This Festschrift celebrates the contributions of Joachim C. Brunstein to motivation studies, personality psychology, and the science of self- and co-regulated learning in the classroom. In six chapters, colleagues and former students explore some of the ways in which Brunstein's work has fostered a better understanding of human goal striving, implicit motivational needs, how subjective well-being is shaped by the interplay between personal goals and implicit motives, and collaborative and self-regulated learning at school. The Festschrift also provides in-depth accounts of how Brunstein's research interests came about and developed over the course of his career.
Oliver C. Schultheiss (editor)

Personal Goals, Implicit Motives, and Self-Regulated Learning
A Festschrift Honoring Joachim C. Brunstein
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This Festschrift celebrates the many contributions Joachim C. Brunstein has made to psychological research over a career spanning four decades. It also celebrates the many ways in which he has contributed to the intellectual and professional development of the scientists he trained. And it celebrates his contributions as a collaborator to joint research projects he embarked on with colleagues during his tenure in academia. Although Joachim Brunstein’s career also encompassed appointments in Munich, Frankfurt, Potsdam, and, ultimately, Giessen, his time as a senior research scientist at Friedrich-Alexander University, Erlangen, in the 1990ies turned out to be a particularly fruitful and pivotal one for the development of his own research interests as well as the development of the fields of research he contributed to. The chapters collected here illustrate this from a variety of perspectives. They will also focus on the lines of inquiry that Joachim Brunstein’s work has helped foment.

In the opening chapter, Günter Maier and Barbara Steinmann look back to the beginning of Joachim Brunstein’s career, when he articulated his ideas and insights about what psychology should be about and what role goals may play in people’s lives. They then trace these ideas to subsequent research Joachim Brunstein and his colleagues embarked on in basic and applied research contexts. Johannes Doerflinger and Peter Gollwitzer, in the second chapter, then summarize recent research on identity goals, a field to which Joachim Brunstein has contributed particularly during his years at Friedrich-Alexander University. In the third chapter, I focus on Joachim Brunstein’s time in Erlangen and how some serendipitous events during his final qualification phase en route to becoming a professor may have saved an entire field of research from becoming extinct. In chapter four, Matthias Mehl finally makes good on his promise to publish findings from his diploma thesis – a thesis that he completed as a student in Joachim Brunstein’s lab at Friedrich-Alexander University. Jan Hofer, another alumnus of Friedrich-Alexander University, opens up a big vista in chapter five, exploring the interplay between implicit motives, conscious motivational orientations and goals, and subjective well-being across cultures. In the final chapter, Nadine Spörer and Vanessa Völlinger honor
Oliver C. Schultheiss

Joachim Brunstein’s long-standing research interest in improving school education by summarizing recent research on interventions that aim at furthering pupils’ cognitive and social skills.

If the chapters seem to deal with rather heterogeneous issues, this is no coincidence. Throughout his career, Joachim Brunstein has been interested in a broad array of topics, ranging from paradoxical effects of helplessness-inducing situations, to how people self-regulate their learning, behavior, and well-being through the setting of meaningful and realistic goals, to implicit motives and their interaction with personal goals, to teaching students to read, write, and behave cooperatively in the classroom. In doing so, he has frequently moved from laboratory experiments to field studies or interventions in applied settings, and back to the lab. But he has never been satisfied with mere dabbling in a topic that he became interested in. Without exception, he has gone to great lengths to study each topic with utmost methodological rigor and a keen interest in understanding the exact mechanism through which a hypothesized effect comes about. This is why his work has appeared regularly in the best international journals of the fields he has contributed to.

Joachim Brunstein has expected his students and postdocs to apply the same rigor in their work. At the same time, he has also been unfailingly generous in sharing his time and expertise and mentoring those who worked under his supervision or collaborated with him. He has thus instilled in others a yearning for doing high-quality work and for really understanding empirical phenomena. In that sense, science for him has always been about quality, not quantity. Personally, I am immensely glad that I was mentored by someone who has never lost his compass for what science is really about. And I am certain that the contributors to this Festschrift, many of whom are either former students or collaborators of Joachim Brunstein, feel the same way about his work and his example.

All of us are united in the hope that this Festschrift will do him proud.

Erlangen, July 2023
From Everyday Experience to Personal Goals (at Work)

Günter W. Maier and Barbara Steinmann

"... eine Psychologie, in der für Menschen in ihrem Lebensalltag kein Platz ist, wird kaum mit Verständnis, Interesse und Anerkennung in der Öffentlichkeit rechnen können."

["... a psychology that leaves no room for people in their everyday lives may hardly expect understanding, interest, and recognition from the public"]

(Brunstein, 1986, December 1)

Thirty years ago, the paper „Personal goals and subjective well-being” has been published in the Journal of Personality and Social Psychology (Brunstein, 1993). Nowadays, personal goals are a ubiquitous concept in psychology. In the beginning of the 1990s, though, there was no common understanding of this construct: In different fields of psychological research, the term „personal goals” appeared with in part different meanings. For example, in the field of work and organizational psychology, “personal goals” were described as goals participants really strive for in goal setting contexts, as compared to, for example, assigned or accepted goals (Mento et al., 1980; Locke et al., 1981). Besides, Roberson used the term as a synonym of current concerns (e.g., 1989; Roberson et al., 1989). In the field of counselling psychology, Wadsworth and Ford used “personal goals” to describe, “...all of the consequences toward which a person's behavior is directed” (1983, p. 514), and the term played an important role in Ford’s motivational systems theory (1992). With this initial publication in his research focus, Joachim Brunstein, however, shaped the term “personal goals” for a group of hitherto differing goal concepts. With his research program on personal goals and his subsequent model development, Joachim Brunstein left a profound footprint in the exploration of goal processes and their significance for subjective well-being.
But how did his interest in personal goals develop? What consequences did this article bring about? In this chapter, we try to describe and disentangle the conceptual and empirical development of Joachim Brunstein’s personal goal research. In doing so, we first refer to early reasons for his interest in personal goals, mention early discussants of his first empirical approach and close with a publication tragedy. Second, we portray his teleonomic model of well-being along with (his) supporting research, and suggest a slight extension of the original model, which is also based on results of Joachim Brunstein’s research. Third, we present the results of his—unfortunately not very well known—intervention study on personal goal processes, and outline the high methodological rigor of this study. Forth, we describe exemplary further developments based on his theorizing and his empirical work in the applied field of work. Finally, in concluding the chapter, we try to summarize Joachim Brunstein’s lasting contributions to different fields of research in psychology.

Especially the first steps of Joachim Brunstein’s research program are not only interesting from a historical point of view, but might also be instructive and inspiring for current researchers, as they reflect the early ups and downs of a quite successful and very influential research program. Furthermore, the description of the development of this research program also illustrates, that ideas about research topics do not always evolve in a linear way, but are at times seriously revised in the course of the development process. Not least, it shows that experienced and competent "critical friends" can make substantial contributions to the design of studies.

Point of Departure: Everyday Life and the Munich Housewives Study

At the Max-Planck Institute for Psychological Research Joachim Brunstein started the project “Everyday actions” („Alltagshandeln“) in 1986. Under the leadership of Heinz Heckhausen, various projects were conducted at the institute to address research questions derived from Heckhausen’s motivational Model of Action Phases ("Rubicon Model": Heckhausen, 1987a; for an overview, see: Achtziger & Gollwitzer, 2018). By then, the sub-project “Everyday actions” was the most recent endeavor undertaken within this framework. This particular sub-project aimed to investigate key aspects of the Rubicon Model outside the laboratory, focusing on the daily lives of individuals.

Joachim Brunstein started his research about personal goals with substantive considerations on the meaning of internal and external validity
From Everyday Experience to Personal Goals (at Work)

(Brunstein, 1986, December 1st). His argumentation in the first research note (Brunstein, 1986, December 1st) aligned with the emerging critical appraisal of the dominant laboratory research in psychology, and was based on epistemological arguments. Laboratory research had commonly been assumed to be superior to research in the field. Its superiority was justified by the higher significance of internal validity compared to external validity. Joachim Brunstein presented three main arguments that challenged this superiority of internal validity and laboratory research that was implicitly assumed.

First, he reasoned that, while internal validity may precede external validity in terms of research procedure, the latter is of greater importance. Typically, a random sample is required to test internal validity as well as to generalize the experimental effect across individuals. Thus, one aspect of external validity—generalization across individuals—is already implicitly applied to support the assessment of internal validity and to strengthen the scientific validity of findings.

Second, Joachim Brunstein questioned the common claim that experiments allow a conclusive examination of causal relationships. He highlighted that experiments frequently fail to uncover reciprocal relationships as the status of predictor or criterion is predetermined by researchers.

Third, he challenged the classical falsification approach in experiments, which suggests rigorous testing of hypotheses. Instead, he viewed laboratory studies as primarily focused on skillful - and potentially artificial - confirmation of alternative hypotheses. Moreover, Joachim Brunstein argued that the conditions analyzed in experiments should be justified by their representativeness for real-life circumstances. In his programmatic and still-relevant conclusion to his initial plea for the study of everyday actions, Joachim Brunstein stated, „... eine Psychologie, in der für Menschen in ihrem Lebensalltag kein Platz ist, wird kaum mit Verständnis, Interesse und Anerkennung in der Öffentlichkeit rechnen können.“ ["... a psychology that leaves no room for people in their everyday lives may hardly expect understanding, interest, and recognition from the public"] (p. 11).

In his second research note (Brunstein, 1986, December 18th), Joachim Brunstein specifically turned his attention to the study of everyday actions. In doing so, he classified previous research approaches to everyday actions into interest-driven and theory-driven approaches. The aim of interest-driven approaches is to describe and classify everyday actions, often focusing on specific groups of individuals (e.g., students, managers). Commonly used methods include time sampling or diaries. On the other hand, theory-
driven approaches, as described by Joachim Brunstein, focus more on theory testing, with special regard to self-regulation. He identified three distinct theory-driven approaches for analyzing everyday actions: dispositional self-regulation, interactional self-regulation, and goal-based self-regulation.¹

According to dispositional self-regulation approaches, individuals possess dispositional preferences for specific types of actions they show in their everyday life. For example, conscientious individuals would frequently exhibit cautious behavior, maintain order, or ambitiously pursue goals, reflecting their conscientiousness. The act-frequency approach by Buss and Craik serves as a prototypical approach for this perspective (1986).

Interactional self-regulation approaches consider the role of situations in addition to dispositional factors. Self-regulation in this context refers to the individuals’ selection of those situations that enable them to engage in their most preferred types of actions.

Approaches that draw on assumptions of goal-based self-regulation assume that the choice of everyday situations and the execution of actions depend on an individual’s goals. Three components of goals are relevant to goal-based self-regulation: the imaginative component (mental representation of the goal: What is being pursued?), the constructive component (plans for goal attainment: What steps need to be taken to pursue the goal?), and the evaluative component (standards for goal achievement: How do I assess goal attainment?). Examples of this approach include the concept of “personal projects” by Little (1983) and “current concerns” by Klinger (1975).

In his third research note, Joachim Brunstein for the first time suggested a theory-driven study of goal-based self-regulation of everyday actions (Brunstein, 1987, January 30th). Goals can be assessed at different levels of abstraction, ranging from overarching (life) themes at the highest level to more concrete intentions or commitments at the lowest level of abstraction. For the study he planned, Joachim Brunstein intended to implement horizontal as well as vertical analyses. Horizontal analyses would focus on the interplay between goals, actions, and situations, with study participants themselves establishing the respective relationships (e.g., which action serves which goal? Does the given situation facilitate or hinder action execution?). For the vertical analysis, a distinction was made between different

¹ In his second research note, Joachim Brunstein called this third approach “final self-regulation”. Today, we rather refer to this approach as “goal-based self-regulation” to unequivocally emphasize the fundamental regulatory function goals are ascribed in this approach.
levels of goals, including overarching themes, derived intentions, and - at times - subsequent commitments. Themes, intentions, and commitments can have positive or negative instrumental relationships with each other. Joachim Brunstein preferred taking a general psychological perspective, and to conduct analyses at the level of goals rather than at the level of participants. This approach aligns with a multilevel perspective advocated in some (more recent) studies, such as Lüdtke and Trautwein (2007).

Interestingly, in his fourth research note (Brunstein, 1987, February 8th), Joachim Brunstein rejected the triangle of concepts – goals, situations, actions – he initially proposed. He argued that these terms were too general to be examined empirically. He then presented a collection of idea snippets on potential research questions and topics for investigating goal-relevant everyday actions. Yet, he also expressed a somewhat pessimistic view on everyday actions by referring to them as a "mindless web of situation-driven activities" (p. 3). With respect to the abstract triangle of concepts, he subsequently attempted to phrase interesting questions for each of the areas. For example, he suggested to investigate the extent to which everyday actions were related to overarching intentions (Goals area) or whether unstructured periods of time (e.g., waiting for public transportation) led to increased motivational states of consciousness (Situation area).

After further planning of an initial study on everyday actions based on the previous position papers, the study was then discussed with the scientific advisory board, including Eric Klinger, Hans-Joachim Kornadt, and David McClelland (Piekara, 1987, July 8th). The discussion revolved around various aspects, such as how the concerns could be assessed, how they could be classified, and what system could be used for time sampling. Practical experiences from previous studies were also shared among the participants. For example, in a study conducted by McClelland using seven randomized time samples between 11 a.m. and 11 p.m. a day, participants expressed frustration. It was assumed that this frustration arose, as participants had to wait a long time for the next signal to appear. Klinger recommended sending the paper-and-pencil questionnaires from the time samples in the evening by mail to the experimenters as mobile online measurements were not yet possible at that time.

The initial results of what came to be known as the Munich Housewives Study were available in August 1988. With this study, Joachim Brunstein coined the term „Anliegen” ["concerns"] for the German surveys. Concerns refer to a goal concept that encompasses intentions, plans, and goals that individuals currently pursue in their everyday lives and which they aim to
achieve in the near future. In terms of content, they are quite similar to Eric Klinger’s concept of "current concerns" (1975). Essentially, this first study focused more on exploratory questions derived from Heckhausen’s intention theory (1987b).

The Munich Housewives Study was conducted as a field study and consisted of three parts: Participants’ concerns were first assessed idiosyncratically through interviews. Participants then evaluated their concerns with regard to certain characteristic (e.g., importance, commitment, social support, or opportunity). In the subsequent time sampling assessment, participants finally provided information about their experiences in everyday situations (e.g., daily activities, moods) at 56 time points over the course of one week. Analyses of this initial "concerns" study by Joachim Brunstein already revealed some results that significantly influenced his subsequent studies and the development of his model. According to these findings, concerns can be evaluated with regard to the extent to which individuals are committed to pursue them (commitment) as well as with regard to how favorably or unfavorably people assess the possibilities for their realization (attainability). How frequently participants engaged with their concerns strongly depended on their level of commitment to pursue these concerns. Commitment and attainability were related to the progress individuals made toward the goals, as well as to the positive and negative moods they experienced in everyday life. Situations in which participants engaged with their concerns were perceived as being self-initiated and shaped through oneself. Additionally, participants showed higher affective involvement in situations related to their concerns, experiencing both more positive and negative affect in those situations, compared to concern-irrelevant situations.

Joachim Brunstein supervised two diploma theses, which emerged from this field study. The manuscript, which summarized the results of this study, was submitted to a well-established German psychological journal, the "Archiv für Psychologie," where it was accepted after revisions (Brunstein et al., 1991). Unfortunately, the manuscript was never published as the journal, which had been founded in 1903, ceased operations before printing the manuscript.

Personal Goals: Basic Model and Results

In his further studies on „Anliegen” (concerns), Joachim Brunstein coined the term "personal goals" (Brunstein, 1993). He understood these goals as being at a moderate level of abstraction (between enduring life goals and
more specific intentions), being closely related to everyday life, and being assessed idiosyncratically and analyzed nomothetically. Personal goals have empirically been shown to closely relate to everyday experiences and behaviors. For example, in the Munich Housewives Study, half of the everyday situations were relevant to current concerns. In another study by Roberson (1989), conducted with employed individuals, even 75% of the daily activities were related to personally identified goals. Personal goals are idiosyncratic in the sense that individuals are asked to formulate them in their own words, making them specific to each person.

Personal goals are analyzed nomothetically, by being further assessed on a variety of characteristics. These characteristics include the extent to which individuals receive support for their goals, the feasibility of goal attainment, the level of abstraction or concreteness, the goal’s orientation toward approach or avoidance, the extent of conflict with equally important or higher- and lower-order goals, as well as content categories (e.g., intrinsic vs. extrinsic goals), among others (see, for example, Brunstein & Maier, 2002 or Brunstein, et al., 2007 for an overview). A central feature of Joachim Brunstein’s longitudinal study on personal goals published in 1993 was that he described goals with a few constructs derived from theory, measured them with several items and predicted well-being longitudinally. His study was in clear contrast to the studies published until then, which measured personal projects, current concerns, or personal strivings with a (somewhat arbitrary) number of individual items, and most often used cross-sectional designs only. The uniqueness of personal goals has meanwhile also been confirmed at the neural level. Neuroscientific research has shown that the neural processes involved in cognitively engaging with personal goals differ from those involved in processing goal-unrelated future events (e.g., D’Argembeau et al., 2010).

Considering their relevance to people’s everyday lives, it is not surprising that personal goals and their characteristics have implications in various domains. In the initial Munich Housewives Study, it has already been demonstrated that engaging with personal goals in daily life leads to an intensification of affective experiences. Individuals experience more positive and negative affect in situations where they are working on their goals (e.g., writing job applications, participating in vocational education) compared to situations where they are not engaged with any goal (Brunstein et al., 1991). Personal goals influence the content of thoughts and attention processes: Personal goals emerge in everyday thoughts and dreams and individuals are more likely to notice goal-relevant information compared to goal-irrelevant information, (e.g., see Klinger, 2013 for an overview).
Characteristics of personal goals are further associated with aspects of an individual’s general subjective well-being (e.g., Brunstein, 1993, 1999; Halisch & Geppert, 2000), health indicators such as medical diagnoses (Emmons, 1992), frequency of visits to the doctor (Emmons & King, 1988), or blood glucose levels (Karoly & Bay, 1990), partnership satisfaction (Brunstein et al., 1996), job satisfaction (Roberson, 1990), study grades (Cantor et al., 1991), study credits (Litmanen et al., 2010), and so on.

Some ten years later, after the Munich Housewives Study and many more studies (e.g., Brunstein, 1993, 1999, 2001) and reviews (Brunstein & Maier, 1996) about personal goals from his group, Joachim Brunstein and colleagues formulated their teleonomic model of subjective well-being. In their original model, Brunstein and colleagues describe how and which goal processes influence subjective well-being (Brunstein, Maier & Schultheiss, 1999; Brunstein, Schultheiss & Maier, 1999; Brunstein & Maier, 2002; Brunstein, et al., 2007). Distal factors influencing well-being include goal commitment and perceptions of goal attainability (see Figure 1). Goal commitment has been assumed to be central to the pursuit and attainment of goals in early goal-setting research, as demonstrated, for example, in the meta-analysis by Klein et al. (1999) or in personal goal research (e.g., Emmons, 1986; Lese & Robbins, 1994). Goal commitment typically encompasses aspects related to incentives (e.g., How desirable is the goal? How pleasant are goal-relevant actions? What are the long-term consequences of goal attainment?) and often includes volitional components (e.g., Am I firmly determined to achieve a goal?). Goal commitment is usually expressed through one’s behaviorally oriented engagement with a goal, measured, for example, by the frequency or duration of goal-related activities (e.g., Brunstein et al., 1991; Brunstein, 1993; Maier & Brunstein, 2001).

However, a high level of goal commitment alone is usually not sufficient for goal attainment. Having situational opportunities to work towards the goal, being able to control the environment in order to create goal-relevant situations, or getting support from the social environment are most often necessary as well. Only when both factors – goal commitment and attainability – are high do goal progress and high levels of subjective well-being develop (Brunstein, 1993, 1999) or positive evaluations and attitudes towards the current social context arise. This reasoning has, for example, also been substantiated in the context of work-related variables such as job satisfaction and organizational commitment (Maier & Brunstein, 2001). Joachim Brunstein called this interactive effect the strong model assumption (Brunstein et al., 2008).
In the teleonomic model, the proximal factor, which influences well-being indicators, is the progress individuals make towards their personal goals: The more goal progress they make, the higher their subjective well-being. This core assumption, shared by most teleonomic approaches of subjective well-being, such as the social-cognitive career theory (e.g., Lent & Brown, 2006), has also been examined in a meta-analysis (Klug & Maier, 2015). A total of 85 studies with 108 independent samples were identified. The relationship between goal progress and subjective well-being was significant, although the effect size of .43 was somewhat lower than what many theoretical approaches claim. From the perspective of telic theories of well-being, this effect size may appear low, given that their central assumption is that the attainment of goals can mainly explain the development of well-being (e.g., Diener & Ryan, 2009). Contradicting this assumption, it is worth noting that at least one personality trait, neuroticism, has a stronger correlation with subjective well-being ($\rho = -.51$; Anglim et al., 2020). On the other hand, the relationship between goal progress and subjective well-
being is also substantially higher than, for example, the correlation of subjective well-being with health indicators ($\rho = .32$; Okun et al., 1984).

In their teleonomic model of subjective well-being, Joachim Brunstein and colleagues do not only postulate a main effect of goal progress on well-being. They also suggest that goal progress is particularly important for well-being when the goals are motivationally congruent with a person's motives. These considerations are based on the assumption that there are two separate motivational systems: an explicit and an implicit one (McClelland et al., 1989). The explicit system is easily accessible to consciousness; it is associated with personal goals, and goal pursuit relies on effort and self-regulation. The implicit system is hardly accessible to consciousness and is characterized by an almost effortless orientation towards affectively meaningful incentives. The investigation of implicit motives is most common in relation to the motives of power, achievement, and affiliation. In applied settings, implicit motives have, for example, often been linked to the professional success of leaders (e.g., McClelland & Boyatzis, 1982; Steinmann, et al., 2015; 2016; 2020).

(Explicit) personal goals also often have motivational content, and it can be important to examine the congruence between a person's implicit motives and the motivational orientation of their goals. Some studies have shown that not all goal progress contributes to well-being and health to the same extent, which may help to explain the overall moderate relationship between goal progress and well-being. According to these findings, the relationship between goal progress and well-being is stronger when there is a high degree of motivational congruence between goals and implicit motives rather than a high degree of incongruence (Brunstein, et al., 1998). Further research has specified that a distinction should be made between „hot” and „cold” goal pursuit (Schultheiss, et al., 2008). Goal progress is associated with minimal affective reactions when it is not supported by strong implicit motives. However, when goal progress is supported by implicit motives, affective reactions become contingent on the progress made.

Meanwhile, the model may be slightly expanded to include additional processes that have repeatedly been considered in research (see Figure 1, dotted lines). First, there is evidence to suggest that, apart from their interactive effect, the two constituting goal appraisals, goal commitment and/or goal attainability, also independently play a significant role in goal progress (e.g., Brunstein et al., 1991; Brunstein, 1993; Koestner et al., 2002, study 2; Maier & Brunstein, 2001) or for indicators of well-being (e.g., Kaplan & Maddux, 2002). The main effects themselves can significantly contribute to.
goal progress, as demonstrated in Joachim Brunstein’s intervention study (Brunstein et al., 2008). There he named this simple additive effect the „weak version of the model assumption“ (p. 178, 2008). Furthermore, initial evidence suggests that the goal pursuit process is not purely linear, but that rather two reciprocal relationships should be considered. First, Szumowska et al. (2021) reported findings from a longitudinal study in which goal progress predicted future goal progress. This relationship was mediated by an increase in goal importance or goal attainment expectancy. Even in his intervention study, Joachim Brunstein provided evidence for this recursive effect (Brunstein et al., 2008). Second, a recent longitudinal study demonstrated reciprocal relationships between (personal) work goal attainment as an indicator of goal progress and individuals’ goal commitment as well as their personal resources (Neveu et al., 2023).

Joachim Brunstein’s research on personal goals led him to speculate on a goal development model (Brunstein & Maier, 2002), which suggests that changes in life are facilitated through two processes: unfolding and reorganization. Unfolding processes occur when overarching life goals are chosen. From an overarching life goal, specific personal goals are derived that serve as instrumental means in achieving this higher-order goal. Unfolding involves the differentiation and integration of goals. Differentiation entails the formation of increasingly specific goals, while integration involves the incorporation of previously isolated goals into the goal system of an individual. While unfolding processes focus on building goal systems, reorganization processes center on the realignment of goal systems. During transitions in life phases or experiences of loss, resources and opportunities for attaining entire goal systems may change. This can have a lasting impact on overarching life goals, as they are subjected to scrutiny in this process. In this realignment process, the two sub-processes of disengagement from existing goals and commitment to new goals are essential.

Joachim Brunstein also delved into the process of building goal commitments, at least, as he wanted to investigate who is successful in forming "good" goal commitments, which he understood as the ability to choose goals that are both motivationally congruent and realistic (Brunstein, 2001). He assumed that action-oriented individuals would be better able to select the "right" goals. The disposition of action-control, as described by Kuhl, distinguishes between action- versus state-orientation (e.g., 1998). Action-oriented individuals are described as having self-regulatory competence, enabling them to form and maintain intentions that are appropriate for both the context and the self. They are also capable of disengaging from unrealistic or self-incompatible goals. State-oriented
individuals, by contrast, are assumed to lack these abilities. Joachim Brunstein critically discussed these assumptions in a commentary (Brunstein & Maier, 1992) on an article by Kuhl (1992). In his cross-sectional study with students, Joachim Brunstein demonstrated (2001) that among action-oriented individuals, the level of goal commitment was associated with both the perceived attainability and the need for congruence of personal goals. However, among state-oriented individuals, goal commitment was independent of these two goal characteristics.

The study of goal commitment and disengagement processes over the lifespan has become well-established in research (see, for example, Heckhausen, 1999; Heckhausen et al., 2010). In addition to examining the process of goal commitment, the process of goal disengagement has emerged as a significant research area in recent years (see, for an overview: Brandstätter & Bernecker, 2022).

**Intervention on Goal Commitment and Goal-Planning**

Intervention research is of great importance in science, particularly when it addresses theories and findings developed in field studies. First, it can be used for specific and rigorous testing of theoretical assumptions. By deliberately manipulating precise, theoretically derived influences, the causal direction of effects and the specific contribution of each examined factor can be isolated. Second, intervention research helps to make visible the practical utility which may be achieved through basic theory-driven research.

Through his (often longitudinal) field studies on personal goals, Joachim Brunstein developed a fundamental understanding and provided evidence for the significance of personal goals and their characteristics to goal progress and subjective well-being. However, at that time in 2003, there was still a need for (experimentally controlled) evidence demonstrating a direct influence of these goal characteristics on well-being. Therefore, Joachim Brunstein, along with his doctoral student Anja Dargel, planned two intervention studies, which were published in 2008 with the collaboration of other colleagues.

By that time, a few intervention studies already existed that specifically targeted personal goal characteristics in order to enhance individuals’ well-being. For example, Sheldon et al. (2002) aimed to increase intrinsic motives for personal goals, while Koestner et al. (2002) focused on building and optimizing implementation intentions (Gollwitzer, 1999). These intervention programs and studies, however, suffered from various limitations,
such as differential effects among participants or the absence of active control groups. Therefore, Joachim Brunstein and his colleagues planned two intervention studies in which they aimed to rigorously test the core assumptions of their teleonomic model of subjective well-being. The intervention program aimed to strengthen goal commitment and goal attainability. Subsequent evaluations were meant to examine whether participants achieved more goal progress and experienced higher levels of well-being as a result of this intervention program.

Joachim Brunstein and colleagues' intervention program consisted of a goal commitment and a goal-planning module (intended to enhance goal attainability). In the goal commitment module, participants elaborated the positive consequences of their goals, reduced negative incentives, connected their personal goals to their overarching life goals, linked the goals they pursued to personal strengths, and connected their goals to their fundamental needs. In the goal-planning module, participants created an action plan for gradually achieving the goal, planned how to cope with anticipated difficulties during the goal pursuit, and acknowledged their own goal-relevant social resources.

The first study aimed to investigate the overall effectiveness of the intervention program in a student sample. It involved six measurement points, three prior to the intervention, two following the intervention, and one along with the intervention spanning over a period of 12 weeks. The study design was a one-factor design with one experimental group and two control groups (goal-relevant and goal-irrelevant). Participants in the experimental group completed both modules of the intervention program, while the control groups engaged in activities of similar duration related to either unstructured goal-relevant or goal-irrelevant topics. The results demonstrated the effectiveness of the intervention program: In the experimental group, both goal commitment and goal attainability assessments increased, controlling for the respective initial values. Goal progress was also higher in the experimental group compared to the control groups, just as indicators of well-being (e.g., student adaptation). Mediation analyses confirmed that the effect of the goal attribute intervention on improvements in well-being were attributable to goal progress.

The second study aimed to demonstrate the specific effects of the two modules. The study involved three measurement points over a period of 4 weeks and was also conducted with students. It used a 2 (goal commitment) x 2 (goal planning) factorial design. The results of the study clearly document the specificity of the intervention: Groups that received the goal
commitment intervention reported significantly higher goal commitment compared to groups without the goal commitment intervention. Similarly, results for the goal planning intervention were also consistent. Both interventions further positively influenced subsequent ratings of goal progress and student satisfaction (as an indicator of well-being).

Overall, both intervention studies provide compelling direct evidence for the validity of core assumptions of the teleonomic model, at least with regard to the weak model assumptions. The effect sizes for the intervention’s impact on students’ satisfaction (as an indicator of well-being) are relatively high: In the first study, the effect sizes for the intervention on students’ adaptation ranged from Cohen’s $d = 0.28$ to $0.43$. In the second study, the effect size for the goal commitment intervention was $d = 0.56$, and $d = 0.58$ for the goal planning intervention. These effect sizes are quite remarkable when compared to those from recent meta-analyses of well-being intervention. For example, van Agteren et al. (2021) summarized results from interventions aimed at improving well-being. They report an effect size of Hedge’s $g = 0.42$ for the strongest (!) intervention type, mindfulness interventions. Koydemir et al. (2021) summarized results from randomized controlled positive psychological intervention studies intended to increase participants’ well-being. They report an overall mean effect size of Cohen’s $d = 0.23$. Compared to these findings, effects observed in Joachim Brunstein’s studies are quite noteworthy. Furthermore, the methodological rigor of this work, with its two studies, exceeds beyond comparable studies in various regards (e.g., duration of study, number of measurements, successive decomposition of effects, etc.). Nevertheless, the impact of this article, with just under 40 citations (according to Google Scholar, August 2023), falls significantly behind that of other goal intervention studies (e.g., Sheldon et al., 2002: > 500; Koestner et al., 2002: > 750).

Yet, it is possible that a recent intervention study that examines another assumption of the teleonomic model of subjective well-being - that the congruence between implicit motives and thematic content of personal goals is important for subjective well-being (Roch et al., 2017) - may bring more attention back to Joachim Brunstein’s seminal intervention article on the teleonomic model (Brunstein et al., 2008).

**Personal Goals at Work**

The “everyday-relevant” concept of personal goals has also been transferred to the context of work and employment. The interest in goals that individuals set for themselves and actively pursue, rather than the goals set by the
organization or participatively chosen goals from goal-setting theory (e.g., Locke & Latham, 1990), increased in the 1990s. During this time, the perception of employees in organizations began to change tremendously: Previously, employees were seen as passive recipients of organizational (socialization) interventions, such as onboarding or training programs. By then, it was increasingly recognized that new employees do not enter organizations as "blank slates", but also bring their own values, interests, and goals that they want to pursue - a development described by Bell and Staw (1989) with the pun "People as sculptors versus sculpture."

The concept of personal goals (previously described by the author as current concerns), was introduced by Roberson into the context of work in several studies. She adapted a measurement tool developed by Eric Klinger (Klinger et al., 1981) and used it to assess current concerns (1989). She revealed significant relationships between nomothetic characteristics of personal goals and job satisfaction (1990), and categorized the concerns thematically (Roberson et al., 1989). This work laid the foundation for recognizing that self-chosen personal goals are indeed pursued in organizations and that they may be investigated in addition to those goals set within the framework of goal-setting.

As part of the dissertation of one of the authors of this chapter, another study on personal goals in the workplace was conducted, which was published in 2001 (Maier & Brunstein, 2001). The study aimed to examine to what extent characteristics of personal goals could predict affective success indicators of the onboarding process, such as employees' job satisfaction and organizational commitment. The core assumption was that new employees would respond positively to favorable opportunities for achieving their personal goals, especially when they were highly committed to their goals. These positive responses were expected as in this setting new employees would be able to achieve progress towards their personal goals. The research question was investigated in a sample of 81 new employees in various organizations; they were surveyed at three measurement points during a period of eight months. Results show that changes in job satisfaction and affective commitment were contingent on perceived goal attainability, particularly for highly committed individuals: When attainability perceptions were favorable, these positive work attitudes increased, and when they were unfavorable, positive attitudes decreased. The effect was mediated by perceived goal progress. These findings contributed to a new understanding of the integration process of new employees, as it was shown that new employees evaluate their new environment to a considerable extent from the perspective of their current personal goals.
In subsequent years, other studies in the field of organizational psychology used idiographically assessed goals to investigate phenomena such as goal adaptation during the transition from school to work (Dietrich et al., 2012), engagement and burnout (Hyvönen et al., 2009; Nurmi et al., 2010), ethical corporate culture and goal content (Huhtala et al., 2013), affect in the workplace (Harris et al., 2003), or consequences of mentoring (Greco & Kraimer, 2020). Specific goal attributes and processes such as goal difficulty (Wiese & Freund, 2010), goal progress (Harris et al., 2003), and goal conflicts (Kehr, 2003) were also analyzed in more detail. Conceptual work has addressed the interaction between implicit motives and (explicit) personal goals in this domain (Rosenstiel et al., 2000), as well as the role of personal goals in career development (Maier et al., 2018). In Bielefeld, besides the fundamental meta-analysis on the relationship between goals and subjective well-being (Klug & Maier, 2015), we focused on investigating the questions for whom goal progress has particularly positive consequences as well as to what extent a transformational leadership style affects characteristics of organizational goals.

Hülsheger and Maier (2010) tested two competing assumptions concerning the differential significance of goal progress for individuals high in conscientiousness: a congruence model and a compensation model. We focused on conscientiousness due to its strong association with goal progress, as individuals with high levels of conscientiousness are often described as goal-oriented and achievement-focused (Costa & McCrae, 1992). According to congruence theories (e.g., trait activation theory: Tett & Guterman, 2000), it can be assumed that individuals high in conscientiousness would respond more positively to goal progress, as goals and goal progress are highly meaningful to them. In contrast, compensation theories (e.g., learned industriousness theory: Eisenberger, 1992) suggest that individuals low in conscientiousness would respond more positively to goal progress, as making progress towards their goals represents a new experience to them. These competing assumptions were tested in a four-month longitudinal study with three measurement points among trainee teachers. The study examined which group of individuals (high vs. low conscientiousness) exhibited a stronger association between goal progress and changes in affective work attitudes. Results indicate that only individuals low in conscientiousness showed a significant association with changes in affective work attitudes. Thus, the study provides support for assumptions from compensation models.

In yet another longitudinal study published in 2018, we focused on the influence of leadership style on the characteristics of organizational goals
set by leaders. In a sample of employees from different organizations, we tested the assumption that the effects of transformational leadership on affective work attitudes would be mediated by followers’ perceptions of a goal’s importance and attainability (Steinmann et al., 2018). Bass (1985) originally proposed the concept of transformational leadership. Transformational leadership describes leaders who are capable of drawing attention to the importance of organizational goals, putting aside self-interest for the benefit of the organization or team, addressing their followers’ higher-order needs through the articulation of visions, and strengthening the their employees’ self-efficacy. It has commonly been reasoned that transformational leaders are able to implicate followers’ self-concepts and to increase their perception of self-consistency with regard to the goals these leaders set (Shamir et al., 1993). This assumption has, however, hardly been tested empirically. Drawing on Joachim Brunstein’s work on personal goals, we reasoned that transformational leaders manage to increase the importance followers attach to the goals they were set and to foster followers’ perception of being able to attain these work-related goals. Increases in these work attitudes were further assumed to go along with increases in followers’ positive work attitudes. Results of our study provided evidence for this assumption (Figure 2). This study has not only integrated research on goals and leadership, two commonly independent lines of research (Berson et al., 2015). It also transferred Joachim Brunstein’s findings on the value of goal attributes in the domain of personal goals to the domain of organizational goals and goal setting. By intertwining these widely separated lines of

![Figure 2. Influence of transformational leadership on positive work attitudes through goal importance and goal attainability. From Steinmann, B., Klug, Hannah J. P., & Maier, G. W. (2018). The path is the goal: how transformational leaders enhance followers’ job attitudes and organizational citizenship. Frontiers in Psychology, 9, 2338. https://doi.org/10.3389/fpsyg.2018.02338 CC BY 4.](image-url)
research, the study may contribute to an increased understanding of how the effects of transformational leadership behaviors on positive work attitudes unfold.

Research in industrial and organizational psychology has commonly been embedded into the framework of goal setting theory (e.g., Locke & Latham, 1990). The initial findings presented here, however, emphasize that the integration of personal goals and the profound evidence resulting from Joachim Brunstein’s efforts into our examination of various phenomena at work may also help to answer open question and enhance our understanding of central processes in organizations.

Conclusion

Joachim Brunstein worked on his research program for well over 20 years, from 1986 up to 2008. He published more than 10 articles and chapters about this topic. All in all, the teleonomic model of subjective well-being has received strong empirical support and is quite well-established. With his research, he contributed markedly to a better understanding of personal goal processes: He identified in times of more descriptive, or, in his words from 1988, interest-driven research with endless lists of goal variables those three theoretically derived constructs, that are - in our opinion - the most important for subjective well-being. In doing so, he tried to answer central questions in this field, like the questions of which role personal goals play for subjective well-being, how goal progress can be achieved, or who commits oneself to „good” goals.

Beside these analyses of the inner workings of goals, his studies gave impulses for a new understanding of (goal based) partnership processes or to the dual process theory of motivation, as Joachim Brunstein linked explicit goals, with their motivational thematic content, with implicit motives. From a methodological point of view, Joachim Brunstein raised the methodological standards of early personal goal research to a more sophisticated level, most often using longitudinal designs in his field studies, testing the causal direction with intervention studies and systematically examining the impact of his two intervention modules. Finally, he suggested a developmental coping process by which individuals might master developmental transitions.

Interestingly, his research about personal goals is closely related to some of his other research interests: With life goals (Pöhlmann & Brunstein, 1997), identity goals (Brunstein, 2000; see also the chapter by Doerflinger and Gollwitzer, this volume), and implicit motives (see also the chapters by
Mehl, Hofer, and Schultheiss this volume), he focused on more abstract levels of personality.

With his research about personal goal processes, Joachim Brunstein shaped a psychology that explicitly focused on people in their everyday lives and so, he has contributed to a psychology that could expect understanding, interest, and recognition from the public. Finally, we wish Joachim Brunstein all the best and that he will successfully manage all unfolding and reorganization processes in order to master the next step in his vocational career.

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From Everyday Experience to Personal Goals (at Work)


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The Pursuit of Multiple Identity Goals

Johannes T. Doerflinger and Peter M. Gollwitzer

When William James (1890/2013) described identity – in his language the self – he distinguished the self as an object of knowledge (Me), and the self as a subject (I). Much contemporary research on identity, in particular self-perception research (Bem, 1972; Morina, 2021) focuses on the Me. Questions in this line of research from the individual’s point of view are akin to “Who am I?” But there is also a motivational side to identity, closely related to the agentic I. This line of research is concerned with questions such as “Who do I want to be?” and investigates identity goals. Symbolic self-completion theory (SCT, Gollwitzer, et al., 2013; Wicklund & Gollwitzer, 1982) describes the processes involved in identity goal striving. Until recently, SCT research has investigated single identity goals in isolation (e.g., Longoni et al., 2014), but most people strive for many self-definitions and thus hold many identity goals. For example, a person might at the same time have the identity goal of being a great parent and being a successful professional. The various ways in which goals in general can be linked to each other, and to goal-directed behavioral means in goal system (Kruglanski et al., 2018), should also impact identity goal striving. Therefore, a relatively novel line of SCT research has started to theorize about multiple identity goals in interaction (Doerflinger et. al., 2021, Doerflinger et al., 2022, Spychalska-Waszek et al., 2022).

In this chapter, we will first provide a description of goal properties and mechanisms. This section will be based on 1) SCT to provide a theoretical framework of identity goals, 2) mindset theory of action phases (MAP; Gollwitzer, 1990; Gollwitzer & Keller, 2016) to integrate identity goals into a process model of goal striving, and 3) goal systems theory (GST; Kruglanski et al., 2018) to expand our theorizing beyond single goals. Then, we will discuss recent theoretical developments and studies about the simultaneous pursuit of multiple identity goals. We will close with an outlook on potential new avenues of identity goal research.
The Goal Concept

Goals are a foundation of human motivation. They act as guides for behavior and mental processes, allowing agents to exert control over their actions and meaningfully interact with the environment (Gollwitzer, 2018). Goals can be defined as mental representations of a future state that is linked to the goal striving person. This end state has positive valence, if the agent strives to attain it and negative valence, if the agent strives to avoid it (Custers & Aarts, 2005).

Goal Commitment

Not all mental representations of future states are goals. For example, people also have wishes or positive and negative fantasies about the future (Oettingen, 1996). Goals can distinguished from these representations, because goals require commitment toward goal directed action (Brunstein, 1993; Brunstein, et al., 1999; Oettingen, 2012; Oettingen & Stephens, 2009). Having a goal means that the agent is committed to working towards that goal, which in turn energizes the agent for goal-directed action (Locke & Latham, 2002, 2013). Commitment also determines whether goal striving has downstream effects on well-being. For instance, Brunstein and colleagues (Brunstein 1993; Brunstein et al., 1998) showed that attainability of personal goals is positively related to individuals' well-being, but only under the condition of high goal commitment.

In the mindset theory of action phases (MAP; Gollwitzer, 1990, 2012; Gollwitzer & Keller, 2016), goal pursuit is conceptualized as consisting of four consecutive phases. The first, pre-decisional phase takes place before the agent commits to a goal. In this phase, the agent assesses the pros and cons of committing to potential goal candidates (e.g., possible selves). This process is supported by a deliberative mindset, which supports open-minded processing and information search (Fujita et al., 2007; Doerflinger & Gollwitzer, 2020). If a goal candidate's feasibility and desirability is considered sufficiently high, the agent is likely to commit to it and thereby transform it into a binding goal. In our process model, commitment is a necessary precondition for the motivational processes involved in goal striving.

Goal Pursuit

By committing to a goal, agents enter the post-decisional phase, which is further subdivided in MAP into pre-actional and actional phases.
The Pursuit of Multiple Identity Goals

(Gollwitzer & Keller, 2016). At this point of goal pursuit, starting goal-directed actions and staying on track is more important than deliberating whether to take up a goal or not. Therefore, attention and processing becomes closed-minded and focussed on goal directed means, supported by an implemental mindset (Doerflinger & Gollwitzer, 2020). During goal pursuit, attention is selectively directed at information relevant for the attainment of the active goal and away from alternative goals and distractions (Shah et al., 2002; Shah et al., 2009).

Goal pursuit lasts until the goal is attained, or the individual disengages from it. In most cases, motivational and volitional effects on attention, cognitive processes, memory, and behavior persist for this duration (Martin & Tesser, 2009). Thus, as long as a goal is incomplete, it remains active. Once goal-completion is reached, the goal becomes deactivated. When a goal is active, the person pursuing the goal experiences tension until the goal is reached or abandoned. The tension state motivates individuals to work towards the completion of the goal and once it is attained the tension subsides (Lewin, 1951, 1927).

For example, a musician who forms the goal of playing a certain piece at a concert would experience this tension. It would motivate the musician to rehearse and stay concentrated during the performance. Once the concert is over, goal attainment can be thought of as complete and the goal is no longer a behavioral motivator (Gollwitzer & Wicklund, 1985a). However, if our musician did not only the pursue the goal of playing at the concert but also the self-defining goal (i.e., an identity goal) of being a great musician, the dynamics of goal pursuit would differ.

Identity Goals

The external goal of playing at the concert has a clear endpoint. A single criterion (finishing the piece) indicates whether the goal pursuit was successful. In contrast, the internal identity goal of being a great musician is open-ended. It is part of a constructive process to create a persisting personal quality. This quality cannot be attained in the same definite way as an external goal can be completed. A person pursuing an identity goal will be faced repeatedly with evidence for and against possessing the desired identity. Therefore, identity goals can only be relatively complete to the degree that the present evidence indicated the possession of the identity. An individual pursuing an identity goal can move back and forth from a state of goal completeness and incompleteness.
Self-Symbolizing

People who are committed to an identity goal seek out indicators of possessing the identity. Such indicators serve as symbols representing the identity goal and identity goals typically have multiple possible symbols. According to self-completion theory, the symbols of an identity are interchangeable. Individuals can symbolize their identity by demonstrating identity-relevant skills, showing behavior typical of the identity, displaying physical objects, or merely stating intentions to implement the identity goal. Most socially defined identities have numerous potential symbols and it is not possible to acquire all of them. Thus, further symbolizing is always possible (Gollwitzer, 1986). For example, the aspiring musician could symbolize their identity by alternative means such as practicing, buying an expensive instrument, socializing with other musicians, or merely stating that they are a musician. Each of these symbols can reduce the tension that comes along with an active identity goal.

Symbols are especially effective when they are noticed by others (i.e., they have become a social reality). This is not merely a matter of strategic self-representation towards others. Because identity goals are typically socially defined, indicators of goal completion (identity symbols) depend on the social recognition of others (Gollwitzer, 1986; Gollwitzer & Wicklund, 1985b; Wicklund & Gollwitzer, 1982).

As long as an individual has enough symbols of an identity available, this person would experience completeness concerning the pursuit of the respective identity. At this point, there is little need for further symbolization and efforts for goal striving are reduced. While the identity goal is relatively complete, it can be thought of as inactive. Individuals remain motivationally complete until they encounter a disruption that calls their attention towards the identity goal and they enter an evaluative state. Losing or failing to acquire an identity-relevant symbol leads to a sense of incompleteness eliciting psychological tension (Gollwitzer, et al., 1982, Sciara et al., 2023) that motivates individuals to compensate by symbolizing the identity with alternative means. This process can be seen as a reactivation of the identity goal.

Domain Specificity of the Self-Symbolizing Process

Brunstein and Gollwitzer (1996) identified an important property of the self-symbolizing process. Identity goal completeness and incompleteness are domain specific. In this regard, the pursuit of identity goals can be distinguished from general self-affirmation (Steele, 1988). Self-affirmation
theory posits that people have a fundamental motivation to maintain self-integrity, a perception of themselves as good, virtuous, and able to predict and control important outcomes. Research on self-affirmation theory examines how people maintain self-integrity when this perception of the self is threatened. It is found that people whose self-integrity is threatened can reestablish self-integrity through affirmations of alternative domains of self-worth unrelated to the provoking threat. SCT is different in that regard. The focus of SCT lies on understanding the processes of compensation triggered by a state of incompleteness regarding an identity goal to which one has committed oneself (e.g., being a great musician). Thus, according to SCT, threatening those self-aspects that pertain to an aspired-to identity goal are expected to lead to distinct compensation (i.e., self-symbolizing completeness of that very identity goal; see Gollwitzer et al., 2013).

In a series of studies, Brunstein and Gollwitzer (1996) examined the domain specificity of self-symbolizing and its effect on subsequent performance. They predicted two effects: compensation and interference. Identity goal incompleteness should increase performance on identity relevant tasks, because relevant tasks – a form of self-symbolizing – allow the agent to compensate for failures and setbacks. However, on irrelevant tasks performance should suffer, because the active goal should interfere with non-relevant pursuits. In a first experiment (Brunstein & Gollwitzer, 1996, Study 1), they varied identity goal incompleteness of committed medical-school students by asking them to take a test ostensibly measuring social competence. For half of the participants, the test was presented as specifically tailored to measure competence in the medical domain; for the other half, it was presented as a test of everyday social competence. Test content in both versions was designed to be parallel. Half of the participants received negative feedback (irrespective of actual performance), the other half received no feedback. Negative feedback should induce identity goal incompleteness, but only if the feedback was relevant to the identity goal, not in the case of domain-general negative feedback. After the incompleteness induction task, participants were asked to perform a concentration task to measure subsequent performance. Again, one half of the participants were told that the task was specifically designed to measure their ability as a physician, and the other half was told that it was used to compare different groups.

In line with SCT, when participants were led to believe that the concentration task was relevant to their identity goal of becoming a good physician, the performance on the task was highest in the incompleteness condition, supporting the compensation hypothesis. But when the concentration task
was presented as domain-general, performance was lowest in the incompleteness condition.

In a second experiment (Brunstein & Gollwitzer, 1996, Study 2), this pattern of results was replicated in a sample of aspiring computer science majors. One condition was added to the study, in which participants first received negative feedback to induce incompleteness, but then were given an opportunity to self-symbolize by filling out a personality profile before the test task. In this condition, participants received positive feedback that their personality profile was close to that of a successful computer scientist. This self-symbolizing act should restore completeness and thus negate the effects of the prior incompleteness induction.

And indeed, performance in a concentration test under identity goal incompleteness was higher than in any other condition when the task was described as identity-relevant and lower when it was described as a domain-general test, but only when participants had not restored their identity goal completeness in between.

In both studies, self-report measures were used to assess the motivational tension state. In Study 1, participants in the incompleteness condition reported that they were more engaged when the subsequent task was presented as identity-relevant and they indicated that the ruminated more about their identity goal when the subsequent task was presented as irrelevant. In Study 2, participants reported that they felt less energized immediately after the incompleteness induction (only in those groups in which incompleteness was experienced), but more energized directly before starting with the relevant self-symbolizing test task. When the task was presented as domain-general, the energization level remained low, and when participants were given the opportunity to self-symbolize by alternative means (i.e., the personality profile) energization went back to the baseline.

These studies provide a strong foundation for theorizing about identity goal striving mechanisms. First, they show that identity goal incompleteness is only experienced when a setback is directly related to the identity goal in question. Second, under incompleteness, performance in the domain of the identity goal was enhanced and performance in unrelated domains suffered. Third, incompleteness elicited a distinct pattern of engagement and energization – a finding that is congruent with the motivational tension state hypothesized by Lewin (1927, 1951).
Other studies also support the idea that when an individual experiences identity goal incompleteness, self-symbolizing must take place in the domain of that very goal (Ledgerwood et al., 2004; Moskowitz et al. 2011). However, are identity goals really walled off – completely isolated from the other goals that individuals pursue, as Gollwitzer et al. (2013) suggested? For a long time, the scope of SCT has been the pursuit of one identity goal. Only recently have researchers begun to investigate how different configurations of identity goals and self symbols are interrelated and interact. We turn to goal systems theory (GST, Kruglanski et al., 2018) for a description of multiple-goal-means configurations, because those mechanisms involved in general with goal striving should also underlie the striving for identity goals.

Goal Systems

Self symbols are the means committed individuals use to pursue their identity goals. We therefore postulate that the identity goal-symbol relationship is in many regards identical to the goal-means relationship in general. GST (Kruglanski et al., 2018) models the relation of goals and means as an associative network, and it is assumed that goals are stored as such a goal system in memory. In a goal system, the many goals individuals hold are interconnected with each other and with means to achieve them. The connecting links can be facilitatory (e.g., encountering viable means activates goals; Shah & Kruglanski, 2003) or inhibitory (e.g., inhibition of conflicting goals). Concerning inhibition, Shah et al. (2002) showed in multiple studies that when a focal goal was activated, alternative goals were cognitively less accessible to the individual (i.e., goal shielding). This might be one explanation for why in Brunstein and Gollwitzer’s Study performance on identity goal-irrelevant tasks was worse when incompleteness was induced.

Goals are conceptualized as hierarchically organized in GST. Lower-order goals are connected as means to higher-order goals. In addition, goals can be associated laterally on the same hierarchical level. For an illustration of a goal system, see Figure 1. Consistent with this framework, we argue that identity goals represent a high level in the goal hierarchy and direct behavioral intentions represent a relatively low level. Links between different hierarchical levels are typically excitatory, while connections at the same level are mainly inhibitory, especially for competing goals (Shah et
al., 2002). However, if goals share many reasons for goal pursuit, such as higher order goals, motives or driving values, they can be thought of as overlapping, which should lead to motivational and behavioral spillover effects (Doerflinger et al., 2021).

**Multifinality**

Means (in the case of identity goals: symbols) serving only one goal are called unifinal (Kruglanski et al., 2018). This is, for example, Means 1 in Figure 1. Multiple means can be associated with the same goal, a configuration referred to as equifinality. In Figure 1, Means 3 and 4 are equifinal for Subgoal 4. If a single means serves multiple goals, the configuration is multifinal, as in Figure 1: Means 2 is multifinal regarding Subgoals 1 and 2. The number of equifinal means is negatively related to the associative strength between any one means and the corresponding goal. Similarly, the number of goals associated with a multifinal means correlates negatively with the strength of the link between this means and any one goal (Kruglanski et al., 2018; Zhang, Fishbach, & Kruglanski, 2007). Interconnectedness, equifinality, and multifinality are cognitive features of goals, and their functions are in line with basic cognitive mechanisms (e.g., concerning learning and spreading activation).

In contrast to other cognitive structures (e.g., semantic networks), however, goals also have motivational properties. Goals carry commitment, and commitment to goals can transfer to means associated with these goals (Kruglanski & Shah, 2000). Multifinal means advance multiple goals. Thus, the preference for these means depends on the total desirability of all associated goals. If all else is equal, the subjective value of multifinal means

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Figure 1. An example of a goal system. A higher-order goal is served by three lower-order subgoals. Subgoals 1 and 2 have a shared multifinal means. Subgoal 2 has a facilitatory link with Subgoal 1 and an inhibitory link with Subgoal 3.
should be higher than the subjective value of unifinal means as they only serve a subset of the goals associated with the multifinal means (Kruglanski et al., 2013). The means an individual chooses depends on additional factors besides the values of associated goals. For example, self-regulatory mode (Orehek et al., 2012), the feasibility of identifying multifinal means, and differences in incentives for individual goals (Köpetz et al., 2011) all moderate the preference for a specific means.

Importantly, when goals are simultaneously active, they affect each other’s pursuit. Individuals prefer means to a focal goal that also support additional background goals, even if these background goals are implicit (Chun et al., 2011). This preference depends on goal activation. Chun et al. (2011, Study 4) have shown that the preference for multifinal goals disappears after background goals have been satisfied (i.e., deactivated) by alternative means.

The Pursuit of Multiple Identity Goals

We propose that just as simultaneously active instrumental goals can facilitate and inhibit each other, so can identity goals. We will focus on three aspects of multiple identity goal pursuit that have been the topic of our research group: multifinal and unifinal self-symbolizing, and the overlap of identity goals.

This research is related to the work of Brunstein and Gollwitzer (1996), who have shown that incompleteness can lead to compensation or interference depending on whether the available means for action are perceived as viable identity goal symbols or as domain-general. We add to this by examining multiple identity goals at the same time. For individuals pursuing more than one identity goal, compensation vs. interference should depend on the configuration of identity goals and available symbols, in terms of unifinality and multifinality, particularly when both identity goals are incomplete and hence active.

We predicted that the activation of two identity goals at the same time will only lead to an increase of symbolization effort if both identity goals share available (multifinal) means for completion. If the means at hand can only serve to symbolize one active identity goal but not the other (that is, if they are are unifinal), then activation of a second identity goal should interfere with symbolization of the first one. In contrast, if attainment of two identity goals can be symbolized via the same means while the agent is incomplete in both domains, symbolization effort should be greater than if the individual is incomplete in a single identity domain associated with that symbol.
Unifinal Self-Symbolizing

If the individual is incomplete regarding more than one identity (i.e., multiple identity goals are active) and no multifinal means are available to symbolize the incomplete identities simultaneously, then the identity goals likely interfere with each other because each individual identity goal requires cognitive and motivational resources. This inhibition should cease once competing identity goals have been completed through alternative means.

We tested this hypothesis in one experiment in the identity domain of “becoming a psychotherapist” (Doerflinger, 2018). We chose to investigate the professional identity goal of becoming a psychotherapist because many students in the field of psychology hold this goal and it contains both competence and moral identity subgoals.

While this professional identity requires factual knowledge and skills in clinical psychology, a good psychotherapist is required to live up to certain moral standards. One of these standards is being nonjudgmental of people with mental illnesses. In this experiment, we pitted the moral identity goal of being unprejudiced towards people with mental illness (moral identity goal) against a professional identity goal of being knowledgeable about mental illness (competence identity goal). The available means for symbolization were only relevant for morality (donating money to charity). Thus, having an active competence goal in addition to the morality goal should

Figure 2. The goal system investigated in the experiment about unifinal self-symbolizing. Donating served as a means for the moral identity goal but not for the competence identity goal. We expect an active competence identity goal to interfere with symbolization of the moral identity goal.
reduce symbolization of being moral. The goal system investigated in this experiment is depicted in Figure 2.

Participants were randomly assigned to one of three experimental conditions: 1) both identity goals incomplete, 2) moral complete, competence incomplete, or 3) moral incomplete, competence complete. One hundred and thirteen psychology students completed the experiment. Of these, six participants were suspicious about feedback offered during the experiment. These participants were excluded from the analysis, resulting in a sample of 107 participants (94 women, 13 men) with an average age of 21.3 years.

Upon signing up for an appointment in the lab via the online portal for research participant management of the University of Konstanz, participants were asked to complete a brief online questionnaire consisting of demographic questions and a German translation of the moral identity centrality scale (Aquino & Reed, 2002), which has been found to predict donation behavior (particularly the moral internalization subscale). Participants were told that they would receive 2 € in addition to course credit as compensation for taking part in the study.

The second part of the experiment took place in the lab on one of the following days and presented as a study about the aptitude of the university’s students for becoming psychotherapists. We first assessed commitment to the psychotherapist identity goal via self-report. Then incompleteness regarding that goal was induced for all participants by administering a modified version of the implicit association test (IAT; Greenwald et al., 1998) designed to measure implicit attitudes toward individuals with mental illness. Irrespective of their actual performance, all participants received negative feedback in the form of a diagram displaying low performance on the test compared to the average psychotherapist.

Brunstein & Gollwitzer (1996) have shown that the effects of incompleteness disappear after people engage self-symbolizing. Similar to this earlier study, we gave our participants an opportunity to self-symbolize, either regarding morality, competence, or in an irrelevant domain. In all three experimental conditions, participants were asked to provide answers to a series of questions and they received positive feedback on their performance.

In the both-identity-goals-incomplete conditions, participants were asked to answer questions about marine mammals, a topic unrelated to the identity goals. In the moral-complete/competence-incomplete condition, participants completed items from the civic moral disengagement scale (Caprara et al., 2009), a questionnaire covering moral behavior in various
everyday situations. In the competence-complete/moral-incomplete condition, participants were asked to answer knowledge questions from the domain of clinical psychology.

At the end of the study, participants were given 2 Euros for participating in the earlier online survey. They could keep the money for themselves or donate it to a charitable organization that helps traumatized individuals, a moral cause highly relevant to the domain of psychotherapy. After participants made a donation decision, the experiment ended and participants were thoroughly debriefed. We took particular care to make sure that participants understood that none of the feedback given in the experiment was indicative of their actual aptitude. After the debriefing, participants were also offered the chance to reconsider their donation, but no participant wanted the donated money back.

The study revealed that donations in the moral-incomplete/competence-complete group were significantly higher than in the other two experimental conditions (see Figure 3). These findings suggest that an active competence identity goal can interfere with self-symbolizing possession of a moral identity. Participants who were incomplete regarding both the moral identity subgoal and the competence identity subgoal of the psychotherapist identity goal donated less money to charity than participants who were only incomplete regarding the moral identity subgoal; and participants who were incomplete regarding competence but not moral donated similarly low amounts.

Marquardt et al. (2016) reported related findings: They showed that when students’ experienced incompleteness regarding their professional identity goals, business students were more likely to endorse immoral business decisions presented as indicators of being successful (Study 1), law students claimed to engage in more immoral behaviors that promoted their own success as aspiring lawyers (Study 2), and students interested in STEM and business were more likely to claim to possess antisocial personality traits that were presented as the prototype of a successful professional. Overall, these studies showed that professional identity goals can interfere with moral identity goals. Our study suggests that such interference can occur even when both a professional and a moral identity goal are currently active – when both are incomplete.

Research on moral identity has demonstrated that incompleteness in the moral domain elicits compensatory behavior (e.g., Merrit et al., 2010, Zhong et al., 2009). We observed similar effects for those participants with no active competence goal, but participants for whom both competence and
The Pursuit of Multiple Identity Goals

Figure 3. Donations in Euros by experimental conditions, raw data are depicted, error bars show 95% confidence interval.

moral identity goals were active did not increase their donations. We interpret these findings as evidence for the interference of simultaneously active identity goals. When multiple goals are active, they are competing for motivational and attentional resources. Thus, active goals are in conflict unless multifinal means can be used to resolve this conflict (Kruglanski et al., 2018; Shah et al., 2003). If multifinal symbols are readily at hand, people might use them to compensate for incompleteness in any goals related to these symbols.

Multifinal Self-Symbolizing

To test this hypothesis, we conducted two studies with German Turkish bicultural participants who were committed both to a German and a Turkish cultural identity goal (Doerflinger et al., 2022). Cultural identity is for many people a central part of their self-definition (Huynh et al., 2011). The question of belonging to a particular culture is much more complex for bicultural than for monocultural people, as they have to navigate the challenges of both identities at the same time (Benet-Martínez & Haritatos, 2005). Those bicultural people who have internalized two cultures into
their self-concept and are committed to belong to both thus hold two cultural identity goals.

We were particularly interested in cultural self-symbolizing behavior that was multifinal. This configuration is shown in Figure 4. In the first experiment on multifinality, we assessed multifinal self-symbolization on social media, and in the second experiment, we assessed it in the form of helping a bicultural student. Because identity goal incompleteness energizes goal-directed behavior (Brunstein & Gollwitzer, 1996), we further hypothesized that being incomplete in both identity goals at the same time should increase effort expended on self-symbolizing more than incompleteness in only one of the identity goals.

Both experiments had a 2 (German identity: complete vs. incomplete) by 2 (Turkish identity: complete vs. incomplete) between-participants design. For both experiments, bicultural German-Turkish people were recruited who had indicated that they were committed to both being Turkish and being German. In the first experiment, two hundred and thirteen committed participants (131 women, 82 men, age M = 27 years) took part, and in the second experiment, one hundred and eight committed participants (34 women, 97 men, age, M = 30) took part.

The first experiment was part of a larger study that included additional measures after the experiment. The second experiment was a field study. At the beginning of the experiments, incompleteness versus completeness was manipulated. This was done with the same task for both identity goals in random order. To induce incompleteness, participants were asked to report a recent experience where they felt like they did not belong to the

![Figure 4](image-url)

Figure 4. The goal system investigated in the two experiments on multifinal self-symbolizing. Social media activity served as a symbol for both goals in the first experiment, helping a bicultural student served as a multifinal symbol in the second experiment.
respective culture. To induce completeness, they were asked to report a recent experience where they felt like they did belong. After the manipulation, the participants were given an opportunity to self-symbolize via multifinal means.

In the first experiment, participants were shown a Facebook social media page created for this study that presented information about German-Turkish biculturalism. Visiting the page and engaging with it was optional, but participants were asked whether they had clicked a like button, commented on the page, or shared it with friends. Any such action was coded as self-symbolizing.

In the second experiment, participants could self-symbolize by helping a bicultural student, who was present as the experimenter. At the end of the experiment, participants were informed on the screen that they had completed the study, but there were optional questions they could answer if they wanted. This would help a bicultural student with writing his thesis. Self-symbolizing is measured as a binary choice in both experiments (yes, no). In addition, the number of answered optional questions was an indicator of symbolization effort in the second experiment. Answering additional questions was not further incentivized – in fact we designed the controls of this part of the questionnaire to make it more tedious and disincentivize helping behavior. Participants could answer no additional questions, or as few or many as they wanted.

The pattern of results is shown in Figure 5. In both experiments, the probability to self-symbolize was lowest when no incompleteness had been induced for either identity goal (i.e., completeness-completeness condition). In those conditions, where incompleteness was induced for either identity goal or both, the probability was higher.

Effort was analyzed for the subsample who did decide to engage in self-symbolizing in the second experiment – those participants who answered at least one optional question (N = 79). We compared participants who were incomplete regarding both identity goals with participants in the two groups in which only one identity goal was incomplete and the other was complete. We found that participants in the double-incomplete condition answered significantly more optional questions than those who were incomplete in only one identity goal (see Figure 6).
The studies show that individuals readily use available multifinal means when they are in a state of incompleteness. Interestingly, the choice whether to engage in self-symbolizing was not differently affected by incompleteness in only one identity goal or incompleteness in two identity goals. In contrast, self-symbolizing effort was highest when incompleteness was induced for both identity goals. In investigating single identity goals, it has been found that incompleteness energizes goal directed behavior (e.g., Gollwitzer et al, 2013, Brunstein & Gollwitzer, 1996). At least regarding effort, our data suggest that for multiple identity goals such effects work additively, resulting in greater synergy between the identity goals.

But clearly more research will be needed to examine the hypothesized tension state associated with incompleteness. Such studies could employ physiological measures of effort (e.g., cardiovascular response, Gendolla & Richter, 2010) and investigate potential mindset effects associated with the incompleteness state. Because under conditions of identity goal incompleteness goals are activated, individuals’ cognitive orientation in such a state should be like an implemental mindset. The implemental mindset supports staying on track on performing goal directed behavior. If incompleteness in two identity goals results in a clear implemental mindset, individuals should be more focused and shielded from distractions. This might also lead to increased performance and effort.

The experiments described above investigate how identity goals are related to self-symbols. From a goal systems perspective, this research is concerned with connections between identity goals to a hierarchically lower level. But
identity goals can share associative links at the same level, or they might even be driven by similar reasons on a higher hierarchical level, such as basic motives (McClelland, 1987), or personal and moral values (see Hannah et al., 2020). We investigated such a configuration in research on identity goal overlap.

Identity Goal Overlap

According to McClelland (1987), most goal-directed behavior is driven by people’s basic motives, such as the needs for achievement, power, affiliation, or intimacy. For example, Hart and Albarracín (2009) found that exposing individuals who have chronic self-attributed achievement motives to an achievement prime results in them self-describing as more achievement-oriented (Studies 1 & 2), selecting an achievement task over a fun task (Study 3) and performing better in a puzzle task when it was presented as an achievement-related activity but worse when it was framed as a fun-related activity (Study 4). People who had low achievement motivation described themselves as less achievement-oriented, selected fewer achievement tasks and performed relatively better in the fun frame condition. This study shows that individuals’ general self-attributed motives have an important impact on their goal pursuit, but also that the goals can be construed as associated with different motives.
Brunstein et al. (1998) showed that people’s basic implicit motives determine whether goal progress will improve their well-being. They examined the motives for agency and communion. In Study 1, they measured students’ agency and communion motives with the picture-story exercise (Atkinson, 1981). Then participants were asked to list four personal goals related to 1) intimacy, 2) affiliation, 3) achievement, and 4) power. Intimacy and affiliation goals were combined as a general measure of communally motivated goals, whereas achievement and power goals were used as a measure of agency-motivated goals. In addition, goal progress and well-being were assessed via self-report. The study revealed that goal progress was only related to higher well-being when the goal domain was congruent with participants’ motives: for participants primarily driven by agency motives, progress in agentic goals was a positive predictor of their well-being, but progress on communal goals was not. The reverse pattern was found for participants primarily driven by communal motives. In Study 2, the authors assessed the same constructs at four time points over the course of one semester. In addition, they measured commitment to the goals and perceived goal attainability. The study revealed that commitment to communal and agentic goals moderated the effect of goal attainability on well-being. When commitment was high and the goal was congruent with participants’ motives, attainability a positive predictor of well-being. When goals were incongruent or commitment was low, attainability had no effect on well-being.

In sum, these studies show that basic motives are important drivers of motivated behavior. Brunstein et al.’s (1998) experiments further demonstrate that different personal goals have a goal-specific motive signature. We argue that basic motives and other reasons, such as moral values behind identity goals, are important factors that will determine how multiple identity goals interact (Doerflinger et al., 2021; Spychalska-Waszek et al., 2022).

The extent to which goals share a common reason for their pursuit manifests itself in their overlap. Identity goal overlap describes the strength of associations that two identity goals share (Doerflinger et al., 2021; Spychalska-Waszek et al., 2022). It is high if the same reasons drive goal pursuit, whereas it is low if the goals are pursued for different reasons. Reasons for goal pursuit can be basic motives (Atkinson, 1981; Brunstein et al., 1998; McClelland, 1987), but also different moral values associated with a particular identity (Hannah et al., 2020), or higher-order goals (Kruglanski et al., 2018).
The degree of overlap between two identity goals should determine to what extent they are isolated from each other. Earlier theorizing and empirical studies about SCT (e.g., Gollwitzer et al., 2013) have treated identity goals as walled-off. But new findings suggest that when there is very high overlap between two identity goals, motivational spill-over may occur (Doerflinger et al., 2021). Identity goals are part of a goal system, and within a goal system activation may spread via associative links (Kruglanski et al., 2015). Therefore, when individuals striving for an identity goal are in a state of incompleteness and no symbols are available for this goal, symbolization should become more likely in overlapping alternative goals, even if no incompleteness has been experienced for these alternative goals. We call this process cross-goal symbolization. However, if the overlap between two identity goals is low, the reverse effect should occur. As Brunstein and Gollwitzer (1996) have shown, in a state of identity goal incompleteness performance and efforts on activities perceived as irrelevant to the incomplete goal are reduced. This pattern can be expected for identity goals with little overlap.

Cross-Goal Symbolization

To test our hypotheses, we conducted two experiments (Doerflinger et al., 2021) in which we investigated the identity goals of being a good parent and being a successful professional, two goals held by many working parents. We investigated overlap with regards to moral values and basic motives. The studies were conducted during the COVID-19 pandemic in 2020, when many working parents faced the challenge of juggling working in a home office and home schooling. This situation is likely to increase work-family conflicts because resources such as time and space are needed for both identity goals (Coyne et al., 2020; Wayne et al., 2020). But cross-goal symbolization may offer a way out of stressful incompleteness situations for individuals with high identity goal overlap.

In both studies, incompleteness regarding the professional identity goals was manipulated with two conditions (incomplete vs. control), and overlap was measured as a continuous variable. Because self-symbolizing depends on goal commitment, being committed to both a parenting and a professional identity goal were inclusion criteria. In the first experiment, 197 participants took part (72 women, 125 men) with a mean age of $M = 37.5$ years. In the second experiment, 208 committed working parents participated (94 women, 114 men, age: $M = 36.8$ years).

The experiments were conducted as online studies. We measured identity goal overlap with questionnaires at the beginning of the first experiment.
and one week before the experimental session in the second experiment. In both experiments, we measured overlap regarding moral values. However, due to statistical shrinkage of variance, this measure only worked in the first. In the second experiment, we added a measure of overlap via basic self-reported motives.

The measurement of overlap was inspired by the moral identity complexity questionnaire (Hannah et al., 2020). In this questionnaire, participants are asked to think of themselves in various different identities (e.g., “I as a parent am...”, “I as a professional am ...”) and then rate to what degree a set of moral attributes (e.g., “caring”, “honest”) describes them in that identity. We used the original items developed by Hannah et al., adopted for the parent and professional identity goals. With this method, participants provided two sets of self-descriptive ratings, one for each identity goal of interest.

To measure overlap via basic self-reported motives, we developed a new set of items. For example, an achievement-motive item was “I strive to achieve all I can concerning my work [family].” As with the moral values, this produced two parallel sets of ratings, one for each identity goal. These ratings qualify as two vectors (one for each goal). Mathematically, the overlap of vectors can be expressed as the angle between them, described by its cosine (i.e., cosine overlap).

In the experimental session, incompleteness regarding the professional identity goal was first induced by asking participants to reflect on a recent experience in which they did not live up to their personal standard as a good professional. Then they were shown a website created for these studies, on which they could take part in educational activities together with their children, such as virtual museum tours, watching educational videos, or performing online activities related to the natural sciences. We measured whether participants visited the website, how much time they spent on it, and how many activities they took part in.

Across both experiments and all three dependent measures, we found that identity goal overlap was positively related to the likelihood of self-symbolizing and the intensity of self-symbolizing behavior, but only when incompleteness was induced. Under identity-goal incompleteness, participants with higher overlap were more likely to visit the website (see Figure 7), they spent more time on it and they took part in more activities, compared to participants with lower overlap.
Two observations are noteworthy. First, most participants in the study had overall relatively high overlap. Therefore, the observed effects were mostly driven by increased self-symbolizing of those participants with high overlap under incompleteness. Second, the likelihood and intensity of self-symbolizing was lower for participants with low overlap if they had experienced incompleteness compared to the control condition.

These findings support the idea that under high overlap motivational effects of incompleteness spill over to highly overlapping goals, which can be understood as cross-goal symbolization by taking action in a closely related goal domain. If overlap is relatively low and the identity goals are rather distinct for the goal striving individuals, incomplete individuals might distance themselves from alternative, weakly overlapping goals, just as incompleteness reduced performance in activities unrelated to the incomplete goal (Brunstein & Gollwitzer, 1996) – which can be understood as cross-goal symbolization via inaction.

**Malleability of Identity Goal Overlap**

Identity goal overlap determines to what degree people use symbols from other goal domains to reduce incompleteness. But can the features of the configuration of identity goals and symbols, such as multifinality, affect overlap? Spychalska-Waszek et al. (submitted) have replicated cross-goal symbolization effects for national and religious identity goals of Polish participants. In a related study (2022), they have also investigated whether
presenting making multifinal means for two identity goals salient can increase their overlap.

On two occasions, they recruited Polish participants who were committed to both a religious (catholic) and a national (Polish) identity goal. The first study took place close to Christmas Eve and the second Study took place close to Easter Sunday. Both occasions are characterized by both religious and traditionally national customs. The authors first measured identity goal overlap by assessing the sense of belonging associated with each identity goal – which taps into the basic motive for affiliation and community. This motive can be expected to be relevant both for national and for religious identity. Then, participants were randomly assigned to one of four conditions: unifinal religious, unifinal national, multifinal, or control. Participants in the experimental conditions were asked to read scenarios in which a Polish Catholic character celebrated the respective holiday either in a purely traditional (unifinal national) way, a solely religious way (unifinal religious), or in a way that was both religious and traditionally national (multifinal).

After participants had read the scenario, identity goal overlap was measured again. Compared to the baseline measurement, for those participants who were exposed to the unifinal national scenario, overlap was decreased, whereas it was increased for those participants exposed to the multifinal scenario. The same pattern was observed in both studies, but effects were weaker and did not reach significance in Study 2 (Easter) compared to Study 1 (Christmas). A follow-up study showed that for Polish Catholics, communal motives were more relevant during Christmas than during Easter, which might explain why overlap regarding these motives was a stronger predictor at Christmas than Easter. Overall, the studies suggest that identity goal overlap is susceptible to situational influences: If multifinal means are salient, which suggests that goals are linked, overlap increases, whereas if unifinal means are salient and potential goal conflict is emphasized (as was the case with the unifinal national scenario), overlap decreases. Whether such effects emerge also seems to depend on the situational relevance of the motives underlying the overlap.

**Conclusion and Outlook**

SCT originally looked at one identity goal at a time. But even early studies, such as Brunstein and Gollwitzer (1996), showed that incompleteness and completeness in one identity goal can impact behavior related to other domains. If an identity goal is incomplete and the behavior is perceived as
unrelated, performance, effort, and engagement will decrease. We just started investigating how multiple identity goals interact and found evidence that the configuration of identity goal systems matters for self-symbolizing behavior. Whether symbols are unifinal or multifinal can influence interference and compensation effects. As goals are driven by reasons such as values and motives (Brunstein et al., 1998), similar associations between identity goals and reasons result in higher identity goal overlap, a construct related to cross-goal symbolization. Overlap in turn seems to be malleable depending on the salience of multifinal and unifinal means.

Many questions about multiple identity goal interactions remain open and new ones arise. Concerning the simultaneous activation of multiple identity goals, in our studies participants were only offered the opportunity to use multifinal symbols. A unifinal option was not offered. But research on multifinality (Shah et al., 2009) has shown that individuals prefer multifinal means when multiple related goals are active. New studies should test whether similar patterns emerge for identity goals – will incompleteness in multiple identity goal lead to a preference for multifinal symbols? In our studies, commitment was used as an inclusion criterion. But when people hold multiple identity goals, commitment to these goals is rarely the same. Future studies should test whether people will prioritize those identity goals to which they have a stronger commitment.

Finally, Brunstein has investigated in multiple studies (e.g., Brunstein et al., 1998) effects of goal striving on well-being. This will be an important outcome variable for future work on multiple identity goal pursuit. People seem to engage in cross-goal symbolization and use multifinal means for self-symbolization. But do these behaviors ultimately lead to increased well-being? On the one hand, it is likely that they will, because cross-goal symbolization should be one route by which individuals can alleviate the unpleasant tension state associated with incompleteness, and multifinal symbols can be used to avoid goal conflicts. On the other hand, multifinal means are often thought of as being less instrumental for any particular goal than unifinal means (Zhang et al., 2007), and because failure can also energize goal-directed behavior (Brunstein & Gollwitzer, 1996), some degree of tension and incompleteness can have benefits for goal attainment in the long run.
References


The Pursuit of Multiple Identity Goals


Life has to be lived in forward mode, but can only made sense of looking back. What is true for life in general also holds for life in science, and how science develops over time has undeniably strong elements of serendipity to it. While you may be planning some things, others just happen along the way, and if you are wise and a good scientist, you pay attention to them. The principle of serendipity particularly applies to the story of how Erlangen, a small provincial university town in southern Germany, became a hub of motivation science in the early 1990ies and cast a long shadow on how various lines of inquiry in this field have developed in the years since then.

In this chapter I will try to chronicle what happened and how this led to the diverse directions of motivation research that are represented in this book, contributed by people who either started their career in Erlangen or were collaborating at some time with the person at the center of the hub: Joachim Brunstein.

**Coming to Erlangen**

Joachim Brunstein had joined the faculty of the Institute of Psychology at Friedrich-Alexander University in Erlangen in 1989. Before, he had studied psychology at Justus-Liebig University, Giessen, and graduated with a diploma in 1983. During his years as a student there, he got in touch with Heinz Heckhausen, a motivation researcher then at Ruhr University, Bochum, and Martin Seligman at the University of Pennsylvania. The contact to both would turn out to be highly relevant for his career: Heckhausen.

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2 I thank Nadine Spörer, Matthias Mehl, Jan Hofer, Udo Wolf, and Birgit Nawroth for helpful feedback on a draft version of this chapter. The book cover shows the building in which Joachim Brunstein held lectures and seminars (upper left; Bismarckstrasse 1) and locations that were, over the years, home to the Chair of Developmental Psychology, including Joachim Brunstein’s office and laboratory (clockwise: Hindenburgstrasse 14, Glückstrasse 6, Bismarckstrasse 6).
would later offer him a postdoc position; Seligman’s research on learned helplessness was highly relevant for Joachim Brunstein’s work on the role of goal commitment in how people deal with setbacks. Seligman also invited him for a visit to the US while Joachim Brunstein was still a student. Shortly after graduating from Justus-Liebig University, Joachim Brunstein, together with his advisor, developmental psychologist Erhard Olbrich, published the findings of his diploma thesis in the *Journal of Personality and Social Psychology (JPSP)*; Brunstein & Olbrich, 1985). His early success in terms of getting a paper published in the best international outlet for research of this kind set his level of aspiration for years to come: Joachim Brunstein would frequently publish in *JPSP*, and doing so was an issue of academic sportsmanship for him.

After graduating and spending a year of service as a conscientious objector to the military draft then still in place in Western Germany, Joachim Brunstein started his dissertation work at his alma mater under the guidance of Petra Netter, a biopsychologist, Erhard Olbrich, and Heinz Heckhausen, who had become director of the Max-Planck Institute for Psychological Research in Munich. He completed his PhD in 1986 with a thesis on learned helplessness, depression, and performance after failure. It was later published in German as a book (Brunstein, 1990), although some results also made it into journal publications (e.g., Brunstein, 1989).

After receiving his doctorate, Joachim Brunstein followed an invitation by Heinz Heckhausen to join him as a postdoc senior researcher at the Max-Planck Institute. There, he started work on personal goals; that is, the goals that people set for themselves and pursue in their daily lives. One manuscript resulting from that work, which he conducted with Günter Maier and other colleagues (Brunstein, Ganserer, Maier, & Heckhausen, 1991), was accepted for publication by the venerable *Archiv für Psychologie* – only for the journal to then go belly-up in 1991 and cease all further publication activity. So that first paper on goals fell victim to the journal’s vanishing act.

**Goals**

When in 1989 Joachim Brunstein accepted the senior position offer by Erhard Olbrich, who by then held the chair for developmental psychology at Friedrich-Alexander University, Erlangen, he planned to use his time in Erlangen to embark on a habilitation thesis project. The habilitation thesis is the “second book”, after the dissertation thesis, that budding researchers are expected to write to qualify for a chair position according to the arcane rules of the German academic system. Until this day, the habilitation thesis
– or a set of equivalent achievements – remains a key requirement for candidates applying for professorships in Germany.

After arriving in Erlangen, Joachim Brunstein continued the research on personal goals that he had begun in Munich. He was very much invested into this new and budding line of inquiry, which had been kicked off by Klinger’s (1975, 1977) seminal work on current concerns and had started to see some serious systematic work in the 1980s by Emmons, Little, Dweck and others (e.g., Elliott & Dweck, 1988; Emmons, 1986; Little, 1983). Joachim Brunstein conducted an ambitious longitudinal study with four assessment waves and almost 100 participants. In this research, he examined the effect that goals had on changes in emotional well-being, looking at various goal parameters that might affect how people felt. He was certain that goals shaped well-being profoundly. What was less clear was which aspects of goals were involved – goal concreteness? Conflict? Support from others? A lot of ideas about what these factors might be had been presented by previous researchers (e.g., Emmons, 1986; Little, 1983). But it fell to Joachim Brunstein to distill from a broad range of variables three features of goals that appeared to matter most: First, a person’s sense of deep commitment to the pursuit of a goal; second, the attainability of the goal in terms of social support and opportunities in daily life; and third, the degree of progress people felt they made towards realizing their goals. Joachim Brunstein found that the first two features interact to shape the third, which in turn directly impacts subjective well-being: if people are committed to their goals and also rate the circumstances for obtaining them favorably, they are more likely to report high rates of goal progress, and this in turn translates into enhanced well-being. He published this set of findings in an elegantly written paper that was published in 1993 in *JPSP* (Brunstein, 1993). It has since become a citation classic, with more than 600 citations on Scopus and more than 1,600 on Google Scholar, as of mid-2023. These numbers are testament to the clarity and relevance of the conceptual framework Joachim Brunstein provided to the growing community of goal researchers. It was taken up, among others, by Lyubomirsky (2001), Carver and Scheier (1998), and Sheldon and Elliot (1999), who in turn made important contributions to the literature on motivation and well-being.

Initially, Joachim Brunstein wanted to build his habilitation thesis on this type of personal goal research. But he had second thoughts when it came to the question of whether such studies, which would be based on cross-sectional and longitudinal field work, would result in a neat, tidy package of circumscribed research that should, in his view, characterize a habilitation thesis. While at the Max-Planck Institute, he had witnessed Peter
Gollwitzer succeed with a habilitation thesis that was built around a series of well-designed laboratory experiments dealing with motivational and volitional mindsets (Gollwitzer, 1991). He therefore decided that a series of manageable lab experiments stood a better chance of making for an acceptable thesis than the potentially unwieldy sprawl of correlational research on personal goals. Returning to his roots in helplessness research and his perennial pursuit to understand why people sometimes give up after failure and sometimes step up their efforts, he embarked on a project that examined the effects of how individuals’ commitment to identity goals, such as working as a medical doctor or being a good parent, influenced their responses to success or failure on tasks related or not related to such goals. In examining the role of identity goals, Joachim Brunstein tried to go to the apex of the goal hierarchy, to the type of goals that are over-arching, self-defining, and that often have an insatiable quality – they can never be conclusively reached and filed away. After all, when is one ever finished with being a good doctor or parent? Robert Wicklund and Peter Gollwitzer (1982) had shown about ten years earlier that reminding people of their self-defining goals and then making them aware of their shortcomings and incompleteness vis-a-vis such goals stimulates them to engage in self-symbolizing behavior. That is, they try to compensate for perceived shortcomings by ascribing to themselves relevant attributes that make them feel and look more complete with regard to the goal. In his habilitation work, Joachim Brunstein now examined whether this effect would also extend to real performance on goal-related tasks and whether it depended on a sense of firm commitment to the identity goal in question.

In a series of four experimental studies, Joachim Brunstein took advantage of participants’ aspired-to vocational identity as instantiated by the course of studies they were enrolled in: medicine, computer science, psychology, and education. Across studies, he first experimentally manipulated whether participants felt complete or incomplete with regard to their vocational aspirations, and then either provided them with a task that was characterized as relevant for participants’ vocational identity or not. Task performance was high if participants had been made to feel incomplete, but were also given an opportunity to demonstrate to themselves and to others that they had what it took to be a doctor (or computer scientist, psychologist, teacher). In contrast, task performance was low if the subsequent task was irrelevant for their vocational identity. Thus, Joachim Brunstein had shown that whether people respond to a perceived failure with reduced or increased effort and performance depends critically on the relevance of that
failure for a self-defining goal and the opportunity to make up for the failure on another task relevant for the same goal. Joachim Brunstein submitted his habilitation thesis in 1992 (Brunstein, 1992) and later also published it as a book (Brunstein, 1995). (My own diploma thesis then varied this theme by showing that students who were made to feel incomplete vis-à-vis their goal of becoming a medical doctor choose particularly difficult tasks if they deemed them relevant, but not if they deemed them irrelevant, for their vocational goal; see Schultheiss & Brunstein, 2000).

In 1991, shortly before Joachim Brunstein wrote his habilitation thesis, I joined his team as a research assistant. I had learned from Siegfried Olschner, one of the students who had helped him run the studies for his habilitation project, about the nature of Joachim Brunstein’s work and the way in which he nurtured his students and let them participate in the research process. I was thrilled by the prospect of learning the craft of science from someone with Joachim Brunstein’s competence. But at the same time I had qualms about going into the field of motivation research. The courses dealing with motivation that I took as a student had done little to instill in me any interest in this topic, and when applying for the job, I did not exactly hide my attitude toward the topic of motivation. Nevertheless, and amazingly, Joachim Brunstein gave me the research assistant position that Siegfried Olschner had just resigned from (he was about to complete his diploma and graduate). My initial tasks were editing some graphs and conducting proofreading for Joachim Brunstein’s habilitation thesis and the 1993 personal-goal paper.

The 1993 Habilitation Talk

After submitting his habilitation thesis, Joachim Brunstein had to give a habilitation talk to complete all requirements for the habilitation and receive the *venia legendi*, the license to teach at a German university. Due to the somewhat insane academic customs in place at FAU then, ironically, he was not allowed to give that lecture about the content of his habilitation project, but had to present a talk about something entirely different. (Did the creators of those rules take their inspiration from Monty Python’s notorious line “Now for something completely different”? We may never know.) So what could possibly be a good topic to talk about in front of an audience consisting of faculty from the humanities and social sciences, the college the institute of psychology belonged to? Joachim Brunstein remembered that when he worked as a postdoc at the Max-Planck Institute in Munich, Harvard psychologist David McClelland was on the advisory board there. And he remembered that McClelland had recently done extensive
work on power motivation – work that spanned the entire range from hormones and physiology, to behavioral correlates, and all the way to political and societal processes (e.g., McClelland, 1975, 1989). Joachim Brunstein felt that this might be a worthwhile topic for the habilitation talk for an audience comprised of psychologists, sociologists, political scientists, and historians. To prepare the talk, he charged me with obtaining dozens of papers and books penned by David McClelland and his colleagues from various libraries. As I gathered copies from various sources, it became clear to Joachim Brunstein and me that here was an approach to motivation science that was very different from the one dealing with goals, but nevertheless utterly fascinating. This was a body of research that took as its starting point the psychology of mental content (McClelland, 1955) – that is, the themes and images that people weave into stories narrated about socially ambiguous pictures – and that traced such content back to experimental manipulations of motivational state and linked it to a host of physiological, behavioral, and societal outcomes. Of course, Joachim Brunstein, being a consummate scholar, did not leave it at that, but also read Machiavelli’s “The Principal” as well as Weber’s and Canetti’s treatises on power to put his talk on such a broad foundation as would appeal to the interdisciplinary audience he expected to address. He also wanted to be prepared for any kind of curve-ball question from an audience of people of whom many considered themselves experts on the concept of power in some way or other. The talk, which Joachim Brunstein gave in January 1993 (Brunstein, 1993), of course was a success, and he obtained his *venia legendi*. But more importantly, he realized that research on motives like the one for power could complement, and actually needed to be linked and compared with, research on goals, perhaps even more so because motives were assumed to operate unconsciously, whereas goals are accessible to conscious introspection.

Joachim Brunstein contacted David Winter at the University of Michigan, Ann Arbor, to get a copy of the running text system for coding achievement, power, and affiliation-intimacy motivation in written material that David Winter had just developed (Winter, 1991). The running text system had been designed for use with political and historical documents. It was based on the original coding systems for motive assessment and validated on stories from the original validation studies that had been written under motivational arousal or neutral control conditions. But unlike the original coding systems, each of which could only be used to measure one motive at a time, it allowed to code motivational imagery for all three motives in
one sweep, with simplified coding rules. David Winter had used it successfully to assess US presidents’ motives from their inaugural speeches and linked motive scores to presidents’ behaviors while in office, such as starting or ending wars, scandals, and historians’ ratings of presidential greatness (for summary, Winter, 2010). Joachim Brunstein wanted to use this integrated but simplified coding system in combination with the Picture Story Exercise (PSE), the traditional measure of motives derived from Christiana Morgan and Henry Murray’s (1935) Thematic Apperception Test, to assess motives in studies examining their links to goals and to emotional well-being. Robert Emmons and Dan McAdams (1991) had just published a paper suggesting that motive and goal measures were moderately correlated in a sample of 72 students, a finding that was much in line with the then-held conviction that individuals derived the specific goals they pursued in their daily lives from their broad motivational need dispositions (e.g., Emmons, 1989; Nuttin, 1984).

The coding system plus training materials arrived by mail, as was still customary in those days. We immediately set to making copies of it and got down to learning the coding rules. We tried our hand at the stories included in the manual, and compared our results to the expert scores that were also part of the package. Such a strange and labor-intensive method of measuring motivation! Could the scores obtained with this technique really predict anything useful? We held our breath.

Putting a Wild Idea to a First Test

The pioneers who gave this method of assessment a first shot were Birgit Nawroth and Udo Lautenschlager (now Udo Wolf), two students doing a joint diploma thesis about a topic Joachim Brunstein had suggested to them: the interactive effects of motives and personal goals on emotional well-being. Birgit Nawroth and Udo Lautenschlager recruited 60 students into their study, administered a 6-picture PSE, solicited a list of the personal goals that students currently pursued, and assessed the feelings students currently experienced in their daily lives. After some trial and error, the two students and Joachim Brunstein found a way to code the material in a meaningful way and analyze the data accordingly. Crucially, they applied David Winter's coding system not only to the PSE stories, but in an adapted version also to the written descriptions of the personal goals that participants had supplied. They thus used a matching method for determining the degree of agentic (power) and communal (affiliation-intimacy) imagery present in both types of source material. In contrast to Robert
Emmons and Dan McAdams (1991), who had used similar methods for content-analyzing PSE and goal data and reported convergent correlation coefficients of about .40 between the two types of measures for various content domains, the Erlangen team found little evidence for systematic convergence. What they found, though, was that motives and goals interacted in shaping students’ well-being. Students motivated predominantly by a need for power reported higher well-being if they had goals high in power-imagery content, but not if they were low in power or high in affiliation-intimacy content. Conversely, students motivated predominantly by affiliation-intimacy benefited in their well-being from pursuing goals characterized by high – rather than low – affiliative content and suffered when they pursued goals high in power content. These findings suggested that motives played a pivotal role in the relationship between the pursuit of personal goals and emotional well-being. The emerging question was: how?

But before this question could be further pursued, ideally with flush funding from the German Science Foundation, Joachim Brunstein wanted to publish the findings from Birgit Nawroth and Udo Lautenschlager’s pioneering study to have a solid piece of evidence he could refer to in a grant proposal. Initially, he wanted to publish the findings internationally, and I remember that as a contributing author I started writing parts of the method section in English. But then Joachim Brunstein had a change of mind and decided to submit the study for publication to the German-language journal Zeitschrift für Differentielle und Diagnostische Psychologie, which later became the international Journal of Individual Differences. The reason was that he feared that an English-language publication would diminish his chances of publishing planned further inquiries in a top-notch English-language journal like JPSP, because then the findings would perhaps not be novel enough for an international audience. Thus, the results of Birgit Nawroth and Udo Lautenschlager’s study ended up somewhat hidden away from the international community, in a German journal (Brunstein et al., 1995). Despite the language barrier posed by the German text, the article keeps getting cited both by researchers from German-speaking countries and by international colleagues capable of German or who have read Joachim Brunstein’s later summary account of the study (Brunstein, 2010).

**Going All the Way: Brunstein et al. (1998)**

Joachim Brunstein did not waste time and immediately wrote a grant proposal and submitted it to the German Science Foundation to obtain...
funding for two larger follow-up studies, one cross-sectional and one longitudinal. The proposal quickly received the go-ahead from the reviewers, and data collection commenced in 1995, conducted by a sizeable group of research assistants. I was a part of that team, and one vivid memory I have from that time is that I carried stacks of copied PSE story pages everywhere with me, coding motive imagery whenever I found the time, including at a car repair shop when I waited for my car’s annual check-up to be completed. The other vivid memory I have from that project is of spending hours on end in Joachim Brunstein’s office, staring at the characteristic white-on-red/blue split screen of DOS-based SPSS, running uncounted regression analyses, and examining the output for predicted result patterns. Some key hypotheses from the original grant proposal were consistently confirmed. Chief among them was the prediction that progress on motive-congruent goals should translate into increases in emotional well-being, as assessed through items tapping happiness (positive pole) and sadness and frustration (negative pole). Goal progress, in turn, mediated more complex commitment x attainability x motive interactions on well-being, which suggested that only if commitment, attainability, and goal-congruent motives were high did participants experience elevated well-being. Here, hypotheses, data collection, and statistical modeling clearly benefited from, and built on, Joachim Brunstein’s earlier work on the factors that influence successful goal pursuit and its effect on changes in well-being (i.e., Brunstein, 1993).

One important difference between the new studies and the one Birgit Nawroth and Udo Lautenschlager had conducted was the assessment of goals. Whereas their earlier work had relied on the technique introduced by Robert Emmons and Dan McAdams (1991) – content-coding of free goal descriptions – the studies conducted in Joachim Brunstein’s project asked participants to list one salient personal goal each for the domains of power, achievement, affiliation, and intimacy. In a second step, participants rated each goal on several items each that captured goal commitment, goal attainability, and goal progress. Thus, Joachim Brunstein provided an elegant alternative strategy for studying effects of the fit between individuals’ motives and their goals by comparing the strength of their commitment to, for instance, a goal in the power category with individuals’ PSE-derived power motive scores. While some researchers continued using the content-coding approach championed by Robert Emmons and Dan McAdams and adopted by Joachim Brunstein et al (1995) in later studies (e.g., McAuley et
al., 2004; Pueschel et al, 2011), others picked up the fixed-goal-category approach developed by Joachim Brunstein in their subsequent work (e.g., Schultheiss et al., 2008).

However, some results of the studies that were predicted in the grant proposal did not pan out. For instance, Joachim Brunstein (1996) had predicted that the pursuit of motive-congruent goals would lead to feelings of increased vigor and energization, whereas the pursuit of motive-incongruent goals would lead to feelings of tension and nervous arousal. Neither effect occurred, neither in the first nor in the second study of the project. Unexpectedly, however, results also suggested that the pursuit of motive-incongruent goals led to impaired emotional well-being, despite the prediction that variations in progress towards such goals should not be associated with any affective changes at all. How could goals that did not provide an outlet for a thematically corresponding motive (e.g., a power goal in the context of a weak power motive) lead to emotional impairments? I recall a *eureka* moment from one of the data analysis sessions in which we tried to resolve this puzzle. When we regressed goal progress in one domain (e.g., agentic goal progress) on goal commitment in another domain (e.g., communal goal commitment), the effect was negative. This suggested that a strong sense of commitment to an incongruent goal could lead to impaired progress towards a congruent goal and thereby to motive-dependent feelings of frustration and emotional ill-being. This discovery, which made it into the published paper, was critical, because it provided the outline of a plausible mechanism through which the pursuit of incongruent goals could lead to impaired well-being. Rather than being a “hidden stressor”, as was claimed in later research (e.g., Baumann et al., 2005), commitment to goals that do not match one’s motivational needs takes away resources from the pursuit of goals that do. People thereby harvest fewer moments of incentive contact through the enactment of congruent goals and, as a consequence, also feel less happy and satisfied.

Once it was clear that the core findings linking motives, goals and emotional well-being replicated robustly from the first, cross-sectional study to the second, longitudinal study, Joachim Brunstein set to writing the manuscript. He submitted it to *JPSP* (where else?) in 1997, where editor Charles Carver at first rejected it, with the stipulation to run another longitudinal study before the manuscript could even be considered for publication. Charles Carver’s editorial demand was almost comical, because it confirmed what everybody then expected from a *JPSP* editorial decision on a new submission (“Run another study!”) and because requesting another longitudinal study of the caliber of the one that was already in the paper
was out of the question in terms of logistics and funding. Joachim Brunstein did not think that this was funny; in fact, initially he was exasperated. But he dug in his heels and revised the manuscript to comply with all other reviewer and editor requests except the one to conduct a second longitudinal study. When he resubmitted the revised manuscript, Charles Carver, to everyone’s amazement, accepted it right away. Joachim Brunstein and his author team had expected a protracted battle for publication. But the paper was quickly published as Brunstein, Schultheiss and Grässmann (1998) and has since become another one of Joachim Brunstein’s citation classics, with more than 400 citations on Scopus and more than 1,000 citations on Google Scholar. The paper continues to get cited with robust frequency each year, which is a testament to its profound influence on the field of motivation science and beyond. Its findings have been cited in key publications in clinical psychology (Grawe, 2004; Storch et al., 2022), social psychology (Wilson, 2002), leadership and management research (Kehr, 2004), and positive psychology (Ryan & Deci, 2001) as well as in many textbooks on motivation and personality (e.g., Brandstätter et al., 2018; Carver & Scheier, 2011; McAdams, 2009).

Note what Joachim Brunstein accomplished with this paper. Not only did he replicate the key finding from his 1993 paper, that goal commitment and attainability interact to shape goal progress, which in turn affects measures of well-being and mediates the commitment x attainability effect on this outcome. He also demonstrated that goal progress by itself does not account for emotional well-being, as many goal theorists and organizational and clinical psychologists would claim. As his findings illustrate, goal progress leads to no changes in emotional well-being if it occurs in the domain of incongruent goals. It is only associated with well-being if one’s personal goals fit one’s motivational needs. This key insight, which was robustly replicated in later studies (e.g., Schultheiss et al., 2008; see Schultheiss, 2021, for an overview), should give pause to anyone who tries to manage people’s well-being by helping them set and vigorously pursue attainable goals. It also calls into question theoretical models that view self-regulation of behavior through goals as the proximal “cause” of changes in emotional well-being (e.g., Carver & Scheier, 1998). As Joachim Brunstein later elaborated in his GAMeS model (for goal achievement/motive satisfaction), variations in progress toward motive-congruent goals amount to variations in contact with motivational incentives (Brunstein, 2010). Thus, motivationally congruent goals open up fields of activity in which motivationally charged stimuli and situations can be encountered frequently and with profound effects for a person’s motivational needs. Such an account is also
consistent with the old idea that motives represent affect amplifiers (Atkinson, 1957; McClelland et al., 1953), a capacity for experiencing stimuli and person-environment transactions as affectively charged and thus as true incentives. The same is not true if a person pursues goals that are not supported by a strong motive. Here, goal pursuit also opens up entire fields of activity, along with the requirements they pose in terms of time and personal investment. But the successes and failures encountered in those fields have no affective charge – they are neither incentives, nor disincentives, but just bland situations and encounters. This is a fundamental insight that will have a lasting impact on our understanding of human well-being.

Infectious Research

Joachim Brunstein’s decision to focus on power motivation for his habilitation talk and to start empirical research on implicit motives thus had enormous, and at the time unforeseeable, consequences for careers of members of the FAU’s Institute of Psychology. Jan Hofer, who was a diploma student and later graduate student at the Chair of Developmental Psychology under the guidance of Karin Pöhlmann and who got started on cross-cultural work in Africa and Europe in the mid-1990s, decided to add the PSE measure of motives to his studies. He thus started a line of work that revived and further advanced a research tradition originally championed by David McClelland. In the 1950s and 1960s, David McClelland travelled around the world to collect data on motives in many different countries and struck up collaborations with local researchers who then contributed to a multi-national research project on implicit motives (see McClelland, 1961, 1975). But no one had continued that intercultural approach later – until Jan Hofer decided to take a chance. The result of this gamble were highly influential publications on the relationship between implicit motives, self-ascribed motives and goals, and subjective well-being from an intercultural perspective (e.g., Hofer & Chasiotis, 2003, 2004). They suggested that the positive effect of pursuing motive-congruent goals was not specific to German student samples, but extended to samples from other cultural and socioeconomic backgrounds, too. Jan Hofer later branched out to study issues like the relationship between the need for power and sociosexuality (e.g., Hofer et al., 2010), the relationship between the need for affiliation and cynicism (Hofer et al., 2017) or the role of motives in mothers’ body contact with their children (Hofer et al., 2012) – all with an intercultural perspective. For him, the gamble paid off in the shape of a tenured position as a professor of developmental psychology at the Trier University, where he conducts research on motives, development, and culture to this day and trains the
next generation of researchers who use motive measures (e.g., Busch & Hofer, 2012; Raihala & Kranz, 2019; Spengler, Busch, & Hofer, 2020).

Another student who was infected by the motive-coding bug and developed a career-defining interest in people’s spoken and written language was Matthias Mehl. As a student, Matthias Mehl developed an enthusiastic interest in health and immunological correlates of psychological processes. When he encountered, through seminars Joachim Brunstein and I taught at FAU, the link between implicit motives and cardiovascular activation described in earlier research by David McClelland and colleagues (for a summary, see McClelland, 1989), he decided to do his diploma thesis about the implicit needs for power and affiliation and blood pressure responses to power- and affiliation-arousing movies. Matthias Mehl reports what he did and found in a separate chapter in this volume. Although he did not continue working with motive measures, he did follow his interest in language and health. He conducted his PhD work under the guidance of James Pennebaker at the University of Texas, Austin, and then embarked on a stellar career at the University of Arizona, Tucson, where he is a tenured professor with broad research interests in language, personality, observed behavior, and health. Although Matthias Mehl did not enter the field of motivation science specifically, neither did he go the easy route typical of many personality psychologists and swap cumbersome story-telling measures for more convenient questionnaires. Rather, he focuses on the way people talk and write in their everyday lives, an approach that is at least as work-intensive (if not more) as measuring motives, but that allowed him to gain unique insights into people’s actual behavior. The work that Matthias Mehl started in Erlangen in turn had a direct influence on my later work in which I used movies to change motivational states and study their effects on motives and endocrine processes (e.g., Schultheiss et al., 2004; Wirth & Schultheiss, 2006).

Sven Hoyer, who was a research assistant in the German Science Foundation funded project on motives and goals, was another student who did his diploma thesis about motives. He and Joachim Brunstein decided to take a closer look at how implicit and self-attributed achievement motivation, in interaction with situational incentives, affects achievement behavior. McClelland et al (1989) had argued that implicit motives respond to incentives inherent in a task, and self-attributed motives to social cues. They also argued that implicit motives were more likely to affect spontaneous, automatic behavior, whereas self-attributed motives influence more controlled forms of behavior, like decision-making. Sven Hoyer and Joachim Brunstein concocted a carefully designed experimental study in
which implicit and self-attributed achievement motivation was assessed in 88 participants, who then worked on a letter-cancellation task typically used to assess attention. During the task, participants got feedback with regard to (a) how well they did on each round, compared to the previous round (individual feedback), and (b) how well they did compared to other participants (social feedback). Average response speed on the task was measured as an indicator of spontaneous behavior and the decision to continue with the letter-cancellation task or switch to a different task as an indicator of controlled behavior. Sven Hoyer and Joachim Brunstein found a clear-cut double dissociation between the implicit and self-ascribed levels of motivation, as would be predicted based on the McClelland et al. (1989) model. The implicit achievement motive interacted with individual feedback to affect response speed. The need to achieve predicted faster responding only after feedback that suggested that participants could not keep up with their own previous performance, but not when they received positive feedback. Conversely, the self-attributed need to achieve interacted with social feedback to influence decision-making. Only in those participants who had received the feedback that they had performed worse on the task than their peers did the self-attributed need to achieve positively predict the decision to continue with the letter-cancellation task. The same was not observed after positive feedback. Notably, the implicit need to achieve did not interact with social feedback or affect decision-making. Likewise, the self-attributed need to achieve did not interact with individual feedback or affect actual task performance. And the implicit need had almost no variance overlap with the self-ascribed need.

Joachim Brunstein and Sven Hoyer (2002) later published these findings in the Zeitschrift für Differentielle und Diagnostische Psychologie. After obtaining his diploma, Sven Hoyer decided to become a psychotherapist. Joachim Brunstein used the findings from their joint study as supporting data for another grant proposal he submitted to the German Science Foundation. He was successful, and endowed with funding he conducted a much more extensive set of studies on the interplay between implicit and self-attributed achievement motivation, feedback, affect and performance, which he would eventually publish with Günter Maier in JPSP (Brunstein & Maier, 2005). That research was conducted when Joachim Brunstein had already moved on to the University of Potsdam. But it can be legitimately considered another line of inquiry that had its origins during his time at FAU.

I, too, was among those infected with the motive bug. As mentioned earlier, I had been charged with gathering the literature Joachim Brunstein needed
for preparing his habilitation talk. While I did that, I made additional copies of many papers for myself. I also ordered my own copy of David McClelland’s 1987 book *Human Motivation* at a local bookstore. And when David Winter’s running-text manual arrived, of course I made a copy for myself, too, and immediately set to learning how to code motive imagery. At about that time, I had just completed my diploma thesis and subsequently written up an expose to apply for funding for a dissertation project investigating the role of mental imagery in goal choice and task performance. I eventually got the funding, but changed most of the proposed studies so that they would include a PSE motive measure and allow me to study the interplay between goal imagery and motives for shaping individuals’ commitment to and behavioral enactment of goals. Melitta Kosmann ran the first study with me as her own diploma thesis project. We were richly rewarded on this first try. As we had predicted, motives affected goal adoption and commitment only if participants had had a chance to translate a goal from its generic verbal representation format into a dynamic movie-like imagination of what its pursuit would entail. It was thus converted into the native nonverbal representational format that McClelland et al (1989; see also Weinberger & McClelland, 1990) had linked to how motives operate. Without such goal imagery, motives and goals remained uncorrelated, like in many previous studies. Harry Jankowsky, another diploma student, ran a study with me in which we looked at whether the effect of goal imagery would go beyond goal choice and extend to actual task performance. We found this hypothesis supported in a study in which participants played the computer game Tetris. Later, both studies were bundled up in a publication that Joachim Brunstein and I published in the *Journal of Personality* (Schultheiss & Brunstein, 1999). A third study, conducted with Petra Rothe, examined the effect of goal imagery on complex verbal and nonverbal behavior and the effect that this has on independent observers. This study, too, was later published in the *Journal of Personality* (Schultheiss & Brunstein, 2002). There was also a fourth and rather work-intensive study in my dissertation that dealt with independent effects of process- and outcome-related goal imagery on actual behavior in a mock job interview. But because it did not contain a measure of motives, I lost interest in it and never bothered to publish it. I had become spoiled by the motive bug.

A couple of years later, I had started as an assistant professor at the psychology department of the University of Michigan, Ann Arbor, but had no new research data yet to publish. To pass the time, I compiled all PSE data from my dissertation studies and Joachim Brunstein’s cross-sectional and longitudinal studies from his motives/goals project and wrote what I
believed would be a rather technical niche paper on the role of picture stimuli for the type of motivational imagery harvested from stories. Joachim Brunstein and I published this secondary analysis of our Erlangen data in the *Journal of Personality Assessment* (Schultheiss & Brunstein, 2001), not expecting the paper to have much of an impact. Today, it is one of our most-cited papers and has spawned a little cottage industry of similar such papers from other labs (e.g., Bernecker & Job, 2011; Langan-Fox & Grant, 2006). Apparently, there is a need for some basic descriptive data of how picture-story motive measures operate. Our publication of the Erlangen motive data and others’ response to it made that evident.

After I completed my doctoral studies, my own career led me to the US, where I did a postdoc year with David McClelland in 1997, then back to Germany and Joachim Brunstein’s lab from 1998 to 1999, which had moved to the University of Potsdam in 1997. Then back again to the US, where I worked at the University of Michigan until 2007, and then one final move back to Erlangen, although I had never really intended to return to my alma mater. So for me at least, the circle eventually closed: Out of Erlangen – back to Erlangen. What remained a constant for me in all those years was a passion for and interest in implicit motives and everything associated with this approach to studying human motivation.

**The Impact of the Erlangen Motive/Goal Studies**

This may be a good spot to briefly reflect on the impact of Joachim Brunstein’s work on motive research. This line of inquiry had seen its heyday in the 1950s and 1960s, when McClelland et al.’s (1953) *The Achievement Motive* had just been published. Seemingly everyone picked up on the new method for assessing motivation to study their focal topic from this angle then (e.g., Epstein & Smith, 1956; French & Lesser, 1964; Kagan & Moss, 1959; Klinger, 1966; McKeachie et al., 1968; Mischel, 1961; Rosen & D’Andrade, 1959). John Atkinson (1958) published an edited volume summarizing a lot of the exciting and creative work that had accumulated in the early years, and David McClelland (1961) quickly went beyond the lab and started studying the role of motives in societal and economic processes. But by 1990, the once broad and steady stream of research and papers built on picture-story measures of motivation had slowed down to a trickle. The reasons for this decline were manifold, but some clearly stand out. One was the lack of a sound conceptual fundament of motivation science that led to disappointment in picture-story measures when they did not deliver findings, because they were used for research questions they were not suited to

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answer (see McClelland, 1980; Spangler, 1992). Another issue was the mismatch between the then-reigning type of validity theory, which was geared towards modeling static, fixed attributes and stood in contrast to the complex and dynamic nature of motives and their mode of measurement (e.g., Atkinson & Birch, 1970; Entwistle, 1972; McClelland, 1958; Schultheiss & Schultheiss, 2014). A third issue may have been what we would today recognize as false-positive psychology; that is, a tendency to publish findings based on small samples and flexible analytical methods that can not be replicated by others (e.g., Cornelius & Lane, 1984; Mazur & Rosa, 1977).

In addition, many of David McClelland’s and John Atkinson’s former students had moved on to other research fields and methods. Not all left the narrative assessment approach behind. Dan McAdams continued studying people’s life stories, just not with picture stories and motive measures. David Winter adapted motive assessment methods for studying political processes, based on speeches and historical documents. Joseph Veroff had shifted to research on marriage and close relationships. But very few remained who did actual basic research on motives, using the original picture-story method. One was, of course, David McClelland, who had retired from Harvard University, but held a senior research professor position at Boston University and continued to do some research on the physiological correlates of motives until his death in 1998. Another one was Barbara Woike, who had started to examine the role of motives in autobiographical memory (see Bender & Woike, 2010, for a summary), but would eventually leave the field by about 2010. Eugene Fodor did basic research on power motivation and subjective and physiological arousal from an experimental and applied perspective (see Fodor, 2010, for a summary). But these were isolated attempts to continue research on motives. As things stood, it appeared likely that researchers would forget about the picture-story approach to motive research by the time these last hold-outs retired for good or moved on to other fields. I am sure that this happens in science, and perhaps quite often. An entire approach to doing research is given up on and forgotten, simply because it strikes researchers as too methodologically cumbersome, conceptually murky, or both, and it does not generate enough followers who will carry on. This is what could have happened to motive research.

Joachim Brunstein’s decision prevented that from happening.

By focusing on a central property of motives – the generation of affective responses to incentives (see Atkinson, 1957; McClelland et al., 1953) – and studying its role in people’s pursuit of personal goals, he returned the field’s
attention to a fundamental issue that could only be studied and understood by employing motive theory and measurements. And by taking us diploma students, doctoral candidates, and postdocs along on the journey and instilling a sense of excitement and enthusiasm in us about this strangely romantic endeavor of studying motivation through the lens of the stories that people write, he effectively set many of us on our career tracks. The result of those 6, 7 years that Joachim Brunstein spent doing research on motives in Erlangen, before he moved on to Potsdam, was that two of us (Jan Hofer and me) were sold on the entire approach and would spend the rest of our careers invested into basic research into the many ways motives function and develop and another one (Matthias Mehl) continued to do research on individual differences in language use.

Joachim Brunstein’s influence also went beyond those he directly mentored or had contact with to others who discovered the research coming out of Erlangen and Joachim Brunstein’s subsequent work on achievement motivation. There is a second generation of researchers in German-speaking countries or coming from Germany who were inspired by his work and who decided to use motive measures in their own work. One was Veronika Brandstätter at the University of Zurich who is well-known for her research on goal processes, but who also branched out into motive research in applied settings, in couples, and across the life course (e.g., Brandstätter et al., 2016). Another one is Felix Schönbrodt at Ludwig-Maximilian University, Munich, who – already influenced by Norbert Bischof’s (e.g., Bischof, 1993) models of motivational systems -- caught on to motive research as a postdoc and, together with his students and collaborators, has done groundbreaking work on motive assessment and the motivational dynamics of social interactions (e.g., Zygar et al., 2018). Birk Hagemeyer, together with Franz Neyer, devised a new coding system for the assessment of communal and agentic motives in close relationships and has accumulated impressive evidence for the importance of motive dispositions for relationship satisfaction and break-up (Hagemeyer & Neyer, 2012; Hagemeyer et al., 2015). Julius Kuhl’s research group at University of Osnabrück was inspired in part by Joachim Brunstein’s work when they decided to dedicate themselves to an understanding and assessment of motives from the vantage point of advanced personality theory (e.g., Scheffler et al., 2003). Sport psychologists Julia Schüler (University of Konstanz) and Mirko Wegner (University of Hamburg) study the role of implicit and explicit motives in sports contexts (e.g., Schüler et al., 2014). Barbara Steinmann, who completed her doctoral work under the supervision of Günter Maier, Joachim Brunstein’s collaborator from the early days of goal research in Germany, has revived
the application of motive assessment to the field of management and leadership behavior at the University of Applied Sciences and the Arts, Lemgo (e.g., Steinmann et al., 2016). At Technical University of Munich, Hugo Kehr, Maika Rawolle, Anja Schiepe-Tiska, and colleagues examined the role of motives in visions and various leadership styles (e.g., Kehr et al., 2022). And at the University of Geneva, Switzerland, Kerstin Brinkmann has started an ambitious project, studying the role of motives in cardiovascular effort mobilization (e.g., Mazeres et al., 2019).

Some former members of my lab also continue to contribute to a better understanding of motives: Joyce Pang, who is at Nanyang Technological University, Singapore, studies achievement motivation and is invested in machine-learning approaches to motive coding (e.g., Pang & Ring, 2020). And Martin Köllner, now at Wilhelm-Löhe University, Fürth (Germany), has done groundbreaking work on the role of organizational hormone effects in power motivation (e.g., Köllner & Bleck, 2020). I could easily list more individuals who are making substantial contributions to motive research and whose engagement can be traced back directly or indirectly to Joachim Brunstein’s work. Suffice it to say at this point that Joachim Brunstein has very evidently saved the field of motive research from falling into oblivion. The revival of motive research is broad and strong enough to make it to the next stage, to machine-learning approaches to motive assessment. This has the potential to move motive research further to the center of psychological science again and make it a central foundation for the study of personality and behavior.

A Broader Picture

Joachim Brunstein’s influence on the field of motivation science goes far beyond the scope of motive research, however. He collaborated with Peter Gollwitzer, University of Konstanz and New York University, on a paper presenting some of the findings he had collected in his habilitation project and published it in (you guessed it) *JPSP* (Brunstein & Gollwitzer, 1996). He examined the role of personal goals in couples, a study that he conducted while at Friedrich-Alexander University, and published that paper, too, in *JPSP* (Brunstein et al., 1996). It has since become a standard citation in work on couples’ well-being (e.g., Feeney & Collins, 2015; Finkel et al., 2014; Srivastava et al., 2006). He continued working with Günter Maier on theory and research related to goals in the workplace (Brunstein & Maier, 1996; Maier & Brunstein, 2001). With Ulrich Mann, whose diploma thesis he supervised, he explored the interplay of identity goals and self-efficacy (Brunstein & Mann, 2000). And with Karin Pöhlmann, his colleague at FAU,
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he developed a structured questionnaire for assessing and scaling goals in a variety of life domains (Pöhlmann & Brunstein, 1997). Subsequently, this instrument has been widely used in research on, among other topics, motivational congruence, vocational development, and genetic inheritance (e.g., Abele-Brehm & Stief, 2004; Bleidorn et al., 2010; Hofer & Chasiotis, 2003).

Joachim Brunstein’s time in Erlangen also left him with a passion for studying and modeling motivational processes in school and learning settings. Spurred in part by being charged with teaching lecture courses on educational psychology for psychology students and future school teachers at FAU, he developed a deep interest in goal processes in education and ways to apply basic psychological science to improving outcomes in schools. Before he left Erlangen, he read Bruer’s (1994) *Schools for Thought*, a call to arms to apply the latest in cognitive science to the improvement of learning in the classroom, and the book made a lasting impression on him. After obtaining his first tenured faculty position as a professor of educational psychology at the University of Potsdam in 1998, he started work on goals as instruments for self-regulated learning. In moving from general motivation science to the field of educational psychology, he switched from a predilection of publishing papers in *JPSP* to publishing in the *Journal of Educational Psychology*, the flagship journal of this field. In 2004 he moved to Justus-Liebig University, Giessen, where he would spend the rest of his academic career, holding the Chair for Educational Psychology. In Giessen, he branched out into studying reciprocal learning, improving students’ writing skills, and research on reading comprehension, reflecting his passion for turning basic psychological research into meaningful interventions, accompanied by rigorous evaluations of treatment effectiveness and a thorough elucidation of mediating mechanisms (e.g., Brunstein & Glaser, 2011; Glaser & Brunstein, 2007; Spörer & Brunstein, 2009). Some of the doctoral and postdoc students Joachim Brunstein worked with during his years at Potsdam and later Giessen went on to have their own prolific careers in educational psychology. Cornelia Glaser is now a professor at University of Education, Heidelberg, where she focuses on research on strategies for writing. Nadine Spörer is a professor of education at University of Potsdam and studies effects of inclusion on learning outcomes in schools and effects of cooperative learning. And Vanessa Völlinger is a professor at the University of Education, Freiburg, doing research on effectiveness and mechanisms of interventions that promote reading competence in school children.
But even after Joachim Brunstein’s focus shifted from basic motivation science to educational psychology, he continued to nurture an interest in motives. This is reflected in contributions about achievement motivation and implicit and explicit levels of motivation that he wrote for Jutta Heckhausen and Heinz Heckhausen’s *Motivation and Action* (Brunstein, 2008; Brunstein & Heckhausen, 2008) and his co-editorship of our book on implicit motives (Schultheiss & Brunstein, 2010). It is also reflected in the dissertation projects he continued to supervise first at Potsdam and then at Giessen. While still at University of Potsdam, he started pioneering research on the achievement motive and cardiovascular activation with Clemens Schmitt (Brunstein & Schmitt, 2010), which would later inform and inspire Kerstin Brinkmann’s work on cardiac output and achievement motivation (e.g., Mazeres et al., 2019). At Giessen, Joachim Brunstein supervised Marco Vetter, who conducted his dissertation work on the congruence between implicit and explicit levels of motivation, and Nadine Watz, who examined the role of motives in attentional orienting. And in recent years, Joachim Brunstein and his team returned to the very roots of research on motives by running studies that aimed at arousing achievement motivation and studying its effects on changes in picture story content. None of this research has been published yet, but it exists and hopefully one day will see the light of publication.

**Looking Back After 25 Years**

Joachim Brunstein’s time as a young senior research scientist at FAU was short, lasting only from his arrival in 1989 to his departure for a visiting professor position at Johann-Wolfgang-Goethe University, Frankfurt, in 1996. He still had an office at FAU from 1996 to 1998, but was already on his way out. He held a position at University of Potsdam from 1998 to 2004, and after that had the chair at Justus-Liebig University, Giessen. But despite the relatively brief time Joachim Brunstein spent in Erlangen, it was critical for his own success as a researcher and had an outsized effect on the field of motivation science. Without Joachim Brunstein’s instinct for phenomena worth studying, combined with his exemplary methodological rigor and his knack for mentoring his students, motivation science today would be different and almost certainly worse off. Research interest in motives, cumbersome as they are to measure through content analysis of picture stories, would have likely come to an end, an approach that would only be mentioned in text books, but no longer present as an active method of research in laboratories. Also, while at FAU, Joachim Brunstein not only continued his research on goals that he had begun before he came to Erlangen.
and that he later transformed into applied research in educational contexts. He also developed a genuine interest in educational psychology topics, an interest that would eventually land him the jobs in Potsdam and Giessen and to which he would dedicate the remainder of his academic career.

Allow me to add a personal impression that I have found confirmed in many conversations with other former collaborators and students of Joachim Brunstein. While Joachim Brunstein always set an example and a high bar for excellence in research, methodological rigor, and building clear and elegant conceptual models, he is also a warm-hearted, compassionate mentor with unfailing personal integrity. From my time in his team at FAU, I remember him as being exceedingly generous with his time for every one of us. He teaches by example, high competency, and patient and diligent instruction. At the same time, he is a very liberal-minded, tolerant mentor who gave every one of us ample freedom to develop and pursue our interests in a very self-determined manner.

I believe that like in families, there is an intergenerational transmission of culture and interpersonal practices in academia. If you come from a dysfunctional environment, you are likely to pass it on, because you never learned better, and many academic units and teams that I have witnessed at various institutions were like that. You did not really want to go there to work, never mind hoping to catch some kind of creative spark. In contrast, if you come from a kind, nurturing, and open-minded environment, you are more likely to pass that on to your own team of students. I consider myself very lucky in that regard, and so does everyone else of Joachim Brunstein’s former students that I have talked to. Our academic socialization was the kindest, most generous, and intellectually stimulating one imaginable, and we all try our best to pay it forward to the students who work with us.

For that, and a great deal more: Thank you, Joachim!

References


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Implicit motives are enduring preferences that humans have for affectively charged incentives (McClelland, 1987b). They have been labeled implicit because they unfold their effects largely outside of a person’s conscious awareness. They are conceptually distinct and empirically independent from self-reported motives and traits (Brunstein & Meier, 2005; Winter, John, Stewart, Klohnen, & Duncan, 1998). This study examines how implicit motives interact with aspects of the situation to regulate cardiovascular arousal.

Both experimental and field research has documented that implicit motives have the capacity to modulate physiological arousal. The existing evidence points to a close link between the Power Motive and sympathetic arousal, particularly when its expression is constrained (McClelland, 1987a; McClelland, 1989). The Power Motive has, for example, been found to be related to increased activation after listening to inspirational (as compared to travel) speeches (Steele, 1977) and elevated noradrenalin levels in times of exam stress (McClelland, Ross & Patel, 1985). Most research on the Intimacy Motive has focused on its stress-buffering and health protective role, presumably through its capacity to reduce sympathetic arousal (McClelland, 1985). Yet, McClelland, Patel, Stier and Brown (1985) found that when

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3 The research was supported by a fellowship of German National Scholarship Foundation (Studienstiftung des deutschen Volkes). The findings reported here mirror the findings reported in my Diploma Thesis. Given that quite some time has passed since submitting my thesis, I did not reanalyze the data or ensure their reproducibility for this chapter.
more adequate stressors are used, such as movies that shows the loss of a loved one, the Intimacy Motive can also be associated with elevated physiological arousal (e.g., salivary and plasma dopamine levels).

Whereas the evidence is rather clear that implicit motives can modulate physiological arousal, the circumstances under which they do so are less well understood. McClelland (1987a) noticed that if “we think of power stress as arousing power motivation, and affiliation stress, as from falling in love or from the death of a loved one, as arousing affiliation motivation, then it is easy to see how physiological consequences of the two types of stress might be quite different”. Only recently have researchers begun to systematically investigate the situational aspects that affect how implicit motives regulate physiological arousal (e.g., Schultheiss, Wirth, Torges, Pang, Villacorta, & Welsh, 2005).

One such aspect might be whether the situation primes a promotion or a prevention focus (Higgins, 1997). Implicit motives are meant to energize behavior that is instrumental for the consumption of motive-specific incentives (McClelland, 1987b). Cues in the environment signal the presence of such opportunities. These cues, however, can signal a potential gain or a potential loss of access to an incentive. In other words, they can signal an opportunity to consume a future incentive or a threat to lose access to a currently available incentive. The organism’s task then becomes to be sensitive to these two different scenarios and physiologically prepare for the implementation of adequate behaviors. Given that loss-prevention tends to be more critical for organisms than gain-promotion, situations signaling a potential incentive loss should eliciting stronger physiological responses than situations signaling a potential incentive gain.

One of the core tasks of the cardiovascular system is ensure the body’s energy supply (Krantz & Falconer, 1995). Effort-proportional cardiovascular adjustments have long been known for physical tasks (Krantz & Falconer, 1995) and have also been confirmed for psychological tasks (Wright, 1996). Empirically, a linear dose-response relationship between effort and cardiovascular arousal seems to hold up most consistently for systolic blood pressure (SBP) and is less frequently found for diastolic blood pressure and heart rate (cf Gendolla, & Krüsken, 2002). This difference in reliability has been explained on the background of their differential physiological regulation – with SBP among the three parameters being arguably the best proxy of sympathetic arousal (Krantz & Falconer, 1995). Taken together, existing evidence suggests that an individual’s SBP during a task can be considered a marker of task engagement and effort mobilization.
Study Overview and Hypotheses

This study sought to examine how implicit motives interact with motive-specific situational cues to regulate cardiovascular arousal. Individuals were randomly assigned to watch one out of four short motivational film clips. The four film clips differed in their thematic content – depicting either power or intimacy themes – as well as their dramatic focus – depicting either a gain or a loss of power vs. intimacy for the main character of the movie. Participants’ implicit Power Motive and Intimacy Motive were assessed with a picture-story exercise. Participants’ systolic blood pressure was monitored during an initial baseline period and the consecutive motivational film clip.

Specifically, this study tested the following hypotheses:

1) Implicit motives predict participants’ cardiovascular responses to film clips with motive congruent thematic content. Specifically, the Power Motive predicts changes in SBP only for participants who watched one of the two power clips, and the Intimacy Motive predicts changes in SBP only for participants who watched one of the two intimacy clips.

2) The dramatic focus of the film clips moderates this motive × thematic content interaction. Specifically, the Power Motive predicts increases in participants’ SBP only for the power clip with a dramatic loss focus. The Intimacy Motive predicts increases in participants’ SBP only for the intimacy clips with a dramatic loss focus.

Method

Participants

Eighty male students enrolled at the University of Erlangen Germany (mean age 23.5, SD = 2.4), participated in the study in 1997. Participants were asked to refrain from exercise and consumption of alcohol, caffeine, or nicotine for at least half an hour prior to the experiment.

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4 Due to their conceptual and empirical overlap between the Affiliation and the Intimacy Motive, the Winter (1991) scoring system combines affiliation and intimacy imagery into one joint category. In this article, the scores derived from this category are referred to as participants’ Intimacy Motive.
Design and Procedure

The study used a 2 (film content: power vs. intimacy) × 2 (dramatic focus: gain vs. loss) factorial design. Participants were run individually and randomly assigned to one of the four conditions. Upon arrival, participants completed a picture-story exercise, ostensibly to calibrate their arousal levels. After that, they were seated in a chair facing a 23” color TV at approximately 2 meters distance and watched a video tape that consisted of a 10 min neutral film clip followed by the 15 min motivational film clip.

Film Clips

During the baseline period participants watched a 10 min neutral film clip depicting satellite recordings of the earth accompanied by soft meditation music. For the motivational films, scenes from four commercial movies were edited into clips of approximately 15 min length. The movies’ dramatic focus was determined by whether the main characters’ motive relevant actions resulted in a gain or a loss of power/ intimacy.

*Wall Street* (1987; director: Oliver Stone) was selected as a film with a power theme and dramatic gain focus. The selected scenes depicted how the business newcomer Bud Fox becomes a partner of the financial giant Gecko and gains access to a world of wealth, status, and luxury.

*Full Metal Jacket* (1987; director: Stanley Kubrick) was selected as a film with a power theme and a dramatic loss focus. The selected scenes depicted how, in a US-Marines training camp, the slightly helpless Private Paula faces constant humiliation by his commander Sergeant Hartman.

*Pretty Woman* (1990; director: Garry Marshall) was selected as a film with an intimacy theme and a dramatic gain focus. In the movie, the Wall Street broker Edward falls in love with the prostitute Vivian. The selected scenes show Edward and Vivian enjoying their togetherness at a romantic pick nick, exchanging mutual affection. All references to status were removed.

*Love Story* (1970; director: Arthur Hiller) was selected as a film with an intimacy theme and a dramatic loss focus. The movie shows two lovers, Oliver and Jenny, who only have a short time left together. Jenny was diagnosed with cancer and will soon die. Oliver accompanies her over her last days and is with her when she passes away. Love Story has previously been used to arouse Intimacy Motivation (McClelland, et al., 1985).

Two expert judges with extensive experience in applying the Winter (1991) System for Scoring Motive Imagery in Running Text independently con-
firmed the film clips’ exclusive thematic relevance for the Power or the Intimacy Motive as well as their assignment to the dramatic gain or loss focus condition.

**Cardiovascular Assessment**
Participants’ systolic blood pressure (SBP) was monitored with a commercially available automatic blood pressure device (HESTIA, Visomat). An inflatable cuff was attached to the participants’ left upper arm. Measurements were taken every 90 sec resulting in 5 readings for the baseline period and 10 readings during the motivational film clip. Reading 3 and 4 during the baseline period were averaged into a baseline (Cronbach’s $\alpha = .92$). The 10 readings taken during the motivational film clip were aggregated into a peri-arousal blood pressure level ($\alpha = .98$).

**Implicit Motive Assessment**
Participants’ Power Motive and Intimacy Motive were assessed via a picture-story exercise. Participants were given 5 minutes to write stories to five pictures (architect at desk, ship captain, couple by river, trapeze artists, and nightclub scene). The picture-story protocols were coded for the Power Motive and the Intimacy Motive by two independent coders according to Winter’s (1991) coding system. Intercoder-agreement was high (85% for the Power Motive, 90% for Intimacy Motive). Disagreements among the two coders were discussed and resolved. Participants’ motive scores were computed by dividing the raw imagery count (Power Motive: $M = 2.68, SD = 1.66$; Intimacy Motive: $M = 4.00, SD = 2.28$) by the total amount of words in the five protocols ($M = 445, SD = 103$) and subsequently converting the obtained ratios to $z$-scores. More detailed psychometric information on story-based motive assessments are provided by Pang and Schultheiss (2005).

**Results**
Multiple regression analyses were used to predict participants’ SPB during the film clip from their baseline SBP, the two motive measures and the experimental factors (effect coded). All interaction terms were computed from standardized zero-order predictors.

**Simultaneous Effects of Power and Intimacy Motives on Participants’ SBP Response to Film Clips**
Based on our hypotheses, we predicted that the two three-way interactions between the Power Motive and Intimacy Motive, respectively, and the film
clips’ Thematic Content and Dramatic Focus would significantly contribute to predicting participants’ residualized SPB. A multiple regression analysis based on the full set of predictors (i.e. all zero-order effects and all two-, three-, and four-way interaction terms) showed marginally significant effects for the two predicted three-way interactions (Power Motive × Thematic Content × Dramatic Focus: \( B = -0.94, t = -1.81, p = .08 \); Intimacy Motive × Thematic Content × Dramatic Focus: \( B = 1.05, t = -1.88, p = .07 \)). The low sample size and the large number of predictors in the model, however, raise concerns about the power and robustness of this regression analysis. The lack of further interactions between the two motives (all \( ps \geq .40 \)) allowed us to test the nature of these three-way interactions by analyzing the effects of the Power Motive and Intimacy Motive separately.

**Power Motive Effect on Participants’ SBP Response to Film Clips**

A multiple regression analysis predicting participants’ residualized SBP from their Power Motive and the Thematic Content and the Dramatic Focus of the film clips, yielded a significant Power Motive × Dramatic Focus interaction (\( B = .99, t = 2.09; p = .04 \)). This interaction, however, was qualified by a significant Power Motive × Thematic Content × Dramatic Focus interaction (\( B = -1.20, t = -2.54, p = .01 \)). Figure 1 clarifies the nature of this three-way interaction by plotting the predicted change in SBP from baseline for hypothetical participants with a low (1 SD below the mean) and a high (1 SD above the mean) Power Motive (Aiken & West, 1991). As predicted, the Power Motive was exclusively related to participants’ SBP for the two power film clips. Specifically, the Power Motive was negatively correlated with participants’ residualized SBP in the Wall Street condition, \( r(18) = -.49, p = .03 \), and positively correlated, though not at a statistically significant level, in the Full Metal Jacket condition, \( r(18) = .42, p = .06 \). The respective correlations for the intimacy clips were non-significant (Pretty Woman: \( r(18) = .17, p = .47 \); Love Story: \( r(18) = .03, p = .90 \)).

**Intimacy Motive Effect on Participants’ SBP Response to Film Clips**

A similar multiple regression analysis for the Intimacy Motive yielded a significant Intimacy Motive main effect, \( B = -1.39, t = -2.56, p = .01 \), which was qualified by a just not statistically significant Intimacy Motive × Dramatic Focus interaction, \( B = 1.03, t = 1.91, p = .06 \), and as predicted– a significant Intimacy Motive × Thematic Content × Dramatic Focus interaction, \( B = 1.18, t = 2.19, p = .03 \). Figure 2 shows the nature of this three-way interaction. For
Figure 1. Residualized change in systolic blood pressure (SBP) from baseline as a function of participants' standardized Power Motive and the film clip they watched (panel A: power theme, panel B: intimacy theme).
the two power clips, participants' Intimacy Motive was not significantly related to changes in their SBP from baseline (Wall Street: $r(18) = -.16, p = .51$; Full Metal Jacket: $r(18) = -.40, p = .08$). For participants who watched Pretty Woman, however, the Intimacy Motive was strongly correlated with drops in SBP from baseline, $r(18) = -.67, p = .001$. Counter to our predictions, the Intimacy Motive failed to be related to changes in SBP in the Love Story condition, $r(18) = .10, p = .68$.

Discussion

This study sought to examine how implicit motives interact with motive-specific situational cues to regulate cardiovascular arousal. Consistent with the hypotheses, the Power Motive exclusively predicted participants’ SBP responses, as a cardiovascular measure of task engagement, for the two power film clips. Specifically, higher levels of Power Motive were associated with decreased SPB during Wall Street, depicting a gain of power (dramatic gain focus) and increased SPB during Full Metal Jacket, depicting a loss of power (dramatic loss focus). On the other hand, only partially supporting our hypothesis, the Intimacy Motive, while not predicting SBP responses to either of the two power clips, was associated with decreased SBP during Pretty Woman, depicting a gain of intimacy (dramatic gain focus), but not with increased SBP during Love Story, depicting a loss of intimacy (dramatic loss focus).

Importantly, this Diploma Thesis raises many more questions than it answers. First and foremost, the study was restricted to male participants (to better control participants’ identification with the characters in the film clips, which was needed for the operationalization of the gain versus loss focus), leaving the way implicit motives interact with situational cues to regulate cardiovascular arousal in the other gender(s) unexamined. Second, the study used simple auscultatory blood pressure measurement (using a commercial device) as a marker of cardiovascular arousal, where it is known that SBP is ambiguous in how it reflects the underlying autonomous physiology (e.g., not a clear marker of sympathetic arousal). Also, in retrospect, Love Story was likely not a good choice for a movie to frustrate the Intimacy Motive as, despite the tragic turn of events, it ultimately depicts a thriving relationship until the very end.
Figure 2. Residualized change in systolic blood pressure (SBP) from baseline as a function of participants’ standardized Intimacy Motive and the film clip they watched (panel A: power theme, panel B: intimacy theme).
And, last but not least, from a contemporary vantage point of scientific replicability (Nosek et al., 2022), testing three-way interactions, or two-way interactions, or even main effects, with a sample size of $N = 80$ elicits serious statistical dizziness and fear of shaky findings. Also, several of the $p$-values reported as statistically significant are ominously close to $p < .05$ (Simonsohn, Nelson, & Simmons, 2014), and, in fact, a couple “not but almost significant” $p$-values (e.g., $p = .06$) were given the generous treatment of interpretation. No doubt, conducted 25 years ago, this study is the product of the predominant thinking under “the old rules” (Schultheiss & Mehta, 2018). The fact that all study design and data analysis decisions, though, were made in a thought- and careful manner and felt profoundly sound and defensible at the time, is a heartfelt reminder to me that (a) there is solid scientific progress (in this case in statistical and meta-scientific thinking) and (b) one should be cautious when assuming ulterior motives might have been at work when questionable research practices were employed at a time when those were effectively consensual best practices in the field. From that angle, it was impressive and eye-opening to revisit these data with a time-warp of 25 years.

However, my goal for reporting these findings here and now, 25 years post-production, was not to contribute a set of robust findings to our body of knowledge on implicit motive arousal. The specific effects reported here may well ultimately not replicate. Further, much better research has been conducted since on implicit motive arousal (cf Schultheiss, 2013). Rather, I am reporting these findings here from a perspective of deep gratitude for the outstanding scientific training and remarkable sense of belonging I received as an undergraduate student in Joachim Brunstein’s lab. After completing my diploma at Friedrich-Alexander University, Erlangen, my academic path took a different turn. I ended up not continuing research on implicit motives. This was not an intentional disengagement; implicit motives continue to fascinate me to the current date. Instead, initially via a one-year post-bac visiting position and later through a full doctoral program in Jamie Pennebaker’s lab at the University of Texas at Austin, I “slid into” research on social interactions and language use (Pennebaker, Mehl, & Niederhoffer, 2003), including how to go about studying them in everyday life (Mehl, 2017).

Seemingly, the research I am doing now has little to do with the research I did for my Diploma Thesis -- my first scientific study ever -- under Joachim Brunstein’s mentorship. In (my) reality, though, they share core methodological elements, among them most importantly that there are inherent limits to what humans can accurately report, and that therefore scientists
must find creative ways to capture what is going on inside (such as with implicit motives) and outside (such as with social interactions and word use) of a person using non-self-report measures. In addition, it is clear that the scientific knowledge and training that I brought over the Atlantic when I first arrived in the U.S., was beyond outstanding. Here I was (in my perception), a student from a German small-town university, entering the building of the world-renowned Psychology Department at the University of Texas at Austin. It was intimidating. As I entered the department, I saw the amazing doctoral students in the hallways, behind their desks, and at their experimental cubicles. I do remember this moment so well. I was in awe. However, as the first weeks passed and I found grounding in my new environment, I also had a different, deeply emotional revelation: “I am here, I am among them”, and I was there with a level of scientific knowledge and training that, I gradually realized, allowed me to not only cope with the demands of my new environment but, effectively, excel in it. I will never forget the moment I became aware that, what I learned on the third floor of the Bismarckstrasse 6 was so unbelievably much more than how to measure implicit motives and blood pressure and to run a moderated regression; it was how to think like, with creativity, precision, and integrity, a first-rate scientist, and how to do this within the community of a supportive lab. I owe tremendous gratitude to Joachim Brunstein for laying the very foundation for me to ultimately become a psychological scientist. I proudly consider myself a “Joachim Brunstein student”. Danke für alles, Joachim!

References


04053 – that was the number in the course catalogue for the summer term 1989 leading to my first encounter with Joachim C. Brunstein (JCB), a seminar he taught on – what a coincidence – motivation and volition. As an undergraduate and graduate student, I attended several more of his courses and lectures in the following years and acquired knowledge on, for example, instructional psychology or counseling in educational psychology. His success in academics indirectly fostered my own career beyond my time as a student: When he left Friedrich-Alexander University temporarily for a visiting professorship at Goethe University in Frankfurt and finally followed a job offer of Potsdam University, I was asked to fill the position that he had left vacant and, luckily, became member of the scientific staff at the Chair of Developmental and Educational Psychology where I could finish my dissertation. A couple of years later, our paths crossed again when JCB was an external reviewer of my “Habilitation”.

Thus, in some way JCB bears responsibility that I found my place in academia. Even more so because his and his colleagues’ work on goals and motives stimulated my reasoning about human motivation and paved the way for my strong interest in the ethno-psychoanalytic approach to culture and human functioning, as represented by the iconic research conducted by Parin, Morgenthaler, and Parin-Matthey (1963) among the Dogon in West Africa – “The Whites think too much” – or Erdheim’s (1992) remarks on “das Eigene und das Fremde“, to academic psychology with its empirical examination of different motivational systems. Since that time, the questionnaire GOALS (Pöhlmann & Brunstein, 1997) has accompanied me in research. Moreover, references on the seminal paper reporting moderating effects of implicit motives when linking goal progress and well-being JCB published together with Schultheiss and Grässmann in 1998 still can be identified in my current research on determinants and consequences of motivational congruence.
What is Motivational Congruence?

For a long time, different motivational entities such as goals and motives have been considered components of a single, hierarchically structured motivational system (Brunstein, 2010). According to this view, motives and goals are closely connected to each other: Motives affect the setting of conscious goals, which in turn are translated into realizable plans taking into account options presented by an individual’s specific environment. So far, so good. Unfortunately, this obvious process does not seem to mirror what is really happening when people commit themselves to personal goals: People greatly differ from each other in how far they pursue goals in line with their motives.

This lack of convergence might have heralded the recognition that human behavior cannot be explained by a single motive system. Moreover, a game-changing paper disclosed an alternative interpretation of human motivational functioning: McClelland et al. (1989) presented a theoretical framework that helped to overcome the fragmentation within the field of motivation. These authors proposed that people’s goal-directed behavior is caused by two qualitatively different motivational systems, namely an implicit and an explicit (self-attributed) one. Both motivational systems are shaped at different times in ontogenesis, are linked to different classes of behaviors, and, crucially, must be assessed by different methods.

By directing and energizing life-sustaining behavior (e.g., seeking contact to others), implicit motives, defined as relatively stable affective preferences for the approach towards certain (rewarding) incentives and the avoidance of certain (aversive) disincentives, reflect our biological heritage as molded by evolutionary forces. Above all, research focuses on the need for achievement (n Achievement; a concern for mastery and competence), the need for affiliation (n Affiliation; the desire for contact and closeness to others), and the need for power (n Power; the desire for having an impact on others’ behavior and emotions). Implicit motives are primarily shaped by motive-relevant experience and learning during early stages of cognitive development in prelingual childhood. Although stability seems to be comparable to those of other personality traits, implicit motives may adapt to changing circumstances in life (Denzinger & Brandstätter, 2018). Given their early, prelingual shaping, implicit motives operate outside of conscious awareness and control and are difficult to verbalize. But they express themselves in individuals’ fantasies (McClelland, 1987) and thus, are measurable by indirect means. Even if alternative measures have been proposed
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(e.g., the Operant Motive Test, Kuhl & Scheffer, 1999; the Implicit Association Test, Brunstein & Schmitt, 2004; Slabbinck et al., 2011), Picture Story Exercises (PSE; McClelland et al., 1989) are typically administered to assess individuals’ fantasy stories, which are subsequently coded for implicit motive strength by use of experimentally derived scoring systems (e.g., Winter, 1994).

The explicit motivational system develops later in life when children have acquired advanced access to and control over their mental processes. More complex learning mechanisms that are less saturated with emotions allow them to consider immediate environmental demands, incentives, and expectations in their behavioral strivings. Above all, explicit teaching by parents with respect to what is socially desirable and good or socially undesirable and bad shapes the explicit motivational system. Naturally, this type of instruction can take place only after children have obtained an advanced mastery of language, which allows them to grasp the significance of the linguistic information, and to organize its meaning into such constructs as self, others, and socio-cultural norms (McClelland et al., 1989). The explicit motivational system reflects itself in consciously available values, goals, beliefs, and (motivational) self-concepts. Because individuals can volitionally and consciously reflect on their motivational self-concept, their explicit motives can be assessed by means of self-reports.

Typically, it is shown that explicit motives, which are stimulated by social-extrinsic incentives (e.g., social demands and expectations; Brunstein & Maier, 2005), affect behavior and actions that depend on self-reflection and commitment. As such, pursuance of explicit strivings often does not aim at hedonic need satisfaction (Cantor & Blanton, 1996) but rather focuses on social approval. In contrast, implicit motives effortlessly guide long-term behavior in unconstrained situations without conscious awareness. Although different types of motives are primarily associated with different types of behavior, both types of motives may also interact. On the one hand, explicit motives may provide meaningful outlets for desires and wishes generated by implicit motives. On the other hand, however, consciously represented values and goals may also prevent individuals from satisfying their implicit needs. Generally, only weak or insignificant relationships between implicit and explicit motives are reported in the literature (e.g., Brunstein et al., 1998; Köllner, & Schultheiss, 2014; Rawolle et al., 2013). Thus, people obviously greatly differ from each other in the extent to which their explicit strivings are aligned with their implicit motives. This, however, seems to be rather unfortunate as there is clear evidence on beneficial effects of congruence between implicit and explicit motives.
Consequences of Motivational Congruence

Brunstein and colleagues (1995, 1998) were the first to report beneficial effects of motive-congruent goals. Their findings qualified well-accepted views that personally meaningful goals represent a significant source of individuals’ well-being, that is, that commitment to goals and both perceived attainability of goals and progress in goal achievement predict affective and cognitive components of well-being (e.g., Brunstein, 1993; Emmons, 1996). For example, the two studies reported by Brunstein et al. (1998) provide clear evidence that not all goals people commit to and successfully realize enhance their well-being. Analyses verified that predominantly communion-motivated students – that is, students who scored higher for n Affiliation compared to n Agency (sum score of n Power and n Achievement; see Bakan, 1966) – benefitted from progress in communion-oriented goals in their daily emotional well-being. Analogously, emotional well-being of agency-motivated students could be predicted by progress in agency-oriented goals. In contrast, commitment to and progress in motive-incongruent goals seemed to act as a hidden stressor (see Baumann et al., 2005) and were not reflected in higher emotional well-being. Rather, the pursuit of such goals predicted lower levels of well-being in the long run as goal realization does not entail experiences of positive affective rewards associated with the satisfaction of implicit motives. Moreover, an increase of emotional well-being could only be predicted when commitment to motive-congruent goals was paired with subjectively perceived favorable conditions to attain these goals. In contrast, poor conditions to attain motive-congruent goals tended to predict a decrease in emotional well-being.

Beneficial effects of commitment to and successful striving towards motive-congruent goals have received much empirical support in the last decades. For example, Schultheiss and colleagues (2008) found that participants characterized by strong implicit motives reported higher emotional well-being and fewer depressive symptoms when they experienced high levels of goal progress, but lower levels of emotional well-being and increased depressive symptoms when they made little progress towards their personal goals. Thus, the successful pursuance of hot goals, that is, goals that are supported by strong implicit motives, facilitates the consumption of motivational gratification. However, strong motives also represent a vulnerability for motivational frustration if congruent goals cannot be attained. On the contrary, level of attainment of cold goals, which are goals not backed up by implicit motivation, did not relate to individuals’ well-being. Analyses also verified that individuals with strong implicit needs, but low explicit goal commitment were nevertheless successful at realizing their
goals. The authors speculate that although individuals did not consciously consider much about their goals, they were experiencing hedonic rewards of need satisfaction, maybe even more by being able to avoid drawbacks of goal rumination.

Studies that focused on various behavioral and psychological outcomes, but did not necessarily assess data on explicit strivings, nevertheless provide evidence for the significance of (implicit) motive-congruent (dis)incentives: Experiencing positive emotional rewards does not only affect individuals’ well-being, but also becomes apparent, for example, in individuals’ learning processes (e.g., Schultheiss et al., 2005; Stoeckart et al., 2017) as well as in the perceived quality and stability of romantic relationships (Hagemeyer et al., 2013; Job et al., 2012) and success in career development (Jenkins, 1994).

The above-mentioned findings reported by Schultheiss and colleagues (2008) also reflect what Weinberger et al. (2010) call the clinical implications of motivational congruence: When different types of motives are in harmony, the result is positive for the individual as explicit strivings foster need satisfaction. However, unhappiness and even psychopathological symptoms might emerge when implicit needs are frustrated by conflicting types of motives. In line with this argument on the clinical relevance of motive-goal congruence, Pueschel et al. (2011) report that only progress towards motive-congruent goals was associated with fewer depressive symptoms among psychotherapy outpatients. Successful pursuance of cold goals did not account for inter-individual differences in depressive symptoms. Furthermore, emotional distress resulting from motive-incongruence, particularly in the agentic motivational domain, relates to unhealthy eating behavior, which might finally facilitate health problems (Job et al. 2010). Incongruence of motives and individuals’ behavior was also examined by Zemp and colleagues (2017). By focusing on effects of power motives and parenting, analyses verified an association between motive incongruence, particularly when a high need for power was paired with a low self-attributed power motive, and inconsistent parenting of mothers over time and situations.

Interestingly, a couple of studies examined in how far negative consequences of motive-incongruence could be mitigated by individuals’ coping strategies. Identifying motive incongruence as a chronic (hidden) source of stress (see Baumann et al., 2005) associated with a constantly high level of the stress hormone cortisol, Schüler et al. (2009) assumed negative effects of motive incongruence on health. By focusing on the motivational domain
of affiliation, the authors found, indeed, a positive relationship between motive incongruence and use of medication. However, the quality of emotional disclosure effectively seems to buffer negative effects of stress: Motive-incongruent individuals who disclosed stress-related emotions and thoughts to other persons reported less health impairment than motive-incongruent individuals low in emotional disclosure. In a similar vein, Langan-Fox and colleagues (2009) report that negative effects of achievement motive incongruence on mental well-being were reduced among individuals either high on self-directedness and self-disclosure or low in terms of external locus of control (see also Thielgen et al., 2015, on chronological age as a moderator of the link between motivational congruence and job satisfaction).

Unfortunately, however, personality dispositions might also prevent individuals from benefitting from an alignment of implicit and explicit motives. Considering the motivational domain of achievement (no significant effects were found for affiliation motivation), congruence of implicit and explicit motives was related to more positive well-being among individuals low in activity inhibition, but not among individuals high in activity inhibition (Langens, 2007a). Obviously, a high degree of restraint over emotional and motivational impulses might hinder the behavioral implementation of motives and thus the resulting positive affective rewards of need satisfaction (see also Langan-Fox et al., 2010, on similar effects of individuals’ interpersonal dependency). Thus, it seems indispensable not only to commit to motive-congruent goals but also to behaviorally realize these strivings. In a study conducted by Schüler and colleagues (2008), individuals characterized by a high implicit and explicit affiliation motive who additionally reported a large amount of affiliation behavior reported the lowest negative affectivity and the highest life satisfaction compared to participants who either lacked affiliation goal commitment or affiliative behavior.

The majority of the findings on consequences of motive-congruence presented so far has been derived from studies conducted in Euro-American, so-called WEIRD (western-educated-industrialized-rich-democratic) cultural contexts (Henrich et al., 2010). Thus, the generalizability of findings to non-Western contexts is an open issue. Fortunately, a number of cross-cultural studies with samples recruited in Asia, sub-Saharan Africa, Europe, and Latin America indicate that effects of motive-congruence on individuals’ well-being might represent a universal psychological phenomenon. By implementing culture-adequate, bias-free instruments for data assessment
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(see Van de Vijver et al., 2009), the link between commitment to and realization of motive-congruent goals and increased levels of well-being (e.g., Brunstein et al., 1998; Schultheiss et al., 2008) could be replicated cross-culturally for the motivational domains of achievement, affiliation, and power (Hofer, Busch, Bond, Li et al., 2010; Hofer & Chasiotis, 2003; Hofer et al., 2006). In sum, these findings support the assumption that implicit motives (universally) represent a weighing disposition for determining whether goal commitment is finally experienced as pleasurable or not. For example, across samples recruited in China (Hong Kong and mainland China) and Germany, power-oriented value orientations were significantly related to enhanced levels of well-being if values were translated into motive-congruent power-oriented goals, that is goals that match the strength of $n$ Power (Hofer, Busch, Bond, Li et al., 2010). Just recently, Hofer, Kerpen, and colleagues (2023) examined the relationship between $n$ Power, power goal commitment, and power goal attainment in more detail. In a study with German and Zambian adolescents it could be verified that goal commitment longitudinally predicted successful realization of power goals only among adolescents high in $n$ Power.

Findings on the function of implicit motives as emotional weighing dispositions that determine whether the pursuit of a particular goal is experienced as satisfying and pleasurable (Brunstein, 2010) also challenge widely accepted evidence that self-reported success in satisfaction of basic (innate) psychological needs, that is, autonomy, competence, and relatedness, as operationalized by Self-Determination Theory (SDT; e.g., Ryan & Deci, 2000), universally predicts individuals’ happiness and psychological adjustment. Studies conducted by Hofer and Busch (2011a, b) with Cameroonian and German samples indicate that strength of implicit motives ought to be considered when examining effects of psychological needs on well-being and optimal psychological functioning. Findings show a positive link between the satisfaction of the competence need and job satisfaction. Regardless of participants’ cultural background, need satisfaction and job-related well-being were, however, more closely associated among participants characterized by a strong $n$ Achievement (Hofer & Busch, 2011a). Moreover, self-reported success in pursuing needs for relatedness was associated with enhanced relationship satisfaction. A closer look at the data verified that this relationship was only present among participants characterized by a pronounced level of $n$ Affiliation. In contrast, there is also evidence that low experiences of relatedness are associated with higher levels of envy and indirect aggression among adults with a pronounced strength of $n$ Affiliation (Hofer & Busch, 2011b). Similar behavioral expressions of the dark side
of affiliation, particularly when motive frustration is present or anticipated, were reported in a cross-cultural study with elderly people from Germany, the Czech Republic, and Cameroon (Hofer et al., 2017): Irrespective of participants’ cultural background, elderly people high in affiliation reported higher levels of social cynicism when they lacked satisfaction of their need for relatedness. Suggesting that need satisfaction reflects successful goal realization but need frustration a failure in goal attainment, the last-mentioned findings represent more evidence on both favorable and unfavorable consequences of motive-goal (in)congruence.

To conclude, there is strong empirical evidence on beneficial effects of motivational congruence on individuals’ well-being. Moreover, commitment to explicit strivings that do not allow experiencing motive-specific affective rewards do not enhance people’s happiness and life satisfaction. At worst, such motivational incongruence might even impair individuals’ mental health. Given such findings, it seems rather odd that not all people align their explicit goals with their implicit motives. Yet, explicit goals and implicit motives generally do not show a significant overlap, that is, individuals differ from each other in how far components of their motivational systems match. Thus, the question arises why some people manage do align their motivational systems, but other people do not.

**Determinants of Motivational Congruence**

Leaving out methodological issues that seem to explain little variance in individual differences in overlap of motivational systems (e.g., matched content of implicit and explicit measures or type of implicit motive measurement, Thrash et al., 2007, 2010), the relevant literature points to two, maybe interrelated, means to reach congruence of motives, that is a dispositional (trait-like) and a perceptual one. Let’s have a look at the dispositional path to motivational congruence.

**Dispositional correlates of motivational congruence.** Innate cognitive mechanisms enabling transfer across the two motive systems are not available in the process of (implicit and explicit) motive shaping. However, some people seem to have better access to their implicit motives than others and are able to align their explicit strivings to their inner needs. Evidence suggests that individuals’ self-regulatory capacities are a major player in the struggle for motivational congruence. For example, Kuhl’s (2001) dispositions of action control, that is, action orientation and state orientation, were examined as a possible personality resource that affects congruence
of motives. It is argued that individuals’ experiences in early childhood contexts shape the self’s capacity to regulate positive and negative affect. In detail, prompt and adequate responses by significant caregivers, typically the mother, to self-expressions of the child promote a development in which affect regulation processes (i.e., self-relaxation or self-motivation) come increasingly under the control of the self-system. Consequently, children develop a strong personal disposition of action orientation that fosters an unhindered access to self-representations such as needs, values, and feelings and enables them to set, perpetuate, and realize self-generated and context-adequate goals even in stressful situations. In contrast, children develop an increasingly strong disposition of state-orientation if caregivers insufficiently react to their needs. State-oriented people generally show an enhanced (emotional) dependency on external sources of action control and affect regulation. Thus, they are characterized by an increased tendency to mistake others’ expectations, goals, and preferences for their own.

In line with these correlates of dispositions of action control, Brunstein (2001) hypothesized that action-oriented individuals are more likely to commit themselves to motive-congruent goals (see also Baumann et al., 2005). By examining the motivational domains of agency and communion, findings reported by Brunstein (2001) clearly support this assumption in both motivational domains: Action-oriented individuals show an enhanced tendency to commit to attainable, motive-congruent goals. In contrast, goal commitment of state-oriented individuals neither reflects implicit motive strength nor the perceived attainability of goals. Rather, it might reflect their predisposition to mistake social demands and expectations as own intentions without testing them for personal fit.

The significance of individuals’ capacity for self-access is also highlighted by findings reported by Thrash and Elliot (2002). Focusing on the motivational domain of achievement, the authors could show that explicit and implicit motives were better aligned to each other among individuals characterized by a strong sense of self-determination. Like Kuhl’s disposition of action control, self-determination is defined as an enduring aspect of personality that reflects being aware of the self’s needs and grounding decisions of whether act on behavioral impulses relating to this awareness. Support for the link between self-determination and motivational congruence also stems from cross-cultural research conducted in Cameroon, China (Hong Kong), and Germany (Hofer, Busch, Bond, Kärtner et al., 2010). Irrespective of participants’ highly divergent cultural background, achievement-related goals were more closely aligned with the implicit
achievement motive among individuals who reported a pronounced sense of self-determination.

It is hypothesized that a strong sense of self-determination facilitates congruence of motives because self-determined individuals utilize affect-based indications as a guide in their commitment to explicit motives and goals (Thrash & Elliot, 2002). Supporting this assumption, Thrash and colleagues (2007) found that private body consciousness, that is, the ability to perceive and correctly interpret bodily sensations, which probably emerge in the process of motive arousal, moderated the association between explicit and implicit motives in the achievement domain. Thrash et al. (2007) identified two more personality dispositions that affected the level of motivational congruence: self-monitoring and preference for consistency. Referring to the latter, Thrash and colleagues report that a higher preference for consistency, that is, an individual’s concern to seek consistency among cognitions (here: between consciously represented explicit motives and probably rudimentary knowledge of implicit motives), was positively related to achievement motivational congruence. Moreover, the authors assumed effects of self-monitoring, which is defined as a personality trait that refers to individuals’ ability to regulate their behavior to adjust to social situations (Snyder, 1974), on level of motivational congruence. While people low in self-monitoring typically act spontaneously, individuals high in self-monitoring control and adjust their behavior to others’ expectations. In line with hypothesis, a higher congruence of motives was associated with a low concern with social appropriateness of one’s attitudes and behavior. Vice versa, a strong concern to act according to the values that the social environment deems appropriate showed detrimental effects on the alignment of explicit and implicit motives.

Referring to the processing of information, Schultheiss and colleagues (2011; see also Schultheiss, 2001; Schultheiss & Strasser 2012) follow a somewhat different approach to dispositional factors associated with motivational congruence that, however, might also help to explain effects of goal imagery on motivational congruence (Schultheiss & Brunstein, 1999). It is assumed that the dissociation between motivational systems is due to differences in the way the implicit and explicit motivational systems process information, namely, as nonverbal and verbal-symbolic codes, respectively. Thus, the authors hypothesize that individual differences in the alignment of implicit and explicit motives can be explained by referential processing, that is, the translation of either nonverbal representations into verbal ones through verbal labeling or verbal representations into nonverbal ones through mental imagery (e.g., Marconi, 1996). In their study, they define
referential competence as stable individual differences in the ability to quickly translate nonverbal representations/information into verbal ones (e.g., by use of a color-naming task). As hypothesized, a more pronounced referential competence was associated with a higher motivational congruence across motivational domains.

To conclude, there is strong evidence that various personality dispositions, above all reflecting individuals’ capacities for regulating mood and behavioral acts, explain interindividual differences in motivational congruence. Such personal resources do not only facilitate motive-congruent goal setting but even allow individuals to maintain congruent (effortless) goal striving when facing stressful life conditions (Grund et al., 2018).

Perceptual correlates of motivational congruence. As motivational congruence is obviously something good to have, hope is not forlorn to gain motivational congruence even if one lacks beneficial internal resources of self-regulation. Sensory experiences of motive-specific affective incentives seem to be the key to proceed in aligning explicit goals to implicit motives. Thereby, systematic experience based on self-observation may permit one to align both types of motives (Miron & McClelland, 1979). Following this line of argument, Schultheiss and Brunstein (1999) hypothesized that goal imagery, that is, the perception-like mental representation of goal pursuit and realization, facilitates motivational congruence by enabling individuals to sense positive affective experiences (i.e., satisfaction of implicit motives) associated with goal striving and attainment. Supporting their assumptions, analyses verified that n Power and n Affiliation predicted commitment to an assigned goal equipped with power- and affiliation-related incentives only if participants were previously given the opportunity to explore (affective) characteristics of the assigned goal. Without goal imagery participants’ motivation to pursue an explicit goal was independent of their implicit motive dispositions.

Similar effects of goal fantasies were also reported by Job and Brandstätter (2009): Participants who were asked to imagine the intense positive feelings, that is, motive-specific affective incentives (e.g., joy, happiness, and pleasure associated with affiliation-oriented strivings), which are typically aroused when successfully striving for a given goal, set their goals in line with their implicit motive disposition. Also, research conducted by Langens (2002-2003; see also Langens, 2007b) on daydreaming provides further evidence on the link between goal imagery and motive-congruent goal striving. Focusing on the motivational domain of achievement, Langens found that positive day-dreaming about progress towards the attainment of an
achievement-related goal mediates the relationship between goal commitment and future goal attainment for individuals characterized by a high implicit achievement motive. As Schultheiss and Brunstein (1999) argued, various kinds of goal imagery seem to support individuals to translate verbal goal representations into nonverbal, perception-like representations and thus to understand and (adequately) respond to verbal stimuli by making contact with the experientially based implicit motivational system (see also Thrash et al., 2010).

Strick and Papies (2017) could show similar effects in research on affiliation motivation. Referring to effects of goal imagery reported by Schultheiss and Brunstein (1999), the authors argue that goal imagery allows one to feel affective and bodily responses to imagined events and thus provides awareness of implicit motive-specific affects. Access to these cues facilitates motive-congruent setting of goals. The authors hypothesized that mindfulness, like goal imagery, increases sensitivity to internal cues signaling one’s implicit preferences. This should attenuate the incongruence between the explicit and the implicit motivational system. According to Bishop and colleagues (2004), mindfulness involves a non-judgmental, present-moment awareness of one’s behaviors, bodily sensations, thoughts, and feelings. Evidence shows that mindful attention to one’s bodily experiences increase individuals’ interoceptive awareness (Sze et al., 2010), that is, the capacity to consciously perceive internal bodily sensations (see Thrash et al., 2007: private body consciousness). Study findings generally confirmed the authors’ assumptions (Strick & Papies, 2017): Affiliation goal setting and motivation to pursue such goals was not predicted by affiliation in the control condition. However, after a brief mindfulness exercise affiliation predicted both setting of and motivation to pursue affiliation goals.

Also, Roch et al. (2017) examined in their intervention study how personal goals can be made more motivationally congruent. Participants received either a) feedback about their implicit motives and their fit to goal commitments, b) respective feedback plus a training in how to enhance motive-goal congruence, or c) no treatment (control group). Their findings indicate that motivational congruence, at least in the motivational domains of achievement and power (no treatment effects could be verified for affiliation motivation), can be enhanced: Compared to the control group, participants in the treatment groups (above all in the feedback plus training group) showed an increase in motivational congruence indices in the agentic domains of power and achievement.
In sum, congruence between motivational systems is not pre-programmed but must be achieved ontogenetically during the course of individual development. Research demonstrates that a particular set of relatively stable personality dispositions supports individuals in achieving motivational congruence. Moreover, evidence from experimental studies suggests that motivational congruence can also be achieved when individuals get a chance to taste affective incentives of implicit motives associated with goal commitment and attainment.

Some open issues in research on motivational congruence

Recent research provides strong evidence that people remarkably differ from each other in the congruence of their unconscious and conscious motives: While both motivational systems are unrelated among some individuals, motives are meaningfully adjusted to each other among other individuals. Moreover, these studies also identified various antecedents and consequences of (in)congruence of implicit and explicit motives. These findings have markedly enhanced our knowledge on human psychological processes and behavior by considering both motivational systems. Despite this empirically-based progress in theory-building on the interplay between implicit motives and cognitively represented motivational constructs, several significant topics ought to be highlighted in future research on motivational congruence in various psychological fields.

Although past studies have shed light on determinants and consequences of motivational congruence, research seems to be somewhat fragmented. While some studies on motivational congruence were focusing on the higher order domains of agency and communion, others were picking out single implicit motives, focusing either on n Achievement, n Affiliation, or n Power. Only very few studies have examined determinants/consequences of motivational congruence for the Big Three of implicit motive research (e.g., Roch et al., 2017). Thus, correlates of motivational congruence in the domains of achievement, affiliation, and power ought to be examined conjointly in future research. Such research efforts potentially will enrich our knowledge on, for example, whether particular determinants of motivational congruence are effective across motivational domains or not. In doing so, future studies might have a detailed look at different hope- and fear-related components of implicit and explicit motives and consequences of their match/mismatch on individuals’ well-being.

For example, Weinberger and colleagues (2010) argue that the affiliation motive is a double-edged sword: On the one hand, it represents the desire
to avoid feelings of loneliness and rejection by being close to other people (fear of rejection; affiliation). On the other hand, it also indicates the need for a warm, emotionally fulfilling, intimate and mutual exchange in social relationships (hope for affiliation/closeness; intimacy; McAdams, 1992; similar notions apply to the $n$ Achievement and $n$ Power; see, for example, power stages proposed by McClelland, 1975, power over oneself versus power over others). While motive satisfaction results in positive affective experiences in people high in intimacy, the avoidance of negative affective experiences represents the major push for people high in fear of rejection. Thus, motivational (in)congruence is likely to cause different effects on individuals’ well-being depending on the predominant aspect of a given motive.

Moreover, it seems fruitful to investigate motivational congruence more closely in the different stages of goal setting, pursuance, and realization. While a lot of research has focused on motive-congruent goal commitment and realization, relatively little is known about the process of on-going goal pursuit, including individuals’ efforts to detach from motive-incongruent goals characterized by effortful goal pursuit (Grund et al., 2018). Findings gained by cross-cultural research on motivated identity development suggest that individuals consciously consider giving up on motive-incongruent goals and are willing to look for alternative identity commitments that typically reflect individuals’ goals, values, and life plans. Focusing on affiliation motivation, Hofer, Busch, and Menon (2023) report that successful realization of affiliation goals predicts lower reconsideration of identity commitments in the domain of friendship among German and Zambian adolescents high in $n$ Affiliation. Additionally, the link between goals and identity commitment becomes stronger the stronger $n$ Affiliation. Thus, when goal realization allows the consummation of affective rewards (see Schultheiss et al., 2008) individuals proceed more easily in their identity development, that is, they build up stronger interpersonal identity commitments and seem to be more content with their commitments. In contrast, they look for alternative identity commitments if goal realization does not match implicit motive strength.

The link between affiliation motivational congruence and interpersonal identity development was also verified in a study by Hofer and colleagues (2006) who found that motivational congruence is significantly associated with adolescents’ level of both identity achievement and identity foreclosure. In detail, these authors found that participants characterized by a pronounced implicit affiliation motive scored higher on identity achievement
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when self-attributed motives were congruent with their affiliation. Moreover, motivational congruence was associated with lower scores on identity foreclosure for individuals with a high affiliation. Identity achievement mirrors a firm commitment to personal values, goals, and life plans after having explored potential alternatives. In contrast, the foreclosure status is similarly characterized by a strong commitment to values and life goals. However, those commitments are typically not tested for personal fit but rather result from an adoption of values and life goals from significant socialization agents, most likely from the parents. Thus, pursuing motive-congruent explicit motives allows individuals to successfully proceed in their identity development, which is considered to represent the main developmental task in adolescence and young adulthood (Erikson, 1968). In addition, two recent studies indicate that adolescents recruited in Germany and Zambia proceed more easily in motive-congruent, personally expressive identity development when internal (self-determination) and external resources (perceived positive parenting) are at hand (Hofer & Lehmann, 2021; Hofer et al., 2021). For example, in the domain of affiliation motivation, Zambian adolescents who reported positive parenting experiences make more motive-congruent interpersonal identity commitments and are less likely to reconsider them.

Given such findings on the association between motivational congruence and identity development, future research ought to examine whether similar effects of the alignment of motivational systems can be found for the resolution of subsequent developmental tasks in adulthood and old age such as intimacy, generativity, and ego-integrity (Erikson, 1963). While effects of implicit motives could be verified for the quality of intimate relationships (e.g., Job et al., 2012), for people’s generative striving (e.g., Peterson, & Stewart, 1993), and for individuals’ life review (e.g., McAdams, 1982), an examination of how motivational congruence results in facilitating solutions for developmental tasks is pending.

Moreover, research shows that a lack of motive satisfaction, particularly if motive strength is high, results in an impairment of well-being and mental health as well as to negative emotional experiences and behavior (e.g., Schultheiss et al., 2008). Thus, research on interventions aiming to reduce motivational incongruence even has clinical implications and might be relevant in psychotherapeutic settings as depressive symptoms are high among psychotherapy outpatients high in motivational incongruence (Pueschel et al., 2011; Weinberger et al., 2010). Yet, research on this significant applied field of psychology is still lacking.
Similarly, research on the interplay of culture and motivation has only recently experienced a revival and revealed several, probably universal relationships between motivational congruence and people’s well-being. However, research on motivational congruence and individuals’ behavior in various domains of daily life as well as in various cultural contexts is still urgently needed to proceed in theory building on universal and culture-bound facets of human motivation. The cultural context represents a significant factor for individuals’ thoughts and behavior because a culture’s shared socialization process shapes motives and cognitions leading to an individual’s readiness to act (or not to act) in appropriate ways (Bond, 2005). While in individualistic Western cultural contexts value orientations are highlighted that emphasize individual personal autonomy and self-direction, values in collectivistic non-Western contexts highlight obedience and a strong sense of community (Schwartz, 2006). Thus, it seems obvious that cultural contexts may facilitate or hinder individuals to achieve congruence of their motivational systems, in particular if explicit, possibly motive-congruent strivings might conflict with prevalent cultural orientations. Moreover, cultural norms or roles might also affect behavioral acts that result from motive-congruent and -incongruent personal strivings. Thus, a cross-cultural emphasis of future studies on the relationship between motivational systems and psychological and behavioral outcomes seems to be indispensable for developing more comprehensive models of human functioning.

To conclude, following the initially mentioned studies conducted by Brunstein and colleagues (1995, 1998), research on motivational congruence has since provided significant insights into correlates of (in)congruence of motivational systems. I am confident that these findings will stimulate further research on this fascinating facet of human functioning by considering consciously available and unconscious motivational sources of human behavior around the globe.

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Motivational Congruence


Developing Theoretically Grounded and Evidence-Based Intervention Programs: Fostering Students’ Learning in School

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The analysis and optimization of teaching-learning processes in schools is one of the central goals of educational psychology. Against the background of the worldwide ratification of the United Nations Convention on the Rights of Persons with Disabilities and the associated efforts to establish inclusive school systems in many countries, the question arises as to how learning situations should be designed to enable positive development for all students. Regardless of whether students need special education or not, the aim should be to create an environment where they can learn together in a classroom setting every day, develop interests, think positively about themselves, and feel accepted by their teachers and peers. Inclusive schools therefore provide children and young people with equal access to participation and opportunities regardless of their individual learning requirements (Farrell, 2000; Koster et al., 2009).

Students like going to school if they feel comfortable and can learn in a relaxed atmosphere. Feeling accepted by their teachers, being integrated into the community and experiencing a pleasant class climate all contribute to a sense of well-being. However, children perceive the conditions in a class differently based on their individual characteristics and abilities. This is particularly true in inclusive classes, where children with very heterogeneous needs are brought together. Therefore, creating a conducive social environment where every learner is valued and supported in the best possible way represents a major challenge in today’s education.

The fact that students with very different needs are part of the same class community places high demands on the quality of teaching (Farrell, 2000). In order to optimally support all students in their learning process, current
teaching concepts rely on greater differentiation. The approach of individual support essentially follows the idea of proximal developmental zones (Vygotsky, 1978). According to this concept, optimal learning development is achieved when there is a fit between the individual learning level of the children and adolescents and the learning goals and opportunities so that learners are neither over- nor underchallenged. Thus, students who receive differentiated learning opportunities should perceive instruction as student-centered and feel cognitively stimulated.

One approach that addresses the need for differentiated support services is the response-to-intervention (RTI) method, which is widely used as a support tool in the United States in response to the Individuals with Disabilities Education Improvement Act and has been adopted by many other school systems (Fuchs & Fuchs, 2006). The central element of the RTI approach is a tiered system of supports. This is linked to the goal of designing school-based supports so that every child can benefit sufficiently from them. Achievement of this goal is assessed by measuring learners’ reactions (response) to the type of support (intervention). Typically, RTI models consist of three interconnected levels of support (see Figure 1). Quality class-based instruction is provided at the Tier 1 level. If the student does not

![Figure 1. Response-to-Intervention Model](image-url)
benefit sufficiently from the instruction provided, they receive additional targeted support in a small group setting (Tier 2 level). If the student benefits from the extra support, they move back to the Tier 1 level. If the student does not develop as expected despite the additional support, more explicit individualized instruction follows at the Tier 3 level. The RTI model is thus characterized by a quantitative increase in the intensity and specificity of support from level to level.

In the past decades, educational intervention research has developed programs for the promotion of subject-specific and cross-curricular competencies of students for the three levels of the RTI model (Hall, 2008). With regard to the concepts for level 1 of the RTI model in particular, high-quality instruction is provided to the whole class. This addresses the needs of a heterogeneous class of students and enables differentiation.

In the context of the scientific evaluation of interventions, both the examination of effectiveness (Does a program have an effect?) and the effect model (How does a program work?) represent central questions (Patry & Perrez, 2000). Following this approach, educational evaluation research ideally examines “whether” (effectiveness) and “how” (impact model) support services affect student learning and achievement.

In order to support the implementation of evidence-based measures in the classroom, Souvignier and Philipp (2016) emphasize the importance of developing concepts and programs that are not only theoretically sound and proven to be effective, but also adapted to the requirements of school practice. This is key to ensuring acceptance of the programs in a real educational setting. To meet these requirements, training and intervention research is usually carried out in a stepwise fashion, beginning with the theory-based design of an intervention, followed by initial testing in smaller samples and then testing the effectiveness of the intervention in larger samples. In the following, this approach is elaborated based on two different research programs for designing classroom-based interventions.

Example 1: Step-by-Step Evaluation of a Peer-Supported Strategy-Based Reading Intervention for Elementary School Students

Theoretical and Empirical Background
The acquisition of reading skills is a central educational goal in elementary school. With a view to the requirements in secondary schools, it is espe-
cially important that children acquire the ability to read texts independently and extract the information contained in them. The results of large-scale school performance studies have repeatedly shown that not all children are sufficiently successful in achieving these learning goals. For example, the findings from the PIRLS 2021 survey (McElvany et al., 2023) showed that 25 percent of fourth graders did not reach proficiency level 3. These children can be expected to face significant difficulties in many subjects in secondary school. Another challenge for schools is the wide variation in student performance (Bremerich-Vos et al., 2017).

Therefore, in order to prevent the emergence of further performance deficits in students’ school careers due to insufficient reading competence, remedial programs should be implemented as early as possible in elementary school. Meta-analyses have shown that reading achievement can be promoted quite effectively through peer-supported programs that include the teaching and practice of strategic reading (Neitzel et al., 2022; Puzio & Colby, 2013; Slavin et al., 2009). A central idea of these methods is that the heterogeneity of students’ (reading) achievement can be accommodated and even exploited in whole classes by having students work together on reading tasks to support each other’s reading process within their zone of proximal development (Vygotsky, 1978).

Given the extensive evidence base for the effectiveness of cooperative learning (e.g., Kyndt et al., 2013; Rohrbeck et al., 2003; Tenenbaum et al., 2020), as well as the numerous studies demonstrating the positive impact of strategy support on reading achievement (Guthrie et al., 2004; Okkinga et al., 2018; Palincsar & Brown, 1984; Rosenshine & Meister, 1994; Schünemann et al., 2013), peer-supported reading strategy programs can be recommended for implementation in schools at the Tier 1 level of the RTI model.

**The Basis: Reading Strategies Mediation Model**

Several theoretical models can be used to predict reading comprehension, which vary in complexity. For example, the simple view of reading (SVR) model has a low level of complexity (Gough & Tunmer, 1986). The SVR assumes that performance in reading comprehension is the result of decoding and language comprehension. On the one hand, there is empirical evidence to support the two-factor structure of the model (Kendeou et al., 2009). On the other hand, there has also been much criticism of the model because of its simplicity. Other potentially influential variables for predicting proficient reading may include reading fluency, reading strategies (or reading strategy knowledge), motivational processes and basic cognitive skills (Artelt et al., 2002).
A model that is essentially based on the idea that, via the influences of basic reading skills (reading fluency and vocabulary knowledge) and intrinsic reading preferences, reading strategies are largely responsible for individual differences in reading achievement is the reading strategies mediation model (ReStMe model; Völlinger, Spörer et al., 2018; see Figure 2). The path-analytic findings of a test of the ReStMe model in a sample of 1105 fifth-grade students provide support for the hypothesized relations in the model. The model test revealed that a performance-based measure of reading comprehension strategies uniquely accounted for individual differences in fifth-grade students’ reading comprehension achievements. This was also the case even when measures of intrinsic reading motivation, vocabulary knowledge and reading fluency were statistically controlled. Both reading fluency and vocabulary knowledge had a direct effect on reading comprehension. Furthermore, substantial portions of the associated total effects were mediated through their influence on reading comprehension strategies. In addition, intrinsic reading motivation was directly related to measures of vocabulary knowledge and reading fluency, which consequently had an indirect impact on reading comprehension. These results suggest that intervention programs should not only teach reading strategies but also include elements to promote intrinsic reading motivation and provide opportunities for practicing reading fluency and vocabulary development.

The Peer-Assisted Reading Strategy Intervention “Raffi and his Friends”

In the program “Raffi and his friends,” evidence-based support methods are combined with tutorial and cooperative learning (Völlinger, Supanc, & Brunstein, 2018). Analogous to the variables included in the ReStMe model (Völlinger, Spörer, et al., 2018), the training represents a combined reading intervention program (reading fluency, vocabulary knowledge, reading strategy competence) specifically tailored to the needs of children in third grade and designed for use in whole classrooms.

The focus of the intervention is a reading rat\(^{5}\) named “Raffi,” who learns various reading strategies together with his friends. The program is based on several evidence-based methods for improving reading skills (cooperative integrated reading and composition [CIRC], Stevens et al., 1987; reciprocal teaching, Palincsar & Brown, 1984; peer-assisted learning strategies [PALS], Fuchs, Fuchs, Mathes, & Simmons, 1997) and promotes reading

\(^{5}\) Reading rat [Leseratte] is a German synonym for bookworm.
Figure 2. Reading Strategies Mediation Model (ReStMe model; Völlinger, Spörer, Lubbe & Brunstein, 2018)
Developing Theoretically Grounded and Evidence-Based Intervention Program

fluency through shared reading and reading comprehension by teaching reading strategies in small heterogeneous ability groups.

Reading support is implemented in whole classes during regular instruction by trained student research assistants or regular teachers. The support takes place twice a week for a total of 20 training sessions over a period of 10 weeks. Each session lasts 45 minutes (one school hour). The exact procedure of the support is described in detail in a manual. The children get to know Raffi and the reading coach, and participate in exercises to improve cooperative collaboration. Afterwards, the children engage in a partner reading activity, where they learn to read a text and give each other feedback according to the reciprocal teaching method. They take turns reading the sections of the text aloud, alternating between the roles of tutor and tutee. The partners rate each other’s reading performance with regard to accuracy and appropriate intonation using a feedback sheet with smileys. While a variety of text materials can be used, the assigned texts should not be too long. In addition, they should have clearly marked subsections and content that is appealing to the children.

During the remedial reading session, the students initially work in pairs and later on in small groups of 4–5 children. The groups are heterogeneous in terms of reading ability. In the reading training “Raffi and his friends” the three reading strategies of clarifying, questioning and predicting are instructed. The reading coach or teacher first models the application of each strategy to a text. Afterwards, the children are given the task of reading a text with their partners section by section using the reciprocal reading method and applying the appropriate reading strategy for each section. The listening child notes the use of each strategy on the feedback sheet and gives feedback on the reading performance of their partner. In order to practice the use of all strategies and internalize their application, each reading strategy should initially be implemented individually in 2–3 training sessions.

Beginning with session 12, the children apply all three reading strategies to the text during the partner work. From session 13 on, the children work in small groups (4–5 children, reciprocal group work). Within the groups, one child takes on the role of tutor and rates the reading and application of the reading strategies using the feedback sheet, while the other children take turns reading the text aloud and applying the strategies to the text. In order to support the transfer of strategy use to different text genres, the children first practice the reading routines with factual texts and later on with narrative texts.
The intervention program was initially piloted in 16 lessons in a sample of 8 classes (4 classes in the intervention group and 4 in the control group) (Völlinger, Supanc, & Brunstein, 2018). The design of this study included elements to test for between-group as well as within-group effects. The results showed positive effects on third graders’ reading skills compared to their competence in no-treatment phases (single-case research design) and also to the reading comprehension of waitlist control group students (between-group design).

**Testing the Effectiveness and Mode of Action of the Intervention**

In intervention research, it is important to examine the question of whether an intervention program is having an effect on students’ reading comprehension as well as how the program is achieving its effects (Patry & Perrez, 2000). In order to answer this question, a longitudinal mediation model was used to examine the effects of the variables intrinsic reading motivation, reading fluency, vocabulary knowledge and reading strategy competence on reading comprehension (Völlinger et al., 2023). In order to analyze both between-person differences as well as within-person change, we used a simultaneous growth curve modelling approach for multiple groups. The study sample consisted of 20 third-grade classes, which were randomly assigned to the intervention group (10 classes) and the control group (10 classes). Reading ability was tested before the training started (pretest), after the training (posttest) and four weeks after completing the training (follow-up test). All data were collected in regular whole-class settings by trained research assistants. Directly after the pretest, the intervention group received 18 lessons of peer-assisted reading strategy training, while the waitlist control group classes were instructed by their respective teachers during regularly scheduled German lessons (business as usual). After the posttest, the waitlist control group classes were also supposed to receive the training for 18 lessons. However, it could not take place due to the onset of the coronavirus pandemic and associated school closures in Germany. The results showed a statistically meaningful effect on students’ reading comprehension in the posttest ($d = .15$) but not in the follow-up test ($d = .12$). In addition, the trained students exhibited a more positive development in reading strategy competence over the course of the study. For the latent growth model, the results corresponded to the first test of the ReStMe model (Völlinger, Spörer et al., 2018) and confirmed that reading strategy competence has a direct effect on reading comprehension and mediates the effects of other model variables on reading comprehension. With
regard to the question on the mode of action of the intervention, these results indicate that the promotion of intrinsic reading motivation, reading fluency and vocabulary knowledge in combination with reading strategy competence can have positive effects on reading comprehension. This underscores the recommendation to integrate all of these variables in intervention programs.

A Closer Look at Students’ Strategy Use in Reciprocal Reading Groups

In evaluating the intervention program “Raffi and his friends”, we also used video observations to analyze strategy use during a group task at three measurement time points (pretest, posttest and follow-up; Völlinger et al., 2022). The children were again divided into small heterogeneous ability groups (2–5 children) for the testing sessions. In total, 35 small groups were videotaped in the intervention group and 37 in the control group. Students were first instructed to read a one-page nonfiction text together. Afterwards, they each had to complete a quiz individually on their comprehension of the text content. The students did not receive further instructions on how to proceed with the collaborative text work or materials. Since they were not given explicit instructions to use the strategies in the test situation, spontaneous strategy use in the reading groups was observed and recorded. In each testing session, students had 20 minutes to work in small groups.

The analysis of the video data showed that use of reading strategies in the given transfer situation was not the means of choice for the majority of the students. Overall, less than 50% of the children used reading strategies in the collaborative text work. Training effects are particularly evident for the strategy predicting - this strategy was not used in the pretest and was also not used in the control group in the further course. The strategy of questioning was used most often and seemed to be particularly familiar to the students.
Example 2: Development of a Classroom-Integrated Intervention to Promote Cross-Curricular Student Competencies

Theoretical and Empirical Background

Given the increasing implementation of inclusive learning and the diverse learning backgrounds of students, more emphasis is being placed on promoting interdisciplinary competencies. Inclusive learning requires a positive approach to heterogeneity (Spörer et al., 2020). In this regard, mutual recognition, participation and a positive attitude towards inclusive education are especially significant (Little et al., 2020). Models of social behavior assume that attitudes as well as social and personal competencies influence how a person behaves in a (classroom) situation (e.g., Kunter & Stanat, 2002).

For example, in their model on the development of students’ learning and social behavior, Kunter and Stanat (2002) propose that the type and intensity of behavior exhibited by students depend not only on situational learning conditions, but also and especially on their individual characteristics, which include social attitudes and social competencies such as empathy and perspective taking. In the context of developing an intervention to promote students’ interdisciplinary competencies, the model was extended to include self-competencies. Thus, we assume that three central influencing factors (social competencies, self-competencies and social attitudes) affect learning and social behavior in inclusive education, which in turn is related to specific and global situational characteristics (see Figure 3).

According to Bosse and Spörer (2022a), social competencies are the availability and effective application of cognitive, emotional and behavioral skills that enable a person to cope with social situations in a goal-oriented and needs-based manner. Social competencies are needed in numerous everyday situations throughout life. It therefore seems logical to focus on social competencies in school-age children in order to promote positive social behavior in learning groups (e.g., accepting and giving help, arguing respectfully) (Beelmann et al., 1994).

Self-competencies refer to skills that individuals develop at the personal level, which are not necessarily linked to living or working together with others. Furthermore, they are understood as the ability to assess, control and regulate one’s behavior (Haack, 2018). In particular, the term self-regulation describes the process of learners in terms of their decisions
regarding if, what, when, how and where they learn. Children and adolescents act in a self-regulated manner when they set their own goals, select strategies that fit the task at hand, monitor their behavior and reflect on whether their actions have led to the desired goal.

Attitudes, on the other hand, are understood as constructs based on evaluations (Eagly & Chaiken, 1993). They can refer to objects, opinions or people and vary in their valence and strength (Haddock & Maio, 2007). Attitudes are based on an individual cognitive concept, imply emotions and have an effect on a person’s behavior (Eagly & Chaiken, 1993). They develop over time and are assumed to be relatively stable in adults, making targeted change more costly to implement (Haddock & Maio, 2007). Students’ attitudes, on the other hand, are less stable and more amenable to intervention due to less extensive knowledge or experience. Thus, social reference theorists assume that children take their cues from their immediate caregivers and adopt their attitudes more readily (Wullschleger et al., 2020). It can therefore be assumed that the attitudes of teachers can have a significant influence on the school-related attitudes of learners in an inclusive context.

**The Classroom-Based Intervention**

A two-step intervention to promote cross-curricular competencies of students was developed, which is based on the theoretical model of learning and social behavior in inclusive education.
In the first step, the intervention focused on fostering learners’ attitudes toward inclusive teaching (Bosse et al., 2018). This prototype comprised five lessons totaling 360 minutes and took place over the course of one school week. It addressed the aspects of diversity, well-being, equity, strengths orientation and cooperation by means of group exercises, games and text-related activities. In addition, the implementation of the classroom-integrated intervention also focused on attitudes and social skills (Bosse et al., 2019). Accordingly, the second step involved the systematic expansion of the intervention content and intervention exercises were conducted in a cooperative way whenever possible (Bosse & Spörer, 2022b). The design of the intervention was consistently guided by the impact model (see Figure 3). Since the competency domains consist of several constructs, it was necessary to determine the specific individual characteristics of the learners to be addressed by means of the intervention. They included empathy, perspective taking, cooperation skills (social competencies), self-regulation, self-efficacy (self-competencies), and attitudes towards inclusive learning of students with and without special educational needs (attitudes). The duration of the intervention was extended to 540 minutes. The intended target group are inclusive learning classes in the fourth and fifth grades, which puts the intervention at the Tier 1 level of the RTI model.

The intervention is fully manualized and can be delivered either by the teachers or pretrained learning coaches (e.g., student teachers) in the context of classroom-based instruction. Each intervention session has a separate theme (e.g., identify strengths and use them for the class) and ends with a take-home message. The intervention exercises are largely collaborative in nature and address inclusive learning, recognition and participation (Bosse & Spörer, 2022a).

**Evaluation**

The evaluation focused on the question of the extent to which social and self-competencies and the attitudes of primary school children towards inclusive learning can be promoted with the help of a classroom-based intervention.

In order to answer the research question, the intervention was implemented in ten fourth- and fifth-grade classes in a lesson-integrated manner (Bosse & Spörer, 2023). A switching-replications design with two groups and two phases was implemented (Shadish et al., 2002). In the first phase, the first group received the intervention from pretrained trainers, while the second group received regular instruction from the classroom teacher. After two weeks, a change was made. Accordingly, in the second phase the
second group received the intervention and the first group resumed regular instruction. Each intervention session was designed to help students empathize with their peers and themselves, work cooperatively and value the class community.

The intervention’s success was recorded at three measurement points (pretest, posttest, and follow-up test) by means of questionnaires. The questionnaires included questions about teamwork skills (3 items; Furthmüller, 2015; sample item: “I usually succeed in working well with others”) and social self-efficacy (4 items; Beierlein et al., 2014; sample item: “I can solve difficult situations with other children well”). Responses were rated on a 4-point scale ranging from 0 = not at all true to 3 = absolutely true. The reliabilities of the scales were in the satisfactory range at all three measurement points (Cronbach’s alpha: .65 – .79).

In addition, after each lesson students rated how they perceived the intervention session. A learning diary included items on specific situational features, attitudes and self-efficacy, thus enabling a more specific recording of the course of the intervention. Below are examples of students’ assessments of their cooperative self-efficacy (2 self-developed items: “I trust myself to work with all children” and “I am able to accept all children from the class during group work in my class”), which were collected by means of a 10 cm stepless scale.

The results initially showed that the pretest values were rather high and above the theoretical mean value of the scales. With regard to the effectiveness of the intervention, a comparison of the three measurement time points showed significant improvements in group 1 with regard to social self-efficacy and significant improvements in group 2 with regard to teamwork skills. These significant changes were specific to each group’s intervention period. Cooperative self-efficacy (measured over six measurement time points within each intervention period) improved meaningfully in both groups. Continuous recording of the students’ assessment of this characteristic allowed for more precise tracking of the changes and thus more reliable mapping of the positive intervention-related developments.

Overall, the findings provide promising initial indications of the effectiveness of the intervention. Given the relatively high baseline values, it can be assumed that the effectiveness of the intervention has been underestimated up to this point. Cooperative forms of learning that promote the self-competence, social skills and social attitudes of students can thus be a key in inclusive learning.
Implementation in classes that have lower baseline levels in the core competencies seems to be an important next step. In addition, extending the measurement time points should also allow us to draw conclusions about longer-term effects. Finally, increasing the sample size will also make it possible to examine the extent to which differential effects are found for different groups of students (e.g., with and without special educational needs).

**Conclusion**

In the presented research programs, an attempt was made to incorporate recommendations for training and intervention research. This was done following a step-by-step procedure, which included developing a theoretical model as a basis for the design of the intervention, carrying out initial feasibility testing of the program, and using various methods to assess its effectiveness and mode of action.

The results indicated that the intervention programs can be implemented in heterogeneous classrooms, particularly at the Tier 1 level of the RTI model. Moreover, the intervention programs showed positive effects on diverse competencies. In addition, the results also underscore the importance of studies that examine not only the outcomes of interventions but also the processes of change in order to identify promising starting points in programs and apply them in practical settings.

In order to promote the implementation of these and similar interventions in elementary education, it would be necessary to conduct further studies integrating other aspects of implementation research (e.g., acceptance, feasibility, appropriateness, fidelity; Souvignier & Philipp, 2016).

**References**


This Festschrift celebrates the contributions of Joachim C. Brunstein to motivation studies, personality psychology, and the science of self- and co-regulated learning in the classroom. In six chapters, colleagues and former students explore some of the ways in which Brunstein’s work has fostered a better understanding of human goal striving, implicit motivational needs, how subjective well-being is shaped by the interplay between personal goals and implicit motives, and collaborative and self-regulated learning at school. The Festschrift also provides in-depth accounts of how Brunstein’s research interests came about and developed over the course of his career.