior that is motivated by obtaining rewards or avoiding punishments from others; the rewards/punishments can be either material (e.g., obtaining a bonus) or social in nature (e.g., avoiding being criticized; Gagné et al., 2015). In accordance with the "carrot and stick" approach, individuals perform a certain behavior solely because they expect a separable consequence. Thus, external regulation represents the "purest" type of extrinsic motivation with no self-determination.

Second, *introjected regulation* is a type of extrinsic motivation that, in contrast to external regulation, is at least partially internalized but still relatively low on self-determination. Phonemically speaking, introjected regulation becomes evident when an individual adopts an external goal out of ego-involvement or contingent self-esteem, such as when rewarding or punishing oneself by approaching positive feelings (e.g., pride) or avoiding negative feelings (e.g., guilt, shame, or fear of disapproval). Introjected goals can therefore be considered "must-do" or "should-do" goals that are accompanied by feelings of compulsion, being pressured, and being controlled, albeit by internal rather than external forces (e.g., introjected perfectionism). Although introjected regulation is based on internal pressure and its emotional consequences (e.g., shame vs. pride), it is also strongly related to and partly explained by *projection* (Ryan & Deci, 2017). When individuals regulate themselves through introjection, they often project their self-esteem onto others' approval, believing that others' approval or disapproval is contingent upon whether or not they reach a targeted goal or fulfill a certain expectation. This projection, in turn, stokes fear of shame, disapproval, and losing face, even when others' behavior is not judgmental per se. Because external and introjected regulation are accompanied by feelings of being externally/internally pressured, they are regarded as *external* or *controlled* forms of motivation.

Third, *identified regulation* represents a type of extrinsic motivation that falls further along the continuum of internalization and self-determination and reflects behavior that is consciously endorsed for its value and importance. Individuals who have truly identified with an adopted goal will engage in goal-directed behavior because they accept it as personally important and meaningful. Understanding and internalizing the value and importance of engaging in certain activities allows individuals to feel more volitional in their acts and experience greater autonomy. According to OIT, the transition from introjection to identification is determined by the valued

behavior's level of congruence with an individual's true needs, goals, and values. In the case of identification, individuals are not simply complying with external or introjected demands but engaging in behavior out of a belief in the activity's personal importance and perceived value, resulting in functional advantages over introjection in terms of stability, persistence, energy demands, and affective gratification. However, identification does not necessarily imply full integration because newly identified actions or goals still have to be compared with other aspects of an individual's identity to reduce the risk of inner tension and conflicts, for instance.

Fourth, *integrated regulation* represents the fullest type of internalization in which behavior is completely self-determined and fully integrated into an individual's value system. Integrated reasons for engaging in activities are considered an inherent and coherent part of one's identity. Therefore, they are congruent with important aspects of one's true sense of self and compatible with other potentially conflicting identifications. In the case of integrated regulations, individuals show a certain behavior not just because they find it valuable but because it reflects who they are. Achieving integration is considered a transformational and reflective process that typically requires the individual to modify the value or goal to be integrated or to adapt other values or attitudes they previously held. The result of integration is a highly stable, effective, and autonomous type of regulation with wholehearted engagement that is free from inner conflicts. Although identified and integrated regulation are labeled as extrinsic forms of regulation (i.e., instrumental in achieving an outcome separate from the behavior itself), they are most often considered *internal* or *autonomous* forms of motivation.

The far right side of Figure 2 contains intrinsic motivation, which was the key starting point for the development of SDT, in which intrinsic motivation is considered the "prototype of our active human nature" (Ryan et al., 2021, p. 99). In the case of intrinsic motivation, the activity is

sustained for its own sake because of the satisfaction inherent to the activity itself, free from any functional dependencies, such as separable outcomes or pressure/control. SDT proposes that, when free to do so, individuals have a natural tendency to seek out novelty and challenges, explore their internal and external environments, and undertake new adventures, allowing them to experience interest and develop new competencies (Deci & Moller, 2005; Ryan & Deci, 2013)—just like children who have an innate desire to play, learn, and explore their environments. Although SDT differentiates between extrinsic autonomous types of motivation and intrinsic motivation, intrinsic motivation as the "prototype of autonomous motivation" (Ryan & Deci, 2017, p. 197) does not have "greater value or greater autonomy" (Ryan & Deci, 2017, p. 198) than integrated regulation. Therefore, the two types of motivation may be similar in nature and with regard to expected outcomes (van den Broeck et al., 2021).

SDT proposes that more autonomous/self-determined forms of motivation, including intrinsic motivation and well-internalized forms of extrinsic motivation, such as identified or integrated regulation, are associated with many positive health-related and vocational outcomes (see Ryan & Deci, 2017, for an overview and also see van den Broeck et al., 2021, for a recent meta-analysis). Such associations are supported by empirical evidence (e.g., Deci et al., 2017) that autonomous forms of motivation are positively related to work performance, commitment, and satisfaction and negatively related to the stress of high job demands, burnout, and exhaustion. Further support comes from research on the self-concordance model (Sheldon & Elliot, 1999), which draws from self-determination theory. Accordingly, *goal self-concordance* has been operationalized as the extent to which autonomous, in contrast to controlled, reasons lie behind the pursuit of certain goals. Empirical results have shown that self-concordant goals, which reflect an individual's underlying interests and needs, are more likely to be attained (Koestner et al., 2002,

2008; Sheldon & Elliot, 1999). In addition, the pursuit and attainment of self-concordant goals have been shown to be connected to experiences of autonomy, relatedness, and competence, all of which are essential for psychological well-being according to SDT (Ryan & Deci, 2000; Sheldon & Elliot, 1999). On the contrary, individuals who pursue nonconcordant goals run the risk of wasting time and energy on goals that, even if attained, will not bring any gratification (e.g., Schultheiss et al., 2008) and will therefore not benefit their well-being (Sheldon & Elliot, 1999; cf. Werner & Milyavskaya, 2018). In fact, research has shown that nonconcordant goals may lead to action crises and symptoms of depression (Holding et al., 2017). What follows is that setting autonomous goals congruent with one's needs, interests, and values is an "important self-perceptual skill" (Smyth et al., 2020, p. 2) with a significant impact on well-being, mental health, and maturation (Sheldon, 2014).

Figure 2

Different Types of Motivation and Regulations According Self-Determination Theory

Amotivation	Extrinsic Motivation				Intrinsic Motivation
Non-Regulation	**External Regulation**	**Introjected Regulation**	**Identified Regulation**	**Integrated Regulation**	**Intrinsic Regulation**
– Lack of intention – Helplessness	– External pressure – "carrot and stick" approach	– Internal pressure – Pride, guilt, shame – Focus on approval from self/others	– Personal importance and value – Partial integration into self-structures	– Part of one's identity – Full self-congruence – Truly authentic	– Interest – Enjoyment – Inherent satisfaction

External or **controlled** types of motivation

Internal or **autonomous** types of motivation

Low — Level of Internalization/Self-Determination — High

Note. This version was adapted from Ryan and Deci's (2017) visual demonstration.

2.2.2 Self-Infiltration as Misinformed Introjection

According to the organismic perspective that underlies PSI theory and SDT (e.g., Koole et al., 2019), humans strive for coherence and self-actualization (Rogers, 1964). More specifically, the organismic paradigm postulates that an individual with a well-developed sense of self "knows what he likes and dislikes, and the origin of these value choices lies strictly within himself. He is the center of the valuing process, the evidence for his choices being supplied by his own senses" (Rogers, 1964, p. 161). What follows is that humans with a genuine sense of self should naturally and consciously select and strive for autonomous, self-congruent goals (Grouzet, 2013; Sheldon et al., 2003). Whereas some individuals, in fact, seem to have a natural tendency to adopt the "right" goals that are conducive to psychological well-being and, ultimately, happiness (e.g., Sheldon, 2005), the problem is that individuals may simply overestimate the benefits gained from what they want (or at least what they think they want), resulting in the pursuit of goals that may seem satisfying, but actually are not. This idea is, for instance, reflected in Western societies' beliefs that physical attractiveness or expensive possessions will result in happiness and well-being, whereas such feats leave individuals longing for even more (e.g., Sheldon et al., 2010).

However, this alignment with socially desirable expectations is inherent to human nature. As social beings, individuals grow up and live in close interaction with other individuals and, from an evolutionary perspective, cannot survive without their social environment (Kuhl et al., 2021). Hence, living in a social environment means constantly being confronted with the expectations, goals, and desires of others, entailing daily conflicts between one's personal preferences and those of others. Consequently, individuals must find a healthy balance between personal choice and external control without overly indulging in either neglecting or pleasing others.

In finding this healthy balance, societal expectations and pressures may distract individuals from pursuing what they really want in favor of what they think they have to do (Werner & Milyavskaya, 2018). According to SDT, complying with social expectations that are not in line with personal preferences and needs is considered a conflict-laden type of goal internalization, namely, introjection, characterized by a sense of internal pressure to act and low perceived self-determination. However, when giving in to societal pressure, individuals might not always be aware of the introjected status. They might even mistake imposed social expectations for self-chosen goals, therefore assuming such expectations to be self-compatible and self-integrated, when they are in fact incongruent with personal preferences and alien to the self. This form of unconscious introjection as a conflict-laden type of internalization that lacks the support of the self is what underlies self-infiltration.

In their conceptualization of self-infiltration, Kuhl and Kazén (1994) consequently made a clear distinction between two forms of introjection, namely, informed and misinformed introjection. *Informed introjection* is a type of internalization that is based on a conscious decision to behave according to social expectations, although they are perceived as alien to the self. It can easily be assessed via self-report ("I pursue this goal because I feel I ought to" or "... because I would feel guilty if I didn't"). *Misinformed introjection*, on the contrary, is less accessible to introspection. On a conscious level, individuals assume the self-compatibility of a goal ("I pursue this goal because I really want to") although it is not compatible with important aspects of the self (i.e., implicit representations of one's own needs, wishes, preferences, goals and values). Such a nonconscious form of introjection (i.e., misinformed) represents the "infiltration" of one's "self," as individuals are not aware of the self-incongruent status of an imposed goal that has been misconceived as self-chosen. Consequently, self-infiltration can be considered an insidious form

of introjection as its unavailability to the individual obscures their understanding of why they suffer from a lack of motivation or well-being, preventing them from engaging in functional goal disengagement.

This deleterious view on self-infiltration is supported by numerous research studies suggesting that self-infiltration directly and as a nonconscious form of introjection may have detrimental effects on psychological functioning and well-being. For example, self-infiltration has found to be directly related to rumination (Baumann & Kuhl, 2003), reduced ability to experience flow (Baumann & Scheffer, 2011), the physiological stress response (Quirin, Koole, et al., 2009), and depression and anxiety (Baumann, Kazén, & Quirin, 2018). As a nonconscious form of introjection, self-infiltration has been found to be associated with heightened susceptibility to persuasion (Kazén et al., 2003; Koestner & Losier, 2002) and reduced vitality, life satisfaction, and subjective well-being (Ryan & Deci, 2000, 2017; Sheldon et al., 2004; Sheldon & Kasser, 1995) as well as increased depressive symptoms in response to major life transitions, such as entering college (Koestner et al., 2010). Moreover, self-infiltration may represent a possible explanation for the motivational paradox that individuals chase self-incongruent goals, which has been shown to impair motivation and well-being across many different disciplines (e.g., Baumann, Kaschel, & Kuhl, 2005; Grund et al., 2018; Kehr, 2004b; Sheldon, 2014; Sheldon et al., 2004; Sheldon & Elliot, 1999).

However, initial research on self-infiltration faced a major challenge in finding an appropriate measure. From a methodological perspective, self-infiltration as an unconscious form of introjection cannot be easily investigated via self-report questionnaires, first, because self-infiltration is characterized by a cognitive confusion about the assumed self-congruent but actual incongruent status of a putatively self-chosen goal. That is, individuals cannot easily differentiate

between self-infiltrated and truly integrated goals when asked directly. A second reason is that phenomenological correlates of introjection as a measure of self-infiltration run the risk of predictor-criterion contamination (Baumann & Kuhl, 2003). Feelings of guilt, shame, and low interest (Ryan & Deci, 2000, 2017; Sheldon & Elliot, 1998) can either result from pursuing alienated goals or predict a proneness to self-infiltration. Consequently, a nonreactive, objective measurement of self-infiltration is required.

Kuhl and Kazén (1994) developed such an indirect method and assessed self-infiltration as the degree to which imposed activities are misremembered as self-chosen goals in the context of an office work day simulated on the computer. In experimental studies, participants were asked to choose comparably unattractive activities (e.g., "sharpening pencils" or "sorting letters") for later enactment while a boss assigned other activities. However, some activities remained neither chosen nor assigned. In an unexpected memory test, participants were asked to indicate the original source of the activities. A tendency to falsely ascribe more of the originally assigned than the remaining activities as self-chosen was operationalized as a measure of self-infiltration. That is, individual differences in memory performance were accounted for by comparing these two different sources of error (i.e., false self-ascriptions of assigned activities vs. remaining activities). Therefore, the self-other goal discrimination paradigm (or self-infiltration paradigm) developed by Kuhl and Kazén (1994) measures the current or dispositional ability to differentiate between self-chosen and imposed goals in memory.

2.2.3 The Role of Self-Regulation Abilities in Self-Infiltration

In deciphering the motivational paradox of striving for unwanted goals, a pivotal question arises: Why do individuals strive for self-infiltrated goals in the first place? Although this question has yet to be completely answered, previous research has repeatedly shown that individuals with

insufficient affect self-regulation abilities in terms of threat-related state orientation are more prone to self-infiltration than their action-oriented peers when confronted with situations involving negative affect (Baumann & Kuhl, 2003; Kaufmann et al., 2020; Kazén et al., 2003; Kuhl & Kazén, 1994).

In the first publication on self-infiltration, Kuhl and Kazén (1994) found in their first experiment ($N = 72$) that state-oriented individuals were more prone to self-infiltration than action-oriented individuals. This effect could be explained independently of the *self-choice effect*, which consists of superior memory performance for self-chosen versus assigned or neutral activities. In a second experiment ($N = 48$), the authors replicated these findings and further showed that the induction of uncompleted intentions increased (or maintained) the extent to which state-oriented individuals (in contrast to action-oriented individuals) were prone to self-infiltration, whereas intentional-learning instructions (i.e., to pay careful attention to the source of the intention) reduced their proneness. In the same experiment, state-oriented individuals had a lower tendency to enact self-chosen activities as opposed to assigned activities (an indicator of low self-determination) when asked to perform activities as they wished.

Second, in two studies, Baumann and Kuhl (2003) investigated whether negative affect in terms of a sad mood would predict self-infiltration in individuals with impaired self-regulation abilities (i.e., threat-related state orientation). In their first study ($N = 63$), state-oriented individuals who reported a naturally occurring sad mood were found to have a higher tendency toward self-infiltration than action-oriented individuals. The authors also showed that state-oriented individuals ruminated more frequently about assigned activities they tended to introject. These intrusive thoughts were seen as evidence that self-infiltration represents a conflict-laden type of internalization. In a second experiment ($N = 32$), Baumann and Kuhl induced a sad versus

happy mood to rule out the alternative explanation that individuals who pursue self-alien goals display higher sadness per se (i.e., sadness is not the cause of self-infiltration but its consequence). Identical to the first study, state-oriented individuals were more prone to self-infiltration after the induction of a sad mood. Action-oriented individuals, by contrast, had a lower tendency toward self-infiltration in either mood state (sad vs. happy). In addition, the authors replicated the relationship between state orientation and rumination.

Third, Kazén et al. (2003) investigated the relationship between state orientation and self-infiltration in three studies, applying novel experimental set-ups. In their first experiment ($N = 60$), the authors tested the effect of low task meaningfulness on self-infiltration, as low task meaningfulness has been associated with alienation in state-oriented individuals before (Kuhl & Beckmann, 1994a). Low task meaningfulness was induced by providing insufficient and inconsistent explanations for the experimental task itself and by having the participants choose from among activities they had previously rated as unattractive. Results replicated previous findings on self-infiltration and state orientation. In addition, the authors found that the self-infiltration effect was not confined to prospective activities only (e.g., see Baumann & Kuhl, 2003; Kuhl & Kazén, 1994) but also applied to the domain of preference judgments (in their study, the suitability of mini actions for training preschool children). Furthermore, the authors found that state-oriented participants were more prone to self-infiltration when activities were unattractive than when activities were highly attractive, whereas the same did not apply to action-oriented individuals. Applying the original self-infiltration paradigm with prospective activities, in a second experiment ($N = 46$), Kazén and colleagues examined whether induced external pressure (vs. no external pressure) increased self-infiltration in state-oriented participants. They confirmed their hypothesis and also replicated the finding that the self-infiltration effect in state-oriented

participants was limited to activities that were low on attractiveness. With their third experiment ($N = 48$), the authors intended to replicate the effect of a self-reported natural sad mood (vs. a neutral mood) on self-infiltration (see Baumann & Kuhl, 2003), while additionally investigating the role of low versus high task involvement (i.e., the feelings and impressions participants had during the experiment and their perceptions of the boss as part of the cover story). In line with the authors' hypothesis, a self-reported sad mood successfully predicted state-oriented individuals' greater tendency toward self-infiltration (in comparison with action-oriented individuals) when activities were low on attractiveness. They also found that low task involvement was correlated with the tendency toward self-infiltration for activities that were low on attractiveness, especially for state-oriented participants, thereby replicating the first experiment's results, as task involvement is closely linked to task meaningfulness.

Last, further proof for the link between state orientation and self-infiltration was provided by Kaufmann et al. (2020). In two studies, the authors investigated whether state-orientated individuals would become more vulnerable to self-infiltration after mindfulness training, thereby contradicting the mostly beneficial effects reported in mindfulness research. In their first study ($N = 57$), the authors found that state-oriented participants who had undergone mindfulness training had a greater tendency toward self-infiltration after a brief stress induction and mindfulness exercise than their peers in the control group. By contrast, action-oriented participants, showed comparably low levels of self-infiltration across the two conditions. In a second study with higher power ($N = 150$), the same results were attained with a different mindfulness trainer, another mindfulness exercise, and while controlling for additional covariates.

In summary, previous research has demonstrated a strong and reliable relationship between deficient abilities to self-regulate affect in terms of threat-related state orientation and increased

proneness to self-infiltration—across different experimental set-ups and samples with different inductions and cover stories. State-oriented individuals have been found to be particularly vulnerable to alienation under elevated levels of self-reported or induced negative mood. But how can this relationship be explained? Why are action-oriented individuals able to prevent themselves from internalizing self-alien goals? What causal link underlies the self-infiltration effect in state-oriented individuals?

2.2.4 The Causal Link between Self-Regulation Abilities and Self-Infiltration

PSI theory offers a theoretical explanation for the frequently replicated self-infiltration effect in state-oriented individuals (Kuhl, 2000, 2001; see Kuhl et al., 2021, for a recent publication). In PSI theory, the construct of threat-related action versus state orientation refers to distinct individual differences in the ability to self-regulate negative affect: Whereas action-oriented individuals can downregulate negative affect when exposed to threatening or unexpected events, state-oriented individuals lack this precise ability, that is, they have difficulties self-regulating the negative affect that arises, leaving them stuck in persistent ruminative thoughts about unpleasant events and unable to disengage from these goal-distracting experiences.

Extensive research over nearly the past 30 years has supported the validity of the action versus state orientation construct (e.g., Baumann et al., 2007; Baumann, Kaschel, & Kuhl, 2005; Baumann & Kuhl, 2002; Fuhrmann & Kuhl, 1998; Gröpel et al., 2014; Koole et al., 2005; Koole & Jostmann, 2004; Koole & Kuhl, 2008; Kuhl, 1994a; Kuhl & Beckmann, 1994b; Quirin et al., 2021; Thakur & Baumann, 2022). For example, Koole and Jostmann (2004) showed in multiple experimental paradigms that action orientation is related to a "flexible, efficient, and non-repressive control of own affective states" (p. 974). This control allows these individuals to shift

their attention away from stimuli that would otherwise cause unwanted, perseverating negative affect. In three studies based on healthy and clinical samples, Baumann, Kaschel, and Kuhl (2005) found that stressful life events resulted in subjective ill-being and psychological symptom formation (e.g., depression, anxiety, or eating disorders) only in state-oriented but not in action-oriented individuals. In three other studies, Gröpel et al. (2014) revealed that state-oriented individuals suffered more from the effect of ego-depletion (Baumeister et al., 2000) on attention than action-oriented individuals, who were better able to cope with the aversive state of ego-depletion. Thakur and Baumann (2022) found that action orientation can break the reiterating cycle of a self-critical personality style and psychological symptoms by buffering self-critical individuals' high sensitivity to negative affect. The effects of action versus state orientation emerge primarily when negative affect reaches a moderate level. When negative affect is either extreme or not present, these individual differences are less likely to emerge (e.g., Gröpel et al., 2014; see Koole et al., 2005, for a comprehensive overview). In summary, the benefits of action orientation for personality functioning and well-being have been theoretically and empirically validated in numerous laboratory studies and in various applied settings. But why do action-oriented individuals excel in self-regulation compared with their state-oriented peers?

In PSI theory, self-regulation literally means affect regulated by activating and accessing the implicit self system and its vast network of integrated autobiographical information (see Quirin et al., 2021, for a comprehensive overview). Accordingly, the distinctive difference between action and state orientation lies in the extent to which individuals can access the self even under stressful situations, thereby allowing them "to be aware of self-representations such as personal needs, life goals, values, emotions, and past experiences" (Quirin & Kuhl, 2018, p. 9) and profit from numerous psychological functions (e.g., Kuhl et al., 2015; Quirin et al., 2019, 2021). When

negative affect is present in challenging conditions, state-oriented individuals tend to adopt a reactive mode of processing by directing their attention toward prevailing threats in the environment (Mattie et al., 2016; Quirin et al., 2019). Due to this "tunnel vision" on systematic discrepancies and a lack of a holistic overview ("not seeing the forest for the trees"), state-oriented individuals lose access to their implicit self system. Because the self contains autobiographical information and implicit representations of personal needs, goals, preferences, and other self-relevant information (Kuhl, 2000; Kuhl et al., 2015), individuals without self-access also lose their "sense of self" with respect to what they really want, and they begin to ruminate. Unless at least implicit representations of needs and preferences stored in the self are reactivated, it is impossible to identify, filter, and neutralize unwanted intrusive thoughts and feelings that have triggered the aversive situation (Kuhl, 2018). By contrast, action-oriented individuals are characterized by stress-resistant self-access. When confronted with negative affect, they can quickly defuse the current threat by accessing the self with its extended overview of past life experiences and stored emotional preferences.

Empirical support for the assumed relationship between state orientation and impaired self-access under stressful situations has faced methodological challenges because implicit self-access cannot be measured directly. Consequently, various indirect measures of self-access have been conceptualized and developed over time to tap into different contents and processing characteristics of the self (see Baumann, Kazén, & Quirin, 2018, for an extensive overview). For instance, Baumann and Kuhl (2002) measured self-access by asking participants to provide complex intuitive judgments of coherence (i.e., discrimination of coherent and incoherent word triplets), as these intuitive judgments are supposed to underlie implicit processes within the self. In line with their hypotheses, in two studies, the authors found that state-oriented participants

performed worse in making judgments of coherence than action-oriented participants when negative affect was present. The authors concluded that the stress-resistant self in action-oriented individuals facilitates an intuitive mode of processing and a "feeling of knowing" (Baumann & Kuhl, 2002, p. 1221). Koole and Jostmann (2004) replicated these findings with a face discrimination task (Exp. 3). They concluded that self-access is the mediator that explains why action-oriented individuals disclose better regulatory outcomes than their state-oriented peers. In a recent replication, Radtke et al. (2020) disclosed that induced increases in cortisol (or increases in negative affect) were related to poor performances in coherence judgments of word triplets only in state-oriented but not in action-oriented individuals. Another "widely investigated indirect measure of self-access" (Baumann, Kazén, & Quirin, 2018, p. 264) is based on the so-called level of *motive congruence* between explicit (or self-reported) motives and implicit (or indirectly assessed) motives according to McClelland et al.'s (1989) taxonomy of the big three motives (power, achievement, and affiliation). Because explicit motives may diverge from implicit motives represented in the self (e.g., Köllner & Schultheiss, 2014), higher congruence is supposed to indicate better self-access. In line with this assumption, Baumann, Kaschel, and Kuhl (2005) found in an experimental setup (Study 3) that a threat induction reduced motive congruence only in state-oriented participants who suffer from impaired self-access under challenging conditions.

The exact same reason for reduced performances in coherence judgments—and especially for motive incongruence in state-oriented individuals—has also been given to explain their increased vulnerability to self-infiltration: impaired self-access.[1] More specifically, in previous

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[1] In fact, self-infiltration of social expectations that are incongruent with personal, implicit preferences is considered an indirect measure of self-access per se (Baumann, Kazén, & Quirin, 2018). However, in comparison with motive congruence, self-infiltration can be seen as a purely objective measure of self-access because self-infiltration relies on memory and objectively defined errors in recalling the objective self-other status of goals, but normatively defined differences in explicit and implicit motive scores do not.

research on self-infiltration, researchers have speculated that goal misattributions observed in state-oriented individuals under conditions of stress or negative affect may be attributed to low levels of self-access in terms of the ability to access emotional self-referential information stored in the integrative self and thus in the ability to understand and recognize one's emotions (Lane, 2008; Quirin & Kuhl, 2018). When self-access is low, individuals might not be able to perceive what their emotional preferences are with respect to goals and self-representations (i.e., their emotions connected to goal and action representations). As a consequence, imposed goals (or others' expectations) can more readily become misconceived as self-chosen goals, that is, imposed goals can "infiltrate the self" (Kuhl et al., 2015; Quirin et al., 2019). But how can this stress-dependent accessibility to self-compatible information in the self be modeled?

Kuhl and Kazén (1994) proposed that a specific mechanism called *self-compatibility checking* underlies self-infiltration. Through this mechanism, goal internalization and its integration into the self depend on successfully aligning a goal with important aspects of the integrative self (i.e., values, needs, and emotional preferences). More specifically, self-compatible goal formation is supposed to involve two steps (Baumann, Kuhl, & Kazén, 2005; Kazén et al., 2003): (a) accessing a valid model of one's emotional preferences and (b) tagging activities with a commitment marker. Such a marker indexes the fact that one has committed oneself to perform a chosen prospective activity that is supposedly stored implicitly with the episodic trace of the prospective activity (i.e., of the intention). The same two steps are proposed to be involved in the process of evaluating previously formed goals concerning self-compatibility: (a) the assessment of one's emotional preferences and (b) the activation of a memory trace that includes information about a commitment marker. Any factor (especially negative affect) that blocks access to the self-system, thereby impairing the processing of these two steps, is expected to reduce the quality of

this self-compatibility checking, leaving individuals helpless to resist external influences or to make self-congruent decisions when forming personal goals. Thus, self-infiltration can be considered the product of a "poor, hasty self-compatibility checking" (Kuhl & Kazén, 1994, p. 1105).

Returning to the introductory example, when Anna chose a career that went against her passion but was instead in line with her parents' expectations, this choice was likely the result of such deficient self-combability checking. Considering the importance and challenge of choosing the "right" future career after high school, in addition to the pressure imposed by her parents, Anna's (current) state orientation resulted in a loss of access to her integrative self and any corresponding emotional preferences for future activities. Consequently, Anna was not able to form a valid cognitive model of her emotional preferences. For this reason, her choice of career cannot be expected to be based exclusively on her wishes, needs, and desires. Quite the contrary, Anna may have felt compelled to comply with her parents' expectations, trusting and believing that these expectations were compatible with her true emotional preferences. Due to this deficient comparison of her parents' expectations with her own emotional preferences in the formation of her career choice, Anna fell victim to a cognitive memory confusion and a bias toward perceiving that her parents' imposed expectations were self-compatible and even self-chosen.

There is also (neuro)physiological research that supports the assumed functional mechanism underlying self-infiltration. In two studies, Baumann, Kuhl, and Kazén (2005) investigated the neural correlates of self-infiltration by relating it to the two hemispheres of the human brain. In both studies, they asked participants to squeeze a ball either with the right hand, which activated the left cortex, or with the left hand, which activated the right cortex. They found that asymmetric activation of left hemispheric processes after right-hand muscle contractions

increased the extent to which participants were prone to self-infiltration. By contrast, activating the right hemisphere after left-hand muscle contractions protected participants from self-infiltration. These findings can be explained by the proposition that the self, with its holistic and parallel processing characteristics, is likely to be associated with the right hemisphere rather than the left hemisphere (see Kuhl et al., 2015, for more details). Consequently, the activation of right-hemispheric networks through left-hand muscle contractions is supposed to increase self-access, allowing for a thorough self-compatibility checking and thereby decreasing participants' tendency toward self-infiltration. Further (neuro)physiological support for self-infiltration was provided by Quirin et al. (2009), who investigated the relationship between the physiological stress response in terms of cortisol release and self-infiltration with the goal of linking neuroendocrine processes to functions of the self. The authors found that baseline levels of cortisol and cortisol levels after a stress induction were positively related to self-infiltration. The findings suggest that the frequently replicated relationship between negative affect and self-infiltration "can be generalized to bodily stress markers such as cortisol" (Quirin, Koole, et al., 2009, p. 5).

Considering that previous research assumes that self-access plays a crucial role in buffering self-infiltration, Kaufmann et al.'s (2020) results may appear odd, as they found in two studies that mindfulness training and experimental mindfulness interventions increased self-infiltration in state-oriented individuals. Mindfulness is typically related to positive effects on mental health and well-being (for an overview, see Creswell, 2017) and is supposed to increase self-knowledge (e.g., Carlson, 2013), a concept closely related to self-access. But how can these contradictory, adverse effects of mindfulness be explained (for an overview of the adverse effects of mindfulness, see van Dam et al., 2018)? First, according to the Kaufmann and colleagues, mindfulness may have caused additional negative affect, as related practices can bring about negative thoughts and

emotions (e.g., van Dam et al., 2018), making state-oriented individuals even more prone to self-infiltration. Second, mindfulness practices instruct individuals to orient their attention toward isolated experiences (e.g., thoughts, bodily sensations), which can be compared with the reactive mode of processing individuals adopt when OR is activated. That is, instead of activating the self as a buffer against self-infiltration, mindfulness seems to promote the activation of OR, increasing the extent to which state-oriented individuals are prone to self-infiltration.

In summary, empirical and theoretical research from different areas has supported the assumption that heightened self-infiltration in state-oriented individuals after stressful events can be explained by impaired self-access. Reduced access to the self, in turn, renders an insufficient level of self-compatibility checking in the formation of future goals more likely to occur to the extent that individuals fail to access a model of their own emotional preferences when making decision involving externally imposed goals. Ultimately, individuals become more likely to be influenced by alien wishes and to later mistake these goals for personal, self-chosen goals in memory.

2.2.5 Beyond Self-Infiltration: The Importance of Self-Access in Research on Self-Congruent Goal Pursuit

Beyond its protective function in self-infiltration, support for the crucial role of self-access (in terms of the relative awareness of personal preferences, needs, and desires) as a central aspect of self-congruent goal pursuit has come from different lines of research. According to Kehr's (2004b) compensatory model of work motivation and volition, for instance, intrinsic motivation and well-being depend on the relative awareness of implicit motives (power, affiliation, achievement; McClelland et al., 1989) and their alignment with self-ascribed explicit motives (see Kehr, 2004a, for empirical evidence). This alignment can be achieved by applying meta-

motivational strategies (e.g., self-observation exercises) to increase intrinsic motivation by reducing the discrepancies between implicit and explicit motives (see self-management training by Kehr & von Rosenstiel, 2006, for more information). In the same vein, Job and Brandstätter (2009) encouraged to *get a taste of your goals* by vividly imagining striving for a goal and reaching it. The authors showed that the anticipation of goal-related affective experiences evoked by imagination promoted self-congruent goal selection. In close connection to goal imagery, Kehr et al. (2022) published a theoretical paper illustrating the importance of visions in self-congruent goal pursuit. The authors claimed that imagining a personal vision arouses affective preferences, which helps individuals become aware of implicit motives and concomitant emotional preferences. This heightened awareness, in turn, promotes the self-congruency of goals derived from that personal vision (see also Rawolle et al., 2017). Rheinberg and Engeser's (2010) motivational competence model proposes that accessing personal preferences is the most crucial competence in setting self-congruent goals. In an empirical study, Strick and Papies (2017) showed that a brief mindfulness exercise is enough to make individuals aware of affective responses to need-relevant information during goal formation, thereby helping them set goals that are congruent with their emotional preferences. Kreibich et al. (2020) found that state and trait self-awareness (in terms of heightened attention toward one's thoughts, feelings, and behaviors) were positively related to the ability to identify goal-related obstacles, an ability that is considered a key element in the process of self-congruent goal pursuit. Sheldon (2014) and Grund et al. (2018), who reviewed research on selecting self-congruent goals, demonstrated the importance of self-access in self-congruent goal choices. Whereas Sheldon stated that *becoming oneself* requires accurate self-insight, Grund et al. similarly concluded: *know your preferences*. Consequently, access to the self and concomitant emotional preferences has been identified as an essential determinant of successful and, in

particular, healthy goal pursuit (see Grund et al., 2018; Sheldon, 2014, for related reviews) beyond what has been shown for self-infiltration. Also, self-congruent goal pursuit is relevant not only in terms of self-infiltration in PSI theory but also as a widely studied topic that has drawn considerable attention from various research domains.

3 Present Research

The present research was conducted to conceptually replicate and extend previous research on self-infiltration to further increase its scientific value. The motivational paradox of chasing the wrong goals has received considerable attention over the last 4 decades in research on personal goals and idiographic goal strivings (e.g., Emmons, 1989; Kehr, 2004b; Klinger, 1977; Kuhl, 2000, 2001; Little, 1983; McAdams, 1996; McClelland, 1985; Ryan & Deci, 2000; Sheldon, 2004; Sheldon & Kasser, 1995). The reason is that motivation, personality, and social psychologists, among others, have come to realize the detrimental effects of striving for unwanted goals (e.g., Baumann, Kaschel, & Kuhl, 2005; Grund et al., 2018; Kehr, 2004a; Ryan & Deci, 2017; Schultheiss, 2008; Sheldon, 2014). Although self-infiltration is just one of many explanations for why people may set and pursue the "wrong" goals, it may represent a promising avenue for unraveling this motivational paradox, first, because the concept of self-infiltration is strongly rooted in PSI theory and SDT, two theories with a long research tradition in the psychology of motivation. Second, self-infiltration itself and the causal mechanism that supposedly underlies it have received considerable empirical support (Baumann, Kuhl, & Kazén, 2005; Baumann & Kuhl, 2003; Kaufmann et al., 2020; Kazén et al., 2003; Kuhl & Kazén, 1994; Quirin et al., 2009). Third, research on self-infiltration is based on a sophisticated experimental paradigm that allows for controlled variations to better understand the antecedents and outcomes of self-infiltration. Fourth, self-infiltration is operationalized and assessed by applying indirect methods, which rely on memory and objectively defined errors in recalling the objective self-other status of goals in contrast to self-report methods that rely on normatively defined criteria (e.g., motive discrepancies).

However, the question that may arise is why further research on self-infiltration is considered necessary, especially given the empirical support it has already found. There are two main reasons. The first is that the antecedents and consequences of self-infiltration have not been fully uncovered yet. So far, research has shown that individuals with insufficient self-regulation abilities in terms of threat-related state orientation are more prone to self-infiltration when they see themselves confronted with situations of negative affect (Baumann & Kuhl, 2003; Kaufmann et al., 2020; Kazén et al., 2003; Kuhl & Kazén, 1994). The causal link between high state orientation and increased self-infiltration under aversive situation has been explained by impaired self-access in terms of the ability to access emotional self-referential information stored in the integrative self and thus the ability to understand and recognize one's emotions (Lane, 2008; Quirin & Kuhl, 2018). More specifically, self-infiltration has been considered to be the product of a hasty and poor self-compatibility checking, in which individuals fail to access a valid model of their own emotional preferences when deciding to pursue externally imposed goals (e.g., Kazén et al., 2003; Kuhl & Kazén, 1994). Without a valid model of emotional preferences, individuals will be more likely to be influenced by alien expectations. Thus, they may feel compelled to comply to the extent that they mistake these external expectations for self-chosen goals in memory. Although research has provided theoretical and empirical evidence of a functional mechanism behind self-infiltration, it remains a challenge for future research to verify and further examine antecedents of self-infiltration by considering new variables of interest. Most research has focused on the role of state orientation while neglecting other personality characteristics that may contribute to explaining additional variance. At the same time, self-infiltration is based on a sophisticated paradigm that involves many different experimental phases in close connection. Little is known about how changes in one phase affect the occurrence of self-infiltration. Baumann, Kuhl, and

Kazén (2005), for instance, found that the encoding phase of the self-infiltration paradigm (i.e., the selection and assignment of activities) is more critical for the emergence of self-infiltration than the retrieval phase is (i.e., one's memory for the original source of the activity). Controlled experimental variations of the established self-infiltration paradigm (e.g., new stressors) may extend the understanding of the process behind self-infiltration. The same applies to the detrimental outcomes self-infiltration may entail. So far, there is mostly indirect evidence for self-infiltration's negative consequences, as self-infiltration can be considered a nonconscious form of introjection according to SDT (Ryan & Deci, 2000, 2017). Little is known about how self-infiltration directly affects psychological functioning, motivation, and well-being.

The second and even more important reason that justifies further research on self-infiltration is grounded in the ongoing replication crisis in psychology (e.g., see Nosek et al., 2021, for a current overview of the replication crisis in psychology). Like other psychological phenomena, self-infiltration must face the challenge of replicability—"an important, uncommon, and misunderstood practice" (Nosek et al., 2021, p. 720)—which can be defined as a reliability test of prior findings with different data. Recently, replication gained heightened appreciation in psychology because it was acknowledged as an essential hallmark for making research progress and, more importantly, because, in 2010, psychological science was hit by a severe replication crisis that greatly affected its credibility. Warning signs have been around for decades. The evidence of low power and high positive result rates (see Smaldino & McElreath, 2016, for a meta-analysis of 44 reviews of statistical power; see also Maxwell, 2004) cannot be easily explained without considering the potential influence of publication bias (i.e., systematic disregard of negative results; Greenwald, 1975; Rosenthal, 1979) and questionable research practices (L. K. John et al., 2012; Simmons et al., 2011). Although the replicability issue in psychology will most

likely never be fully answered, researchers need to adopt new policies and practices that can help improve psychology's credibility. Consequently, conceptual replications (see Derksen *&* Morawski, 2022, for information on the difference between direct and conceptual replications) on self-infiltration are necessary for (a) evaluating the phenomenon's validity, reliability, and viability, (b) ruling out issues such as random effects due to inadequate statistical power, and (c) testing the boundary conditions and robustness of the self-infiltration phenomenon across varying experimental situations. The necessity for (conceptual) replications of self-infiltration becomes particularly prevalent when considering that, first and foremost, most research on self-infiltration is based on small, potentially underpowered samples sizes (sample sizes ranged from 32 to 72 except for Study 2 in Kaufmann et al., 2020). Moreover, the measurement of self-infiltration is based on a sophisticated multiphase paradigm that can be considered susceptible to potential biases (e.g., examiner bias) that should be cautiously evaluated. Last, most studies on self-infiltration have been published primarily by a small number of PSI theorists and scholars.

In line with the abovementioned two reasons that justify further research on self-infiltration, the following three empirical studies reported in the next chapters were conducted to conceptually replicate and extend previous findings on self-infiltration. In contrast to direct replications, *conceptual replications* "use different operationalizations, variables, experimental designs, and participants to test the theory of the original study" (Derksen & Morawski, 2022, p. 4). In this manner, novel insights into why, how, and when self-infiltration occurs can be gained while testing the boundary conditions and robustness of the self-infiltration phenomenon across various experimental situations. That is, the empirical studies involved conceptual and methodological changes from previous publications on self-infiltration, novel controlled variations of the original self-infiltration paradigm, and additional variables of interest. At the same time,

each study was built on the previous study such that issues that were identified in one study were targeted to be solved in the following study.

In summary, the overarching goal of all three studies was to conceptually replicate the previously found positive relationship between state orientation and self-infiltration in situations of elevated negative affect. At the same time, new variables of interest and adaptations from the original self-infiltration paradigm were incorporated to better understand the dynamic process that may underlie self-infiltration. Separate introduction and discussion sections are provided for each empirical study, in which the study's hypotheses are derived and discussed.

4 Study 1[2]

4.1 Introduction

Previous research has repeatedly found a robust and reliable relationship between deficient abilities to self-regulate affect in terms of threat-related state orientation and increased proneness to self-infiltration—across different experimental set-ups and samples with different inductions and cover stories (Baumann, Kuhl, & Kazén, 2005; Baumann & Kuhl, 2003; Kaufmann et al., 2020; Kazén et al., 2003; Kuhl & Kazén, 1994; Quirin, Koole, et al., 2009). Accordingly, state-oriented individuals have turned out to be particularly vulnerable to latent alienation under elevated levels of self-reported or induced negative mood. The causal link between state orientation and self-infiltration has been explained by impaired self-access in terms of the ability to access emotional self-referential information stored in the integrative self and, thus, to understand and recognize one's own emotional preferences (Kuhl et al., 2015; Lane, 2008; Quirin & Kuhl, 2018). More specifically, self-infiltration in state-oriented participants is supposed to be the product of a hasty and poor self-compatibility checking (Baumann & Kuhl, 2003; Kaufmann et al., 2020; Kazén et al., 2003; Kuhl & Kazén, 1994). When access to the self is blocked, individuals tend to fail to access a model of their own emotional preferences, thus making it more difficult for them to conduct a thorough comparison of imposed goals with personal preferences. Consequently, individuals may become more prone to being influenced by alien wishes in forming future goals to the extent that they mistake imposed goals for personal, self-chosen goals in memory. Therefore, first and foremost, the present study was designed to conceptually replicate the previously found

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[2] Study 1 has been published in the scientific and peer-reviewed Elsevier journal Acta Psychologica (Jais et al., 2021).

positive relationship between state orientation and vulnerability to self-infiltration. Hence, I hypothesized:

Hypothesis 1-1 (H1-1): State orientation is positively related to self-infiltration.

As the present study represented a conceptual replication (in contrast to a direct replication; see Derksen & Morawski, 2022), controlled variations were incorporated into the experimental design of the original self-infiltration paradigm: First, I examined the pivotal role self-access has been found to play in self-infiltration. Using Quirin and Kuhl's (2018) self-report measure of self-access, I intended to test for the mediating effect of trait self-access in the relationship between state orientation and self-infiltration. In line with theoretical consideration from PSI theory (Kuhl, 2000, 2001) and related empirical findings on state orientation and self-access (e.g., Baumann, Kaschel, & Kuhl., 2005; Baumann & Kuhl, 2002; Koole & Jostmann, 2004; Radtke et al., 2020; see Baumann, Kazén, & Quirin, 2018, for an overview), I expected state orientation to be associated with reduced trait self-access. Reduced trait self-access, in turn, was expected to be the mediator variable that could explain why state-oriented individuals are more prone to self-infiltration than their action-oriented peers. This line of argumentation is congruent with previous research on self-infiltration, in which impaired self-access was assumed to be the reason for why state-oriented individuals are specifically prone to self-infiltration, as perceived negative affect makes them fail to access their model of emotional preferences during self-compatibility checking (Baumann & Kuhl, 2003; Kaufmann et al., 2020; Kazén et al., 2003; Kuhl & Kazén, 1994). Accordingly, I hypothesized:

Hypothesis 1-2 (H1-2): The positive relationship between state orientation and self-infiltration is mediated by self-access.

A second conceptual variation from previous research was the integration of Cyberball (Williams, 2006) as a novel approach for inducing negative affect (see Baumann, Kazén, Quirin, & Koole, 2018, for an overview). Cyberball is the most frequently used computer-mediated ostracism (i.e., being ignored and excluded) paradigm (over 200 studies; Williams et al., 2000; Williams & Jarvis, 2006) in which participants are ignored and excluded by putatively real other players in the context of a ball-tossing game. The reasons for choosing Cyberball as a way to induce negative affect were the following: First, Cyberball is highly effective in eliciting intense negative psychological experiences. According to a meta-analysis of 120 studies ($N = 11,869$) by Hartgerink et al. (2015), the average ostracism effect can be considered large with a Cohen's d of 1.4. Second, ostracism or social exclusion has been shown to influence a variety of outcomes concerning affect, cognition, bodily responses, and behavior (DeWall & Bushman, 2011) that can be considered particularly appropriate for increasing participants' vulnerability to self-infiltration. Ostracism threatens fundamental psychological needs for belonging, self-esteem, and control (Williams & Nida, 2011) and triggers various different responses aimed at restoring these threatened needs (see Knausenberger et al., 2015, for an overview). For instance, ostracized participants were found to be more interested in positive social contact to reestablish a sense of belonging, and this interest may result in even more an increased tendency to comply with others' expectations and mistake them for personal, self-chosen goals in memory. This assumption was supported by Kazén et al. (2003), who highlighted the inherently social aspect of self-infiltration and its close relationship with situations involving social pressure (p. 192). Consequently, Cyberball-induced ostracism was expected to serve as a particularly appropriate kind of experimental induction in the context of self-infiltration.

A third conceptual variation referred to redesigning the experimental self-infiltration paradigm that was previously carried out in a software program called PANTER (Process-Analytic Neuroticism Test for Adults)—an elaborated computer version of Kuhl and Kazén's (1994) paper-and-pencil method for testing participants individually. The computer experiment was renewed entirely and polished for the present study using the behavioral software program E-Prime (Version 3.0.3.80). That is, all experimental phases were coded and programmed from scratch. The reasons for switching from PANTER to E-Prime were twofold: First, E-Prime is a sophisticated psychological software tool that is rich in various functions unavailable to PANTER. Second, and most importantly, several adaptations from the original self-infiltration paradigm had to be implemented and programmed by hand (for specific information on all implemented changes, see Chapter 4.2.3). These adaptations were primarily made so that multiple participants could be tested simultaneously, which, in turn, was required to obtain larger sample sizes than in previous research in light of the ongoing replication crisis.

In summary, Study 1 contributes to this area of research in the following ways: (a) by conceptually replicating the frequently found positive relationship between state orientation and self-infiltration, (b) by investigating the mediating role of self-access in the relationship between state orientation and self-infiltration, (c) by implementing and examining Cyberball-induced ostracism as a novel method for inducing negative affect, and (d) by programming and testing a redesigned version of the original self-infiltration paradigm that allows for the simultaneous testing of multiple participants and, therefore, larger sample sizes than obtained in previous research.

4.1.1   Open Practice Statement

The hypotheses in the present study were not preregistered. In view of Open Science recommendations, I will report on how I determined the sample size, all data exclusions, all

manipulations, and all measures related to the hypotheses. All study materials, including additional variables measured for different research purposes, are publicly available on the Open Science Framework.[3] The data cannot be made openly accessible, as the informed consent form for the study did not inform the participants of this possibility. The data are available upon request.

4.2 Method

4.2.1 Data Collection Procedure and Participants

A conservative a priori statistical power analysis for estimating the sample size requirements was based on the effect size of $\Delta R^2 = .06$ reported by Baumann and Kuhl (2003; Exp. 1).[4] The power analysis with G*Power ($\alpha = .05$, $\beta = .95$; Faul et al., 2009) yielded a necessary sample size of 186 participants. A total of 269 undergraduate students were recruited from the TUM School of Management and TUM School of Education, Technical University of Munich, in order to (a) allow for expected attrition and (b) increase the statistical power so that it would be sufficient to detect even small effects. Participants were recruited through the sampling pool system "MotivaTUM" operated by the TUM Chair of Psychology. They received course credit in exchange for participation. Because all participants had to sign an informed consent form, the minimum age was set to 18 years. Technical problems during the online questionnaire or laboratory experiment (e.g., incomplete online questionnaire data or experiments were shut down), erratic behaviors (e.g., unfinished experiments due to wrongdoing or a time-to-finish under 15 min given an average time-to-finish of 52 min), or an insufficient level of German language proficiency (i.e., CEFR level lower than C1) resulted in the exclusion of 19 participants. A multivariate outlier

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[3] Link to the OSF project: https://osf.io/sdw65/?view_only=09add803f4814172a624b48b47ddf53b.
[4] When the study was conducted, Kaufmann et al.'s (2020) results on mindfulness and self-infiltration were not yet available. However, the assumed effect size of $\Delta R^2 = .06$ is congruent with the effect size of $\Delta R^2 = .066$ that these authors reported in their first study.

analysis based on Mahalanobis distance (Leys et al., 2018; Urban & Mayerl, 2018) yielded another three outliers that were excluded (for more information, see Chapter 4.3.1). The final sample consisted of 247 participants (109 women; $M_{age} = 21.63$; 219 participants from the TUM School of Management).

4.2.2 Online Questionnaire Measures[5]

State Orientation

The Action Control Scale (ACS-90; Kuhl, 1994a, 1994b) was used to measure threat-related state orientation. The scale contains 12 items, each of which conveys a brief scenario with two alternative response options, (a) and (b), reflecting either an action-oriented or state-oriented response. Participants were asked to select the option that best reflected their typical responses. For example, "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." In the sample item, Option a represents an action-oriented response, whereas Option b represents a state-oriented response. A participant's final score was calculated by the sum of state-oriented answers, which ranged from 0 to 12, with high scores indicating state orientation and low scores indicating lower state orientation (or action orientation). The internal consistency (Cronbach's alpha) value of the scale was .62, and the distribution of participants' average scores was relatively normal ($M = 7.13$, $SD = 2.47$).

Self-Access

The Self-Access Form was used (SAF; Quirin & Kuhl, 2018) to assess trait self-access, defined as an individual's subjective ability to access emotional self-referential information and

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[5] Apart from the questionnaires reported here, additional questionnaires were administered for different research purposes. As they are not relevant to the derived hypotheses, they are not reported here.

thus to recognize and understand their own underlying emotions. The scale contained five statements, such as "When I am moody, sometimes I do not know why," and participants indicated the extent to which they agreed or disagreed with each statement on a 4-point Likert scale ranging from 1 (*does not fit at all*) to 4 (*fits completely*). The internal consistency (Cronbach's alpha) value was .65, and the distribution of participants' average scores was relatively normal ($M = 2.91$, $SD = 0.52$).

4.2.3   Experimental Procedure[6]

Participants completed an online questionnaire at least 1 day before they were scheduled to take part in the laboratory experiment. The questionnaire included demographics (age and gender) as well as the ACS-90 and SAF. Upon their arrival in the laboratory, all participants signed an informed consent form. Afterward, they were seated in individual cubicles equipped with a computer, monitor, keyboard, mouse, and headphones. All participants were isolated in their cubicles by dividing walls. Groups of no more than eight participants were tested at the same time. After being seated, all participants were given verbal instructions, including information about the anonymity of the data, the voluntary nature of their participation, potential erratic behavior (e.g., programs getting shut down), and the reason for the experiment (i.e., the cover story). Similar to Kuhl and Kazén (1994), the experiment's cover story dealt with the simulation of a work day as an office assistant and the ability to cope with a high daily workload. In particular, participants were asked to put themselves into the role of an office assistant and to imagine a typical work day in which several different, relatively simple office activities had to be completed. The behavioral

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[6] Apart from the information provided in this chapter, the experiment included additional phases and tasks at the end of the described procedure that served different research purposes. As they are not relevant to the derived hypotheses, they are not reported here.

experiment software E-Prime (Version 3.0.3.80) was used to assess self-infiltration. E-Prime can be considered an elaborated computer version of the paper-and-pencil method used by Kuhl and Kazén (1994), building upon the PANTER (Process-Analytic Neuroticism Test for Adults). The experiment consisted of six phases (for an overview of the phases, see Figure 3).

In the first experimental phase, participants were instructed to rate the attractiveness of 96 relatively simple and unpleasant office activities presented in a random order. Answers to the question "When you visualize the following activity and imagine yourself conducting it: How much fun is this activity for you?" were given on a 9-point Likert scale ranging from 1 (*no fun*) to 9 (*a lot*). The office activities involved in the experiment were related to the work day of an office assistant and comprised "scanning documents" or "revising texts," for instance. In the original German version, each office activity consisted of a verb and an object (e.g., "Akten ordnen"). The activities were confined to those that have been rated as low to moderately attractive in previous studies on self-infiltration (e.g., Baumann & Kuhl, 2003; Kazén et al., 2003). The low attractiveness of the activities served to reduce the likelihood that self-infiltration (or unconscious introjection) would be confounded with identification (Ryan & Deci, 2000, 2017).

In the second experimental phase, participants engaged in a virtual ball-tossing game called Cyberball (Williams, 2006), which served as a method for inducing negative affect. Participants were told to play a virtual ball-tossing game with two other putatively real participants connected via the internet (in fact, the coplayers were generated by the computer) to train their visual imagination capabilities that would be necessary in a later phase of the experiment (see the fourth experimental phase). That is, they were instructed to mentally visualize the ball-tossing situation as vividly as possible by imagining who the others were, where they were playing, the weather, and the surroundings. This mental visualization was designed to maximize participants'

immersion. Participants were also informed that Cyberball was not about the ball tossing itself (i.e., who throws the ball and who receives it). In fact, participants' probability of receiving the ball was experimentally manipulated. After two initial tosses, all participants never received the ball again (i.e., they were fully excluded by the other players). Before the regular game started, participants could familiarize themselves with Cyberball in a brief practice game that lasted just a few minutes. As a mood manipulation check, participants were asked to rate their mood ("How do you feel at this very moment?") on three negative items ("uncomfortable," "irritated," "depressed") and one positive item ("relaxed") immediately before (Cronbach's α = .57 for the negative items) and after (Cronbach's α = .70 for the negative items) Cyberball. The scale ranged from 1 (*not at all*) to 9 (*totally*).

In the third experimental phase, participants were informed that their job as an office assistant was not only to self-select office activities but also to complete their superior's assignments. Afterward, all 96 office activities were presented in pairs of two that had received identical attractiveness ratings in the first experimental phase. Immediately after participants selected one of the two office activities they preferred, one of the two office activities was assigned by their superior. Subsequently, the next pair of activities followed. To equate the salience of self-selections and external assignments, the assigned activity was highlighted by a white frame, and participants were instructed to tick a checkbox below the assigned activity to signal their confirmation of the assignment. Altogether, participants had to self-select 48 activities, whereas 48 activities were assigned by their superior.

The combination of self-selections and superior's assignments resulted in four categories as the actual source of the activities (e.g., Baumann & Kuhl, 2003): (a) both (i.e., self-selected by participants and assigned by their superior), (b) self-selected (i.e., only self-selected by

participants), (c) assigned (i.e., only assigned by their superior), and (d) remaining (i.e., neither self-selected nor assigned). E-Prime contains built-in algorithms that perfectly balanced the number of office activities in each of the above-listed categories (i.e., 24 per category).

In the fourth experimental phase, participants completed an adapted version of the Implicit Positive and Negative Affect Test (IPANAT; see Quirin et al., 2016; Quirin, Kazén, & Kuhl, 2009) as a filler task (on average, 5 min) that was supposed to weaken participants' memories of the self-selections and assignments from the third experimental phase. Participants were informed that the task on hand was supposed to measure the visual imagination capabilities they had trained before (see the second experimental phase). The original IPANAT "measures affect indirectly by asking participants to rate the extent to which artificial words from a putative artificial language express certain moods" (Quirin, Kazén, & Kuhl, 2009, p. 502). In the adapted version of the IPANAT applied in the present study, participants were asked to rate six artificial words ("TUNBA," "TALEP," "KOVAS," "PUDGA," "VIKES," "BELNI") on the extent to which the words expressed human qualities (12 in total; "dominant," "hardworking," "mighty," "sociable," "rejected," "motivated," "influential," "affable," "excluded," "strenuous," "convivial," "abandoned").[7] Apart from exploratory purposes, the IPANAT served primarily as a filler activity that was expected to keep participants' moods relatively low or neutral because self-infiltration effects may disappear in the presence of positive mood (see Baumann, Kazén, & Quirin, 2018). Consequently, the IPANAT results will not be considered further in the results.

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[7] The adapted version of the IPANAT applied in the present study represented a conceptual, unpublished variation as an attempt to measure attitudes and qualities related to McClelland et al.'s (1989) taxonomy of the big three motives: power, affiliation, and achievement (three items for each category). Furthermore, three rejection items ("rejected," "excluded," "abandoned") were added for exploratory purposes. The internal consistency (Cronbach's alpha) values were .73 for power, .71 for affiliation, .77 for achievement, and .82 for rejection.

In the fifth and sixth experimental phases, participants performed an unexpected memory task that was administered to assess the extent to which they were able to correctly recall the original source of a given activity (i.e., self-selected or assigned). Participants were informed that coping with a high workload required a precise overview of all activities, including correctly recalling the original source of a given activity. In two separate classification tasks, participants were once again presented with each of the 96 office activities, which sequentially appeared on the screen in a random order. In the self-classification task, participants had to use a *Yes* or *No* answer format to indicate whether a given activity was previously self-selected or not. They were asked, "Have you selected the following activity YOURSELF?" In the other-classification task, they had to use a *Yes* or *No* answer format to indicate whether a given activity was previously assigned by their superior or not. They were asked, "Have you been ASSIGNED the following activity?" The sequence of the fifth and sixth experimental phases (i.e., both classification tasks) was counterbalanced across participants to control for unexpected effects of sequencing on self-infiltration (e.g., Baumann & Kuhl, 2003).

After the experiment, participants were asked to answer a final set of questions about the content of the experiment itself. The questions were related to the behavior participants exhibited and their perceptions during the experiment. These questions were primarily included for exploratory reasons, which will be minimally referred to in the analyses. Some of them served as additional manipulation checks for Cyberball. Others were related to the experiment's potential to detect possible flaws in the procedure.

In the end, each participant was debriefed and thanked. In addition, they had the opportunity to ask individual questions about the content and intentions of the study. Roughly 10% of the participants voluntarily took part in a brief interview that encompassed several questions

about the perceptions they experienced during the experiment. In this manner, potential flaws in the procedure and the cover story could be identified.

In summary, as a conceptual replication of previous research, the present study included the following experimental adaptations: First, the number of office activities involved in the present experiment and used in the analyses (i.e., 96) was slightly larger than in most previous self-infiltration studies that ranged from 24 (Kuhl & Kazén, 1994; Exp. 1) to 96 (Baumann, Kuhl, & Kazén, 2005; Study 2) office activities. However, Baumann, Kuhl, and Kazén (2005) limited the number of office activities to 48 activities with low attractiveness after the initial attractiveness rating. Here, the experiment was already confined to office activities that had been judged to have low to moderate attractiveness in previous research on self-infiltration. By doing so, all the office activities could be used in the analyses, thereby increasing the power of the study. Second, the self-selection and assignment phase of the experiment (third experimental phase) was fundamentally redesigned. In previous research (e.g., Baumann & Kuhl, 2003), the selection and assignment phases were two separate and counterbalanced phases. That is, all office activities were presented twice, so not only was this procedure time-consuming, but it also came with the disadvantage that either self-selected or assigned activities (depending on the counterbalanced sequence) were presented twice. This double-presentation might mean that some office activities were better stored in memory than others. Consequently, the selection and assignment phase was reduced to only one phase, making it more time-efficient and less susceptible to memory biases. Third, multiple participants were tested simultaneously, in contrast to previous research where participants were tested individually (cf., Kaufmann et al., 2020). The reason for this considerably impactful change in the experimental paradigm was to achieve large sample sizes to rule out potential random effects in light of the ongoing replication crisis. Fourth, participants' interactions

with the experimenter were limited to general instructions only. In previous research, a trained experimenter took on an active role in the procedure by playing the boss or superior who was also responsible for communicating the assignments to the participants in the activity selection and assignment phase (cf., Kaufmann et al., 2020). Because multiple participants were tested simultaneously in the present study, and in order to control for potential experimenter biases, interactions with the experimenter were avoided where possible. Fifth, the attractiveness ratings of the office activities in the first experimental phase were adapted slightly by instructing participants to vividly imagine how they would perform a given office activity before they gave their ratings. In this way, participants were expected to become more aware of their true emotional preferences with respect to any given office activity (e.g., Job & Brandstätter, 2009; Kehr, 2004b; Kehr et al., 2022; Schultheiss & Brunstein, 1999). Sixth, Cyberball-induced ostracism was applied as a negative affect induction method that has never been used before in the context of self-infiltration. Seventh, an adapted version of the IPANAT was used as a novel filler task to weaken memory while simultaneously keeping participants' mood relatively low or neutral.

Figure 3

Study 1—Experimental Phases in the Self-Infiltration Paradigm
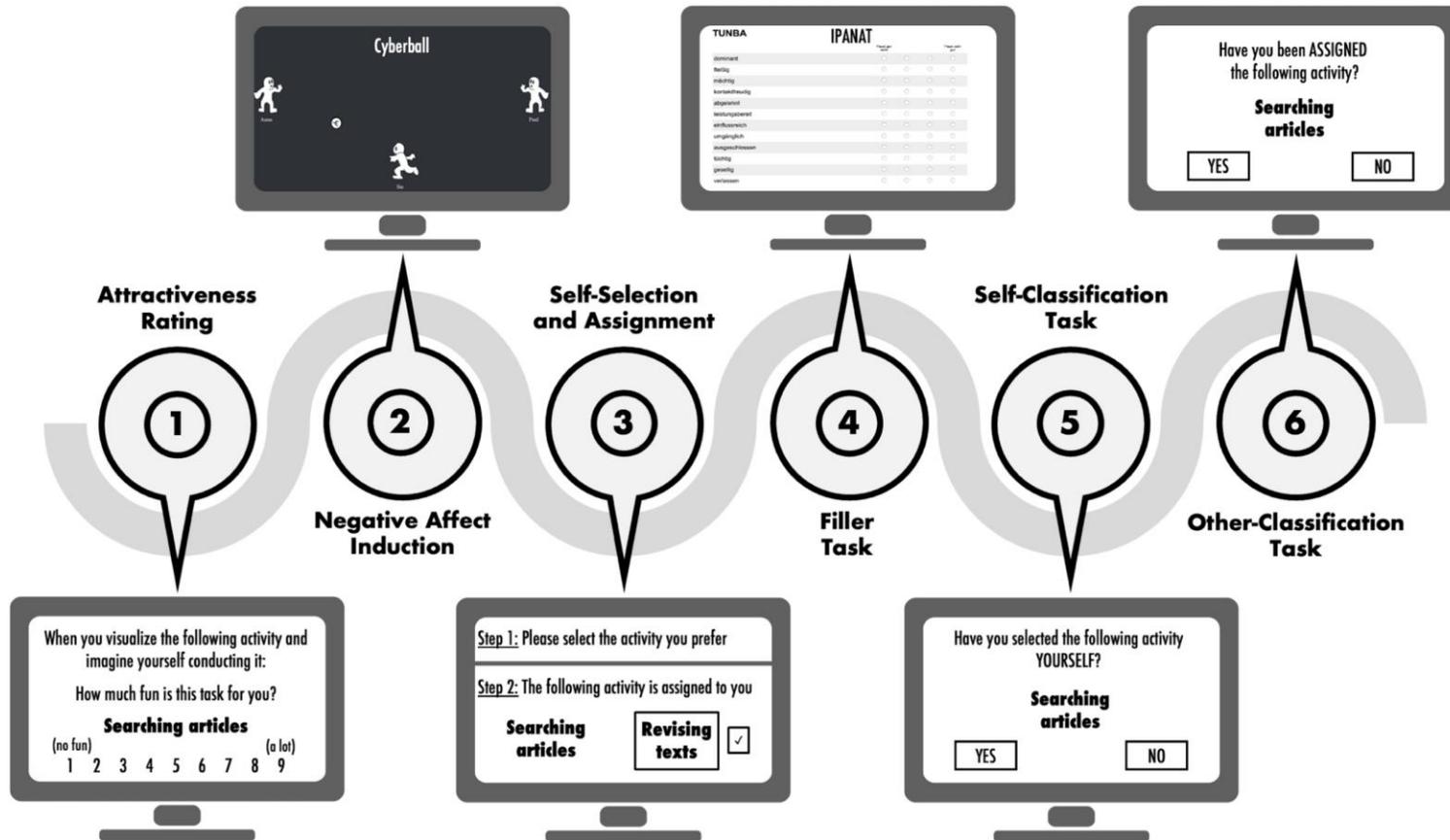
Note. The sequencing of the fifth and sixth experimental phases (i.e., the self- and other-classification tasks) was counterbalanced across participants. IPANAT = implicit positive and negative affect test.

4.2.4 Measurement of Self-Infiltration

Data generated from the laboratory experiment can be described with the 4×2 matrix shown in Table 1 (the table was adapted from Baumann & Kuhl, 2003). The rows represent the actual source of an office activity (i.e., both, self-selected, assigned, or remaining), and the columns represent the source participants reported in the two classification tasks (i.e., self-selected or assigned). Combining the actual source and the reported source resulted in either Correct, FSA (false self-ascription), or FOA (false other-ascription), all of which will be explained in the following.

Identical to the procedure in previous research (Baumann, Kazén, & Quirin, 2018), self-infiltration was operationalized as the rate of false self-ascriptions of assigned activities (FSA$_{assigned}$; actual source = assigned, reported source = self-selected; see Table 1). That is, the dependent variable (i.e., self-infiltration) represents the percentage of assigned activities that were mistaken for self-chosen activities (0 – 100%). An FSA$_{assigned}$ value of .5 indicates that 50% or 12 out of 24 previously assigned activities were falsely remembered as self-selected.[8] Additionally, alternative explanations and interpretations for self-infiltration were ruled out by following a specific analytic procedure established in previous research (see, Kazén et al., 2003, for a detailed description). First, irrespective of an activity's actual source, a possible general self-ascription tendency was accounted for as opposed to a specific tendency to make false self-ascriptions of only assigned activities. This general tendency could be ruled out by controlling for a memory error closely related to self-infiltration, namely, the false self-ascriptions of remaining activities

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[8] In contrast to previous research (e.g., Baumann & Kuhl, 2003) and congruent with Kaufmann et al.'s (2020) study, self-infiltration was not assessed separately for office activities with high and low attractiveness because the results did not uncover any effects that depended on attractiveness, thereby indicating that the preselection of office activities with low to moderate attractiveness was successful.

that were neither self-selected by the participant nor assigned by their superior ($FSA_{remaining}$; actual source = remaining, reported source = self-selected; see Table 1). By adding $FSA_{remaining}$ as a covariate in the analyses with $FSA_{assigned}$ as the dependent variable, this general self-ascription effect could be controlled for while highlighting state-oriented individuals' specific tendency to make false self-ascriptions of only assigned activities (i.e., self-infiltration). Because the total number of assigned activities and the total number of remaining activities were identical in the third experimental phase, the null hypothesis (i.e., general self-ascription tendency) was that $FSA_{assigned}$ would be entirely explained by $FSA_{remaining}$. Consequently, any significant prediction of $FSA_{assigned}$, while controlling for the effect of $FSA_{remaining}$, could be considered support for the emergence of self-infiltration and the respective predictive validity of the predictor. Second, another explanation and interpretation for self-infiltration was also accounted for in terms of a possible global memory deficit concerning self-selected and assigned activities instead of only assigned activities. In the case of a global memory deficit, state-oriented participants should show not only a strong tendency toward $FSA_{assigned}$ but also a strong tendency to falsely classify self-selected activities as assigned by their superior ($FOA_{self-selected}$; actual source = self-selected, reported source = assigned; see Table 1). Consequently, the null hypothesis (i.e., global memory deficit) was that not only would there be a significant relationship between state orientation and $FSA_{assigned}$ (while controlling for $FSA_{remaining}$) but also between state orientation and $FOA_{self-selected}$ (while controlling for $FOA_{remaining}$; actual source = remaining, reported source = assigned; see Table 1).

Table 1

Resulting Categories for Office Activities Based on the Actual Source and the Reported Source in the Two Classification Tasks

	Reported source	
Actual source	Self-selected	Assigned
Both	Correct	Correct
Self-selected	Correct	**FOA**~self-selected~
Assigned	**FSA**~assigned~[a]	Correct
Remaining	**FSA**~remaining~	**FOA**~remaining~

Note. The rows represent the actual source of an activity, whereas the columns represent participants' subjective classifications; Both = activities that were self-selected by the participant and assigned by their superior; Remaining = activities that were neither self-selected by the participant nor assigned by their superior; $FSA_{assigned/remaining}$ = false self-ascription of assigned/remaining activities; $FOA_{self-selected/remaining}$ = false other-ascription of self-selected/remaining activities.

[a] This combination of the actual source and the reported source represents a case of self-infiltration.

4.3 Results

In the following, I report only the analyses and results that were relevant to the hypotheses of interest in the current study. In the last chapter, I report selected additional analyses and results that may help better explain the findings. That is, the additional analyses provide more information about the experimental paradigm and may help identify potential flaws and inconsistencies.

4.3.1 Outlier Analysis

The Mahalanobis distance analysis technique was applied to detect and exclude multivariate outliers (Leys et al., 2018; Urban & Mayerl, 2018). In the field of multivariate statistics, Mahalanobis distance received considerable attention in research as a tool for detecting outliers because, nowadays, more and more observations are multidimensional (Leys et al., 2018). Mahalanobis distance can be defined as the distance between two points in a multivariate space. In comparison with Euclidean distance, which also measures the shortest distance between two points, Mahalanobis distance considers the correlations between two variables. In addition, the distance between more than two correlated variables can be assessed. The Mahalanobis distance of a data point is calculated by measuring the distance relative to the centroid, which can be defined as a central point that represents the overall mean for all the variables that are being considered. The higher the Mahalanobis distance for a given data point, the further away it is from the centroid, and the more likely this data point represents a multivariate outlier. In the present study, Mahalanobis distance was calculated for the dependent variable as well as for the variables that were hypothesized to have a significant effect on the dependent variable. These were $FSA_{remaining}$, state orientation, self-access, and $FSA_{assigned}$. Following a chi-square distribution with degrees of freedom set to three (i.e., equal to the number of predictors) and a cut-off value of $p < .01$, three data points with significant Mahalanobis distances were identified as multivariate outliers and excluded from the data set.

4.3.2 Descriptive Statistics and Correlations

Table 2 presents the means, standard deviations, and zero-order correlations between the variables that were relevant for testing the hypotheses. The analyses of the means and standard

deviations of the noncomposed memory performance parameters showed that, on average, 64% ($M = .64$, $SD = .14$) of the self-selected office activities were correctly recalled as self-selected (Accuracy$_{self-selected}$). A total of 42% ($M = .42$, $SD = .23$) of all the assigned activities were falsely classified as self-selected (i.e., FSA$_{assigned}$ or self-infiltration), and 35% ($M = .35$, $SD = .17$) of all the remaining activities were falsely classified as self-selected (FSA$_{remaining}$). That is, FSA$_{assigned}$ was significantly higher than FSA$_{remaining}$ with a difference of $\Delta = .07$, $t(246) = 6.45$, $p < .001$. Also, 57% ($M = .57$, $SD = .11$) of the assigned activities were correctly recalled as assigned (Accuracy$_{assigned}$). A total of 61% ($M = .61$, $SD = .15$) of all the self-selected activities were falsely classified as assigned (FOA$_{self-selected}$), and 42% ($M = .42$, $SD = .18$) of all the remaining activities were falsely classified as assigned activities (FOA$_{remaining}$). That is, FOA$_{self-selected}$ was also significantly higher than FOA$_{remaining}$ with a difference of $\Delta = .19$, $t(246) = 11.92$, $p < .001$. In comparison with previous research, these memory performance parameters fell within the ranges of what had been reported before (e.g., Kaufmann et al., 2020; Quirin, Koole, et al., 2009), although Accuracy$_{self-selected}$ could be considered low and, analogously, FSA$_{assigned}$ and FSA$_{remaining}$ could be considered high.

The analysis of intercorrelations showed that state orientation and the preinduction measures of self-reported negative mood were nonsignificantly correlated, $r_{pre} = .02$, $p = .776$. The partial correlation between state orientation and the postinduction measures of negative mood in response to Cyberball, while preinduction measures were controlled for, was also nonsignificant, $r_{post} = .11$, $p = .099$. The same applied to the (partial) correlation between state orientation and the pre- and postinduction measures of positive mood, $r_{pre} = -.05$, $p = .406$, $r_{post} = -.09$, $p = .162$. Consequently, state orientation was unrelated to self-reported negative and positive affect.

Contrary to H1-1, state orientation was not significantly related to $FSA_{assigned}$, $r = .10$, $p = .102$. In line with the mediation hypothesis (i.e., H1-2), state orientation was significantly correlated with self-access, $r = -.22$, $p < .001$, and self-access was significantly correlated with $FSA_{assigned}$, $r = -.18$, $p = .005$. As expected, $FSA_{remaining}$, which served as a baseline for general memory performance in previous research, was significantly correlated with $FSA_{assigned}$, $r = .64$, $p < .001$. However, contrary to expectations, the counterbalanced sequence of classification tasks in the fifth and sixth experimental phases were significantly correlated with $FSA_{assigned}$, $r = .78$, $p < .001$. Age and gender were not significantly correlated with $FSA_{assigned}$, $r = .01$, $p = .910$ and $r = -.02$, $p = .786$, respectively. Consequently, only $FSA_{remaining}$ and the sequence of classification tasks were considered control variables in further analyses, whereas age and gender were omitted for reasons of parsimony.[9]

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[9] The results of all analyses remained the same when age and gender were included as control variables.

Table 2

Study 1—Ranges, Means, Standard Deviations, and Intercorrelations for the Study Variables

Variable	Value range	M	SD	1	2	3	4	5	6
1. Age	18−99	21.62	2.29	—					
2. Gender[a]	1/2/3	1.56	0.51	−.11	—				
3. Sequence CTs[b]	0/1	.50	.50	−.01	.05	—			
4. State orientation	0−12	7.13	2.47	−.01	**−.26***	.02	—		
5. Self-access	1−4	2.91	0.52	**.13***	**.19***	−.09	**−.22***	—	
6. FSA$_{assigned}$	0−1	.42	.23	.01	−.02	**.78***	.10	**−.18***	—
7. FSA$_{remaining}$	0−1	.35	.17	−.07	.00	**.51***	.06	−.08	**.64***

Note. $N = 247$. Bold numbers indicate significant values. FSA$_{assigned}$ = rate of false self-ascriptions of assigned activities; FSA$_{remaining}$ = rate of false self-ascriptions of remaining activities; Sequence CTs = counterbalanced sequence of classification tasks (i.e., the self- and other-classification tasks performed in the fifth and sixth experimental phases).

[a] female = 1, male = 2, diverse = 3. [b] Self-classification task followed by other-classification task = 0, vice versa = 1.

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

4.3.3 Mood Induction Analysis

A paired samples *t* test was computed to analyze the mean ratings for each of the four mood items immediately prior to and following Cyberball as the negative mood induction method (see Table 3). All mood items showed a significant delta between the pre- and postinduction ratings in the expected direction. Hence, the results demonstrate that the induction of negative affect successfully lowered participants' mood.

Table 3

Study 1—Paired Samples t Test Including Means, Standard Deviations, Deltas, t Statistics, p-Values, and Effect Sizes (Cohen's d) for Each Mood Item

Pair	*M*	*SD*	Δ	*t*(244)	*p*	*d*
Relaxed$_{pre}$	6.59	1.87	.78	6.12	< .001	0.39
Relaxed$_{post}$	5.81	2.25				
Uncomfortable$_{pre}$	2.38	1.60	−0.51	−5.12	< .001	0.33
Uncomfortable$_{post}$	2.89	1.80				
Irritated$_{pre}$	2.40	1.67	−1.18	−9.30	< .001	0.59
Irritated$_{post}$	3.57	2.06				
Depressed$_{pre}$	2.50	1.74	−0.45	−4.46	< .001	0.28
Depressed$_{post}$	2.95	1.95				

Note. $N = 247$. Pre = immediately before Cyberball; post = immediately after Cyberball; Δ = mean difference (pre minus post).

4.3.4 Hierarchical Multiple Regression Analysis

A hierarchical multiple regression analysis (Urban & Mayerl, 2018) was computed to test H1-1, which predicted that state orientation would be positively associated with self-infiltration

that was operationalized as the rate of false self-ascriptions of assigned activities (FSA$_{assigned}$). With FSA$_{assigned}$ as the dependent variable, FSA$_{remaining}$ and the sequence of classification tasks were entered in Step 1, followed by state orientation in Step 2.[10] As listed in Table 4, and in support of H1-1, state orientation significantly predicted increased FSA$_{assigned}$, $\beta = .07$, $t(3, 243) = 2.05$, $p = .041$; $R^2 = .691$, $\Delta R^2 = .005$; $\Delta F(1, 243) = 4.64$, $p = .041$.[11]

In order to rule out the alternative explanation that self-infiltration in state-oriented individuals would be related to a global memory deficit concerning self-selected and assigned activities, the same analysis was computed for FOA$_{self-selected}$. The hierarchical multiple regression analysis for predicting FOA$_{self-selected}$ while analogously controlling for FOA$_{remaining}$ and the sequence of classification tasks in Step 1 revealed that state orientation in Step 2 did not significantly predict FOA$_{self-selected}$, $\beta = .01$, $t(3, 243) = 0.21$, $p = .832$; $R^2 = .183$, $\Delta R^2 = .000$; $\Delta F(1, 243) = 0.05$, $p = .832$. That is, the model fit was considerably worse than the model fit with FSA$_{assigned}$ as the dependent variable ($R^2_{FOA} = .183$ vs. $R^2_{FSA} = .691$). Therefore, the results concerning FOA$_{self-selected}$ did not indicate a global memory deficit in state-oriented individuals (which is congruent with previous findings; see Kazén et al., 2003, for instance).

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[10] For the two regression models involved in Steps 1 and 2, linearity, homoscedasticity, the autocorrelation of error terms, and the normal distribution of error terms were assessed with (residual) plots and concomitant analysis (Hair et al., 2014).

[11] The results remained the same when including the three data points that were detected and excluded as outliers according to Mahalanobis distance.

Table 4

Study 1—Hierarchical Multiple Regression Analysis Predicting FSA$_{assigned}$

Predictor	Step 1			Step 2		
	b	95% CI$_b$	β	b	95% CI$_b$	β
(Intercept)	**0.29*****	[0.26, 0.31]	.00	**0.29*****	[0.26, 0.31]	.00
FSA$_{remaining}$	**0.45*****	[0.34, 0.56]	.34	**0.45*****	[0.33, 0.56]	.33
Sequence CTs[a]	**0.27*****	[0.24, 0.31]	.61	**0.27*****	[0.24, 0.31]	.61
State orientation	—	—	—	**0.01***	[0.00, 0.01]	.07
R^2		**.686*****			**.691*****	
F for ΔR^2		—			**4.21***	

Note. $N = 247$. Continuous predictors are mean-centered. Bold numbers indicate significant values. FSA$_{assigned}$ = rate of false self-ascriptions of assigned activities; FSA$_{remaining}$ = rate of false self-ascriptions of remaining activities; Sequence CTs = counterbalanced sequence of classification tasks (i.e., the self- and other-classification tasks performed in the fifth and sixth experimental phases).

[a] Self-classification task followed by other-classification task = 0, vice versa = 1.

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

4.3.5 Mediation Analysis

A mediation analysis was computed to test whether self-access would be found to mediate the effect of state orientation on self-infiltration as predicted in H1-2. In line with Preacher and Hayes' (2004, 2008) recommendations, a total of 10,000 bootstrapping resamples and 95% percentile confidence intervals were used to examine whether the size of the indirect effect was significantly different from zero (Shrout & Bolger, 2002). Percentile bootstrapping is a nonparametric approach that determines confidence intervals by applying two percentile cut-offs

to the sampling distribution (2.5% and 97.5%), which is why it represents an accurate and robust test of indirect effects (Preacher & Hayes, 2004, 2008). Using IBM SPSS (MacOS, Version 28) PROCESS macro (Version 4) and model number 4 (Hayes, 2018), $FSA_{assigned}$ was entered as the dependent variable, state orientation as the independent variable, self-access as the mediator, and $FSA_{remaining}$ and the sequence of the classification tasks as covariates.

The mediation analysis[12] (see Figure 4) revealed that the effect of state orientation on $FSA_{assigned}$ was significant, $b = 0.01$, $SE = 0.003$, $t(3, 243) = 2.05$, $p = .041$. In support of H1-2, the effect of state orientation on self-access was significant, $b = -0.05$, $SE = 0.01$, $t(3, 243) = -3.53$, $p = .001$. Moreover, the effect of self-access on $FSA_{assigned}$, while controlling for state orientation, was also significant, $b = -0.04$, $SE = 0.02$, $t(4, 242) = -2.39$, $p = .018$. State orientation was no longer a significant predictor of $FSA_{assigned}$ after the mediator self-access was entered, $b = 0.01$, $SE = 0.003$, $t(4, 242) = 1.49$, $p = .137$, suggesting a full mediation. Finally, the indirect effect of state orientation on $FSA_{assigned}$ through self-access was also found to be significant, $b = 0.002$, $SE = 0.001$, 95% CI [0.0002, 0.004]. Hence, self-access mediated the relationship between state orientation and self-infiltration in line with H1-2.

The results remained the same when no control variables were considered. That is, the indirect effect remained significant, $b = 0.003$, $SE = 0.002$, 95% CI [0.001, 0.01]. In line with the theoretical reasoning, the alternative mediation model with self-access as the independent variable and state-orientation as the mediator resulted in null findings. That is, the indirect effect of self-access on $FSA_{assigned}$ through state orientation was found to be nonsignificant, $b = -0.005$, $SE = 0.004$, 95% CI [−0.014, 0.002].

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[12] For all regression models involved in the mediation analysis, linearity, homoscedasticity, the autocorrelation of error terms, and the normal distribution of error terms were assessed with (residual) plots and concomitant analysis (Hair et al., 2014).

Figure 4

Study 1—Mediation Model for the Influence of State Orientation on FSA$_{assigned}$ Through Self-Access
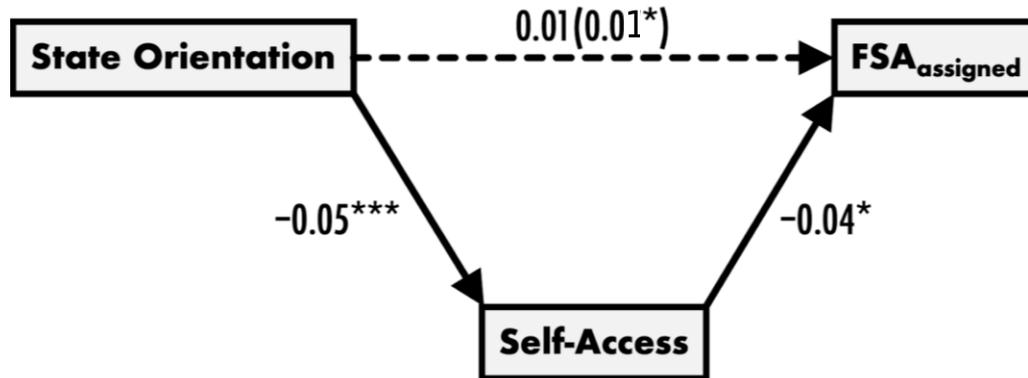
Note. $N = 247$. Values represent unstandardized coefficients. The value in parentheses represents the total effect of state orientation on FSA$_{assigned}$ when the effect of self-access was not controlled for. The indirect effect was found to be significant, $b = 0.002$, $SE = 0.001$, 95% CI [0.0002, 0.004], while the effects of FSA$_{remaining}$ and sequence of classification tasks were controlled for. FSA$_{assigned}$ = rate of false self-ascriptions of assigned activities; FSA$_{remaining}$ = rate of false self-ascriptions of remaining activities.

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

4.3.6 Additional Analyses

Memory Performance Parameters for Different Sequences of Classification Tasks

Table 5 presents the means and standard deviations for the relevant memory performance parameters depending on the sequence of classification tasks because a significant sequence effect on FSA$_{assigned}$ (i.e., self-infiltration) was unexpectedly observed. Table 5 shows that FSA$_{assigned}$ was considerably higher when the other-classification task was followed by the self-classification task

than the other way around (.25 vs. .60). The same applied to $FSA_{remaining}$ (.27 vs. .44). For false other-ascriptions, the pattern was less consistent. $FOA_{self-selected}$ was higher when the other-classification task was followed by the self-classification task than the other way around (.54 vs. .67). The reverse did apply to $FOA_{remaining}$ (.50 vs. .33). At the same time, $Accuracy_{self-selected}$ and $Accuracy_{assigned}$ were considerably lower when the other-classification task was followed by the self-classification task versus the other way around (.73 vs. .55 and .61 vs. .53, respectively). A sequence effect of classification tasks has not been reported in research on self-infiltration before.

Table 5

Study 1—Means and Standard Deviations for the Memory Performance Parameters Grouped by the Sequence of Classification Tasks

	Entire sample[a]		Self-CT → Other-CT[b]		Other-CT → Self-CT[c]	
	M	*SD*	*M*	*SD*	*M*	*SD*
$FSA_{assigned}$	.42	.23	.25	.13	.60	.15
$FSA_{remaining}$	.35	.17	.27	.12	.44	.17
$FOA_{self-selected}$	.61	.15	.54	.15	.67	.13
$FOA_{remaining}$	.42	.18	.50	.17	.33	.13
$Accuracy_{self-selected}$	.64	.14	.73	.10	.55	.11
$Accuracy_{assigned}$	.57	.11	.61	.11	.53	.10

Note. Self-CT = self-classification task; Other-CT = other-classification task; $FSA_{assigned}$ = rate of false self-ascription of assigned activities; $FSA_{remaining}$ = rate of false self-ascription of remaining activities; $FOA_{self-selected}$ = rate of false other-ascription of self-selected activities; $FOA_{remaining}$ = rate of false other-ascription of remaining activities; $Accuracy_{self-selected}$ = rate of self-selected activities correctly recalled as self-selected; $Accuracy_{assigned}$ = rate of assigned activities correctly recalled as assigned.

[a] $N = 247$; [b] $N = 126$; [c] $N = 121$.

Postexperimental Questions[13]

The analysis of the postexperimental questions was expected to provide additional insights into the findings and the functionality of the experimental procedure. Regarding the Cyberball game participants were asked, "During the ball-tossing game, did you have any doubts about whether the other players were real?" A total of 47% of the participants indicated that they did not believe the other players were real, 45% had doubts, and only 8% experienced no doubts. Hence, the cover story behind Cyberball did not appear to be convincing, at least concerning the other players.

Regarding the retrieval phase of the experiment, participants were asked, "How often did you have to guess when you were asked to remember whether an office activity was self-selected or not?" A total of 4% of the participants indicated *80% - 100%*, 25% indicated *60% - 80%*, 35% indicated *40% - 60%*, 32% indicated *20% - 40%*, and 4% indicated *0% - 20%*. That is, 64% of the participants indicated that they guessed 40% of the time or more (i.e., nearly every second office activity or more) when deciding whether a given office activity had been self-selected or not. Analogously, concerning the question "How often did you have to guess when you were asked to remember whether an office activity was assigned or not?" a total of 18% of the participants indicated *80% - 100%*, 44% indicated *60% - 80%*, 28% indicated *40% - 60%*, 9% indicated *20% - 40%*, and 1% indicated *0% - 20%*. That is, 90% of the participants indicated that they guessed 40% of the time or more (i.e., nearly every second office activity or more) when deciding whether a given office activity had been assigned or not. Consequently, participants reported a considerably higher guessing frequency for assigned than for self-selected office activities.

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[13] Apart from the measures reported here, additional measures were administered for different research purposes. As they are not relevant to the derived hypotheses, they are not reported here.

Regarding the experimental procedure in general, the answers given to the two statements "I knew what I had to do in every phase of the experiment" and "I was able to put myself into the role of an office assistant," which were rated on a 9-point Likert scale ranging from 1 (*disagree*) to 9 (*strongly agree*) resulted in mean values of 7.9 ($SD = 1.51$) and 6.8 ($SD = 1.66$), respectively. That is, most of the participants were smoothly guided through each phase of the experiment while they were able to immerse themselves in the role of an office assistant. The insights obtained through the postexperimental questions were also supported by the answers participants provided in the postexperimental interviews.

4.4 Discussion

First and foremost, Study 1 was aimed at providing a conceptual replication of the frequently found relationship between state orientation and self-infiltration by using an adapted experimental paradigm that allowed for a larger sample size than in previous research. In support of H1-1, state orientation was positively related to self-infiltration operationalized as the rate of false self-ascriptions of assigned activities. In addition to this replication using a large sample size, the results provided support for the mediating role of self-access in the relationship between state orientation and self-infiltration in line with H1-2. That is, state orientation was negatively related to self-access, and self-access was positively related to self-infiltration. More importantly, the indirect effect of state orientation on self-infiltration through self-access was significant, suggesting a full mediation. Moreover, Cyberball-induced ostracism as a novel way to induce negative affect was effective at eliciting negative affect in participants and, at the same time, promoting the emergence of self-infiltration, particularly in state-oriented individuals. Finally, the redesign of the experimental self-infiltration paradigm to allow for large sample sizes can be considered successful. Consequently, the present findings contribute to research on self-infiltration

by providing a conceptual replication based on a redesigned experimental paradigm, a new method for inducing negative affect, and a large sample size. At the same time, the findings extend existing work on self-infiltration by offering experimental evidence for the mediating role of self-access, a role that had not previously been directly and empirically tested.

Following the data analytic procedure established in previous research (e.g., Baumann & Kuhl, 2003; Kazén et al., 2003), alternative explanations and interpretations for self-infiltration could be ruled out. First, it could be argued that self-infiltration reflects a general tendency to make self-ascriptions irrespective of the original source of office activities. However, this alternative explanation cannot explain why state-oriented individuals have a specific tendency to falsely self-ascribe assigned compared with remaining activities, reflected in the $FSA_{assigned}$ values that were higher than the $FSA_{remaining}$ values. Although $FSA_{assigned}$ and $FSA_{remaining}$ were strongly correlated, the difference in their absolute values and the incremental variance explained by state orientation and self-access refute this alternative explanation. Second, it could be argued that self-infiltration is caused by a global memory deficit concerning self-selected and assigned activities instead of only assigned activities. However, this global memory deficit cannot explain why the same set of analyses on the false other-ascription of self-selected and remaining office activities (i.e., $FOA_{self-selected}$ and $FOA_{remaining}$) yield different and, in particular, nonsignificant results. Hence, the findings suggest that self-infiltration is associated with a specific inclination toward $FSA_{assigned}$ in state-oriented individuals and not with a global memory deficit.

Although the present study was successful in conceptually replicating and extending previous research, the effects were relatively small. Concerning the replication effect, the incremental variance that state orientation explained in self-infiltration was comparably low. The same applies to the mediation analysis that disclosed an indirect effect with a confidence interval

close to zero. The reasons for these small effects may be the following: First, mediation effects have often been found to be small, especially when the control variables explain a considerable amount of variance in the dependent variable (Walters, 2019). In Study 1, $FSA_{remaining}$ and the sequence of classification tasks turned out to be highly associated with self-infiltration (or $FSA_{assigned}$), supposedly contributing to small effects. Second, the comparably low internal consistency found for state orientation and self-access may have also contributed to smaller effects. Third, Cyberball-induced ostracism might not have been effective enough to allow for stronger effects. Self-infiltration has been shown to emerge when negative affect is present. Accordingly, situational antecedents of self-infiltration are overt stressors, such as external pressure (Kazén et al., 2003), negative mood inductions (Baumann & Kuhl, 2003), and stress inductions (Quirin, Koole, et al., 2009). Although Cyberball successfully elicited self-reported negative affect in participants, the effect might not have been effective or long-lasting enough (as the time to full recovery from ostracism is considered short; see Hartgerink et al., 2015). This may be explained by the doubts that most of the participants had about whether they were playing against real other players, who were in fact generated by the computer. However, the effectiveness of Cyberball could not be finally evaluated because there was no experimental control group to compare the effects with. Fourth, the duration of the filler task may have been too short (on average, 5 min) to properly weaken participants' memories of self-selections and assignments from the third experimental phase. Whereas the duration of the filler tasks had been varied in previous research, the filler task used in the present study could, nonetheless, be considered comparably short (e.g., 14-15 min in Baumann & Kuhl, 2003; 8 min in Kazén et al., 2003). In addition, choosing the adapted version of the IPANAT as the filler task might have been disadvantageous. That is, the nature of the filler task (i.e., rating artificial words according to the extent to which the words

expressed human qualities) may have caused confusion or other adverse affective reactions in participants instead of keeping the mood relatively low. Fifth, the present study uncovered an unexpected sequence effect on relevant memory performance parameters that may have contributed to smaller effects. That is, $FSA_{assigned}$ and $FSA_{remaining}$ were considerably higher when the other-classification task was followed by the self-classification task than the other way around. In the case of $FOA_{self-selected}$ and $FOA_{remaining}$, only $FOA_{self-selected}$ followed the same pattern, whereas, surprisingly, the reverse applied to $FOA_{remaining}$. This increased number of false self-ascriptions of assigned and remaining office activities and false other-ascriptions of self-selected activities were also reflected by decreased accuracies in correctly recalling self-selected/assigned activities as self-selected/assigned (i.e., $Accuracy_{self-selected}$ and $Accuracy_{assigned}$). The findings indicate that participants made more memory-related errors when the other-classification task was followed by the self-classification task. This finding is surprising, considering that (a) the same pattern was found for both FSAs and FOAs (apart from $FOA_{remaining}$), which are two different memory errors, and (b) participants showed higher false self-ascriptions of assigned activities (i.e., self-infiltration) even when the other-classifications were prior to the self-classifications. It would make sense to expect the findings to be reversed because the time lag between the self-selection/assignment of office activities (i.e., third experimental phase) and the respective classification tasks (i.e., fifth and sixth experimental phases) should affect the number of memory errors. That is, when the other-classification task is presented prior to the self-classification task, the time lag between assignments and their recall is as short as possible and should therefore lead to increased accuracies and fewer produced errors compared with the reversed sequence of classification tasks. However, the opposite was found. Alternatively, the results could be explained on the basis of $Accuracy_{self-selected}$ and $Accuracy_{assigned}$. In line with previous research on self-

infiltration, the rate of correctly recalled self-selected activities found in the present study was higher than the rate of correctly recalled assigned activities (i.e., self-choice effect; Kuhl & Kazén, 1994). Consequently, better memory for self-selected activities and a short time lag between self-selections and their recall (i.e., self-classification presented prior to other-classification) may have led to a decreased number of FSAs and FOAs because of the superior memory that resulted for self-selected activities. In the other case (i.e., other-classification task presented prior to self-classification task), inferior memory for assigned activities may have induced many false recalls in the other-classification task that, in turn, affected the answers participants gave in the self-classification task. That is, consistent response patterns, for instance, may have forced participants to indicate increased numbers of false self-ascriptions. Unfortunately, the sequence effect found in the present study was new, so it cannot be compared with previous research on self-infiltration. Seventh, high self-reported guessing frequencies may have also induced smaller effects. More specifically, additional analyses showed high guessing frequencies in recalling self-selected and, especially, assigned activities. Even though these numbers represent post hoc, potentially biased self-reports, they clearly show that participants experienced more struggles in recalling assigned than self-selected activities (in line with the self-choice effect; Kuhl & Kazén, 1994). In addition, these high guessing frequencies might also suggest that the number of office activities involved in the present study (i.e., 96) was too high. However, the objective recall accuracy of self-selected and assigned office activities was significantly above chance.

Additional analyses and postexperimental interviews further showed that, overall, participants were able to put themselves into the role of an office assistant and were smoothly guided through each phase of the experiment. Consequently, the adapted experimental procedure in the present study can be considered a success.

5 Study 2

5.1 Introduction

The goals of the previous study were, first, to conceptually replicate the often-found positive relationship between state orientation and proneness to self-infiltration using a large sample size (Baumann & Kuhl, 2003; Kaufmann et al., 2020; Kazén et al., 2003; Kuhl & Kazén, 1994), and second, to examine the mediating role of self-access in the relationship between state orientation and self-infiltration. More specifically, I hypothesized that state orientation would be negatively related to self-access, which in turn would be negatively related to self-infiltration. More importantly, I expected a significant indirect effect of state orientation on self-infiltration via self-access. Study 1 was successful in conceptually replicating the relationship between state orientation and self-infiltration with a comparably large sample size. In addition, the results also supported the mediating role of self-access by revealing a significant indirect effect.

However, Study 1 was not without limitations. The effects were relatively small, concerning not only the replication effect but also the mediation effect. In the discussion of Study 1, I identified several potential issues that have contributed to smaller effects. Consequently, the goal of Study 2 was to replicate the findings of Study 1 while incorporating various changes in the experimental paradigm designed to resolve the diagnosed problems. The following changes were implemented in Study 2: First, the cover story behind Cyberball was adapted to increase its credibility. This included, for instance, appending names to the other, putatively real players and giving new instructions aimed at making the game and its process more plausible. Second, the filler task from Study 1 was replaced by a second round of Cyberball to (a) resolve the issue with the IPANAT as a questionable filler task and (b) account for the open research question of whether

the encoding phase of the experiment (i.e., self-selections and assignments of office activities) or the retrieval phase (i.e., self- and other-classification tasks) is more critical for the emergence of self-infiltration. That is, self-infiltration may occur in response to factors (e.g., negative affect) that reduce the quality of self-compatibility checking during the encoding phase, the retrieval phase, or both phases. Baumann, Kuhl, and Kazén's (2005) two studies on left-hemispheric activation and self-infiltration suggested that the encoding phase is more critical for the emergence of self-infiltration than the retrieval phase. On the basis of their findings for the different experimental groups, the authors concluded that a "'bad encoding' of external assignments cannot easily be compensated whereas 'good encoding' may still be disturbed later on" (p. 157). That is, both phases seem to be relevant for self-infiltration to occur. Consequently, in the present study, negative affect via Cyberball was induced not only before the encoding phase but also before the retrieval phase to promote the emergence of self-infiltration in state-oriented individuals, which, in turn, may result in stronger effects. Third, a control condition for Cyberball was added in order to test the effectiveness of Cyberball, as there were some questions about its effectiveness in Study 1 (despite profound evidence; see Hartgerink et al., 2015). Hence, participants were either excluded after several initial ball tosses (treatment) or fully included throughout the game (control). Fourth, the experimental paradigm was reduced in content and length by removing the other-classification task and reducing the number of office activities from 96 to 72. While making the experiment less time-consuming and, therefore, more ecological, the reason for excluding the other-classification task was to resolve the previously found sequence effect that could not be conclusively explained (i.e., higher self-infiltration for a specific sequence of classification tasks). At the same time, the smaller number of office activities was expected to reduce the high guessing frequencies found in Study 1.

Hence, Study 2 represented a replication of Study 1 with major adaptations to the experimental paradigm. However, the hypotheses had to be slightly adapted to account for the newly integrated control condition implemented in the Cyberball game. That is, in Study 2, the direct effect of negative affect induced in the Cyberball treatment condition (i.e., exclusion) versus the lack of negative affect induced in the control condition (i.e., inclusion) on self-infiltration could be examined. In line with the theoretical and empirical considerations stated in Study 1, participants in the treatment condition were expected to show higher rates of self-infiltration than in the control condition due to the inhibitory effect of negative affect on the ability to access self-relevant information. Accordingly, I hypothesized:

Hypothesis 2-1 (H2-1): Participants in the Cyberball treatment condition (i.e., exclusion) show higher rates of self-infiltration than participants in the Cyberball control condition (i.e., inclusion).

At the same time, the ability to self-regulate negative affect as operationalized by action versus state orientation was expected to act as a moderator in the relationship between the experimental condition and self-infiltration. Accordingly, participants high in state orientation struggling to downregulate experienced negative affect were supposed to show more self-infiltration in the Cyberball treatment condition than in the Cyberball control condition. In contrast, individuals low in state orientation (or action-oriented individuals) were expected not to be influenced by the experimental conditions, as efficient self-regulation abilities allow for downregulating induced negative affect in the treatment condition. Accordingly, I hypothesized:

Hypothesis 2-2 (H2-2): The positive effect of the Cyberball treatment condition (compared with the control condition) on self-infiltration is moderated by state orientation.

Study 2 was also intended to replicate the mediating role of self-access in the relationship between state orientation and self-infiltration found in Study 1. Despite systematic differences in participants' perceived negative affect due to the two experimental conditions, a smaller yet significant mediation effect was still expected to emerge for the entire sample. Accordingly, and congruent with Study 1, I hypothesized:

Hypothesis 2-3 (H2-3): The positive relationship between state orientation and self-infiltration is mediated by self-access.

5.1.1 Open Practice Statement

The hypotheses in the present study were not preregistered. In view of Open Science recommendations, I will report on how I determined the sample size, all data exclusions, all manipulations, and all measures related to the hypotheses. All study materials, including additional variables measured for different research purposes, are publicly available on the Open Science Framework.[14] The data cannot be made openly accessible, as the informed consent form for the study did not inform the participants of this possibility. The data are available upon request.

5.2 Method

5.2.1 Data Collection Procedure and Participants

Study 2 followed the same sample size requirement of 186 participants, resulting from the power analysis computed in Study 1. The reasons for sticking to the original power analysis were that (a) the effects found in Study 1 were questionably small compared with previous research and

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[14] Link to the OSF project: https://osf.io/sdw65/?view_only=09add803f4814172a624b48b47ddf53b.

(b) a power analysis based on the small effects found in Study 1 yielded a disproportionate sample size requirement, thereby violating the principle of ecological experimental research. Consequently, 204 participants from two different sources were collected. In exchange for course credit, 90 participants from the TUM School of Management and TUM School of Education, Technical University of Munich, were recruited through the sampling pool system "MotivaTUM," operated by the TUM Chair of Psychology (congruent with Study 1). Another 114 participants from different faculties at the Technical University of Munich were recruited through the sampling pool system "experimenTUM," a laboratory for experimental research in economics operated by the TUM Chair of Corporate Management. In line with the guidelines of the laboratory, each participant received €12 in exchange for their participation. As all participants had to sign an informed consent form, the minimum age was set to 18 years. Technical problems during the online questionnaire or the laboratory experiment (e.g., incomplete online questionnaire data or experiments were shut down), erratic behaviors during the experiment (e.g., unfinished experiments due to wrongdoing, or a time-to-finish under 15 min given an average time-to-finish of 40 min), or an insufficient level of German language proficiency (i.e., CEFR level lower than C1) resulted in the exclusion of 20 participants. Another four participants were excluded because they had already taken part in Study 1. A multivariate outlier analysis based on Mahalanobis distance (Leys et al., 2018; Urban & Mayerl, 2018) yielded another two outliers that were excluded (for more information, see Chapter 5.3.1). The final sample consisted of 179 participants (99 women; $M_{age} = 25.54$).

5.2.2 Online Questionnaire[15]

State Orientation

As in Study 1, the Action Control Scale (ACS-90; Kuhl, 1994a, 1994b) was used to measure threat-related state orientation with high scores indicating state orientation and low scores indicating lower state orientation (or action orientation). The internal consistency (Cronbach's alpha) value of the scale was .73, and the distribution of participants' average scores was relatively normal ($M = 6.87$, $SD = 2.87$). These values were comparable to Study 1.

Self-Access

As in Study 1, the Self-Access Form (SAF; Quirin & Kuhl, 2018) was used to measure self-access, defined as an individual's subjective ability to access emotional self-referential information and thus to recognize and understand their own emotions. The internal consistency (Cronbach's alpha) value was .74, and the distribution of participants' average scores was relatively normal ($M = 2.97$, $SD = 0.58$). These values were comparable to Study 1.

5.2.3 Experimental Procedure[16]

As in Study 1, participants completed an online questionnaire at least 1 day before they were scheduled to take part in the laboratory experiment. The questionnaire included demographics (age and gender) as well as the ACS-90 and SAF. Upon their arrival in the laboratory, all participants signed an informed consent form. Afterward, they were seated in

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[15] Apart from the questionnaires reported here, additional questionnaires were administered for different research purposes. As they are not relevant to the derived hypotheses, they are not reported here.

[16] Apart from the information provided in this chapter, the experiment included additional phases and tasks at the end of the described procedure that served different research purposes. As they are not relevant to the derived hypotheses, they are not reported here.

individual cubicles equipped with a computer, monitor, keyboard, mouse, and headphones. All participants were isolated in their cubicles by dividing walls. For the "MotivaTUM" sample, groups of no more than eight participants were tested simultaneously. For the "experimenTUM" sample, groups of no more than 20 participants were tested simultaneously. After being seated, all participants were given oral instructions, which included information about the anonymity of the data, the voluntary nature of their participation, potential erratic behavior (e.g., programs getting shut down), and the intention of the experiment (i.e., the cover story). The cover story was nearly congruent with the story presented in Study 1, apart from small variations. Also, the same behavioral experiment software, E-Prime (Version 3.0.3.80), was used. In contrast to Study 1, the experiment consisted of five phases (without the original other-classification task; for an overview of the phases, see Figure 5). In the following, particular emphasis will be placed on the changes that were implemented after Study 1.

The first experimental phase (i.e., attractiveness rating) was analogous to Phase 1 in Study 1 apart from the fact that the number of office activities was reduced to 72 (compared with 96 office activities in Study 1) by removing the ones that had been, on average, rated the most attractive in Study 1. The reason for reducing the number of office activities was to lower the high guessing frequencies for self-selected and assigned activities reported in Study 1.

The second experimental phase (i.e., negative affect induction via Cyberball) was similar to Phase 2 in Study 1. However, several changes were implemented. First, a control condition was added, allowing for a direct test of the effectiveness of Cyberball, as its effectiveness in Study 1 was questioned. That is, in the present study, participants were randomly either excluded in the Cyberball game after two initial tosses (treatment) or fully included throughout the game (control). Second, the cover story behind Cyberball was adapted to increase its credibility, which in turn has

been shown to impact its effectiveness (e.g., Weschke & Niedeggen, 2013). In contrast to Study 1, playing Cyberball was introduced and framed as a "well-deserved break from work." Furthermore, additional information was provided to make the technical process behind Cyberball more plausible. That is, participants were informed that potential time lags might arise until all players were successfully connected to the game. Also, participants were told that Cyberball would automatically restart if one co-player prematurely left the game. Furthermore, all participants had to enter their nicknames before joining the main game. At the same time, the two putatively real co-players who had actually been generated by the computer received plausible nicknames ("bLub23" and "asdasd"). Congruent with Study 1, all participants completed a brief exercise game before the regular game began. The number of ball tosses and playing time remained the same (i.e., just a few minutes). Also, the same mood manipulation checks were applied but were limited to negative items only. That is, participants were asked to rate their mood ("How do you feel at this very moment?") by rating three negative items ("uncomfortable," "irritated," "depressed") immediately before (T1; Cronbach's $\alpha = .74$) and after (T2; Cronbach's $\alpha = .75$) the Cyberball game. The scale ranged from 1 (*not at all*) to 9 (*totally*).

The third experimental phase (i.e., self-selections and assignments of office activities) was analogous to Phase 3 in Study 1. However, the fourth experimental phase, which originally consisted of the IPANAT, was replaced by another round of Cyberball. The reason for this change was to resolve the identified issues with the IPANAT as a questionable filler task and to increase the emergence of self-infiltration by inducing negative affect not only in the encoding phase (i.e., the second experimental phase) but also in the retrieval phase (i.e., the fifth experimental phase; see Baumann, Kuhl, & Kazén, 2005). The Cyberball procedure was congruent with the second experimental phase, that is, the cover story, instructions, and sequence remained the same. In

addition, participants rated their mood once again immediately after the second round of Cyberball

had been played (T3; Cronbach's α = .78). In total, participants' mood was measured three times,

that is, immediately before and after the first round of Cyberball and immediately after the second

round of Cyberball. The fifth experimental phase (i.e., self-classification task) was again analogous

to Phase 5 in Study 1. The sixth experimental phase from Study 1 (i.e., other-classification task)

was removed for reasons of parsimony and because of the unexplained sequence effect. The

postexperimental questions, debriefing, and postexperimental interviews were also congruent with

Study 1.

Figure 5

Study 2—Experimental Phases in the Self-Infiltration Paradigm
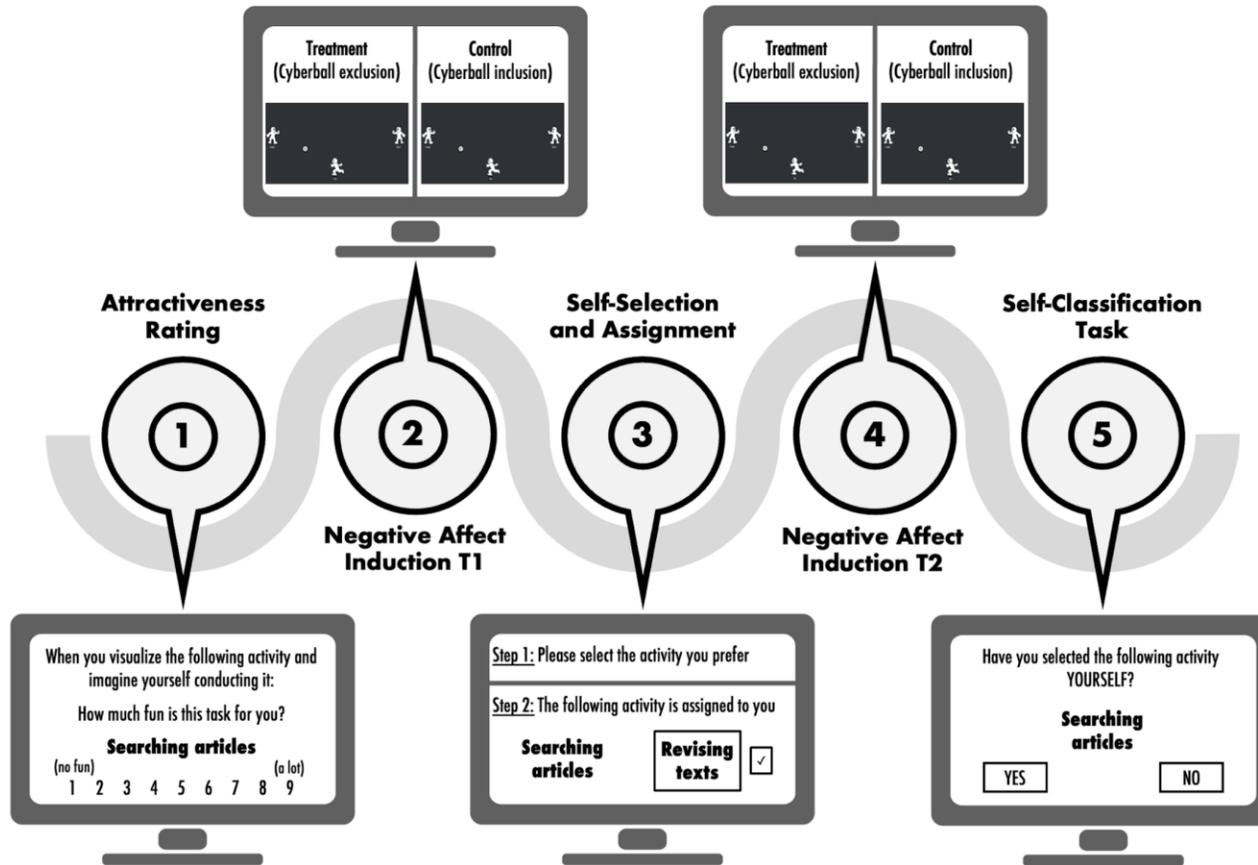
5.2.4   Measurement of Self-Infiltration

The data generated from the experiment and the measurement of the relevant memory performance parameters were analogous to those in Study 1 (see Table 1; however, without the assigned column, as the other-classification task had been removed). That is, self-infiltration was measured by the participants' rates of false self-ascriptions of assigned activities ($FSA_{assigned}$), which ranged from 0-1, thereby indicating the proportion of assigned office activities that were falsely remembered as self-chosen (e.g., 9 out of 18 which would represent a self-infiltration rate of .5).[17] Congruent with Study 1, the alternative explanation for self-infiltration in terms of a general self-ascription tendency was accounted for by controlling for the effect of $FSA_{remaining}$ on $FSA_{assigned}$. However, by removing the other-classification task, no analyses could be conducted on false other-ascriptions of self-selected and remaining activities (i.e., $FOA_{self-selected}$ and $FOA_{remaining}$). For this reason, the alternative explanation for self-infiltration in terms of a global memory deficit concerning self-selected and assigned activities could not be accounted for in the present study.

5.3   Results

5.3.1   Outlier Analysis

Congruent with Study 1, the analysis technique Mahalanobis distance was applied to detect and exclude multivariate outliers (Leys et al., 2018; Urban & Mayerl, 2018). In the present study, Mahalanobis distance was calculated for the dependent variable as well as for the variables that

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[17] Identical to Study 1, self-infiltration was not assessed separately for office activities with high and low attractiveness because the results did not uncover any effects that depended on attractiveness, thereby indicating that the preselection of office activities with low to moderate attractiveness was successful.

were hypothesized to have a significant effect on the dependent variable. These were $FSA_{remaining}$, state orientation, self-access, experimental condition, and $FSA_{assigned}$. Following a chi-square distribution with degrees of freedom set to four (i.e., equal to the number of predictors) and a cut-off value of $p < .01$, two data points with significant Mahalanobis distances were identified as multivariate outliers and excluded from the data set.

5.3.2 Descriptive Statistics and Correlations

Table 6 presents the means, standard deviations, and zero-order correlations between the variables that were relevant for testing the hypotheses. The analyses of the means and standard deviations of the noncomposed memory performance parameters showed that, on average, 74% ($M = .74$, $SD = .10$) of the self-selected office activities were correctly recalled as self-selected ($Accuracy_{self-selected}$). A total of 28% ($M = .28$, $SD = .13$) of all the assigned activities were falsely classified as self-selected (i.e., $FSA_{assigned}$ or self-infiltration), and 28% ($M = .28$, $SD = .14$) of all the remaining activities were falsely classified as self-selected ($FSA_{remaining}$). That is, in the present study, $FSA_{assigned}$ was unexpectedly equal to $FSA_{remaining}$. For this reason, the alternative explanation for self-infiltration as a general self-ascription tendency could not be ruled out. The same applies to the alternative explanation as a of global memory deficit, as this explanation was not accounted for in the present study because the other-classification task had been removed from the experimental paradigm. In comparison with previous research, $FSA_{assigned}$ and $FSA_{remaining}$ fell below the ranges of what had been reported in Study 1 (42% and 35%, respectively). However, these values are similar to what has been reported in research before (e.g., Kaufmann et al., 2020; Quirin, Koole, et al., 2009). At the same time, $Accuracy_{self-selected}$ could be considered high compared with Study 1 (64%).

The analysis of intercorrelations showed that state orientation and the T1 measure of self-reported negative affect were not significantly correlated, $r_{T1} = .13$, $p = .089$. The partial correlations between state orientation and the T2 and T3 measures of negative affect, controlling for the previous points of measurement, were also nonsignificant, $r_{T2} = .11$, $p = .132$, $r_{T3} = -.01$, $p = .848$. Consequently, state orientation was not significantly associated with self-reported negative affect across measurement points.

Contrary to H2-1, experimental condition was not significantly related to $FSA_{assigned}$, $r = .00$, $p = .975$, suggesting that the emergence of self-infiltration was unrelated to whether participants were in the treatment or the control condition. In contrast to H2-2, state orientation was not significantly correlated with $FSA_{assigned}$, $r = .06$, $p = .410$. In support of the mediation hypothesis (i.e., H2-3), state orientation was significantly related to self-access, $r = -.28$, $p < .001$. However, self-access was not significantly related to $FSA_{assigned}$, $r = -.01$, $p = .941$. As expected, $FSA_{remaining}$, which served as a baseline measure of general memory performance in previous research, was significantly correlated with $FSA_{assigned}$, $r = .45$, $p < .001$. Age and gender were not significantly correlated with $FSA_{assigned}$, $r = -.02$, $p = .831$ and $r = -.01$, $p = .844$, respectively. Consequently, only $FSA_{remaining}$ was used as a control variable in further analyses, whereas age and gender were omitted for reasons of parsimony.[18]

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[18] The results of all analyses remained the same when age and gender were included as control variables.

Table 6

Study 2—Ranges, Means, Standard Deviations, and Intercorrelations for the Study Variables

Variable	Value range	*M*	*SD*	1	2	3	4	5	6
1. Age	18−99	25.54	7.30	—					
2. Gender[a]	1/2/3	1.45	0.50	.06	—				
3. Condition[b]	0/1	.50	.50	.03	−.15	—			
4. State orientation	0−12	6.90	2.88	.01	**−.23****	.11	—		
5. Self-access	1−4	2.97	0.57	.11	**.15***	−.04	**−.28*****	—	
6. FSA_assigned	0−1	.28	.13	−.02	−.01	.00	.06	−.01	—
7. FSA_remaining	0−1	.28	.14	.02	.14	.05	−.02	.02	**.45*****

Note. $N = 179$. Bold numbers indicate significant values. FSA_assigned = rate of false self-ascriptions of assigned activities; FSA_remaining = rate of false self-ascriptions of remaining activities; Condition = experimental manipulation (Cyberball exclusion vs. Cyberball inclusion).

[a] female = 1, male = 2, diverse = 3. [b] Cyberball exclusion (treatment condition) = 0, Cyberball inclusion (control condition) = 1.

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

5.3.3 Experimental Manipulation Analysis

A mixed ANOVA was computed to test the effectiveness of the experimental manipulation (i.e., Cyberball) in inducing negative affect. That is, mean differences in self-reported negative affect were compared across two factors, namely, the between-subjects factor experimental condition (treatment: Cyberball exclusion; control: Cyberball inclusion) and the within-subjects and repeated-measures factor time (i.e., the three negative mood measurements; T1: immediately before the first round of Cyberball; T2: immediately after the first round of Cyberball; T3: immediately after the second round of Cyberball). The average level of self-reported negative affect was calculated by taking the mean of the three negative mood items (i.e., "uncomfortable," "irritated," "depressed").

The results from the tests of assumptions revealed the following: First, the analysis of the studentized residuals revealed that there were no reasonable outliers for the within- or between-subjects factors. Second, the analysis of the studentized residuals showed that the dependent variable (i.e., average self-reported negative affect) was normally distributed for each combination of the two factors. Third, Mauchly's test of sphericity was significant ($p < .001$) and therefore violated, so the Huynh-Feldt correction was used in further analyses. Fourth, Levene's test of homogeneity revealed significant values for some levels of the repeated-measures variable. However, because Levene's test of homogeneity is highly susceptible to being influenced by large sample sizes (such as the Shapiro-Wilk test for normality), and both experimental conditions had an equal number of participants, homogeneity was assumed.

The analysis of main effects revealed a significant main effect of the between-subjects factor experimental condition, $F(1, 177) = 9.88$, $p = .002$, $\eta_p^2 = .05$, and a significant main effect of the within-subjects and repeated-measures factor time, Huynh-Feldt $F(1.84, 326.14) = 10.20$,

$p < .001$, $\eta_p^2 = .05$. More importantly, the analysis of interaction effects revealed a significant interaction between experimental condition and time, Huynh-Feldt $F(1.84, 326.14) = 20.46$, $p < .001$, $\eta_p^2 = .10$. That is, the profile of self-reported negative affect across the experimental conditions was different for the three measurement points (as depicted in Figure 6). More specifically, post hoc analyses revealed a significant interaction for the contrast of T1 versus T3, $F(1, 177) = 19.51$, $p < .001$, $\eta_p^2 = .10$, indicating that the change in self-reported negative affect from T1 to T3 in the treatment condition was significantly different from the change in the control condition. The same did not apply for the contrast of T2 versus T3, $F(1, 177) = 1.94$, $p = 0.166$, $\eta_p^2 = .01$, revealing that the change in self-reported negative affect from T2 to T3 in the treatment condition was not significantly different from the change in the control condition.

Furthermore, Bonferroni-corrected pairwise comparisons revealed a nonsignificant difference in self-reported negative affect between the two experimental conditions in T1 ($M_{T1, treatment} = 2.32$, $M_{T1, control} = 2.39$, $|\Delta M| = 0.07$, $p = .752$), a significant difference in T2 ($M_{T2, treatment} = 3.24$, $M_{T2, control} = 2.18$, $|\Delta M| = 1.06$, $p < .001$), and a significant difference in T3 ($M_{T3, treatment} = 3.15$, $M_{T3, control} = 2.31$, $|\Delta M| = 0.85$, $p < .001$). Moreover, Bonferroni-corrected pairwise comparisons also revealed that, for the treatment condition, self-reported negative affect was significantly different between T1 and T2 ($|\Delta M| = 0.92, p < .001$) and T1 and T3 ($|\Delta M| = 0.83$, $p < .001$), but not T2 and T3 ($|\Delta M| = 0.09$, $p = 1.000$). For the control condition, self-reported negative affect was not significantly different between T1 and T2 ($|\Delta M| = 0.21, p < .420$), T1 and T3 ($|\Delta M| = 0.08$, $p = 1.000$), or T2 and T3 ($|\Delta M| = 0.12, p = .789$).

In summary, the results supported the effectiveness of Cyberball in inducing negative affect. As expected, in T1, no difference in self-reported negative affect was found between the two experimental conditions. However, in T2 and T3, self-reported negative affect was

significantly higher for participants in the Cyberball exclusion condition than in the Cyberball inclusion condition.

Figure 6

Study 2—Plot of the Interaction Between Experimental Condition and Time in Predicting Self-Reported Negative Affect
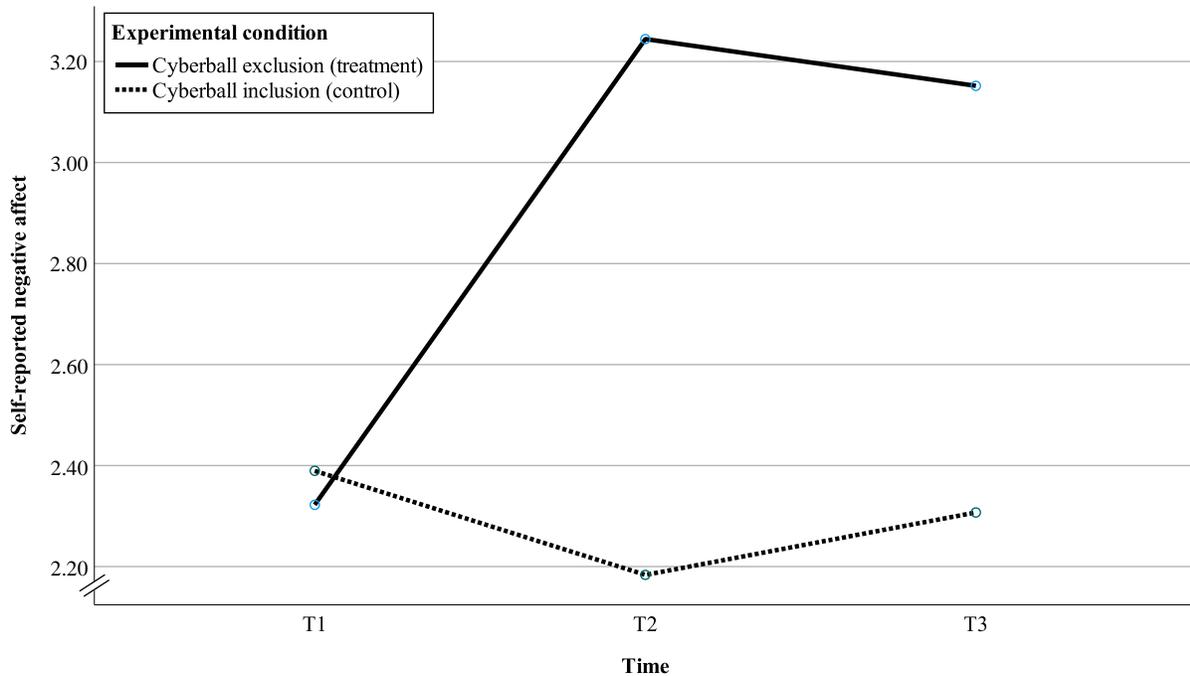
Note. $N = 179$. T1 = immediately before the first round of Cyberball; T2 = immediately after the first round of Cyberball; T3 = immediately after the second round of Cyberball.

5.3.4 Hierarchical Multiple Regression Analysis

A hierarchical multiple regression analysis (Urban & Mayerl, 2018) was computed to test H2-1, which predicted that the experimental manipulation would be negatively associated with self-infiltration that was operationalized as the rate of false self-ascriptions of assigned activities (FSA$_{assigned}$). More specifically, FSA$_{assigned}$ was expected to be significantly higher in the Cyberball exclusion condition (i.e., treatment) than in the Cyberball inclusion condition (i.e., control). With

FSA$_{assigned}$ as the dependent variable, FSA$_{remaining}$ was entered in Step 1, followed by experimental condition in Step 2.[19] As listed in Table 7, and contrary to H2-1, experimental condition did not significantly predict FSA$_{assigned}$, $\beta = -.03$, $t(2, 176) = -0.38$, $p = .708$; $R^2 = .204$, $\Delta R^2 = .001$; $\Delta F(1, 176) = 1.41$, $p = .708$.[20] That is, the experimental conditions turned out to be unrelated to the occurrence of self-infiltration.

Table 7

Study 2—Hierarchical Multiple Regression Analysis Predicting FSA$_{assigned}$

Predictor	Step 1			Step 2		
	b	95% CI$_b$	β	b	95% CI$_b$	β
(Intercept)	**0.28***	[0.26, 0.30]	.00	**0.28***	[0.26, 0.31]	.00
FSA$_{remaining}$	**0.41***	[0.29, 0.52]	.45	**0.41***	[0.29, 0.53]	.45
Condition[a]	—	—	—	−0.01	[−0.04, 0.03]	−.03
R^2		**.203***			**.204***	
F for ΔR^2		—			0.14	

Note. $N = 179$. Continuous predictors are mean-centered. Bold numbers indicate significant values. FSA$_{assigned}$ = rate of false self-ascriptions of assigned activities; FSA$_{remaining}$ = rate of false self-ascriptions of remaining activities; Condition = experimental manipulation (Cyberball exclusion vs. Cyberball inclusion).

[a] Cyberball exclusion (treatment condition) = 0, Cyberball inclusion (control condition) = 1.

*** $p < .001$.

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[19] For the two regression models involved in Steps 1 and 2, linearity, homoscedasticity, the autocorrelation of error terms, and the normal distribution of error terms were assessed with (residual) plots and concomitant analysis (Hair et al., 2014).

[20] The results remained the same when including the two data points that were detected and excluded as outliers according to Mahalanobis distance.

5.3.5 Moderation Analysis

A moderation analysis (Urban & Mayerl, 2018) was computed to test H2-2, which proposed that the effect of the experimental conditions on self-infiltration would be moderated by state orientation. More specifically, in the treatment condition, $FSA_{assigned}$ was expected to be higher for high state orientation than for low state orientation. In the control condition, due to the absence of negative affect, no difference in $FSA_{assigned}$ between high versus low state orientation was expected. With $FSA_{assigned}$ as the dependent variable, $FSA_{remaining}$, experimental condition, and state orientation were entered in Step 1, followed by the Experimental Condition x State Orientation interaction in Step 2[21] (see Table 7 for the isolated effect of the control variable $FSA_{remaining}$). As listed in Table 8, and contrary to Study 1, there was no isolated effect of state orientation on $FSA_{assigned}$, $\beta = .07$, $t(3, 175) = 1.01$, $p = .621$. Also, there was no significant interaction between experimental condition and state orientation in predicting $FSA_{assigned}$, $\beta = .07$, $t(4, 174) = 0.35$, $p = .730$; $R^2 = .209$, $\Delta R^2 = .000$; $\Delta F(1, 174) = 0.65$, $p = .522$.[22]

Although the interaction turned out to be nonsignificant, a simple slope analysis was computed for exploratory purposes. As depicted in Figure 7, the simple slope analysis revealed an interaction that was partly in line with H2-2. That is, in the Cyberball exclusion condition (i.e., treatment), $FSA_{assigned}$ was higher for participants who were high in state orientation than for participants who were low in state orientation. The same pattern was found in the Cyberball inclusion condition (i.e., control). However, the slopes of the two depicted regression lines for the interaction between experimental manipulation and state orientation in predicting $FSA_{assigned}$ were

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[21] For the two regression models involved in Steps 1 and 2, linearity, homoscedasticity, the autocorrelation of error terms, the VIF factors, and the normal distribution of error terms were assessed with (residual) plots and concomitant analysis (Hair et al., 2014).

[22] The results remained the same when including the two data points that were detected and excluded as outliers according to Mahalanobis distance.

not significant, $b = -0.003$, $t(2, 174) = -0.10$, $p = .918$ and $b = -0.015$, $t(2, 174) = -0.59$, $p = .553$, respectively.

Table 8

Study 2—Moderation Analysis Predicting FSA$_{assigned}$

Predictor	Step 1			Step 2		
	b	95% CI$_b$	β	b	95% CI$_b$	β
(Intercept)	**0.29*****	[0.26, 0.31]	.00	**0.28*****	[0.26, 0.31]	.00
FSA$_{remaining}$	**0.41*****	[0.29, 0.53]	.45	**0.41*****	[0.29, 0.53]	.45
Condition[a]	−0.01	[−0.04, 0.03]	−.03	−0.01	[−0.04, 0.03]	−.09
State orientation (SO)	0.003	[−0.003, 0.01]	.07	0.002	[−0.006, 0.01]	.05
Condition x SO	—	—	—	0.002	[−0.01, 0.01]	.07
R^2	**.21*****			**.21*****		
F for ΔR^2	—			0.65		

Note. $N = 179$. Continuous predictors are mean-centered. Bold numbers indicate significant values. FSA$_{assigned}$ = rate of false self-ascriptions of assigned activities; FSA$_{remaining}$ = rate of false self-ascriptions of remaining activities; Condition = experimental manipulation (Cyberball exclusion vs. Cyberball inclusion).

[a] Cyberball exclusion (treatment condition) = 0, Cyberball inclusion (control condition) = 1.

*** $p < .001$.

Figure 7

Study 2—Simple Slope Analysis for the Interaction Between Experimental Condition and State Orientation in Predicting FSA$_{assigned}$

Note. $N = 179$. Continuous predictors are mean-centered. The simple slope analysis was based on the regression equation produced in Step 2 of the multiple hierarchical regression analysis (see Table 8). The slopes of the two regression lines were nonsignificant. FSA$_{assigned}$ = rate of false self-ascriptions of assigned activities.

5.3.6 Mediation Analysis

A mediation analysis[23] (see Figure 8) was computed to test whether self-access would be found to mediate the effect of state orientation on self-infiltration as shown in Study 1 and predicted in H2-3. Congruent with the procedure reported in Study 1 (Hayes Model 4 with 10,000 bootstrapping resamples, 95% percentile confidence intervals, and $FSA_{remaining}$ as a covariate), the mediation analysis revealed a nonsignificant effect of state orientation on $FSA_{assigned}$, $b = 0.003$, $SE = 0.003$, $t(2, 176) = 1.02$, $p = .312$, but a significant effect of state orientation on self-access, $b = -0.06$, $SE = 0.01$, $t(2, 176) = -3.82$, $p < .001$. However, while controlling for state orientation, the effect of self-access on $FSA_{assigned}$ was nonsignificant, $b = 0.002$, $SE = 0.02$, $t(3, 175) = 0.10$, $p = .924$. State orientation remained a nonsignificant predictor of $FSA_{assigned}$ after the mediator self-access was controlled for, $b = 0.003$, $SE = 0.003$, $t(3, 175) = 1.01$, $p = .312$. Most importantly, the indirect effect of state orientation on $FSA_{assigned}$ through self-access was also found to be nonsignificant, $b = -0.0001$, $SE = 0.001$, 95% CI [-0.002, 0.002]. Hence, contrary to H2-3, self-access did not mediate the relationship between state orientation and $FSA_{assigned}$.[24]

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[23] For all regression models involved in the mediation analysis, linearity, homoscedasticity, the autocorrelation of error terms, and the normal distribution of error terms were assessed with (residual) plots and concomitant analysis (Hair et al., 2014).

[24] The indirect effect remained nonsignificant when only participants from the treatment condition ($N = 90$) were considered, $b = -0.0007$, $SE = 0.001$, 95% CI [-0.004, 0.001].

Figure 8

Study 2—Mediation Model for the Influence of State Orientation on FSA$_{assigned}$ Through Self-Access
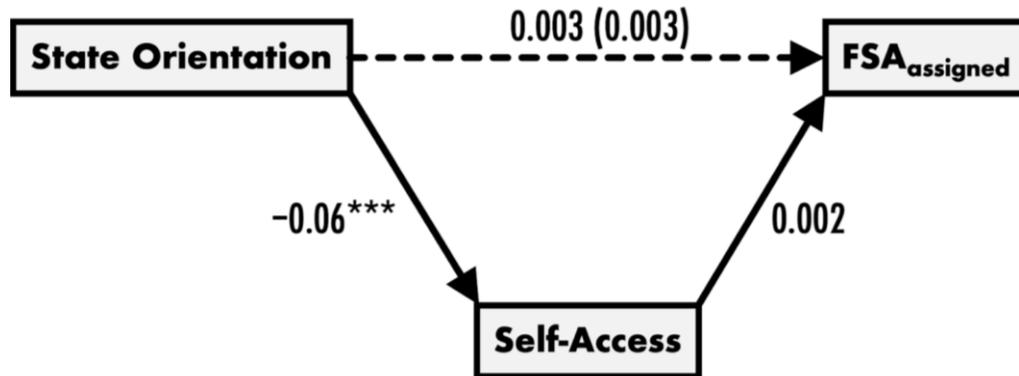
Note. $N = 179$. Values represent unstandardized coefficients. The value in parentheses represents the total effect of state orientation on FSA$_{assigned}$ when the effect of self-access was not controlled for. The indirect effect was found to be nonsignificant, $b = -0.0001$, $SE = 0.001$, 95% CI [−0.002, 0.002],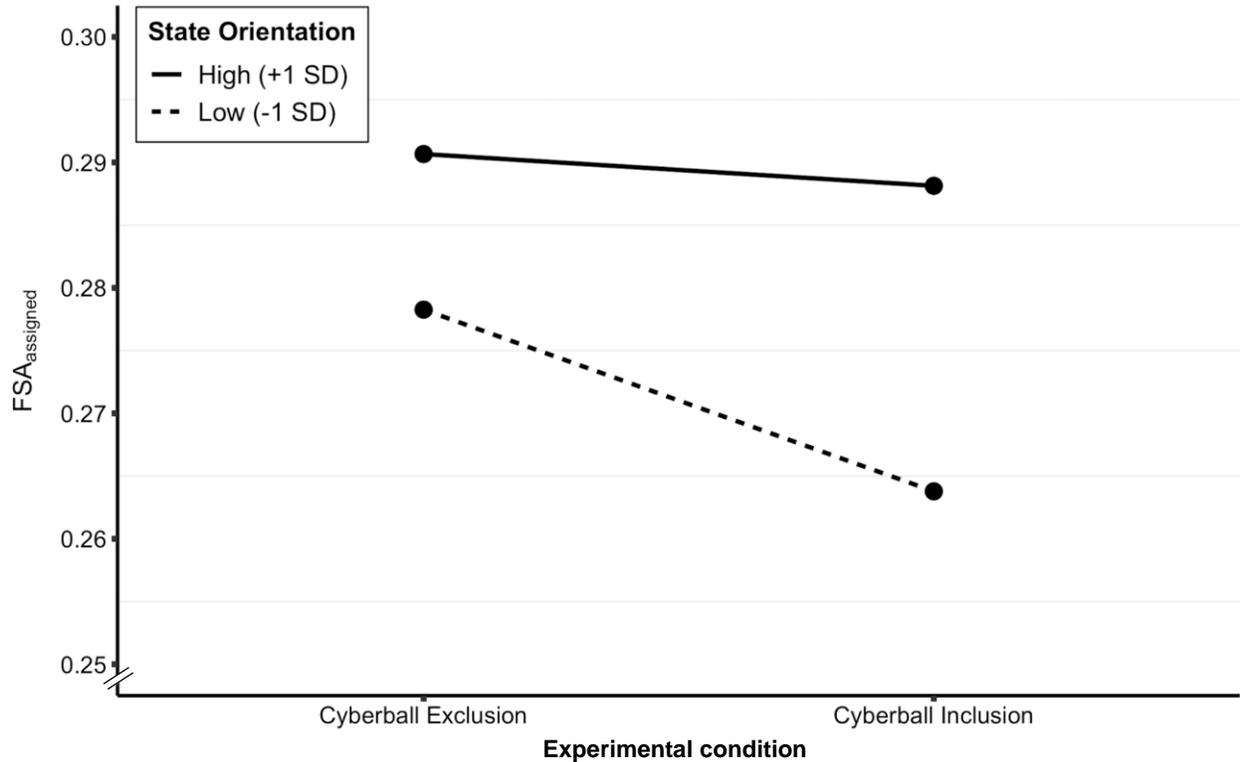 while the effect of FSA$_{assigned}$ was controlled for. FSA$_{assigned}$ = rate of false self-ascriptions of assigned activities; FSA$_{remaining}$ = rate of false self-ascriptions of remaining activities.

*** $p < .001$.

5.3.7 Additional Analyses

Memory Performance Parameters for Experimental Conditions

Table 9 presents the means and standard deviations for the relevant memory performance parameters grouped by the two experimental conditions, namely, Cyberball exclusion (i.e., treatment) and Cyberball inclusion (i.e., control). Table 9 shows that, across all conditions, FSA$_{assigned}$ did not differ from FSA$_{remaining}$. Consequently, it is still possible that self-infiltration in

the present study represented a general self-ascription tendency irrespective of the actual source of the activity instead of a specific tendency toward false self-ascriptions of assigned activities. Despite empirical support for the effectiveness of the experimental induction, $FSA_{assigned}$, $FSA_{remaining}$, and $Accuracy_{self-selected}$ were almost identical in the two experimental conditions. That is, although negative affect could be successfully induced in the treatment condition, no increase in self-infiltration could be observed compared with the control condition. These findings also cannot be explained by individual differences in state orientation because the interaction between experimental condition and state orientation in predicting $FSA_{assigned}$ also turned out to be nonsignificant. Therefore, the experimental manipulation has to be considered unsuccessful in increasing the extent to which participants were prone to self-infiltration.

Table 9

Study 2—Means and Standard Deviations for the Memory Performance Parameters Grouped by the Experimental Conditions

	Entire sample[a]		Cyberball Exclusion[b] (treatment condition)		Cyberball Inclusion[c] (control condition)	
	M	*SD*	*M*	*SD*	*M*	*SD*
$FSA_{assigned}$	.28	.13	.28	.13	.28	.12
$FSA_{remaining}$	.28	.14	.28	.14	.29	.14
$Accuracy_{self-selected}$	.74	.19	.72	.10	.75	.09

Note. $FSA_{assigned}$ = rate of false self-ascription of assigned activities; $FSA_{remaining}$ = rate of false self-ascription of remaining activities; $Accuracy_{self-selected}$ = rate of self-selected activities correctly recalled as self-selected.

[a] $N = 179$; [b] $N = 90$; [c] $N = 89$.

Postexperimental Questions[25]

Congruent with Study 1, participants were asked to answer several postexperimental questions that were supposed to provide additional insights into the findings and the functionality of the experimental procedure. Regarding the experimental manipulation, participants were asked the question, "During the ball-tossing game, did you have any doubts about whether the other players were real?" A total of 32% of the participants indicated that they did not believe the other players were real, 54% of participants had doubts, and only 13% had no doubts. Hence, and analogous to Study 1, the credibility of Cyberball's cover story is still questionable, even in the face of the adaptations that were incorporated to increase its credibility. In a newly incorporated question, participants were also asked to once again put themselves in the situation of the Cyberball game and indicate the extent to which they agreed with "I was able to put myself in the ball-tossing game" based on a 9-point Likert scale ranging from 1 (*disagree*) to 9 (*strongly agree*). With an average score of $M = 5.39$ ($SD = 2.44$), participants were only partly able to immerse themselves in the Cyberball game.

Regarding the retrieval phase of the experiment, participants were asked, "How often did you have to guess when you were asked to remember whether an office activity was self-selected or not?" A total of 2% of the participants indicated *80% - 100%*, 13% indicated *60% - 80%*, 43% indicated *40% - 60%*, 35% indicated *20% - 40%*, and 7% indicated *0% - 20%.* That is, 58% of the participants indicated that they guessed 40% of the time or more (i.e., nearly every second office activity or more) when deciding whether a given office activity had been self-selected or not.

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[25] Apart from the measures reported here, additional measures were administered for different research purposes. As they are not relevant to the derived hypotheses, they are not reported here.

Although the guessing frequencies were slightly lower than in Study 1, participants still reported a high average guessing frequency for self-selected office activities.

Regarding the experimental procedure in general, answers given for the two statements "I knew what I had to do in every phase of the experiment" and "I was able to put myself into the role of an office assistant," which were rated on a 9-point Likert scale ranging from 1 (*disagree*) to 9 (*strongly agree*), resulted in mean values of 8.32 ($SD = 1.17$) and 6.66 ($SD = 1.82$), respectively. That is, congruent with Study 1, most of the participants were smoothly guided through each phase of the experiment while they were able to immerse themselves in the role of an office assistant. The insights obtained by the postexperimental questions were also supported by the answers participants provided in the postexperimental interviews.

5.4 Discussion

The goal of Study 2 was to replicate Study 1 while making various changes to the experimental paradigm designed to resolve the problems that has been diagnosed. Among other changes, a control group for Cyberball was added to examine the isolated effect of the experimental manipulation on self-infiltration. In support of Cyberball's effectiveness, the analyses revealed significant differences in self-reported negative affect between the treatment (i.e., Cyberball exclusion) and control (i.e., Cyberball inclusion) conditions. Accordingly, in line with H2-1, self-infiltration was expected to be higher in the treatment condition than in the control condition. However, no significant effect of the experimental manipulation on self-infiltration was observed. That is, self-infiltration was unrelated to the experimental conditions, a finding that was also reflected by the identical $FSA_{assigned}$ (i.e., self-infiltration) values in the two conditions. The null findings also could not be explained by state orientation, which was hypothesized to work as a moderator of the relationship between experimental condition and self-infiltration. According to

H2-2, in the treatment condition, participants high in state orientation were supposed to be more prone to self-infiltration than participants low in state orientation. However, no significant interaction between experimental condition and state orientation in predicting self-infiltration was revealed. In addition, to test H2-3, Study 2 was also aimed at replicating the mediating role of self-access in the relationship between state orientation and self-infiltration. Although only half of the participants were confronted with a negative affect induction, a smaller yet significant mediation effect was still expected to emerge for the entire sample. However, no significant indirect effect of state orientation on self-infiltration via self-access was observed.

Despite the promising results found in Study 1, the present study did not support any of the hypotheses. The question that arises is thus why the present study was not successful in replicating previous research, especially Study 1. The following issues have been identified: First, it is necessary to ask whether Cyberball as the choice of experimental manipulation offers an effective way to induce negative affect. Despite significant differences in self-reported negative affect between the treatment and control conditions, the absolute differences between the conditions in T2 and T3 were comparably low, especially considering that the answers were given on a 9-point Likert scale. Consequently, the Cyberball treatment condition might not have been effective in inducing enough negative affect to allow for significant differences in the emergence of self-infiltration across conditions. In addition, Cyberball may also have caused other negative reactions that were not captured by the mood adjective items administered throughout the experiment. For instance, the simplistic set-up and monotonous ball tossing may also have resulted in boredom given the more stimulating up-to-date mobile games participants may be used to. Although previous research found that different kinds of moods were related to self-infiltration (e.g., sad mood; Baumann & Kuhl, 2003), uncontrolled side effects of Cyberball on perceived mood states

may have suppressed the emergence of self-infiltration. Furthermore, the analysis of postexperimental questions revealed that participants had considerable doubts whether they were playing against real other players that were actually generated by the computer. At the same time, participants were only partly able to fully imagine the ball tossing game in line with the cover story. These two self-reported issues may have reduced the effectiveness of Cyberball in increasing negative affect and participants' proneness to self-infiltration. Overall, Cyberball has thus far turned out to be an inappropriate method for inducing negative affect with respect to promoting the emergence of self-infiltration. Second, replacing the IPANAT as a filler task with another round of Cyberball may have been disadvantageous with regard to weakening participants' memory. Although Cyberball was supposed to stabilize or even increase negative affect before the critical retrieval phase, it might not have been effective in weakening participants' memory, which also plays a vital role in the emergence of self-infiltration. That is, the nature of the IPANAT itself (i.e., rating artificial words according to the extent to which these words express human qualities) may have been more effective at weakening memory due to its novelty and complexity than another round of monotonous ball tossing. Third, the guessing frequencies still turned out to be high despite the reduction in the number of office activities from 96 to 72. Although the guessing frequencies were slightly lower than in Study 1, they still remained high. However, these high guessing frequencies contradict the objective accuracy of recalling self-selected office activities, as this accuracy was significantly above chance (Accuracy$_{\text{self-selected}}$), suggesting that these results represent post hoc, potentially biased self-reports. Fourth, because the other-classification task had been removed with the goal of making the experiment less time-consuming and more ecological, it was not possible to test the alternative explanation for self-infiltration in terms of a global memory deficit. Analyses on false other-ascriptions of self-selected and remaining activities (i.e.,

$FOA_{self-selected}$ and $FOA_{remaining}$) may have provided additional insights into better understanding the dynamics of the adapted experimental paradigm. For instance, the experiment may have had a specific influence on FOAs instead of FSAs. Fifth, the sample size in the present study was considerably smaller than in Study 1 and also slightly below the sample size requirement of 186 due to several, unexpected exclusions. Even though the descriptive statistics supported the lack of significant findings (e.g., identical $FSA_{assigned}$ and $FSA_{remaining}$ values), the possibility that the sample size might not have been large enough cannot be ruled out. However, and congruent with Study 1, additional analyses and postexperimental interviews revealed that participants were, overall, satisfied with the cover story and the guidance throughout the experiment.

6 Study 3

6.1 Introduction

The goal of the previous study was to replicate the promising results of Study 1 while implementing changes in the experimental procedure to solve the diagnosed issues that were believed to have led to small effects. However, Study 2 was unsuccessful not only in replicating Study 1 but also in supporting the newly derived hypotheses concerning the integrated experimental manipulation. More specifically, the experimental induction of negative affect via Cyberball (i.e., exclusion vs. inclusion) was unrelated to self-infiltration, despite significant differences in self-reported negative affect between the two conditions. The lack of relationship between the experimental manipulation and self-infiltration also could not be explained by state orientation, which was proposed as a moderator. Moreover, the mediating role of self-access in the relationship between state orientation and self-infiltration found no support. The discussion of the null findings resulted in the identification of several problems. Consequently, Study 3 can be seen as another attempt to replicate Study 1 while implementing further adaptations to the experimental paradigm of Study 2 and aiming for a larger sample size than in Study 2.

The following changes were implemented in Study 3: First, the negative affect manipulation via two rounds of Cyberball in Study 2 was replaced with a negative affect induction consisting of two 14-min film sequences from a Spiegel TV documentary about the terrible living conditions of Romanian orphans in the Cighid orphanage (Aust, 1995). In the control condition, positive affect was induced by showing two 14-min sequences of sketches from the English comedy "Mr. Bean" (Driscoll et al., 1993). The reason for choosing this specific film induction was that Baumann and Kuhl (2003) had previously successfully promoted the occurrence of self-

infiltration with the exact same experimental manipulation. By using the same manipulation, issues connected to the effectiveness of the negative affect induction should be ruled out. In fact, research has shown that visual stimuli (e.g., film sequences) are one of the most effective methods for eliciting basic emotions (e.g., Siedlecka & Denson, 2019). At the same time, the two 14-min film sequences were expected to have a greater influence in weakening participants' memory than the relatively short Cyberball game. Second, the other-classification task was reincluded in the experimental paradigm. In Study 2, the other-classification task was removed for reasons of parsimony and in response to the unexplained sequence effect. However, removing the other-classification task went along with the disadvantage of not having any information about false other-ascriptions (i.e., FOAs), which were necessary to rule out a global memory deficit as one possible alternative explanation for self-infiltration. Also, to account for the observed sequence effect in Study 1, the retrieval phase was redesigned. Instead of two separate classification tasks as applied in Study 1, participants in Study 3 were presented all office activities only once and sequentially asked not only to indicate whether a given office activity was previously self-chosen or not but also, immediately afterward, whether the same office activity was previously assigned to them by their superior or not. This way, the retrieval phase followed the same pattern as the encoding phase (i.e., self-selection followed by assignment). Third, the number of office activities involved in the experiment was again reduced from 96 (Study 1) to 72 (Study 2) to 48 in the present study with the aim of reducing the guessing rates that remained high in Study 2. Fourth, the cover story was changed slightly by telling the participants that, in a second part of the experiment, they would actually have to perform some of the office activities they selected during the PC experiment. This was actually not the case, but to make the cover story more plausible, a separate room that made different office activities clearly visible to all participants when they entered the

laboratory had been prepared. Thus, the experiment was supposed to entail immediate consequences for the choices participants made during the experiment while additionally increasing the ecological validity of the experiment. Fourth, a sample size that was considerably larger than in Study 2 and comparable to the sample size in Study 1 was targeted to exclude any issues related to the power of the study.

As Study 3 represented a conceptual replication of Study 2 with a focus on major changes in the experimental paradigm, the hypotheses remained the same. That is, participants in the treatment condition (i.e., induction of negative affect via two 14-min film sequences about Cighid) were expected to show higher rates of self-infiltration than participants in the control condition (i.e., induction of positive affect via two 14-min sequences of sketches from "Mr. Bean"). Accordingly, I hypothesized:

Hypothesis 3-1 (H3-1): Participants in the treatment condition (i.e., induction of negative affect) show higher rates of self-infiltration than participants in the control condition (i.e., induction of positive affect)

Also, in congruence with Study 2, state orientation was expected to moderate the relationship between the experimental manipulation and self-infiltration. That is, participants high in state orientation were expected to be more prone to self-infiltration in the treatment condition than in the control condition. By contrast, participants low in state orientation were not supposed to be affected by the experimental manipulation, such that they were expected to show the same self-infiltration rates in the two conditions. Accordingly, I hypothesized:

Hypothesis 3-2 (H3-2): The positive effect of the treatment condition (compared with the control condition) on self-infiltration is moderated by state orientation.

In addition, and despite the systematic differences in the negative and positive affect participants experienced due to the experimental manipulation, Study 3 was also intended to replicate the mediating role of self-access in the relationship between state orientation and self-infiltration. Accordingly, I hypothesized:

Hypothesis 3-3 (H3-3): The positive relationship between state orientation and self-infiltration is mediated by self-access.

6.1.1 Open Practice Statement

The hypotheses in the present study were not preregistered. In view of Open Science recommendations, I will report on how I determined the sample size, all data exclusions, all manipulations, and all measures related to the hypotheses. All study materials, including additional variables measured for different research purposes, are publicly available on the Open Science Framework.[26] The data cannot be made openly accessible, as the informed consent form for the study did not inform the participants of this possibility. The data are available upon request.

6.2 Method

6.2.1 Data Collection Procedure and Participants

Congruent with the procedure reported in Study 2, Study 3 used the exact sample size requirement that resulted from the power analysis in Study 1 (i.e., 186 participants). However, because Study 2 resulted in null findings in contrast to Study 1, the sample size requirement was set to match the sample size of 247 acquired in Study 1. In order to allow for expected attrition

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[26] Link to the OSF project: https://osf.io/sdw65/?view_only=09add803f4814172a624b48b47ddf53b.

and to further increase the statistical power needed to detect even small effects, 366 undergraduate students from the TUM School of Management and TUM School of Education, Technical University of Munich, were recruited. As in Study 1, participants were recruited through the sampling pool system "MotivaTUM" operated by the TUM Chair of Psychology. They received course credit in exchange for their participation. As all participants had to sign an informed consent form, the minimum age was set to 18 years. Technical problems during the online questionnaire or the laboratory experiment (e.g., incomplete online questionnaire data or experiments were shut down), erratic behaviors (e.g., unfinished experiments due to wrongdoing or voluntary termination), or an insufficient level of German language proficiency (i.e., CEFR level lower than C1) resulted in the exclusion of 28 participants. Another 10 participants were excluded because they had already taken part in either Study 1 or Study 2. A multivariate outlier analysis based on Mahalanobis distance (Leys et al., 2018; Urban & Mayerl, 2018) yielded another six outliers that were excluded (for more information, see Chapter 6.3.1). The final sample consisted of 322 participants (129 women; $M_{age} = 21.12$; 271 participants from the TUM School of Management).

6.2.2 Online Questionnaire[27]

State Orientation

As in Study 2, the Action Control Scale (ACS-90; Kuhl, 1994a, 1994b) was used to measure threat-related state orientation with high scores indicating state orientation and low scores indicating lower state orientation (or action orientation). The internal consistency (Cronbach's

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[27] Apart from the questionnaires reported here, additional questionnaires were administered for different research purposes. As they are not relevant to the derived hypotheses, they are not reported here.

alpha) value of the scale was .66, and the distribution of participants' average scores was relatively normal ($M = 6.64$, $SD = 2.61$). These values were comparable to the values in Studies 1 and 2.

Self-Access

As in Study 2, the Self-Access Form (SAF; Quirin & Kuhl, 2018) was used to measure self-access, defined as an individual's subjective ability to access emotional self-referential information and thus to recognize and understand their own emotions. The internal consistency (Cronbach's alpha) value was .67, and the distribution of participants' average scores was relatively normal ($M = 2.94$, $SD = 0.53$). These values were comparable to the values in Studies 1 and 2.

6.2.3 Experimental Procedure[28]

As in Studies 1 and 2, participants completed an online questionnaire at least 1 day before they were scheduled to take part in the laboratory experiment. The questionnaire included demographics (age and gender) as well as the ACS-90 and SAF. Upon their arrival in the laboratory, all participants signed an informed consent form. Afterward, they were seated in individual cubicles equipped with a computer, monitor, keyboard, mouse, and headphones. All participants were isolated in their cubicles by dividing walls. Groups of no more than eight participants were tested at the same time. After being seated, all participants were given oral instructions, which included information about the anonymity of the data, the voluntary nature of their participation, potential erratic behavior (e.g., programs getting shut down), and the intention of the experiment (i.e., the cover story). The cover story was similar to the story presented in

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[28] Apart from the information provided in this chapter, the experiment included additional phases and tasks at the end of the described procedure that served different research purposes. As they are not relevant to the derived hypotheses, they are not reported here.

Studies 1 and 2. However, in the present study, participants were informed that, in a second part of the laboratory experiment, they would actually have to carry out several of the office activities they selected during the PC experiment. This was actually not the case, but to make the cover story more plausible, a separate room that made different office activities clearly visible to all participants when they entered the laboratory had been prepared. Thus, the experiment was supposed to entail immediate consequences for the choices participants made during the experiment while additionally increasing the ecological validity of the experiment. Also, the same behavioral experiment software, E-Prime (Version 3.0.3.80), was used. The experiment consisted of five phases (for an overview of the phases, see Figure 9). In the following, particular emphasis will be placed on the changes that were implemented after Studies 1 and 2.

The first experimental phase (i.e., attractiveness rating) was analogous to Phase 1 in Studies 1 and 2, apart from the fact that the number of office activities was reduced to 48 (Study 1: 96; Study 2: 72) by removing the ones that had been, on average, rated the most attractive in Study 2. The reason for reducing the number of office activities was to lower the high guessing frequencies that remained high in Study 2.

As in Study 2, the second experimental phase consisted of the first part of the experimental manipulation. However, contrary to Study 2, Cyberball was replaced by new a negative affect induction (treatment condition) versus a positive affect induction (control condition). Participants were randomly assigned to either one of the conditions. Negative affect was induced by showing participants a 14-min film sequence from a Spiegel TV documentary about the terrible living conditions of Romanian orphans in the Cighid orphanage (Aust, 1995). Positive affect was induced by showing participants a 14-min sequence of sketches from the English comedy "Mr. Bean" (Driscoll et al., 1993). As in Study 2, the film sequences were introduced and framed as a "well-

deserved break from work." This change in the experimental manipulation was based on the promising findings by Baumann and Kuhl (2003). The authors were successfully able to provide evidence of an increase in the extent to which participants were prone to self-infiltration in the negative affect versus the positive affect conditions. In fact, research has shown that visual stimuli (e.g., film sequences) are one of the most effective methods for eliciting basic emotions (e.g., sadness and happiness; Siedlecka & Denson, 2019). By directly replicating the authors' experimental manipulation, potential issues connected to the negative affect induction diagnosed in Study 2 should be ruled out. At the same time, the experimental manipulation with a duration of 14 min was supposed to be more successful in weakening participants' memory than the relatively short Cyberball game in Study 2. Similar to Studies 1 and 2, participants were asked to indicate the extent to which they were experiencing negative ("disgusted," "sad," "upset," "depressed," "confused") and positive ("positively excited") mood states at that very moment ("Please indicate how […] you feel at this very moment") immediately before (T1; Cronbach's $\alpha = .65$ for the negative items) and after (T2; Cronbach's $\alpha = .92$ for the negative items) the induction. The scale ranged from 1 (*not at all*) to 9 (*totally*).

The third experimental phase (i.e., self-selection and assignment of office activities) was analogous to Phase 3 in Studies 1 and 2. Congruent with Study 2, the fourth experimental phase consisted of another induction of negative affect versus positive affect. That is, participants were shown either the second part of the Spiegel TV documentary about Cighid (treatment condition) or more "Mr. Bean" sketches (control condition), both of which lasted another 14 min. In contrast to Study 2, participants' current mood was measured again before (T3; Cronbach's $\alpha = .88$ for negative items) and after (T4; Cronbach's $\alpha = .94$ for negative items) the second induction. In

total, participants' mood was measured four times, that is, immediately before and after each of the two inductions.

The fifth experimental phase was similar to Phases 5 and 6 in Study 1. However, the self- and other-classification tasks were combined into a single phase instead of two separate classification tasks. That is, participants were presented all office activities in a random order only once and sequentially asked not only to indicate whether a given office activity was previously self-chosen or not but also, immediately afterward, whether the same office activity was previously assigned to them by their superior or not. In this way, the retrieval phase followed the same two steps as the encoding phase (i.e., self-selections and assignments of office activities), thus rendering a sequence effect, as found in Study 1, impossible. In addition, the inclusion of the other-classification task made it possible to account for false other-ascriptions (FOAs) necessary to rule out a global memory deficit. Also congruent with Studies 1 and 2, participants were asked to answer several postexperimental questions. Immediately after the postexperimental questions, participants in the negative affect condition were presented another 2018 "Spiegel-TV" documentary which showed how the terrible living conditions portrayed in the film have fundamentally improved since 1998. Also analogous to Studies 1 and 2, participants were debriefed immediately after the experiment and some were interviewed.

Figure 9

Study 3—Experimental Phases in the Self-Infiltration Paradigm
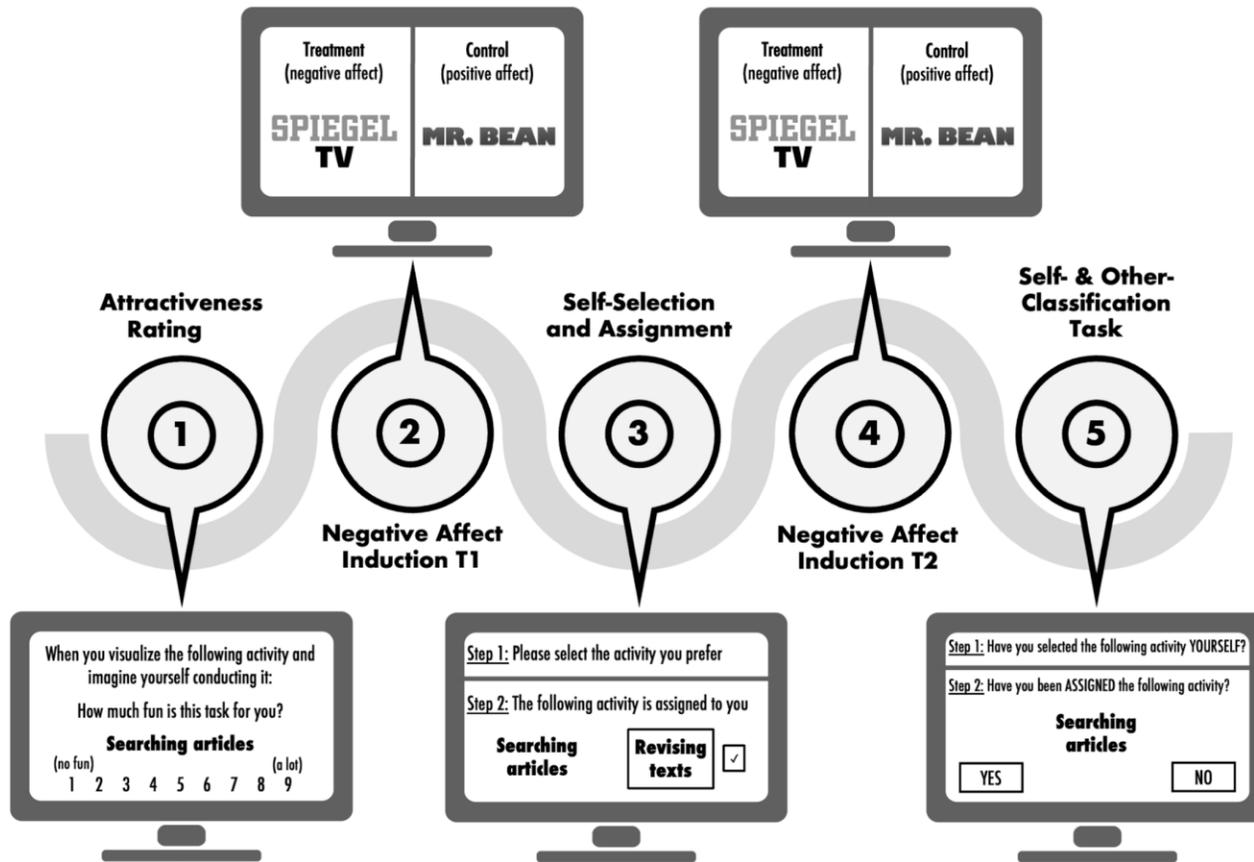
6.2.4 Measurement of Self-Infiltration

The data generated from the experiment and the measurement of the relevant performance parameters were identical to those in Study 1 (see Table 1). That is, self-infiltration was measured by the participants' rates of false self-ascriptions of assigned activities ($FSA_{assigned}$), which ranged from 0-1, thereby indicating the proportion of assigned office activities that were falsely remembered as self-chosen (e.g., 6 out of 12 which would represent a self-infiltration rate of .5).[29] Congruent with Studies 1 and 2, the alternative explanation for self-infiltration in terms of a general self-ascription tendency was accounted for by controlling for the effect of $FSA_{remaining}$ on $FSA_{assigned}$. However, contrary to Study 2, the alternative explanation for self-infiltration in terms of a global memory deficit concerning self-selected and assigned office activities as indicated by false other-ascriptions (FOAs) was accounted for by reincluding the other-classification task.

6.3 Results

6.3.1 Outlier Analysis

The outlier analysis was identical to the analysis in Study 2. The analysis technique Mahalanobis distance was applied to detect and exclude multivariate outliers (Leys et al., 2018; Urban & Mayerl, 2018). In the present study, Mahalanobis distance was calculated for the dependent variable as well as for the variables that were hypothesized to have a significant effect on the dependent variable. These variables were $FSA_{remaining}$, state orientation, self-access, experimental condition, and $FSA_{assigned}$. Following a chi-square distribution with degrees of

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[29] Identical to Studies 1 and 2, self-infiltration was not assessed separately for office activities with high and low attractiveness because the results did not uncover any effects that depended on attractiveness, thereby indicating that the preselection of office activities with low to moderate attractiveness was successful.

freedom set to four (i.e., equal to the number of predictors) and a cut-off value of $p < .01$, six data points with significant Mahalanobis distances were identified as multivariate outliers and excluded from the data set.

6.3.2 Descriptive Statistics and Correlations

Table 10 presents the means, standard deviations, and zero-order correlations between the variables that were relevant for testing the hypotheses. The analyses of the means and standard deviations of the noncomposed memory performance parameters showed that, on average, 74% ($M = .74$, $SD = .12$) of the self-selected office activities were correctly recalled as self-selected (Accuracy$_{self-selected}$). A total of 20% ($M = .20$, $SD = .12$) of all the assigned activities were falsely classified as self-selected (i.e., FSA$_{assigned}$ or self-infiltration), and 21% ($M = .21$, $SD = .14$) of all the remaining activities were falsely classified as self-selected (FSA$_{remaining}$). That is, contrary to expectations, FSA$_{assigned}$ was almost equal to FSA$_{remaining}$, thereby supporting the alternative explanation for self-infiltration as a general self-ascription tendency. Also, 63% ($M = .63$, $SD = .13$) of the assigned activities were correctly recalled as assigned (Accuracy$_{assigned}$). A total of 48% ($M = .48$, $SD = .19$) of all the self-selected activities were falsely classified as assigned (FOA$_{self-selected}$), and 49% ($M = .49$, $SD = .20$) of all the remaining activities were falsely classified as assigned (FOA$_{remaining}$). That is, FOA$_{self-selected}$ was also almost equal to FOA$_{remaining}$. In comparison with Studies 1 and 2, (a) Accuracy$_{self-selected}$ was considerably higher than in Study 1 (64%) but the same as in Study 2 (74%), (b) FSA$_{assigned}$ and FSA$_{remaining}$ were considerably lower than in Study 1 (42% and 35%, respectively) but also slightly lower than in Study 2 (28% and 28%, respectively), (c) Accuracy$_{assigned}$ was considerably higher than in Study 1 (57%), (d) FOA$_{self-selected}$ was considerably lower than in Study 1 (61%), and (e) FOA$_{remaining}$ was slightly higher than in Study 1 (42%).

The analysis of intercorrelations showed that state orientation and the T1 measure of self-reported negative affect were not significantly correlated, $r_{T1} = .14$, $p = .011$. The partial correlations between state orientation and the T2, T3, and T4 measures of negative affect were also nonsignificant, when the previous points of measurement were controlled for, $r_{T2} = .05$, $p = .349$, $r_{T3} = .08$, $p = .149$, $r_{T4} = .01$, $p = .871$. The same applied to the (partial) correlation between state orientation and the measure of positive affect, $r_{T1} = -.08$, $p = .159$, $r_{T2} = .01$, $p = .886$, $r_{T3} = -.06$, $p = .266$, $r_{T4} = -.02$, $p = .714$. Consequently, state orientation was not significantly associated with self-reported negative and positive affect across measurement points.

Contrary to H3-1, experimental condition was not significantly related to FSA$_{assigned}$, $r = -.05$, $p = .411$, suggesting that the emergence of self-infiltration was unrelated to whether the participants were in the treatment versus the control condition. In contrast to H3-2, state orientation was not significantly correlated with FSA$_{assigned}$, $r = -.04$, $p = .467$. In support of the mediation hypothesis (i.e., H3-3), state orientation was significantly related to self-access, $r = -.26$, $p < .001$. However, self-access was not significantly related to FSA$_{assigned}$, $r = .02$, $p = .713$. As expected, FSA$_{remaining}$, which served as a baseline measure of general memory performance in previous research, was significantly correlated with FSA$_{assigned}$, $r = .24$, $p < .001$. Age was not significantly correlated with FSA$_{assigned}$, $r = .00$, $p = .960$. However, in contrast to the results from Studies 1 and 2, gender was significantly correlated with FSA$_{assigned}$, $r = .16$, $p = .005$. Consequently, FSA$_{remaining}$ and gender were used as control variables in further analyses, whereas age was omitted for reasons of parsimony.[30]

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[30] The results of all analyses remained the same when age was included as a control variable.

Table 10

Study 3—Ranges, Means, Standard Deviations, and Intercorrelations for the Study Variables

Variable	Value range	*M*	*SD*	1	2	3	4	5	6
1. Age	18−99	21.12	2.10	—					
2. Gender[a]	1/2/3	1.60	0.49	−.03	—				
3. Condition[b]	0/1	.50	.50	.02	.02	—			
4. State orientation	0−12	6.64	2.61	.07	**−.24*****	−.06	—		
5. Self-access	1−4	2.94	0.53	−.03	**.17****	.04	**−.26*****	—	
6. FSA$_{assigned}$	0−1	.20	.12	.00	**.16****	−.05	−.04	.02	—
7. FSA$_{remaining}$	0−1	.21	.14	.00	.01	.07	.04	−.01	**.24*****

Note. $N = 322$. Bold numbers indicate significant values. FSA$_{assigned}$ = rate of false self-ascriptions of assigned activities; FSA$_{remaining}$ = rate of false self-ascriptions of remaining activities; Condition = experimental manipulation (induction of negative vs. positive affect).

[a] female = 1, male = 2, diverse = 3. [b] positive affect induction (control condition) = 0, negative affect induction (treatment condition) = 1.

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

6.3.3 Experimental Manipulation Analysis

A mixed ANOVA was computed to test the effectiveness of the experimental manipulation in inducing negative affect. That is, mean differences in self-reported negative affect were compared across two factors, namely, the between-subjects factor experimental condition (treatment: induction of negative affect via a Spiegel TV documentary about Cighid; control: positive affect induction via sketches from "Mr. Bean") and the within-subjects and repeated-measures factor time (i.e., the four mood measurements; T1: immediately before the first induction; T2: immediately after the first induction; T3: immediately before the second induction; T4: immediately after the second induction). The average level of self-reported negative affect was calculated by taking the mean of the five negative mood items ("disgusted," "sad," "upset," "depressed," "confused").

The results from the tests of assumptions revealed the following: First, the analysis of the studentized residuals revealed that there were no reasonable outliers for the within- or between-subjects factors. Second, the analysis of the studentized residuals showed that the dependent variable (i.e., average self-reported mood) was normally distributed for each combination of the two factors. Third, Mauchly's test of sphericity was significant ($p < .001$) and therefore violated, so the Huynh-Feldt correction was used in further analyses. Fourth, Levene's test of homogeneity revealed significant values for some levels of the repeated-measures variable. However, because Levene's test of homogeneity is highly susceptible to being influenced by large sample sizes (such as the Shapiro-Wilk test for normality), and both experimental conditions had an equal number of participants, homogeneity was assumed.

The analysis of main effects revealed a significant main effect of the between-subjects factor experimental condition, $F(1, 320) = 492.08$, $p < .001$, $\eta_p^2 = .61$, and a significant main effect

of the within-subjects and repeated-measures factor time, Huynh-Feldt $F(2.38, 761.59) = 379.37$, $p < .001$, $\eta_p^2 = .54$. More importantly, the analysis of interaction effects revealed a significant interaction between experimental condition and time, Huynh-Feldt $F(2.38, 761.59) = 445.01$, $p < .001$, $\eta_p^2 = .58$. That is, the profile of self-reported negative affect across the experimental conditions was different for the four measurement points (as depicted in Figure 10). More specifically, post hoc analyses revealed a significant interaction for the contrast of T1 versus T4, $F(1, 320) = 729.90$, $p < .001$, $\eta_p^2 = .70$, indicating that the change in self-reported negative affect from T1 to T4 in the treatment condition was significantly different from the change in the control condition. The same applied for the contrasts of T2 versus T4, $F(1, 320) = 39.62$, $p < .001$, $\eta_p^2 = .11$, and T3 versus T4, $F(1, 320) = 452.80$, $p < .001$, $\eta_p^2 = .59$.

Furthermore, Bonferroni-corrected pairwise comparisons revealed a nonsignificant difference in self-reported negative affect between the two experimental conditions in T1 ($M_{\text{T1, treatment}} = 1.57$, $M_{\text{T1, control}} = 1.61$, $|\Delta M| = 0.04$, $p = .467$), a significant difference in T2 ($M_{\text{T2, treatment}} = 3.65$, $M_{\text{T2, control}} = 1.51$, $|\Delta M| = 2.14$, $p < .001$), a significant difference in T3 ($M_{\text{T3, treatment}} = 2.35$, $M_{\text{T3, control}} = 1.50$, $|\Delta M| = 0.86$, $p < .001$), and significant difference in T4 ($M_{\text{T4, treatment}} = 3.93$, $M_{\text{T4, control}} = 1.49$, $|\Delta M| = 2.44$, $p < .001$). Moreover, Bonferroni-corrected pairwise comparisons also revealed that, for the treatment condition, self-reported negative affect was significantly different between T1 and T2 ($|\Delta M| = 2.08$, $p < .001$), T1 and T3 ($|\Delta M| = 0.78$, $p < .001$), between T1 and T4 ($|\Delta M| = 2.37$, $p < .001$), T2 and T3 ($|\Delta M| = 1.30$, $p < .001$), T2 and T4 ($|\Delta M| = .29$, $p < .001$), and T3 and T4 ($|\Delta M| = 1.58$, $p < .001$). For the control condition, self-reported negative affect was not significantly different between T1 and T2 ($|\Delta M| = 0.10$, $p = .550$), T1 and T3 ($|\Delta M| = 0.17$, $p = .309$), T1 and T4 ($|\Delta M| = 0.12$, $p = .390$), T2 and T3 ($|\Delta M| = 0.01$, $p = 1.000$), T2 and T4 ($|\Delta M| = 0.02$, $p = 1.000$), or T3 and T4 ($|\Delta M| = 0.01$, $p = 1.000$).

In summary, the results supported the effectiveness of the treatment versus the control condition in inducing negative affect. As expected, in T1, no difference in self-reported negative affect was found between the two experimental conditions. However, in T2, T3, and T4, self-reported negative affect was significantly higher for participants in the negative affect induction than in the positive affect induction.[31] Also, the absolute values in perceived negative affect were considerably higher than in Studies 1 and 2, indicating that the present negative affect induction was significantly more effective than Cyberball.

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[31] The reverse pattern was found for the one positive mood item "positively excited," revealing a significant interaction effect between experimental condition and time, Huynh-Feldt $F(2.29, 733.21) = 103.56$, $p < .001$, $\eta_p^2 = .25$. That is, participants reported significantly higher values in the control condition (induction of positive affect) than in the treatment condition (induction of negative affect) in T2, T3, and T4.

Figure 10

Study 3—Plot of the Interaction Between Experimental Condition and Time in Predicting Self-Reported Negative Affect
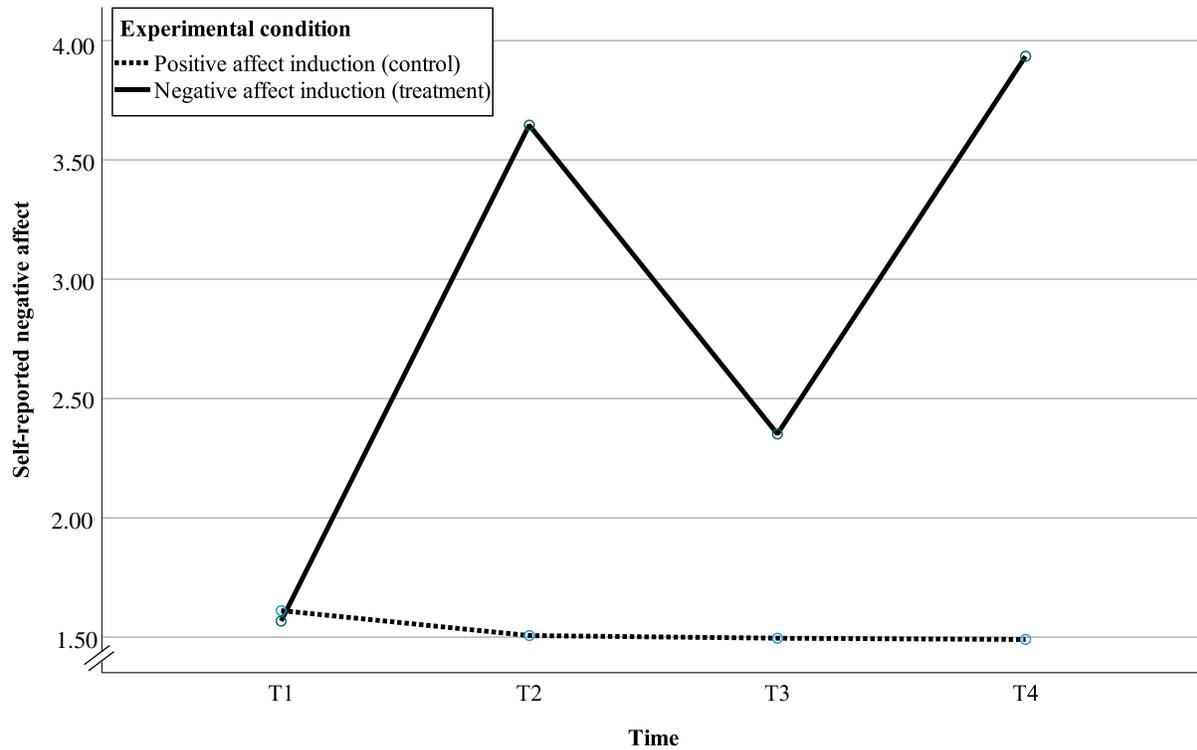
Note. N = 322. T1 = immediately before the first induction; T2 = immediately after the first induction; T3 = immediately before the second induction; T4 = immediately after the second induction.

6.3.4 Hierarchical Multiple Regression Analysis

Identical to Study 2, a hierarchical multiple regression analysis (Urban & Mayerl, 2018) was computed to test H3-1, which predicted that the experimental manipulation would be associated with self-infiltration that was operationalized as the rate of false self-ascriptions of assigned activities ($FSA_{assigned}$). More specifically, $FSA_{assigned}$ was expected to be significantly higher in the negative affect condition (i.e., treatment) than in the positive affect condition (i.e.,

control). With $FSA_{assigned}$ as the dependent variable, $FSA_{remaining}$ and gender were entered in Step 1, followed by experimental condition in Step 2.[32] As listed in Table 11, and contrary to H3-1, experimental condition did not significantly predict $FSA_{assigned}$, $\beta = -.06$, $t(3, 318) = -1.21$, $p = .228$; $R^2 = .083$, $\Delta R^2 = .004$; $\Delta F(1, 318) = 1.46$, $p = .228$.[33] As in Study 2, experimental condition turned out to be unrelated to the emergence of self-infiltration.

Analogous to Study 1, the same analysis was computed for $FOA_{self-selected}$. The hierarchical multiple regression analysis for predicting $FOA_{self-selected}$, while controlling for $FOA_{remaining}$ and gender in Step 1, revealed that, in Step 2, experimental condition significantly predicted $FOA_{self-selected}$, $\beta = -.11$, $t(3, 318) = -2.07$, $p = .039$; $R^2 = .021$, $\Delta R^2 = .059$; $\Delta F(1, 318) = 4.28$, $p = .039$. That is, in contrast to $FSA_{assigned}$, $FOA_{self-selected}$ was significantly higher in the control condition than in the treatment condition.

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[32] For the two regression models involved in Steps 1 and 2, linearity, homoscedasticity, the autocorrelation of error terms, and the normal distribution of error terms were assessed with (residual) plots and concomitant analysis (Hair et al., 2014).

[33] The results remained the same when including the six data points that were detected and excluded as outliers according to Mahalanobis distance.

Table 11

Study 3—Hierarchical Multiple Regression Analysis Predicting FSA$_{assigned}$

Predictor	Step 1			Step 2		
	b	95% CI$_b$	β	*b*	95% CI$_b$	β
(Intercept)	**0.18*****	[0.16, 0.20]	.00	**0.19*****	[0.17, 0.21]	.00
FSA$_{remaining}$	**0.21*****	[0.12, 0.31]	.23	**0.21*****	[0.12, 0.31]	.24
Gender[a]	**0.04****	[0.01, 0.07]	.15	**0.04****	[0.01, 0.07]	.15
Condition[b]	—	—	—	−0.02	[−0.02, 0.01]	−.06
R^2	**.079*****			**.083*****		
F for ΔR^2	—			1.46		

Note. $N = 322$. Continuous predictors are mean-centered. Bold numbers indicate significant values. FSA$_{assigned}$ = rate of false self-ascriptions of assigned activities; FSA$_{remaining}$ = rate of false self-ascriptions of remaining activities; Condition = experimental manipulation (induction of negative vs. positive affect).

[a] female = 1, male = 2, diverse = 3. [b] positive affect induction (control condition) = 0, negative affect induction (treatment condition) = 1.

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

6.3.5 Moderation Analysis

Identical to Study 2, a moderation analysis (Urban & Mayerl, 2018) was computed to test H3-2, which proposed that the effect of the experimental manipulation on self-infiltration would be moderated by state orientation. More specifically, in the treatment condition, FSA$_{assigned}$ was expected to be higher for high state orientation than for low state orientation. In the control condition, due to the absence of negative affect, no difference in FSA$_{assigned}$ between high and low state orientation was expected. With FSA$_{assigned}$ as the dependent variable, FSA$_{remaining}$, gender,

experimental condition, and state orientation were entered in Step 1, followed by the Experimental Condition x State Orientation interaction in Step 2[34] (see Table 11 for the isolated effect of the control variables $FSA_{remaining}$ and gender). As listed in Table 12, and identical to Study 2, there was no isolated effect of state orientation on $FSA_{assigned}$, $\beta = -.02$, $t(4, 317) = -1.17$, $p = .244$. Also, there was no significant interaction between experimental condition and state orientation in predicting $FSA_{assigned}$, $\beta = .21$, $t(5, 316) = 1.36$, $p = .175$; $R^2 = .089$, $\Delta R^2 = .006$; $\Delta F(1, 316) = 1.85$, $p = .175$.[35, 36]

Although the interaction turned out to be nonsignificant, a simple slope analysis was computed for exploratory purposes. As depicted in Figure 11, the simple slope analysis revealed an interaction that was partly in line with H3-2. That is, in the negative affect condition (i.e., treatment), $FSA_{assigned}$ was higher for participants who were high in state orientation than for participants who were low in state orientation, even though $FSA_{assigned}$ was almost identical for those who were high in state orientation across conditions. Contrary to expectations, $FSA_{assigned}$ was highest in the control condition and lowest in the treatment condition for participants who were low in state orientation. However, the slopes of the two depicted regression lines for the interaction between experimental manipulation and state orientation in predicting $FSA_{assigned}$ were not significant, $b = 0.002$, $t(5, 316) = 0.10$, $p = .918$ or $b = -0.03$, $t(5, 316) = -1.83$, $p = .067$, respectively.

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[34] For the two regression models involved in Steps 1 and 2, linearity, homoskedasticity, the autocorrelation of error terms, the VIF factors, and the normal distribution of error terms were assessed with (residual) plots and concomitant analysis (Hair et al., 2014).

[35] The results remained the same when including the six data points that were detected and excluded as outliers according to Mahalanobis distance.

[36] The same moderation analysis with $FOA_{self-selected}$ as the dependent variable also resulted in nonsignificant findings. That is, there was no significant interaction between experimental condition and state orientation in predicting $FOA_{self-selected}$, $\beta = -.27$, $t(5, 316) = 1.09$, $p = .279$; $R^2 = .024$, $\Delta R^2 = .003$; $\Delta F(1, 316) = 1.18$, $p = .279$.

Table 12

Study 3—Moderation Analysis Predicting FSA$_{assigned}$

Predictor	Step 1			Step 2		
	b	95% CI$_b$	β	*b*	95% CI$_b$	β
(Intercept)	**0.19*****	[0.17, 0.22]	.00	**0.19*****	[0.17, 0.22]	.00
FSA$_{remaining}$	**0.21*****	[0.12, 0.31]	.24	**0.21*****	[0.12, 0.31]	.24
Gender[a]	**0.04****	[0.01, 0.07]	.15	**0.04****	[0.01, 0.06]	.15
Condition[b]	−0.02	[−0.04, 0.01]	−.07	−0.02	[−0.04, 0.01]	−.25
State orientation (SO)	−0.001	[−0.01, 0.004]	−.02	−0.004	[−0.01, 0.003]	−.09
Condition x SO	—	—	—	0.007	[−0.003, 0.02]	.21
R^2	**.083*****			**.089*****		
F for ΔR^2	—			1.85		

Note. $N = 322$. Continuous predictors are mean-centered. Bold numbers indicate significant values.

FSA$_{assigned}$ = rate of false self-ascriptions of assigned activities; FSA$_{remaining}$ = rate of false self-ascriptions of remaining activities; Condition = experimental manipulation (induction of negative vs. positive affect).

[a] female = 1, male = 2, diverse = 3. [b] positive affect induction (control condition) = 0, negative affect induction (treatment condition) = 1.

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

Figure 11

Study 3—Simple Slope Analysis for the Interaction Between Experimental Condition and State Orientation in Predicting FSA_{assigned}
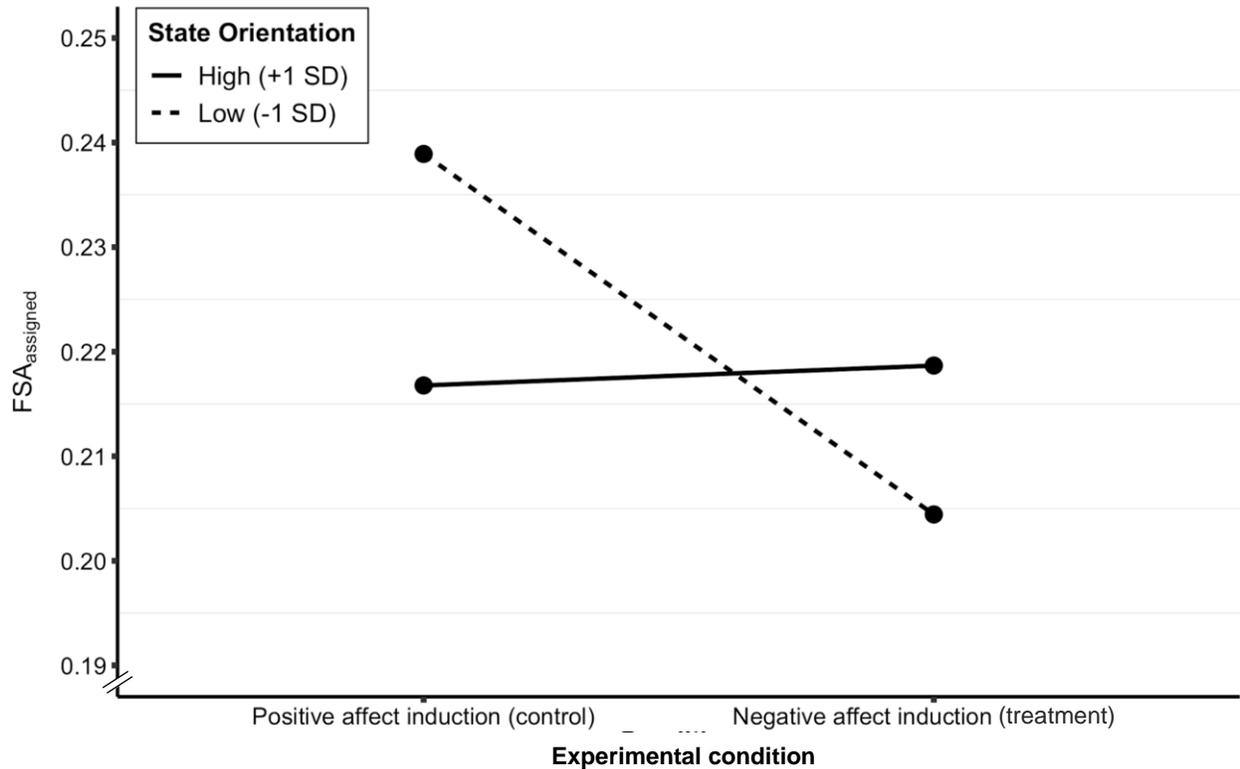
Note. $N = 322$. Continuous predictors are mean-centered. The simple slope analysis was based on the regression equation produced in Step 2 of the multiple hierarchical regression analysis (see Table 12). The slopes of the two regression lines were nonsignificant. FSA_{assigned} = rate of false self-ascriptions of assigned activities.

6.3.6 Mediation Analysis

Identical to Study 2, a mediation analysis[37] (see Figure 12) was computed to test whether self-access would be found to mediate the effect of state orientation on self-infiltration, as shown in Study 1 and predicted in H3-3. Congruent with the procedure reported in Studies 1 and 2 (Hayes Model 4 with 10,000 bootstrapping resamples, 95% percentile confidence intervals, and $FSA_{remaining}$ and gender as covariates), the mediation analysis revealed a nonsignificant effect of state orientation on $FSA_{assigned}$, $b = -0.001$, $SE = 0.003$, $t(3, 318) = -0.25$, $p = .806$, but a significant effect of state orientation on self-access, $b = -0.05$, $SE = 0.01$, $t(3, 318) = -4.20$, $p < .001$. However, controlling for state orientation, the effect of self-access on $FSA_{assigned}$ was nonsignificant, $b = -0.002$, $SE = 0.01$, $t(4, 317) = -0.13$, $p = .899$. State orientation remained a nonsignificant predictor of $FSA_{assigned}$ after the mediator self-access was controlled for, $b = -0.001$, $SE = 0.003$, $t(4, 317) = -0.27$, $p = .789$. Most importantly, the indirect effect of state orientation on $FSA_{assigned}$ through self-access was also found to be nonsignificant, $b = 0.0001$, $SE = 0.001$, 95% CI [−0.001, 0.001]. Hence, contrary to H3-3, self-access did not mediate the relationship between state orientation and $FSA_{assigned}$.[38]

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[37] For all regression models involved in the mediation analysis, linearity, homoscedasticity, the autocorrelation of error terms, and the normal distribution of error terms were assessed with (residual) plots and concomitant analysis (Hair et al., 2014).

[38] The indirect effect remained nonsignificant when only participants from the treatment condition ($N = 161$) were considered, $b = -0.0003$, $SE = 0.001$, 95% CI [−0.002, 0.001].

Figure 12

Study 3—Mediation Model for the Influence of State Orientation on FSA$_{assigned}$ Through Self-Access
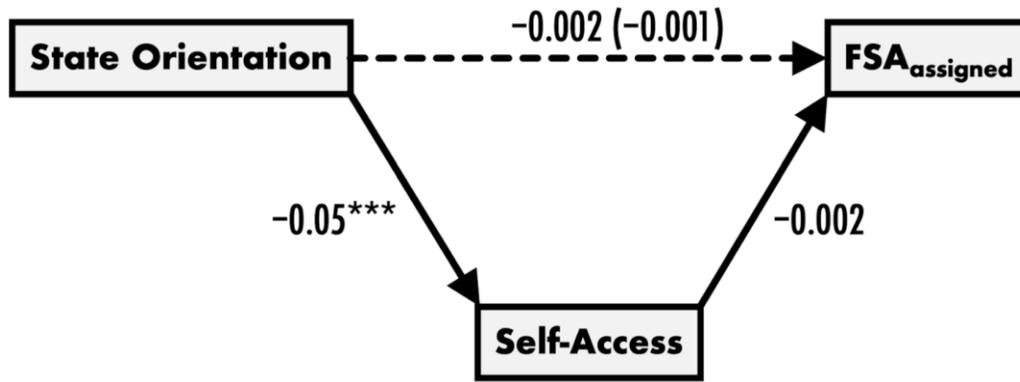
Note. $N = 322$. Values represent unstandardized coefficients. The value in parentheses represents the total effect of state orientation on FSA$_{assigned}$ when the effect of self-access was not controlled for. The indirect effect was found to be nonsignificant, $b = 0.0001$, $SE = 0.001$, 95% CI [−0.001, 0.001], while the effects of FSA$_{assigned}$ and gender were controlled for. FSA$_{assigned}$ = rate of false self-ascriptions of assigned activities; FSA$_{remaining}$ = rate of false self-ascriptions of remaining activities.

*** $p < .001$.

6.3.7 Additional Analyses

Memory Performance Parameters for Experimental Conditions

Table 13 presents the means and standard deviations for the relevant memory performance parameters grouped by the two experimental conditions, namely, the negative affect induction (treatment) and the positive affect induction (control). Table 13 shows that, across conditions, FSA$_{assigned}$ almost did not differ from FSA$_{remaining}$. Consequently, it is still possible that self-

infiltration in the present study represented a general self-ascription tendency irrespective of the actual source of the activity instead of a specific tendency toward false self-ascriptions of assigned activities. Although the experimental manipulation turned out to be successful in inducing negative affect, $FSA_{assigned}$, $FSA_{remaining}$, and $Accuracy_{self-selected}$ were nearly identical in the two experimental conditions. That is, although negative affect could be successfully induced in the treatment condition, no increase in self-infiltration could be observed in comparison with the control condition. These findings also cannot be explained by individual differences in state orientation because the interaction between experimental condition and state orientation in predicting $FSA_{assigned}$ also turned out to be nonsignificant. Therefore, the experimental manipulation has to be considered unsuccessful in increasing the extent to which participants were prone to self-infiltration.

In the case of false other-ascriptions (FOAs), $FOA_{self-selected}$ revealed slightly more variance across conditions than $FSA_{assigned}$. In line with the significant effect of experimental condition on $FOA_{self-selected}$, $FOA_{self-selected}$ was higher in the control condition than in the treatment condition (.50 vs. .45). The same did not apply to $FOA_{remaining}$, which remained identical across conditions. Analogous to $Accuracy_{self-selected}$, $Accuracy_{assigned}$ was also invariant across the experimental conditions.

Table 13

Study 3—Means and Standard Deviations for the Memory Performance Parameters Grouped by the Experimental Conditions

	Entire sample[a]		Negative affect (treatment condition)[b]		Positive affect (control condition)[c]	
	M	*SD*	*M*	*SD*	*M*	*SD*
FSA$_{assigned}$	.20	.11	.20	.11	.21	.14
FSA$_{remaining}$	.21	.14	.22	.14	.20	.13
FOA$_{self-selected}$	.48	.19	.45	.20	.50	.18
FOA$_{remaining}$	.49	.20	.49	.20	.49	.20
Accuracy$_{self-selected}$	.74	.12	.74	.12	.74	.12
Accuracy$_{assigned}$	.63	.13	.63	.13	.64	.13

Note. FSA$_{assigned}$ = rate of false self-ascription of assigned activities; FSA$_{remaining}$ = rate of false self-ascription of remaining activities; FOA$_{self-selected}$ = rate of false other-ascription of self-selected activities; FOA$_{remaining}$ = rate of false other-ascription of remaining activities; Accuracy$_{self-selected}$ = rate of self-selected activities correctly recalled as self-selected; Accuracy$_{assigned}$ = rate of assigned activities correctly recalled as assigned.

[a] *N* = 322; [b] *N* = 161; [c] *N* = 161.

Postexperimental Questions[39]

Identical to Studies 1 and 2, participants were asked to answer several postexperimental questions that were supposed to provide additional insights into the findings and the functionality of the experimental procedure. Regarding the experimental manipulation, participants were asked to provide their answers to the question, "How thoroughly did you pay attention to the two film

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[39] Apart from the measures reported here, additional measures were administered for different research purposes. As they are not relevant to the derived hypotheses, they are not reported here.

sequences?" on a 9-point Likert scale ranging from 1 (*not at all*) to 9 (*very*). With an average score of $M = 7.85$ ($SD = 1.41$), participants paid good attention to the two film sequences shown in both conditions.

Regarding the encoding phase of the experiment, participants were asked to answer the new question, "Please put yourself once again into the selection/assignment phase of the experiment. What was your decision based on?" by choosing one of four options: (a) "I thought about which task is personally more important to me," (b) "I thought about which task is personally more enjoyable to me," (c) "I thought about which task would be more important to my supervisor," (d) "I made my decision more or less by chance." A total of 8% of the participants chose Option a, 89% Option b, 2% Option c, and 1% Option d. That is, almost every participant based their choices on personal enjoyment.

Regarding the retrieval phase of the experiment, participants were asked, "How often did you have to guess when you were asked to remember whether an office activity was self-selected or not?" A total of 4% of the participants indicated *80% - 100%*, 29% indicated *60% - 80%*, 38% indicated *40% - 60%*, 22% indicated *20% - 40%*, and 7% indicated *0% - 20%*. That is, 71% of the participants indicated that they guessed 40% of the time or more (i.e., nearly every second office activity or more) when deciding whether a given office activity had been self-selected or not. Concerning the question "How often did you have to guess when you were asked to remember whether an office activity was assigned or not?" a total of 18% of the participants indicated *80% - 100%*, 42% indicated *60% - 80%*, 28% indicated *40% - 60%*, 11% indicated *20% - 40%*, and 1% indicated *0% - 20%*. That is, 88% of the participants indicated that they guessed 40% of the time or more (i.e., nearly every second office activity or more) when deciding whether a given office activity had been assigned or not. Compared with Studies 1 and 2, the guessing frequencies for

self-selected and assigned activities were the highest in the present study, although the number of office activities was continuously reduced throughout the studies (Study 1: 96 vs. Study 2: 72 vs. Study 3: 48).

Regarding the experimental procedure in general, the answers given for the two statements "I knew what I had to do in every phase of the experiment" and "I was able to put myself into the role of an office assistant," which were rated on a 9-point Likert scale ranging from 1 (*disagree*) to 9 (*strongly agree*), resulted in mean values of 8.34 ($SD = 1.13$) and 5.74 ($SD = 1.77$), respectively. That is, congruent with Studies 1 and 2, most of the participants were smoothly guided through each phase of the experiment while they were able to immerse themselves in the role of an office assistant. The insights obtained through the postexperimental questions were also supported by the answers participants provided in the postexperimental interviews.

6.4 Discussion

Study 3 represented another attempt to replicate the promising results found in Study 1 by (a) solving potential issues that had been diagnosed in the experimental paradigm of Study 2 and (b) aiming for a larger sample size than in Study 2. Among other changes, Cyberball from Study 2 was replaced by another experimental manipulation involving film sequences that turned out to be effective in inducing negative affect, similar to what has been reported in previous research (Baumann & Kuhl, 2003). However, congruent with Study 2, the present study resulted in null findings. That is, contrary to H3-1, no support was found for the direct effect of the experimental manipulation on self-infiltration to the extent that self-infiltration was almost identical in the treatment and control conditions. Also, no support was found for the moderating role of state orientation in the relationship between the experimental condition and self-infiltration. According to H3-2, participants high in state orientation were expected to be more prone to self-infiltration

in the negative affect condition (treatment) than in the positive affect condition (control). For participants low in state orientation, no difference in self-infiltration was expected across conditions. However, no significant interaction between experimental condition and state orientation in predicating self-infiltration was found. The present study was also unsuccessful in replicating the mediating role of self-access in the relationship between state orientation and self-infiltration as found in Study 1 (H3-3). Unexpectedly, there was a significant effect of experimental condition on false other-ascriptions of self-selected activities ($FOA_{self-selected}$) while $FOA_{remaining}$ and gender were controlled for. That is, $FOA_{self-selected}$ was significantly higher in the control condition than in the treatment condition. The same did not apply to $FOA_{remaining}$. The interaction between experimental condition and state orientation in predicting $FOA_{self-selected}$ turned out to be nonsignificant. This significant main effect of experimental condition on $FOA_{self-selected}$ cannot be explained by the dissertation's theoretical framework and has never been reported in research before.

Taken together, the present study failed to replicate previous research on self-infiltration and the findings from Study 1. None of the derived hypotheses were supported. Analogous to Study 2, the question that arises is why the present study did not uncover the expected results. The following potential issues have been identified: First, the experimental manipulation was ineffective in keeping the induced negative affect high throughout the experiment. Although the induction successfully increased self-reported negative affect from T1 to T2, a huge drop from T2 to T3 was observed to the extent that T3 almost reached the baseline level. That is, the negative affect induced by the first experimental manipulation almost vanished after the self-selection and assignment phase of the experiment. This result, in turn, might indicate that the negative affect that was induced was not enduring enough to promote the emergence of self-infiltration in the encoding

or retrieval phases. At the same time, the film induction showed high effectiveness in eliciting negative affect (i.e., from T1 to T2 and from T3 to T4; see Figure 10), comparable to what has been reported by Baumann and Kuhl (2003). Second, guessing frequencies remained high despite the reduction in the number of office activities from 72 (Study 2) to 48 in the present study. The self-reported high guessing frequencies might be related to the comparably lengthy experimental inductions that were both 14 min in length. In contrast to the high guessing frequencies, the objective recall accuracies (i.e., $Accuracy_{self\text{-}selected}$ and $Accuracy_{assigned}$) were significantly above chance, suggesting that these results represent post hoc, potentially biased self-reports. Third, the redesigned retrieval phase in which the self- and other-classification tasks were combined into a single phase may have allowed participants to better differentiate between self-selected and assigned office activities, which, ultimately, may have resulted in reduced self-infiltration rates. Because participants were asked to sequentially indicate whether a given office activity was previously self-chosen or not and, immediately afterward, whether the same office activity was previously assigned to them by their superior or not, they might have been motivated to consider not only just one source (i.e., just self-selection or just assignment) but both sources at the same time. Compared with two separate classification tasks, taking both sources into account at the same time might have supported individuals to more easily differentiate between self-selected and assigned activities. This ability to differentiate may thus have led to fewer memory errors. Despite the identified potential issues, additional analyses and postexperimental interviews revealed that participants were satisfied with the cover story and the guidance throughout the experiment just as they had been in Studies 1 and 2.

7 General Discussion

The present dissertation was designed to conceptually replicate and extend previous research on self-infiltration to further increase its scientific value. Accordingly, the goals were threefold: First, I aimed to conceptually replicate (in contrast to direct replications; see Derksen & Morawski, 2022) the main findings on self-infiltration using comparably large sample sizes to rule out potential validity and reliability issues, such as random effects in light of the ongoing replication crisis in psychology (e.g., see Nosek et al., 2021, for a current overview of the replication crisis in psychology). Second, I aimed to apply novel controlled variations of the original self-infiltration paradigm to test the boundary conditions and robustness of the self-infiltration phenomenon across varying experimental situations. Third, I aimed to examine novel variables that are relevant in the context of self-infiltration to better understand the complex and dynamic process underlying its emergence.

Study 1 was conducted as a first attempt to conceptually replicate existing research on self-infiltration using a comparably large sample size (Baumann & Kuhl, 2003; Kaufmann et al., 2020; Kazén et al., 2003; Kuhl & Kazén, 1994). To do so, I examined the relationship between threat-related state orientation and self-infiltration and hypothesized that state-oriented individuals would be more prone to self-infiltration in situations of negative affect than their action-oriented peers. Several changes in the experimental paradigm were implemented and tested in line with the idea behind conceptual replications. Among others, the minimal ostracism paradigm Cyberball was applied as a promising, novel method for inducing negative affect. Moreover, the original self-infiltration paradigm was transferred from PANTER into the sophisticated psychological software tool E-Prime to allow for adaptations in the experimental phases that were mainly targeted toward facilitating the simultaneous testing of multiple participants to acquire larger samples sizes than in

previous research. At the same time, Study 1 was aimed at extending previous research by investigating the crucial role self-access that is supposed to play in self-infiltration (e.g., Baumann, Kuhl, & Kazén, 2005; Kuhl et al., 2015). Applying the self-access form that has been developed by Quirin and Kuhl (2018), impaired self-access was hypothesized to mediate the relationship between state orientation and self-infiltration. Overall, Study 1 was able to meet the expectations. First, Cyberball was demonstrated to be effective in eliciting negative affect. Second, the results supported the hypothesized positive relationship between state orientation and self-infiltration (H1-1). At the same time, alternative explanations for self-infiltration in terms of a general self-ascription tendency and a global memory deficit could be ruled out. Third, the hypothesized mediating role of impaired self-access in the relationship between state orientation and self-infiltration was supported (H1-2). Fourth, postexperimental questions and interviews revealed that participants were smoothly guided through the newly designed experimental phases and were well able to put themselves into the role of an office assistant as part of the cover story. In summary, Study 1 can be considered a success not only regarding the replication and extension of previous research using a large sample size but also regarding the newly designed self-infiltration paradigm.

However, Study 1 was not without its limitations. The unexpected sequence effect related to the order of classification tasks and the relatively small effects found in the regression and mediation analyses led to several further adaptations in Study 2, which was intended to replicate Study 1. Among other changes, the cover story behind Cyberball was changed to increase its credibility, a Cyberball control group was added, a second round of Cyberball replaced the IPANAT as the filler task, and the experimental paradigm was reduced in content and length by removing the other-classification task and reducing the number of office activities from 96 to 72. Due to the changes that were implemented in Study 2, the hypotheses were adapted slightly to

account for the newly integrated control group. That is, in contrast to Study 1, the direct effect of the experimental induction of negative affect (i.e., Cyberball) on self-infiltration could be examined. I hypothesized that participants in the Cyberball treatment condition (i.e., induction of negative affect via ostracism) would show higher rates of self-infiltration than participants in the Cyberball control condition (H2-1). Furthermore, I hypothesized that the effect of experimental condition on self-infiltration would be moderated by state orientation, expecting that highly state-oriented individuals in the treatment condition would be more prone to self-infiltration than individuals with low state orientation (or action orientation). For the control condition, I expected no difference in self-infiltration between high and low state orientation (H2-2). Finally, I also intended to replicate the mediating effect of self-access in the relationship between state orientation and self-infiltration. Identical to Study 1, the results confirmed the effectiveness of Cyberball as an experimental manipulation for inducing negative affect. However, none of the derived hypotheses were supported. Self-infiltration turned out to be unrelated to the experimental manipulation to the extent that the self-infiltration rate was identical in the two conditions. This null finding could also not be explained by participants' state orientation, as the interaction between experimental condition and state orientation in predicting self-infiltration became nonsignificant. Also, no support was found for the mediating effect of self-access in the relationship between state orientation and self-infiltration. The indirect effect was nonsignificant. Therefore, Study 2 failed to conceptually replicate the promising results found in Study 1.

The unexpected null findings in Study 2 led to several further adaptations in the experimental paradigm of Study 3, which was designed to resolve the diagnosed issues. Among other changes, Cyberball as a method for inducing negative affect was replaced by another experimental manipulation based on film sequences that have previously been shown to be

effective at promoting the emergence of self-infiltration (Baumann & Kuhl, 2003). Furthermore, the other-classification task was reincluded and combined with the self-classification task in a single phase to equate the encoding phase with the retrieval phase (i.e., no potential sequence effect). Also, the number of office activities was reduced from 72 to 48 in addition to changes in the cover story, such as telling the participants that they would actually have to carry out some the office activities they selected in the experiment. At the same time, a large sample size that was comparable to Study 1 was aimed at. Building upon Study 2, Study 3 represented another attempt to conceptually replicate Study 1. For this reason, the hypotheses were identical to those from Study 2. The results illuminated the effectiveness of the new experimental manipulation in eliciting negative affect. However, as in Study 2, none of the derived hypotheses were supported. That is, self-infiltration was once again found to be unrelated to the experimental manipulation. Self-infiltration was nearly identical in the two experimental conditions. Moreover, state orientation did not moderate the relationship between experimental condition and self-infiltration. Finally, the indirect effect of state orientation on self-infiltration via self-access became nonsignificant. Consequently, and as in Study 2, Study 3 failed to replicate Study 1.

7.1 The Pivotal Role of Self-Access

Study 1 successfully replicated the frequently found positive relationship between state orientation and self-infiltration using a large sample size and provided initial evidence for the mediating role of self-access. That is, high state orientation was found to be indirectly related to increased self-infiltration via low levels of (or impaired) self-access. Until now, impaired self-access in state-oriented individuals has never been directly or empirically tested. In line with theoretical considerations and empirical findings in PSI theory (see Baumann, Kazén, & Quirin, 2018, for an overview), the mediation effect provided evidence for the central role of the

integrative self for living a fulfilling, satisfied, and self-determined life. If self-access is impaired in response to negative affect or stress, individuals lose access to the numerous psychological functions that are associated with the integrative self, such as self-decision, self-motivation, and self-relaxation (Quirin et al., 2021). These psychological functions, which are facilitated by the self, in turn, are essential for promoting the process of internalization (Ryan & Deci, 2000, 2017) that brings actions in line with true, rather implicit needs, desires, and motives, thereby providing protection from being alienated by imposed social expectations. As shown in Study 1, state-oriented individuals who lack the ability to downregulate elicited negative affect suffer from impaired access by losing their "sense of self" of what they really want and enjoy to the extent that they mistake imposed expectations for self-selected goals. More specifically, according to previous research (e.g., Kazén et al., 2003), state-oriented individuals lose access to a valid model of their emotional preferences (i.e., their emotions connected to goal and action representations), which is considered a prerequisite for the formation of self-compatible goals. Without a valid model of emotional preferences, imposed goals or expectations cannot be thoroughly compared with important aspects of the integrated self (i.e., values, needs, and emotional preferences). Instead, a poor and hasty self-compatibility checking is rendered more likely, making individuals more inclined to attend to and prioritize external expectations, leaving them helpless to resist external influences and making self-congruent, and not allowing them to make self-determined decisions in the formation of personal goals.

If self-access plays a central role in determining the occurrence of self-infiltration in state-oriented individuals, as presented in Study 1, the question arises as to whether and to what degree individuals can protect themselves from self-infiltration by either temporarily or permanently (see Roberts et al., 2017, for a recent meta-analysis on changing traits through interventions) increasing

self-access. Baumann, Kuhl, and Kazén (2005) already successfully buffered the emergence of self-infiltration by letting participants squeeze a ball for 1 min with their left hand. The activation of right-hemispheric networks through left-hand muscle contraction was supposed to increase self-access, render successful self-combability more likely, and provide protection against being unwillingly self-infiltrated. Alternatively, self-access could be increased or restored via mindfulness intervention that has been shown to increase self-awareness of one's values and interests (e.g., Donald et al., 2020; Marion-Jetten et al., 2022; Strick & Papies, 2017). For instance, Donald et al. (2020) systemically reviewed and meta-analyzed 89 studies ($N = 25,176$) and found consistent support for mindfulness in predicting more autonomous forms of motivation than controlled motivation and amotivation. Contrary to the mostly positive effects reported in mindfulness research, Kaufmann et al. (2020) found in two studies that state-oriented participants who underwent mindfulness training showed an increased tendency toward self-infiltration after a brief induction of negative affect than their peers in the control condition. These contradictory findings on mindfulness (see Cebolla et al., 2017, for evidence of potential negative effects of mindfulness techniques in general) have to be evaluated with caution, as more high-quality research is necessary to draw conclusions about the postulated effects of mindfulness (see van Dam et al., 2018, for a comprehensive review). Nonetheless, Kaufmann and colleagues' findings suggest that state-oriented individuals may require special guidance to benefit from the wide variety of popular self-help tools. Alternatively, they may turn to more tailored interventions that have been shown to be effective for state orientation, such as self-motivation exercises (Baumann & Kuhl, 2020) or mental contrasting (Friederichs et al., 2020). Consequently, future research is needed on state and trait self-access, which may help state-oriented individuals better differentiate personal goals from others' expectations. Interventions aimed at increasing self-insight would

enable state-oriented individuals to make conscious decisions in favor of or against imposed goals, thus raising the level of self-determination their lives (Ryan & Deci, 2000, 2017).

However, the significant mediation model found in Study 1 resulted from a correlational research design that relied on causal interpretations derived from theory and trait measures of self-access. Although the mediation was significant only in the expected direction, it is still possible that an increased proneness to self-infiltration along with the assumed negative consequences can serve as an indicator of limited access to the integrated self that, in turn, affects self-access and state orientation. Both directions have been considered plausible and may aggravate each other when considering potential feedback loop dynamics (i.e., loss-of-autonomy cycle; Kuhl & Beckmann, 1994a). Future research may therefore consider adding state measures of self-access to the self-infiltration paradigm and to examine specific person-situation interactions to better understand the dynamic process underlying self-infiltration. The same applies to self-infiltration itself. When measuring self-infiltration at multiple time points, a dispositional tendency could be better differentiated from a current tendency toward mistaking others' expectations for self-chosen goals. Consequently, only longitudinal designs can finally answer the question of causality.

7.2 The Challenge of Replicating the Self-Infiltration Effect: Potential Causes of Replication Failure

Despite the promising results found in Study 1, the conceptual replication attempts failed in Studies 2 and 3. Neither study supported (a) the direct effect of induced negative affect on self-infiltration, (b) the moderating role of state orientation in the relationship between induced negative affect and self-infiltration, or (c) the mediating role of self-access in the relationship between state orientation and self-infiltration. At the same time, the significant results found in Study 1 must be treated with caution, as the effects can be considered small compared with

previous research in addition to the unexplained sequence effect that accounted for a large proportion of the variance in self-infiltration. Hence, the question that arises is to why the attempts to conceptually replicate the self-infiltration effect faced considerable challenges in the present dissertation. In attempting to find an acceptable answer to this question, I follow Nosek et al.'s (2021) approach by discussing three overlapping correlates (or potential causes) of replication failure, namely, theoretical maturity, features of the original studies, and features of the replication studies. In discussing these three potential causes of replication failure, I will refer to limitations from previous research on self-infiltration as well as limitations in the present dissertation, and I will derive recommendations for future research.

7.2.1 Theoretical Maturity

A first potential cause of replication failure may lie in a phenomenon's theoretical underpinning. A well-established theory that is grounded in strong empirical evidence and that has withstood several falsification attempts is more likely to be successfully replicated than a new theory that has not yet been empirically tested. Hence, the more mature a theory is, the greater the chances of successful replication (e.g., Muthukrishna & Henrich, 2019).

One critical aspect of theoretical maturity is related to theory formalization and transparency, which should provide a comprehensive overview of how a theory's variables are causally related. In the case of the self-infiltration effect, research has been mostly guided by PSI theory, which can be considered a mature theory for the following reasons. First, PSI theory is based on a comprehensive, functional, and dynamic systems approach that accounts for diverse aspects of personality functioning and therefore allows precise predictions about human behavior and experience to be made. Second, PSI theory has undergone continuous theoretical development over the last 3 decades (see Kazén & Quirin, 2018). Third, PSI theory's core propositions have

been empirically tested in several hundred studies (for a comprehensive review, see Baumann, Kazén, Quirin, et al., 2018).

Although self-infiltration is grounded in a well-specified theoretical framework, one may question whether there is a common understanding of the self-infiltration phenomenon and its emergence and whether this common understanding is mature enough to "anticipate the consequences of seemingly irrelevant factors in the sample, setting, intervention, and outcome measures" (Nosek et al., 2021, p. 726). In this regard, what are the phenomenological axioms of self-infiltration? In the first publication on self-infiltration, Kuhl and Kazén (1994) defined self-infiltration as the false self-ascription of external expectations or goals that are alien to the self. The authors conceptualized self-infiltration as a misinformed type of introjection characterized by a low internalization into the self and a "cognitive confusion concerning the self-integration status of a goal or an activity" (Kuhl & Kazén, 1994, p. 1103). That is, individuals are unaware of the self-incongruent status of a self-infiltrated goal, as they mistake external expectations of low personal valence for desirable, self-chosen goals in memory. In line with this definition, the following phenomenological axioms of self-infiltration can be derived: (a) false self-ascription of external goals, (b) low internalization and valence of these external goals, and (c) relative unawareness of the false self-ascriptions and the self-incongruent status of the goals. Consequently, self-infiltration can be considered well-defined concerning its specific characteristics, allowing self-infiltrated goals to be distinguished from more internalized goals (Ryan & Deci, 2000, 2017). However, does the same apply to the dynamic process supposedly underlying the emergence of self-infiltration? Self-infiltration has been assumed to be the product of a hasty and poor self-compatibility checking of imposed, external goals with true, personal preferences during the encoding or retrieval of goal choices (e.g., Baumann, Kuhl, & Kazén, 2005).

More specifically, self-infiltration is proposed to occur when individuals fail to access a valid model of their own emotional preferences in the formation of new goals. Without access to emotional preferences during encoding or retrieval, the quality of self-combability checking diminishes, thereby promoting the tendency toward self-infiltration (e.g., Kazén et al., 2003). The presence of negative affect has been identified as a crucial factor that impairs the quality of self-compatibility checking. For instance, Quirin et al. (2009) showed that high cortisol levels were related to an increased tendency toward self-infiltration. This relationship between induced negative affect and self-infiltration has been replicated in several other studies (e.g., Kazén et al., 2003). According to PSI theory, heightened negative affect blocks access to the integrative self system that stores implicit self-relevant information, such as emotional preferences, necessary for successful self-compatibility checking. Consequently, a common understanding of the dynamic process promoting the emergence of self-infiltration can be assumed.

But what about other contextual factors that are based on rather implicit auxiliary hypotheses and relevant for explaining the emergence of self-infiltration? The following contextual factors have been identified: First, in most of the studies on self-infiltration (Baumann, Kuhl, & Kazén, 2005; Baumann & Kuhl, 2003; Kazén et al., 2003; Kuhl & Kazén, 1994; Quirin, Koole, et al., 2009), participants have been tested individually in close and direct interaction with the experimenter (e.g., Kazén et al., 2003, Exp. 3). That is, examiner effects may explain a considerable portion of the variance in self-infiltration to the extent that the gender, age, traits, attitudes, and interpersonal style of the examiner may have influenced participants' cognition and behavior. An examiner who appears unfriendly and strict in interacting with the participants may induce additional negative affect compared with a more approachable examiner. Also, participants may take the experiment more seriously if they get to work more closely with the experimenter

and interact with the experimenter more. In the present dissertation, participants were tested in groups with almost no contact with the experimenter (apart from the general introduction), which may have contributed to replication failure. Although Kaufmann et al. (2020) replicated the self-infiltration effect in a group testing context, it remains an open question for research to examine potential examiner effects in the emergence of self-infiltration.

A second contextual factor may refer to the experimental setting. Self-infiltration has been studied in various experimental settings with different methods of inducing negative affect, cover stories, and office activities. Although the replication of self-infiltration in different scenarios supports the robustness and generalization of the effect, it leaves many degrees of freedom to the researcher. For instance, previous research has applied diverse approaches for inducing negative affect to promote the emergence of self-infiltration. Such approaches have differed in type, intensity, and duration. These methods for inducing negative affect have included sadness inductions (Baumann & Kuhl, 2003, Study 2) and the use of external pressure (Kazén et al., 2003, Exp. 2), uncontrollable and unpredictable auditory startles (Quirin, Koole, et al., 2009) or stress-inducing imagery exercises (Kaufmann et al., 2020). In Studies 1 and 2 of the present dissertation, Cyberball-induced ostracism was applied as a novel method for inducing negative affect that was expected to be particularly effective due to self-infiltration's inherently social nature. Although Cyberball turned out to be effective in eliciting negative affect and promoting self-infiltration in Study 1, these results could not be replicated in Study 2. At the same time, the same sadness induction used by Baumann and Kuhl (2003) was unsuccessful in increasing participants' proneness to self-infiltration compared with a control condition. Therefore, more research is needed to clarify which aspects of the various methods for inducing negative affect (i.e., type, intensity, or duration) make them more or less effective in evoking self-infiltration. Also, many

different cover stories have been used in self-infiltration experiments, such as the simulation of a work day in an office (Baumann, Kuhl, & Kazén, 2005, Study 1; Baumann & Kuhl, 2003, Study 1; Kazén et al., 2003, Exp. 2 and 3; Kuhl & Kazén, 1994; Quirin, Koole, et al., 2009), the development of an emotional training program for preschool children (Kazén et al., 2003, Exp. 1), the development of an intelligence test in everyday life (Baumann, Kuhl, & Kazén, 2005, Study 2; Baumann & Kuhl, 2003, Study 2), and the self-selection and assignment of extrinsic and intrinsic goals (Kaufmann et al., 2020). The same applies to the number of office activities involved in the experimental paradigm, which have ranged from 24 (Kuhl & Kazén, 1994, Study 1) to 32 (Kazén et al., 2003, Exp. 2) to 36 (Quirin, Koole, et al., 2009) to 48 (e.g., Baumann & Kuhl, 2003, Study 1) to 96 (e.g., Baumann & Kuhl, 2003, Study 2). Hence, research on self-infiltration has varied not only regarding the cover stories but also regarding the types and quantities of office activities. Therefore, it remains an open question for research to discuss how the emergence of self-infiltration is influenced by the cover story and the type and quantity of office activities involved.

A third contextual factor may refer to the emergence of self-infiltration. Research has not yet been able to produce a common understanding of whether self-infiltration is a product of a hasty and poor self-compatibility checking in the encoding or retrieval phases of the experiment. Baumann, Kuhl, and Kazén (2005) found evidence that the encoding phase is more critical for the self-infiltration effect than the retrieval phase. The authors concluded that a "'bad encoding' of external assignments cannot easily be compensated whereas 'good encoding' may still be disturbed later on" (2005, p. 157). What follows is that encoding and retrieval contribute to the occurrence of self-infiltration. However, research on self-infiltration may benefit from controlled experiments examining the self-infiltration effect in response to a bad encoding versus a bad retrieval.

A fourth contextual factor may refer to the filler task. In close connection to the encoding versus retrieval problem, there is also no consensus on the specifics of the filler task that is supposed to weaken memory between the encoding and retrieval phases of the experiment. Past research has used a variety of filler tasks that differed in type and duration. Examples of the filler tasks are the d2 concentration test (5-8 min; Kaufmann et al., 2020, Study 1; Kazén et al., 2003, Exp. 2 and 3; Kuhl & Kazén, 1994, Study 1), the Stroop task (15 min; Kuhl & Kazén, 1994, Study 2), the completion of various questionnaires (15 min; Baumann & Kuhl, 2003, Study 1), negative affect inductions (14 min; Baumann & Kuhl, 2003, Study 2), the reading of texts (10 min; Kazén et al., 2003, Exp. 1), the completion of the NEO-FFI (duration not reported; Baumann, Kuhl & Kazén, 2005), a mixture of different tasks (sequence consisting of PANAS, 5 min of filler task, stress induction, PANAS, 15 min of filler task; Quirin, Koole, et al., 2009), and attractiveness ratings of 12 Chinese symbols (duration not reported; Kaufmann et al., 2020, Study 2). Therefore, it remains an open question for future research to clarify the aspects and the role of the filler task in self-infiltration. As the filler task not only weakens memory but also affects participants' cognition and behavior, it is necessary to obtain a consensus on appropriate filler tasks.

In summary, theoretical maturity may, at least in part, explain why the present dissertation failed to replicate previous research on self-infiltration. Although the phenomenological axioms and the assumed causal mechanism of the self-infiltration effect are well-specified and rooted in the mature PSI theory, research on self-infiltration has fallen victim to a high contextual sensitivity that decreases the chances of replication success. The high complexity of the experimental paradigm used to induce and measure self-infiltration without profound knowledge of various influential factors in the numerous interdependent phases leaves many degrees of freedom to the individual researcher, thereby making replication attempts more difficult. For this reason, future

research on self-infiltration may consider a series of controlled experiments to investigate the various parameters that may underlie the emergence of self-infiltration.

7.2.2 Features of Original Studies

Apart from theoretical maturity, the features of the original studies also have to be taken into account to evaluate a replication attempt's chances of success. In the worst-case scenario, an effect may simply fail to replicate because the findings in the original studies were false positives. However, replication attempts might already fail when the original studies are supported only by weak statistical evidence. For instance, Open Science Collaboration (2015) found that a greater likelihood of replication success was associated with smaller p-values in the original studies. That is, if the original studies are based on small sample sizes, the effects might be overestimated or may even be false positives, especially considering that publication bias favors positive results (e.g., Gelman & Carlin, 2014). In the case of research on the self-infiltration effect, the reported sample sizes can be considered, on average, comparably small. The sample sizes were $N_{Study\ 1} = 72$ and $N_{Study\ 2} = 48$ (Kuhl & Kazén, 1994); $N_{Study\ 1} = 63$ and $N_{Study\ 2} = 32$ (Baumann & Kuhl, 2003); $N_{Study\ 1} = 60$, $N_{Study\ 2} = 46$, and $N_{Study\ 3} = 48$ (Kazén et al., 2003); $N_{Study\ 1} = 32$ and $N_{Study\ 2} = 28$ (Baumann, Kuhl, & Kazén, 2005); $N_{Study\ 1} = 48$ (Quirin, Koole, et al., 2009); and $N_{Study\ 1} = 57$ and $N_{Study\ 2} = 150$ (Kaufmann et al., 2020). That is, the average sample size across all self-infiltration studies was only $N_{average} = 57$ (or even smaller when considering the median). Consequently, in addition to the identified high contextual sensitivity of self-infiltration research, the comparably small sample size greatly reduced the replicability of the self-infiltration effect (see also Anderson & Kelley, 2022). Furthermore, the small sample sizes also raise the question of how credible and robust previous results on self-infiltration are. Despite the limitations of the conceptual replication attempts in the present dissertation (for more information, see Chapter 7.2.3), the large sample

sizes used in the dissertation study series ($N_{\text{Study 1}} = 247$, $N_{\text{Study 2}} = 179$, and $N_{\text{Study 3}} = 322$) might indicate random or false positive effects in the original self-infiltration studies. However, and most importantly, this indication has to be empirically supported by direct and controlled replications in close interaction with the original authors.

Another critical factor for replication success refers to the degree of transparency in the original studies for the simple reason that replicability is impaired when it is difficult to understand what was done in the original studies. Transparency and sharing of all methodological aspects, analytical decisions, and outcomes "reduce the burden of making inferences from underspecified theories, and illuminate auxiliary and unstated assumptions about the conditions sufficient to observe an original finding" (Nosek et al., 2021, p. 727). Following standards such as FAIR Guiding Principles (making research contents findable, accessible, interoperable, and reusable; Wilkinson et al., 2016), journal article reporting standards (JARS; Appelbaum et al., 2018), and born-open data sharing (Rouder, 2016) may help researchers to avoid problems, such as unacknowledged "gardens of forking paths" (Gelman & Loken, 2013), ultimately fostering the credibility of research. In the case of self-infiltration research, a lack of transparency has been identified. However, most of the studies (i.e., five out of six) were published before psychological science was hit by the severe replication crisis in 2010 that has led to many different steps toward increasing transparency in research (e.g., preregistration, open science practices). For this reason, a lack of transparency in self-infiltration research may also have contributed to the present dissertation's replication failures. This lack of transparency may have been especially detrimental given the high contextual sensitivity of the self-infiltration effect, making transparent reports on the process and context that had produced the original findings even more necessary. Therefore,

future research on self-infiltration may benefit from transparent and openly accessible research that comprehensively reports on relevant contextual factors and auxiliary hypotheses.

7.2.3 Features of Replication Studies

Finally, the features of the replication studies have to be cautiously evaluated as many features that tend to decrease the replicability of original studies also apply to replication studies. Apart from false negative results promoted by reverse publication bias, replication failures are also caused by "small samples, poorly controlled designs, and other factors that reduce statistical power and increase uncertainty" (Nosek et al., 2021, p. 728). Taking a critical look at the present dissertation studies, I want to discuss potential errors and oversights that might have contributed to the unsuccessful replication attempts. First, and most importantly, the present dissertation did not represent a direct replication of previous research. Instead, the idea was to conceptually replicate self-infiltration studies by applying "different operationalizations, variables, experimental designs, and participants to test the theory of the original study" (Derksen & Morawski, 2022, p. 4). Hence, the primary function of conceptual replication is not falsification but exploration and development of theory, thereby testing the boundary conditions and robustness of a psychological phenomenon across different experimental situations. That is, conceptual replication failures do not necessarily indicate an incorrect hypothesis or theory but instead indicate that many experimental effects in psychology are characterized by a high degree of contextual sensitivity (Derksen & Morawski, 2022). Consequently, future research may consider direct replications to answer the question of false positive effects (i.e., falsification).

Second, despite the freedom inherent in conceptual replications, future research needs to cautiously evaluate whether the changes implemented in the dissertation's experimental paradigm had already been too substantial and had deviated too much from previous research to expect

comparable results. In the present dissertation, the original self-infiltration paradigm was translated from PANTER into the sophisticated psychological software E-Prime and partly redesigned to achieve certain goals. Among others, all phases, including the cover story, were slightly adapted to allow for the simultaneous testing of multiple participants while reducing the interaction with the experimenter to a minimum. Furthermore, the self-selection and assignment phase was redesigned to make it more time-efficient and less susceptible to memory biases. Also, a new negative affect induction (Cyberball; Studies 1 and 2) and a new filler task (IPANAT; Study 1) were employed. The overarching goal of these changes was to replicate the self-infiltration effect using large sample sizes while making further improvements to increase the effect sizes. For instance, Cyberball-induced ostracism as a novel way to induce negative affect was supposed to serve as a particularly effective experimental manipulation due to self-infiltration's inherently social nature. Although these changes might not appear too deviant from previous research on the surface, their relevance drastically increases in light of the identified high contextual sensitivity of the self-infiltration effect. Even small changes, such as reducing the interaction with the experimenter to a minimum, might be enough to decrease the chances of replication success. Also, the redesign of the experimental paradigm in Study 1 resulted in the emergence of a sequence effect concerning the counterbalanced sequence of the classification tasks that accounted for a large proportion of the variance in self-infiltration. This sequence effect has never been reported before and could not be fully explained in this dissertation. Consequently, research on self-infiltration may benefit from smaller and less substantial controlled variations of the experimental procedure to reduce uncertainty and better understand how each of the individual phases and their interplay contribute to the emergence of self-infiltration.

In summary, the replication failures reported in the present dissertation cannot be exclusively explained by theoretical maturity, features of the original studies, or features of the replication studies alone but instead by an interplay of all three areas. Whereas previous research on self-infiltration has been built on a strong and mature theory, a high contextual sensitivity could be identified regarding the numerous factors that potentially affect the emergence of self-infiltration in the complex experimental paradigm. At the same time, the empirical support that self-infiltration has found in previous research has its weaknesses, especially concerning the small average sample sizes and low level of transparency in the research process. However, the studies in the present dissertation also had their limitations, primarily concerning the various changes implemented in the experimental paradigm that have yet to be validated by future research. Consequently, it remains an open question for research to carve out the specifics of the dynamic process underlying self-infiltration. This point becomes especially true when considering the high contextual sensitivity that needs to be clarified to increase replicability. Nevertheless, in line with the idea behind conceptual replications (Derksen & Morawski, 2022), the present dissertation should not be considered a failure but another step toward developing a better understanding of the emergence of self-infiltration. The complexity behind the phenomenon and its experimental operationalization means that observed effects may vary over time and across situations to the extent that "one can never step in the same river twice" (Crandall & Sherman, 2016, p. 94). Whereas complexity and contextual sensitivity diminish replicability, they represent "the reality of our subject" (Dijksterhuis, 2014, p. 73). The devil is in the details.

7.3 Conclusion

The present dissertation comprises three studies that were designed to conceptually replicate the self-infiltration effect, which has found considerable empirical support in previous

research (Baumann, Kuhl, & Kazén, 2005; Baumann & Kuhl, 2003; Kaufmann et al., 2020; Kazén et al., 2003; Kuhl & Kazén, 1994; Quirin, Koole, et al., 2009). In line with the idea behind conceptual replications (Derksen & Morawski, 2022), the present dissertation was aimed at replicating previous findings on self-infiltration using (a) large sample sizes to rule out possible validity and reliability issues in light of the ongoing replication crisis (Nosek et al., 2021), (b) controlled variations of the original self-infiltration paradigm to test the boundary conditions and robustness of the self-infiltration phenomenon, and (c) new variables to extend knowledge about the complex and dynamic process underlying self-infiltration. The hypotheses that I derived and tested referred to the frequently replicated relationships between induced negative affect, state orientation, and self-infiltration. In addition, I derived and tested a novel mediation hypothesis that addressed the mediating role of self-access in the relationship between state orientation and self-infiltration.

The results were only partly in line with previous research. In Study 1, a significant positive relationship between state orientation and self-infiltration was found. Also, the mediating role of self-access in the relationship between state orientation and self-infiltration was supported. However, the effects can be considered small compared with previous research. Therefore, Study 2 was designed to replicate Study 1 while several improvements were made to solve the diagnosed problems. However, the replication attempt failed in Study 2. The manipulation of negative affect was unrelated to the emergence of self-infiltration. Also, state orientation did not moderate the relationship between the experimental manipulation and self-infiltration. Finally, the mediating role of self-access was also not replicated. In Study 3, I made further improvements that encompassed, among others, the application of an alternative but established negative affect induction that has previously been shown to be effective in eliciting self-infiltration. However, and

congruent with Study 2, none of the hypotheses were supported. Considering that the positive results in Study 1 have to be evaluated with caution due to various limitations, overall, the present dissertation failed to conceptually replicate the self-infiltration effect.

Following Nosek et al.'s (2021) approach, three potential causes of replication failures (i.e., theoretical maturity, features of the original studies, and features of the replication studies) have been discussed to identify limitations and issues in self-infiltration studies that should be considered by future research. In conclusion, the unsuccessful replication attempts in the present dissertation are most likely the consequence of an interplay of all three areas. That is, the replicability issues in the present dissertation are due to not only shortcomings in previous research on self-infiltration but also potential errors and oversights in the present replication studies. Despite the unsuccessful replication attempts, the present dissertation is not considered a failure but another step toward developing a better understanding of the dynamic and complex process behind the important phenomenon of self-infiltration, which may help explain why individuals chase the wrong goals.

Zusammenfassung [Summary]

Die vorliegende Dissertation befasst sich mit der folgenden Frage: Warum setzen sich Menschen paradoxerweise Ziele, für die sie sich nicht nachhaltig motivieren können? Ziele, die keinen Spaß bereiten und sogar ein Gefühl der Unzufriedenheit auslösen, selbst dann, wenn sie schlussendlich erreicht werden? Warum sind wir Menschen uns also oftmals selbst fremd? Einen möglichen Ansatz zur Entschlüsselung dieses motivationalen Paradoxons bietet die Forschung zum Thema „Selbst-Infiltration". Unter bestimmten Umständen tendieren Menschen dazu, Erwartungen von anderen für erstrebenswerte, selbstgewählte Ziele misszuverstehen, obwohl diese Erwartungen nicht mit den eigenen Präferenzen, Bedürfnissen und Werten übereinstimmen. Diese unbewusste Form der Introjektion, die ein hohes Potenzial für innere Konflikte aufgrund mangelnder Internalisierung von Zielen aufweist, bezeichnet man als Selbst-Infiltration. Motiviert durch die Bedeutung des Phänomens für die Themen Motivation, Gesundheit und Wohlbefinden und überzeugt von der empirischen Befundlage bisheriger Forschung kann die vorliegende Dissertation als ein weiterer wichtiger Schritt angesehen werden, den Wert der Selbst-Infiltrationsforschung für die Wissenschaft zu untermauern.

Dementsprechend zielte die Dissertation darauf ab, (a) die wichtigsten Befunde der Selbst-Infiltrationsforschung auf Grundlage von vergleichsweise großen Stichproben konzeptionell zu replizieren, um angesichts der anhaltenden Replikationskrise in der Psychologie mögliche Validitäts- und Reliabilitätsprobleme wie Zufallseffekte auszuschließen, (b) neuartige, kontrollierte Variationen des ursprünglichen Selbst-Infiltrationsparadigmas vorzunehmen, um die Randbedingungen und die Robustheit des Selbst-Infiltrationsphänomens in unterschiedlichen experimentellen Situationen zu überprüfen und (c) die Bedeutung neuer Variablen zu beleuchten,

um weitere Erkenntnisse über den komplexen und dynamischen Prozess zu gewinnen, der der Entstehung von Selbst-Infiltration zugrunde liegt.

Die erste experimentelle Studie ($N = 247$) setzte sich zum Ziel, den häufig gefundenen Zusammenhang zwischen Lageorientierung und erhöhter Selbst-Infiltrationsneigung konzeptionell zu replizieren, und zwar auf der Grundlage einer Stichprobe, die erheblich größer war als in vorangehenden Untersuchungen. Gemäß dem Sinn und Zweck von konzeptionellen Replikationen wurden mehrere Anpassungen am ursprünglichen Selbst-Infiltrationsparadigma vorgenommen, um (a) die simultane Untersuchung mehrerer Versuchspersonen zu ermöglichen, (b) die Effektivität des Paradigmas zu verbessern und (c) die Randbedingungen des Selbst-Infiltrationsphänomens zu untersuchen. Unter anderem wurde das Cyberball-Paradigma als neuartige Stressmanipulation eingesetzt, da die Induktion von sozialem Ausschluss für die Entstehung von Selbst-Infiltration als besonders geeignet angesehen wurde. Darüber hinaus wurde untersucht, ob eingeschränkter Selbstzugang als Mediator den Zusammenhang zwischen starker Lageorientierung und erhöhter Selbst-Infiltrationsneigung vermittelt, was zuvor zwar theoretisch angenommen, aber noch nicht direkt empirisch nachgewiesen wurde. Auch wenn die Effekte im Vergleich zu bisherigen Forschungsergebnissen klein ausgefallen sind, stützten sie alle abgeleiteten Hypothesen.

Die zweite experimentelle Studie ($N = 179$) zielte darauf ab, die Ergebnisse der ersten Studie konzeptionell zu replizieren und gleichzeitig weitere Anpassungen am experimentellen Paradigma vorzunehmen, insbesondere im Hinblick auf die Einschränkungen, die zu den kleinen Effekten beigetragen haben könnten. Unter anderem wurde eine neutrale Kontrollbedingung für das Cyberball-Paradigma hinzugefügt, um die Wirksamkeit von Cyberball als Stressmanipulation direkt überprüfen zu können. Dementsprechend wurde die Hypothese aufgestellt, dass

Versuchspersonen in der Stressbedingung eine höhere Selbst-Infiltrationsneigung aufweisen als Versuchspersonen in der neutralen Kontrollbedingung. Darüber hinaus wurde angenommen, dass die Lageorientierung den Zusammenhang zwischen der experimentellen Manipulation und Selbst-Infiltration moderiert. Genauso wie in der ersten Studie wurde die Rolle von Selbstzugang als Mediator zwischen Lageorientierung und Selbst-Infiltration untersucht. Der konzeptionelle Replikationsversuch schlug fehl. Im Gegensatz zur ersten Studie konnte keine Hypothese bestätigt werden.

In einer dritten experimentellen Studie ($N = 322$) wurde ein weiterer Versuch unternommen, die erste Studie konzeptionell zu replizieren. Neben weiteren Anpassungen am experimentellen Paradigma der zweiten Studie wurde der Stichprobenumfang auf ein Niveau erhöht, das vergleichbar mit der ersten Studie war. Unter anderem kam eine alternative Stressmanipulation zum Einsatz, die auf Filmsequenzen basiert und sich in der Selbst-Infiltrationsforschung bereits als wirksam erwiesen hat. Die Hypothesen waren deckungsgleich mit denen der zweiten Studie. Auch hier scheiterte die konzeptionelle Replikation insofern, als keine Hypothese Unterstützung fand.

Folglich konnte die vorliegende Dissertation bisherige Forschung zu Selbst-Infiltration nicht konzeptionell replizieren. Auch wenn die erste Studie teilweise erfolgreich war, haben sich die Effekte als vergleichsweise gering erwiesen und müssen deshalb mit Vorsicht betrachtet werden. In der allgemeinen Diskussion wurden drei mögliche Ursachen in Betracht gezogen, die einen Fehlschlag von (konzeptionellen) Replikationen erklären können: Reife der Theorie, Merkmale der Originalstudien und Merkmale der Replikationsstudien. Schließlich wurde das Zusammenspiel aller drei Bereiche als Erklärung herangezogen. Jedoch darf die vorliegende Dissertation ganz im Sinne von konzeptionellen Replikationen nicht als ein Fehlschlag angesehen

werden, sondern gilt als ein weiterer wichtiger Schritt, der zu einem besseren Verständnis des

Selbst-Infiltrationsphänomens beiträgt. Der Teufel steckt im Detail.

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