Self-Regulation of Conformity

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Abstract

Conformity is an important force that keeps groups together and facilitates communication, but potentially has detrimental effects for the individual. Only a limited amount of research has focused on strategies and interventions that help reduce conformity. We investigated if the strategy of mental contrasting with implementation intentions (MCII) can be an effective tool to help regulate the tendency to conform to a majority and attain idiosyncratic goals despite deviant majority influences. In Study-set 1 (N = 1,156), we developed a computer-based paradigm and conducted five studies. Behavioral and self-report measures revealed that MCII (vs. three relevant control conditions) promotes the regulation of one's tendency to conform and paves the way for attaining one's own goal despite deviant majority influence. In Study-set 2 (N = 452), we conducted two studies in a computer-based paradigm, which revealed that MCII (vs. two relevant control conditions) with individually generated implementation intentions supported participants in regulating their tendency to conform and realizing their own goal. In Study-set 3 (N = 514), three studies demonstrated that MCII (vs. two relevant control conditions) helps regulate conformity by promoting the attainment of an idiosyncratic goal of becoming unique, that was subjectively acknowledged as being deviant from established norms or majority opinions. In sum, MCII is an effective tool to regulate the tendency to conform and supports the attainment of individual goals despite deviant majority influence.

Keywords: conformity, uniqueness, self-regulation, mental contrasting with implementation intentions (MCII)

Self-Regulation of Conformity

> Imagine there is a talk in your department and your colleagues insist that you join them. However, you urgently have to finish an important paper. What will you do? Will you decline and stick to your goal of finishing the paper? Or will you conform and join your colleagues at the talk?

In our everyday lives, we are constantly exposed to social influences. Newspaper ads, television commercials, direct requests, salespeople and even politicians sway our opinions, decisions, and behaviors. Social influence is defined as the way people are affected by the real or imagined pressure of others (Allport, 1935; Cialdini & Goldstein, 2004); this occurs consciously but can also occur non-consciously and automatic. Social influence often causes us to change or adapt our attitudes and behaviors so they are in line with group norms. When this occurs, it is deemed as conformity (Cialdini & Goldstein, 2004; Kim & Hommel, 2015).

Conformity can have beneficial effects for the group, as well as for the individual. It keeps groups together, facilitates communication, and provides social norms and rules that are essential for society and a peaceful coexistence. Especially when being insecure, conforming to other people's behavior can help the individual to engage in correct behaviors (e.g., Bond & Smith, 1996). Nevertheless, conformity can have detrimental and even harmful effects for the individual, for example, when an individual engages in conform behaviors, despite this being disadvantageous or incorrect (e.g., casually following other people across the street despite red traffic lights; Zhou, Horrey, & Yu, 2009). Furthermore, conformity conflicts the human need for uniqueness and individuation (Hornsey & Jetten, 2004). Being too similar to others evokes aversive feelings within the individual, causing the individual to strive for a reconciliation of uniqueness and distinction (Brewer, 1991; Snyder & Fromkin, 1980). Nevertheless, social influence is a strong force that leads people

to conform, even when this conformity behavior contradicts their need to be unique as well as their own goals and wishes. Referring to the example in the beginning, joining colleagues at the talk (i.e., conforming) may lead to the disregard of finishing the paper (i.e., overlooking one's own goal).

Thus far, little research has focused on how individuals may regulate the tendency to conform, especially in situations where a majority or social norms contradict personal goals. With regard to these conflicting situations, we investigated if and to what extent individuals can resist the tendency to conform to the social influence of a deviant majority and instead stick to their own goal. We used the self-regulation strategy of mental contrasting with implementation intentions (MCII; Oettingen, 2012) to support individuals in reducing conformity in the face of majority influence and thus in attaining their individual goals when being exposed to deviant majority influence.

Conformity

Human beings are social animals and depend on society for safety and well-being (e.g., Brewer, 1991; Hornsey & Jetten, 2004; MacDonald & Leary, 2005). To profit from the benefits of safety and well-being people often conform to others. Conformity describes the tendency to change one's perceptions, behaviors, or opinions to match the response of others (Cialdini & Goldstein, 2004). Conformity can occur non-consciously or consciously. For example, non-conscious conformity occurs when people mimic other people's motor behavior such as touching the face or shaking the food (Chartrand & Bargh, 1999). This can be such an automatic process that, when asked for it, people may even deny being influenced by others (Hornsey & Jetten, 2004). Conscious conformity, for example, occurs when people go along with a group to meet the expectations of others (e.g., Asch, 1956), such as joining colleagues at the talk even though one wants to finish the paper.

But why do people non-consciously or consciously conform to others? In the following, we will illuminate reasons why conformity occurs.

Reasons for Conformity

An ample amount of studies have focused on reasons why conformtiy occurs (review by Cialdini & Goldstein, 2004). They identified *accuracy-oriented goals* and *affiliation-oriented goals* as the two core motives. Both motivate people to conform and act in service of protection of their self-esteem (e.g., Cialdini & Goldstein, 2004; Cialdini & Trost, 1998).

Goal of accuracy – The need to be right. People adapt their behaviors to those of others when facing uncertainty, when striving to get an accurate idea of reality, or when having the desire to behave correctly (*informational influence*; Deutsch & Gerard, 1955). Thus, when people conform for accuracy goals, they use other's judgments as a more or less trustworthy source of information about the "real" value of the object under consideration (e.g., Deutsch & Gerard, 1955; Erb & Bohner, 2007; Festinger, 1954). Following established social norms results in confidence about the correctness, appropriateness, and social desirability of that behavior (David & Turner, 1996).

Individual attitudes and opinions can converge to group norms over time and personal norms can be discarded if they are in conflict with the norms of others. In his experiment, Sherif (1936) exposed groups of participants to an ambiguous stimulus situation. While sitting in a dark room, they had to indicate the assumed movement of a light spot (*autokinetic effect*). Participants received the statements of others; they used this as a source of information about the correct value of the movement of the light spot and gradually adapted their answers to those of others (Sherif, 1936). Thus, the need to be right eventually caused them to conform to others.

So why do people conform for accuracy-oriented goals? The perception of the level of consensus determines how people react to the attitudes of others. High consensus (i.e., a

majority) is often perceived as a cue to what is likely to be correct. It is accepted as an objective reality (Deutsch & Gerard, 1955) or as a social proof (Cialdini, 1993), representing the "objective consensus" (Mackie, 1987), and therefore potentially is a source of safety and well-being (e.g., Deutsch & Gerard, 1955; Imhoff & Erb, 2009). Thus, people conform as they privately accept that the majority is correct and change their attitude accordingly and persistent over time. When this occurs, it is deemed as conversion (Moscovici, 1980).

Goal of affiliation – The need to belong. People also adapt their attitudes and behaviors to those of others to obtain social approval, to meet other's expectations, and to avoid sanctions or even punishment for being deviant (*normative influence*; Deutsch & Gerard, 1955, Levine, 1989). It can be explained by people's drive to form and maintain positive and lasting interpersonal relationships (review by Baumeister & Leary, 1995). Thus, conforming helps to satisfy the need to align personal attitudes with the attitudes of valued others (e.g., Deutsch & Gerard, 1955). People with affiliation goals avoid behaving in ways that may result in social exclusion, disapproval, or even punishment as this leads to negative affect and emotional distress. This, in turn, can lead to a lowered self-esteem, as well as give people the impression of having less control and loosing their sense of belonging (e.g., Baumeister, Brewer, Tice, & Twenge, 2007; Baumeister & Leary, 1995; Gerber & Wheeler, 2009; Williams, Cheung, & Choi, 2000). Accordingly, people oftentimes conform to group behaviors, even when this is obviously incorrect.

In his seminal experiments on conformity, Asch (1951, 1956) invited participants to take part in a simple visual discrimination task, in which they had to make judgments about the relative lengths of line segments. It turned out that participants frequently chose the incorrect answer when a group of peers previously had chosen that incorrect answer, even though this was obviously incorrect. Thus, the need to belong to others can result in

conformity: People may publicly change their behavior, but do not privately accept and thus adopt others' attitude or behaviors for themselves (e.g., Asch, 1956; Deutsch & Gerard, 1955). When this occurs, it is deemed as compliance (Moscovici, 1980).

The existing literature on conformity primarily upholds the distinction between accuracy- and affiliation-oriented goals (the two motivational factors). However, these factors are mostly interrelated and therefore not clearly separable from each other, neither theoretically nor empirically (e.g., Asch, 1956; Berns et al., 2005; Cialdini & Goldstein, 2004; Cialdini & Trost, 1998; David & Turner, 2001; Deutsch & Gerard, 1955). Both, accuracy- and affiliation-oriented goals can act in service of protecting one's self-esteem (e.g., Cialdini & Goldstein, 2004; Cialdini & Trost, 1998).

Goal of protecting one's self-esteem. People conform to other's attitudes or behaviors for accuracy- and affiliation-oriented goals because they aim to enhance, protect, or repair their self-esteem. People have a basic desire to evaluate themselves positively and to feel good about who they are (e.g., Cialdini & Trost, 1998; Leary, 1995); thus they avoid behavior deviating from the group as this could lead to social exclusion and subsequently have negative consequences for their self-esteem (Cialdini & Goldstein, 2004). That is, low self-esteem (vs. high self-esteem) leads to an increased susceptibility to social influence, as people are insecure about the accuracy of their attitudes (i.e., the need to be right) or because people are concerned about others' validation (i.e., the need to belong; Arndt, Schimel, Greenberg, & Pyszczynksi, 2002; Brockner, 1988). Accordingly, people are less likely to conform to others' statements, when they previously focused on an internal source of their self-worth (e.g., a self-attribute, such as values or hobbies), compared to people who focused on an external source of self-esteem (e.g., achievement, such as winning prize in sports) or who did not engage in thoughts concerning their self-esteem (Arndt et al., 2002).

In summary, the reasons underlying conformity are the need to behave correctly and to get an accurate idea of reality (i.e., informational influence), as well as the need to belong and to avoid social exclusion or rejection (i.e., normative influence; e.g., Cialdini & Goldstein, 2004). By conforming, people protect or enhance their self-esteem, since avoiding to be excluded prevents negative consequences such as emotional distress (e.g., Baumeister & Leary, 1995; Cialdini & Goldstein, 2004). Thus far, we elucidated underlying reasons for conformity. In the following, we will focus on factors that affect the magnitude to which conformity occurs.

Factors Influencing the Level of Conformity

The magnitude of people's tendency to conform to a group's attitude or behavior is influenced by various situational and personal factors. In the following, we will specifically elucidate the factors of group size, i.e., group majorities, task difficulty and importance, as well as the context in which conformity can occur, as these are of relevance for the present research.

Impact of group majorities. Especially group majorities can exert strong social influence on the individual. Research has identified numerous processes that explain influence induced through majorities. We focus only on the aspects of self-categorization, conflict, and magnitude of consensus on information processing (review by Erb & Bohner, 2002), as these are of interest for the present research.

Self-categorization influences conformity. The need to be in line with the majority initially depends on how similar people see themselves to the majority members (*self-categorization theory*; Turner, 1985, 1991). People have therefore been found to be more likely to conform to majority groups or communities when they are viewed as an in-group (i.e., shared social identity) than to other groups (i.e., an out-group). Accordingly, in-group members are able to exert influence on the individual, whereas influence by out-group

members can be easily refuted (e.g., Crano, 2001; David & Turner, 1996, 2001). Especially when shared positions are a group-defining feature (e.g., political parties), group members have a strong tendency to conform, as holding a deviant position as the self-relevant group places the individual in an unpleasant situation (Erb & Bohner, 2007; Turner, 1991). Thus, self-categorization theory points out that people are likely to conform to a majority when this majority belongs to a self-relevant group.

Conflict influences conformity. The confrontation with a deviant majority position leads to a "comparison process" within the individual (*conversion theory*, Moscovici, 1980). The individual compares his or her own position with the group's position and accordingly faces a social conflict, which primarily deals with the question why the majority holds a different position. The individual solves the arising conflict by adapting to the majority and publicly accepting that position (i.e., compliance). The individual focuses mainly on the social consequences that are associated with holding a different position from the majority; less focus is given to the content information regarding the object under consideration. Accordingly, private acceptance of the majority position is oftentimes absent (i.e., conversion, Moscovici, 1980). Thus, conversion theory points out that people are likely to conform to a majority in order to solve the social conflict of holding a deviant position to the majority.

Information processing influences conformity. The perceived magnitude of consensus (i.e., position hold by a majority vs. a minority) defines how people react to positions held by a group. Research has shown that people differently process information when this information is supported by either a majority (i.e., high consensus) or a minority (i.e., low consensus). That is, consensus about an information determines the meaning of that information for the individual (Allen & Wilder, 1980). For example, when participants hold no prior opinion on an issue, a high consensus evokes a more positive response to that

issue than low consensus (Erb, Bohner, Rank, & Einwiller, 2002; Erb, Bohner, Schmälzle, & Rank, 1998). However, findings with regard to the exact mechanisms of information processing elicited by majority influence are somewhat inconsistent. It is suggested that additional situational cues may influence how information is processed (e.g., Erb et al., 2002; Mackie, 1987; Moscovici, 1980; Moscovici & Personnaz, 1980; review by Kruglanski & Mackie, 1990). To sum up, a majority (i.e., high consensus) is generally rated positively because it leads to a perception of commonality (e.g., having the same attitude towards an idea or an object leads to perceived social identity) and solidarity. Accordingly, individuals conform to group majorities as they expect negative consequences when behaving differently (Levine, 1989).

Impact of task difficulty and importance on conformity. Research has shown that the tendency to conform increases with increasing task difficulty (e.g., Deutsch & Gerard, 1955; Rosander & Eriksson, 2012). In their studies, Baron and colleagues (1996) found that the importance people give to a task and consequently their incentive for accuracy influences their tendency to conform. When the incentive for accuracy was low, participants showed moderate levels of conformity in both the easy and difficult tasks. However, when the incentive for accuracy was high, participants presented with an easy task showed less conformity. The reverse was true for difficult tasks: When incentive for accuracy was high, participants showed an increased tendency to conform.

Impact of social context on conformity. Early research on conformity was primarily conducted via face-to-face interaction (e.g., Asch, 1956; Deutsch & Gerard, 1955; Sherif, 1936). Within the last decades, computer-mediated communication (CMC) has evolved rapidly and became an omnipresent part of everyday life, with an increasing impact on people's professional and social life. In line with this development, research on conformity shifted to an exploration in CMC (e.g., Bak & Kessler, 2012; Bargh &

McKenna, 2004; Cinnirella & Green, 2007; McKenna & Bargh, 1998; Riva, 2002; Smilowitz, Compton, & Flint, 1988; Williams et al., 2000).

On the one hand, research has shown that the effects of conformity *decrease* in the context of CMC, compared with face-to-face interactions (e.g., Cinnirella & Green, 2007; Smilowitz et al., 1988). This was attributed to CMC providing a sense of anonymity and thus the apparent reduction of social cues, which then may lead to deindividuation (i.e., feeling indistinguishable from others; Cinnirella & Green, 2007; McKenna & Green, 2002; Smilowitz et al., 1988; Zimbardo, 1969). On the other hand – and especially relevant for the present research – other studies have found that conformity *increases* in the context of CMC, i.e., anonymity and deindividuation can lead to enhanced conformity. According to the SIDE model (Social Identity of Deindividuation; Spears & Lea, 1992), an anonymous situation increases the salience of a group identity *if* a group identity is available. In that case, an individual behaves conform to the norms connected to that group's identity (Jetten, Postmes, & McAuliffe, 2002; Postmes & Spears, 2002; Postmes, Spears, & Lea, 1999; Rogers & Lea, 2005; Rosander & Eriksson, 2012; Sassenberg & Boos, 2003).

In summary, the factors of group size, i.e., a majority, task difficulty and importance as well as the social context influence people's tendency to conform. By conforming, people satisfy their need to be right and their need to belong. However, this conflicts another human drive, which is the need to feel unique and distinct.

Divergent Needs: Conformity and Uniqueness

Even though people have the inherent need to belong to a group, they also have the need to feel distinct from others or an anonymous mass (optimal distinctiveness theory; Brewer, 1991; Lynn & Snyder, 2002; Snyder & Fromkin, 1980; review by Hornsey & Jetten, 2004). According to Snyder and Fromkin (1980), the need for uniqueness is a strong and continuous psychological force that is essential to people's well-being. They describe it

as a state in which the person feels indistinguishable from others and that motivates compensatory actions to reestablish the person's sense of uniqueness when it is threatened by others. People who are deprived of feeling unique are encouraged to exhibit behaviors that they assume to be unique about themselves (e.g., Brewer, 1991; Hornsey & Jetten, 2004; Maslach, Stapp, & Santee, 1985; Vignoles, Chryssochoou, & Breakwell, 2002; Zimbardo, 1969).

The need for uniqueness is seen as a universal strive, but its magnitude and connotation differs between cultures. In individualistic cultures (e.g., United States, Germany), the term uniqueness is viewed positively and describes distinctiveness and differentiation. In collectivistic cultures (e.g., China, Malaysia), by contrast, similarity it perceived as more positive as it gives a feeling of connectedness with other; uniqueness primarily implies a singular contribution of the individual to the functioning of the group as a whole (Kim & Markus, 1999). Further, people differ in the magnitude of their desire to be unique (e.g., Brewer, 1991; Kim & Markus, 1999; review by Hornsey & Jetten, 2004). The need for uniqueness is not seen solely as a trait but also as a state. Specific situational conditions (e.g., a majority group) may give people a feeling of being too similar and fail to satisfy their need for uniqueness. This, in turn, encourages people to regain uniqueness and motivates them to engage in compensatory actions (Brewer, 1991; Hornsey & Jetten, 2004; Snyder & Fromkin, 1980).

Within the literature, different terms are used to describe the same phenomenon: uniqueness, differentiation, and individuation. Although the exact relation between these three concepts is not well understood, all three lines of research converge at the conclusion that people experience a need for uniqueness under specific conditions, and that this need encourages a re-establishment of a sense of uniqueness (e.g., Brewer, 1991; Imhoff & Erb, 2009; Maslach et al., 1985; Snyder & Fromkin, 1980).

Accordingly, one may ask why people conform to other's behaviors or attitudes, *although* they have the countervailing need to be unique. Why do people sometimes disregard their own needs and goals when facing deviant majority influence? The social pressure exerted by others, especially by majorities, is sometimes perceived as so intense that it outweighs the people's need for uniqueness (e.g., Hornsey & Jetten, 2004, 2005). Thus, it causes people to go along with the majority even though this potentially contradicts people's individual goals or implies detrimental or harmful effects for people's well-being.

Detrimental Effects of Conformity for the Individual

Conformity as well as neglecting one's need for uniqueness can have detrimental effects on the individual (review by Lynn & Snyder, 2002). For example, the pressure of conformity can result in concurring with false information (Asch, 1956). Even worse, it may cause people to engage in dangerous situations. For instance, peer pressure, a form of conformity, strongly predicts risky behaviors in adolescents, such as substance use (e.g., alcohol, hard drugs), delinquent behavior, dating attitudes and sexual behaviors (e.g., number of sexual partners; Santor, Messervey, & Kusumakar, 2000). Even in adulthood conformity can lead to potentially dangerous behaviors, such as casually following other people crossing a street despite red traffic lights or extensive alcohol use when going out with a group of peers (e.g., Bearden, Rose, & Teel, 1994; Zhou et al., 2009)

Conformity and social influence in its extremes can even result in obedience, which describes behavior change induced by direct requests of authority, leading to public acceptance (e.g., Nail, MacDonald, & Levy, 2000). For example, during World War II and other totalitarian (and demagogic) movements, people followed and conformed to the cruel orders given by authority (e.g., Arendt, 1973). In his seminal experiment, Stanley Milgram (1963) found similar incidents. He observed that at least some participants instructed to deliver electric shocks of increasing intensity to another participant (accomplices) would do

so, whenever these failed to give the correct answer during a learning memory task. Interestingly, a current study replicated the results, showing that these effects appear to be timeless (Burger, 2009). Even though this is an extreme form of how people follow and conform to others' orders, it still demonstrates the power of social influence. Social influence in these terms probably cause conformity and obedience as people may want to avoid negative consequences for themselves, such as social exclusion or being punished.

In summary, conforming to group majorities can have beneficial effects under certain circumstances, yet in other instances can have detrimental effects for the individual. It, therefore, seems important to focus on strategies or interventions that can support people in identifying and subsequently regulating their tendency to conform to group majorities when this potentially contains negative consequences for their personal aims and goals.

Regulation of Conformity

Despite the many potentially detrimental effects of conformity, very little research has focused on strategies and interventions that aimed to reduce conforming behavior. Research by Arndt and colleagues (2002) relied on people's motivation to enhance and protect their self-esteem as a tool to combat the tendency to conform. In one condition participants were asked to think about an inner trait of their self-worth (i.e., an unchanging, inner quality that made them feel good about themselves), such as their values and hobbies. In another condition, participants were asked to think about an external source of self-esteem, a personal achievement (i.e., something they had achieved that made them feel good about themselves), such as winning a prize. Participants who had thought about an inner trait of their self-worth were less likely to adapt their opinions to the majority, compared to those who thought about an external source of self-worth. This approach to protect people's self-esteem may be effective to make them generally less susceptible to other's opinions and perceptions. But majority opinion can also influence the individuals' behaviors, specifically

exerting pressure that diverts people from successful goal pursuit. Examining how to support individual goal striving despite deviant majority opinion therefore seems a worthwhile endeavor.

A different approach to reduce conform and elicit non-conform behaviors was used by Imhoff and Erb (2009), who investigated the concept of uniqueness as a motivator of non-conformity (i.e., any behavior that is not conform to a majority; Maslach et al., 1985; Nail et al., 2000). Especially in Western societies (e.g., United States, Germany) feelings of uniqueness have been linked to greater person's well-being (e.g., Brewer, 1991; Lynn & Snyder, 2002; Snyder & Fromkin, 1980). Individuals are specially motivated to behave in non-conform ways if there are other persons who are highly similar to them and thus threaten the individual's perception of uniqueness. Imhoff and Erb (2009) observed that participants with a high need for uniqueness conformed less with a majority of a reference group when they received bogus feedback about being highly similar to this majority.

Similar results were observed in a study conducted in online social networks, in which participants were asked to indicate their choice of wall colors. The experimenter informed participants about the colors' popularity among the participant's friends or among all internet users. They found that when friends picked a specific color, participants were less likely to choose the same color. Thus, participants were less likely to conform to a majority of friends than to the general population of internet users. Participants further decreased in conformity to their friends, when they were told that their choices were visible among their friends (Sun, Zhang, & Zhu, 2016).

While threatening people's sense of uniqueness and enhancing the salience of their sameness to others may be successful in reducing conforming behavior, those require an external prompt, such as feedback from others about one's current behavior. That is, in order to reduce conforming behavior, one must recognize that one has the tendency to conform,

rather than following one's individual goal and thus one's need to be unique. But people often conform without consciously realizing it, and even deny having been influenced by others (e.g., Bargh, Schwader, Hailey, Dyer, & Boothby, 2012; Chartrand & Bargh, 1999; Hornsey & Jetten, 2004, 2005). Accordingly, people often fail to identify their tendency to conform, which hinders them from attaining their idiosyncratic goal.

So how could one possibly help people to identify their tendency to conform as an obstacle that hinders them from achieving their individual goal? How can one support people in goal striving when facing a deviant majority? In the present research, we test the self-regulation strategy of mental contrasting with implementation intentions (MCII) as an effective strategy in helping people to regulate their tendency to conform, therefore paving the way for attaining their own goal despite deviant majority influence.

Mental Contrasting With Implementation Intentions (MCII)

Mental Contrasting

Fantasy realization theory (Oettingen, 2000, 2012) states that mental contrasting (MC) is a problem-solving strategy that fosters selective behavior change. When people mentally contrast, they first positively fantasize about a wished-for future (e.g., finishing a paper by tomorrow) and then imagine the obstacle in the present reality that stands in the way of realizing the envisioned future (e.g., joining colleagues for a talk in the department). By elaborating these, the future and the reality are cognitively linked, thus revealing that action needs to be taken in the current reality to attain the desired future (e.g., skipping the talk and writing the paper). When mentally contrasting, expectations of successfully attaining the future and overcoming the obstacle become activated. When expectations are high, mental contrasting leads to strong goal commitment and effort (e.g., exclusively focusing on writing the paper); when expectations are low, mental contrasting leads to weakened goal commitment and effort, allowing people to let go of unfeasible wishes (e.g.,

joining colleagues and enjoy the talk). Importantly, mental contrasting does not change a person's expectation of success, it activates relevant expectations for goal commitment and pursuit (Oettingen, Mayer, & Thorpe, 2010; Oettingen, Mayer, Thorpe, Janetzke, & Lorenz, 2005; Oettingen, Pak, & Schnetter, 2001). A range of studies underlines the beneficial effects of mental contrasting on goal pursuit and behavior change. Mental contrasting fosters behavior change across different life domains, ages, and cultures, for short-term as well as long-term goals, and for different indicators (e.g., cognitive, emotional, behavioral; review by Oettingen, 2012, 2014).

Fantasy realization theory states three additional modes of thought: indulging, dwelling, and reverse contrasting. When people indulge, they identify and fantasize only about having attained the wished-for future. They enjoy the future in the here and now, but ignore possible obstacles of the present reality. Accordingly, they fail to realize the need to act to attain the positive future. When people dwell, they solely think about the present reality. They disregard the wished-for future so that this mode of thought gives no direction of where to go. When people reverse contrast they first think about the obstacle in the present reality and then envision the desired future afterwards. Thus, people do the same as in mental contrasting, but in a different order. However, in reverse contrasting the future does not function as the anchor against which the present reality is contrasted; the reality is not be perceived as an obstacle on the way to the positive future.

In these three modes of thought, i.e., indulging, dwelling, and reverse contrasting expectations of success are not activated and thus expectancy dependent behavior change is not induced, as in mental contrasting (review by Oettingen, 2012).

Mechanisms. Previous research has identified three mechanisms that explain the effects of mental contrasting on behavior change: cognitive mechanisms, motivational mechanism, and responses to setbacks.

Cognitive mechanisms. Mental contrasting leads to future-reality associations, which depend on expectations of success. When expectations of success are high, future-reality associations are strengthened (A. Kappes & Oettingen, 2014). Furthermore, mental contrasting leads to associations between the obstacle in the present reality and instrumental means to surmount the obstacle, depending on expectations of success. When expectations of success are high, the association between the obstacle and the instrumental means are strengthened (A. Kappes, Singmann, & Oettingen, 2012). Finally, mental contrasting changes the meaning of reality. When expectations of success are high, the reality is interpreted as an obstacle that needs to be overcome to attain one's goal. Furthermore, mental contrasting supports the detection of the obstacle itself (A. Kappes, Wendt, Reinelt, & Oettingen, 2013).

In summary, after mental contrasting, the present reality is cognitively linked to the positive future, the present reality is perceived as an obstacle standing in the way of the positive future, which is linked to instrumental means to surmount the obstacle. Importantly, these cognitive mechanisms mediate the effect of expectations of successfully attaining the goal on goal commitment and goal pursuit.

Motivational mechanism. The motivational mechanism mediating the effect of mental contrasting on behavior change is energization. When expectations of success are high, people are more energized, measured by both physiological and self-report measures (Oettingen et al., 2009). Changes in energization mediate the effects of mental contrasting on behavior change. Other modes of thought do not elicit any change in energization (Oettingen et al., 2009).

Response to setbacks. Negative feedback often entails useful information regarding the goal progress but it is mostly perceived as threatening and people oftentimes fail to process it (Audia & Locke, 2003). Studies have shown that mental contrasting supports the

processing of negative feedback. When expectations are high, mental contrasting supports people to learn from negative feedback and to generate constructive plans. Specifically, those who mentally contrast (vs. relevant control conditions) are more receptive to negative feedback and in turn build plans that are beneficial for goal pursuit. Thereby, mental contrasting promotes the perception of negative feedback in a self-protective way (H.B. Kappes, Oettingen &, Mayer, 2012).

Implementation Intentions

Implementation intentions (Gollwitzer, 1993, 1999, 2014) are plans that support goal pursuit by provoking automatic goal-directed responses when a specific situation is encountered. Implementation intentions come in the form of "*If* I face situation X, *then* I will perform goal-directed behavior Y!", thus explicitly specifying when, where, and how one wants to act towards realizing one's goal. Implementation intentions have been shown to effectively promote goal striving across many life domains (meta-analysis by Gollwitzer & Sheeran, 2006)

Effective goal striving. There are four main challenges of goal striving, which implementation intentions have proven to effectively deal with. First, implementation intentions help initiate goal pursuit; opportunities to get started are no longer passed up (e.g., Sheeran & Orbel, 2000). Second, implementation intentions protect the ongoing goal pursuit from distractions; even in the face of temptations or disruptions, implementation intentions help to stick to the focal goal (e.g., Achtziger, Gollwitzer, & Sheeran, 2008; Loft & Cameron, 2013). Third, implementation intentions help people disengage from ineffective means and unattainable goals; alternative more effective means to reach one's goals are found and more feasible goals are regarded (e.g., Wieber, Thürmer, & Gollwitzer, 2014c). Finally, implementation intentions promote automated goal striving so that people do not

need to invest high levels of effort, thereby preventing ego-depletion (Bayer, Gollwitzer, & Achtziger, 2010; Gollwitzer, 2014).

Processes. Implementation intentions facilitate the attainment of one's goal through mechanisms, which relate to the prospected situation (specified in the if-part) and the mental link built between the if-part and the specified goal-directed behavior (then-part; Gollwitzer & Oettingen, 2011). Specifically, when formulating implementation intentions, one selects a critical future situation, whereby the mental representation of that situation becomes highly activated and subsequently more accessible (Gollwitzer, 1999). A strong associative link between the mental representation of the critical future situation and the mental representation of the determined response is built (Webb & Sheeran, 2006, 2007). This link ensures that the critical situational cue within the if-part activates the mental representation of the specified response contained in the then-part. This leads to an exhibition of features of automaticity in goal-directed behavior (i.e., immediacy, efficiency, no need of conscious intend, and autonomy; *strategic automaticity*, Gollwitzer, 1999).

Implementation intentions have been shown to be effective in various life domains (reviews by Gollwitzer, 1999, 2014; Gollwitzer & Sheeran, 2006). However, to benefit from implementation intentions, three conditions have to be met. First, people need to be fully determined to attain their goal (Sheeran, Webb, & Gollwitzer, 2005). Second, people need to specify the critical situation (if-part), and, third, people need to specify the goal-directed behavior (then-part). Mental contrasting meets these requirements: It evokes determined goal pursuit, highlights the critical situation (obstacle) and links this to a behavior to surmount the obstacle (goal-directed action). Thus, mental contrasting and implementation intentions complement each other. Indeed, mental contrasting with implementation intentions (MCII) has been found to be more effective than either of the strategies alone

(Adriaanse et al., 2010; Kirk, Oettingen, & Gollwitzer, 2013; Oettingen, 2012, 2014; Oettingen & Gollwitzer, 2010).

Using MCII to Regulate Conformity and Promote Uniqueness

MCII has been shown to strengthen goal pursuit and goal attainment. Social pressure in the form of majority influence can be a strong force that distracts people from attaining their goals; thus MCII should help people to regulate their tendency to conform and pave their way to goal attainment despite deviant majority influence (i.e., promoting uniqueness).

MCII captures three significant aspects, which relate to conformity behavior. First, mental contrasting promotes the identification of the obstacle in the present reality and subsequently the re-categorization of the reality as an obstacle to the desired future (A. Kappes et al., 2013). Therefore, MCII should make people aware of their tendency to conform to the majority; realizing that this is the obstacle that holds them back from attaining their goal. Secondly, mental contrasting strengthens the association between reality and the instrumental means to deal with that obstacle of reality (A. Kappes et al., 2012). When participants are made aware of their tendency to conform to the majority as the obstacle, it should be easier for them to engage in behaviors that help them to surmount the obstacle. Thirdly, implementation intentions help to overcome the difficulties of attaining one's goal (Gollwitzer, 1999). When people face uncertainty and they may tend to defer to the majority for guidance (i.e., if-part), implementation intentions can help them stick to the behavior they had previously decided upon when facing the obstacle (i.e., then-part).

As for the initial example of joining the group of colleagues at the talk or write on the paper, MCII should help identify the obstacle holding one back to attain the goal of writing the paper. That is, one realizes that it is one's tendency to conform to the group by joining them at the talk in order to prevent getting left out. Secondly, MCII should help to specify a behavior to surmount the obstacle. That is, for example, ignoring the colleagues'

behavior and thus regulating one's tendency to conform. Thirdly, MCII should help to overcome difficulties of goal attainment. That is, even when colleagues consistently try to persuade to follow at the talk, one should focus on, for example, writing the next paragraph of the paper. In summary, we suggest that MCII is an effective tool to support people in identifying and subsequently regulating their tendency to conform and attain their own goal despite a deviant majority.

The Present Research

We investigated if the self-regulation strategy of MCII can be an effective tool to support people resisting their tendency to conform to a majority, and thus to pave the way for realizing one's own goal despite a deviant majority. To test the effectiveness of MCII we conducted three Study-sets. In Study-sets 1 and 2, we experimentally exposed participants to deviant majority influence. In Study-set 3, we asked participants to name an idiosyncratic goal of uniqueness, which they subjectively acknowledge as being deviant from the majority norms.

In Study-set 1, consisting of five experimental studies (N = 1,156; Mechanical Turk participants), we consulted a computer-based paradigm to exemplify conformity behavior. The aim was to investigate if the self-regulation strategy of MCII (vs. three relevant control conditions) can be an effective mode of thought to regulate people's tendency to conform to a majority and support them in realizing their own goal despite a deviant majority.

In Study-set 2, consisting of two experimental studies (N = 452; Mechanical Turk participants), we aimed to confirm and extend our findings from the first Study-set. While participants in Study-set 1 were instructed to elaborate on a specific wish and obstacle and to follow an if-then plan, specified by us, participants in Study-set 2 specified their own if-then plans. We tested if participants who mentally contrasted and applied individual if-then

plans (vs. two relevant control conditions), would regulate their tendency to conform in the computer-based paradigm and are more likely to attain their goal.

In Study-set 3, consisting of three experimental studies (N = 514; Mechanical Turk participants), we sought to extend our findings by investigating if the results from the first two Study-sets were transferable to a different context. Specifically, we consulted MCII (vs. two relevant control conditions) as a strategy that supports people in realizing idiosyncratic wishes of uniqueness, which participants subjectively acknowledge as being unusual, or deviant from the majority. The ethical review committee of the Faculty of Psychology and Human Movement Science of the University of Hamburg approved all studies reported in this dissertation thesis.

Study-set 1: Self-Regulation of Conformity on the Internet – Specific Plan

In five experiments (N = 1,156; Mechanical Turk participants), we tested if the strategy of MCII can be effectively used to regulate the tendency to conform and thus help attain one's own goal despite deviant majority influence. First, we developed a paradigm that reliably induced conformity in participants. With this paradigm, we were subsequently able to investigate if MCII is an appropriate strategy to regulate one's tendency to conform to a majority.

Pilot Study: Establishing the Paradigm

To develop a paradigm that reliably induces conformity, we consulted a study design by Rosander & Eriksson (2012). In that study, they asked participants to answer knowledge and logic questions in a computer-based context. Half of the participants were subjected to a conformity manipulation: Participants were presented diagrams that claimed to show how other internet users had answered the questions previously. The diagrams showed a majority of people choosing one particular *incorrect* answer (e.g., answer 2 out of five). The other half of the participants were in a control condition and were not exposed to such diagrams.

Rosander and Eriksson (2012) observed that participants in the conformity condition more often chose the particular incorrect answer per question indicated by the majority (e.g., answer 2 out of five), than participants in the control condition choosing the same incorrect answer (e.g., answer 2 out of five). That is, the authors compared the one incorrect answer between the conformity and the control condition, whereas the only difference between the conditions was the presentation of a diagram showing a majority choosing this one particular incorrect answer. Thus, it was observed that the presentation of the diagrams was successfully able to induce conformity in the participants.

In the present research, we adjusted this computer-based paradigm for the need of our study. We asked participants to answer logical reasoning items, which were taken from the *Standard Progressive Matrices* (Raven, 1965), and were originally developed to assess non-verbal abstract reasoning. In the pilot study, we randomly assigned participants to a conformity and a control condition. Similar to Rosander and Eriksson (2012), we hypothesized that participants in the conformity condition would more often choose this incorrect answer per question that was indicated by the supposed majority (i.e., conforming), than participants in the control condition choosing the same incorrect answer per question.

Method

Participants. We recruited 62 participants online using Amazon's Mechanical Turk (MTurk), of which 47% were women. Their ages ranged between 20 and 75 years, with a mean of 37.56 (SD = 14.21). Participants were randomly assigned to either the conformity (n = 31) or the control condition (n = 30). There were no significant differences between the conditions regarding participants' age or gender (all ps > .05).

Materials and procedure. Participants were informed about the procedure of the study and completed an informed consent.

Social identification. To ensure a feeling of shared social identity with the majority (i.e., other MTurk participants), we presented participants with a cover story. We stated that the survey was designed to compare the cognitive abilities of people who occasionally deal with social psychology experiments (i.e., MTurk participants) and people who deal with economic problems (i.e., bankers). With this cover story, we aimed to engender a shared social identity with the other MTurk participants (i.e., the source of influence) as well as to make the in-group context salient. Following the cover story, participants worked on the logical reasoning task, were asked for their demographic data and were finally debriefed.

Logical reasoning task. The logical reasoning task consisted of eight items, which were taken from the *Standard Progressive Matrices* (Raven, 1965). We evaluated the difficulty level of eleven items with a short pre-test (n = 50). As the extent of conformity can depend on the level of difficulty of a given task (Baron et al., 1996; Deutsch & Gerard, 1955; Rosander & Eriksson, 2012), we chose eight items with varying difficulty. In the pre-test, the easiest item was correctly answered by 96% of the participants, while the hardest item was correctly answered by only 40%. Thereby, we could test which level of difficulty would reliably induce conformity but would still be easy enough for participants to answer correctly if they tried.

For each item, there were eight answer options, of which only one was correct. In both the control and the conformity condition, we presented diagrams below each of the logical reasoning items, claiming to show answers that previous MTurk participants had chosen. Diagrams in the control condition displayed equally distributed answers (see Figure 1). However, diagrams in the conformity condition showed one out of eight options that was more frequently chosen, thus representing a majority answer (see Figure 2). Answers shown in the diagram were represented in percentages; all answer options summed up to 100%.

Specifically, in the conformity condition five of the total eight items revealed diagrams representing a majority of MTurk participants choosing an *incorrect* answer (i.e., critical items). We defined the majority as a larger portion of the group; with the five items 48%, 58%, 59%, 72% and 76% of MTurk participants. The minority answers were distributed across the other seven answer options (each ranging between 0% and 8%). In order to avoid raising suspicion of a conformity manipulation (Stang, 1976) we included three (out of eight) items, which revealed diagrams representing a majority of MTurk participants choosing a *correct* answer (i.e., filler items). We presented all items in order of increasing difficulty (i.e., ranging from easy to difficult).

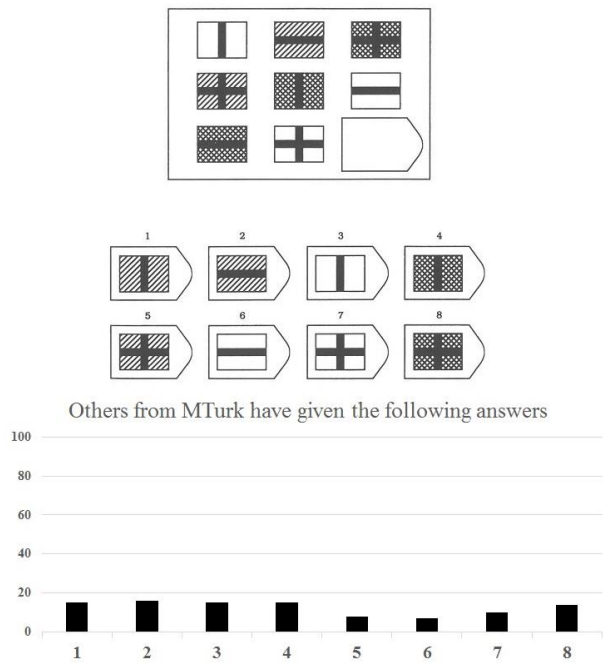

Figure 1. Example of logical reasoning task (Item 4) with the fabricated diagram shown to the control condition.

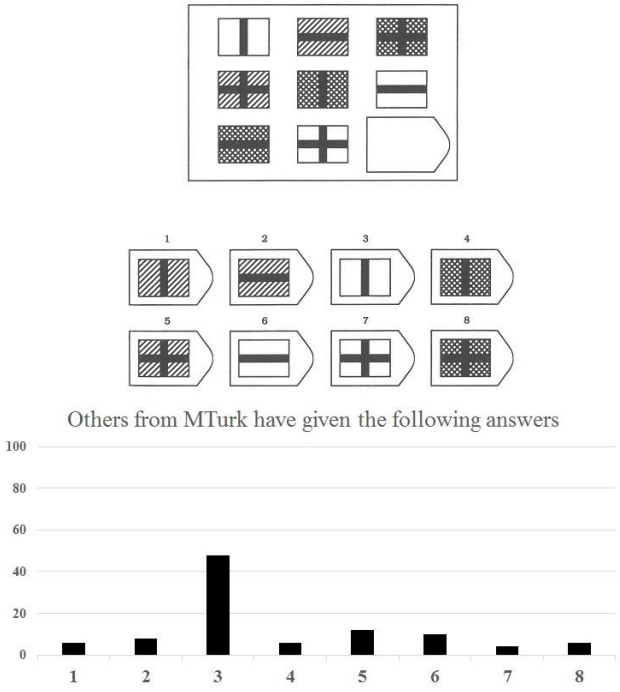

Figure 2. Example of logical reasoning task (Item 4) with the fabricated diagram shown to the conformity condition.

Results

Randomization check. There was no significant difference between the conditions with respect to all demographic variables, i.e., age, gender, country of birth, mother tongue, level of completed education, or employment status (all *p*s > .05).

Conformity on the logical reasoning task. In accordance with Rosander & Eriksson (2012), we only included the five critical items in the analysis[1]. As such, participants in the conformity condition were able to conform between zero and five times. We quantified conformity as the difference between the mean number of answers that agreed with the incorrect majority answers in the conformity condition and the mean number of the answers in the control condition being exactly the same incorrect answers.

We observed that participants in the conformity condition more often chose the incorrect answers indicated by the supposed majority ($M = 2.42$, $SD = 1.65$), than participants in the control condition choosing exactly the same incorrect answers ($M = 0.70$, $SD = 0.95$), $t(59) = 4.97$, $p < .001$, $d = 1.28$. Accordingly, we successfully induced conformity with the computer-based paradigm.

Discussion

With the challenging computer-based logical reasoning task, we exposed half of the participants to a conformity manipulation where we presented fabricated diagrams claiming to show a majority choosing one specific answer. We exposed the other half of the participants to a control condition where we presented fabricated diagrams claiming to show equally distributed answers. That is, there was no majority answer. We observed that participants in the conformity condition more often chose the incorrect answers that were indicated by the supposed majority, than participants in the control condition choosing

[1] We excluded the filler items from the analysis, as the majority answer and the correct answer were the same in the conformity condition. See Table 1 for mean values.

exactly the same incorrect answers. Thus, participants in the conformity condition were conform to the presented majority; our conformity manipulation was successful in the computer-based logical reasoning task.

Using this computer-based paradigm, we turned back to the main research question. In Studies 1.1 and 1.2, we tested if MCII (vs. no self-regulation strategy) can help participants regulate their tendency to conform and thus attain the goal of independently succeeding in solving the logical reasoning task despite deviant majority influence. In Study 1.3, we included an indulging control condition. Finally, in Study 1.4 and Study 1.5, we included the additional control condition reverse contrasting.

Study 1.1: Conformity: MCII vs. no Self-Regulation Strategy

In Study 1.1, we had four main hypotheses. First – replicating the findings of the pilot study – we hypothesized that participants in the conformity condition would more often choose the incorrect answers that were indicated by the supposed majority (i.e., conforming), compared to participants in the control condition who choose the same incorrect answers.

Second, we hypothesized that participants in the conformity condition would less often choose the incorrect answers that were indicated by the supposed majority when engaging in MCII (i.e., reducing their tendency to conform), compared to participants in the conformity condition engaging in no self-regulation strategy.

Third, we hypothesized that participants in the conformity condition would more often choose the correct answers when engaging in MCII (i.e., more likely to attain their goal of independently succeeding in solving the task), compared to participants in the conformity condition engaging in no self-regulation strategy.

Lastly, according to the SIDE model, we assumed a close connection between social identification with the source of influence (i.e., MTurk participants) and conformity: We

hypothesized that the more participants in the conformity condition socially identified themselves with the group of MTurk participants, the more they would show conformity. Thereby, we assumed that the effect of mode of self-regulatory thought (i.e., MCII vs. no self-regulation strategy) on social identification should be mediated by conformity.

Method

Power Analysis

We based our power analysis on previous studies investigating the effects of MCII versus relevant control conditions (e.g., d = 0.53-0.97: Christiansen, Oettingen, Dahme, & Klinger, 2010; d = 0.46-0.57: Duckworth, Kirby, A. Gollwitzer, & Oettingen, 2013; d = 0.65: Kirk et al., 2013). We expected a medium-to-large effect size (d = 0.65), which we applied to an a priori power analysis for four conditions within an ANOVA. The power analysis indicated that approximately 140 participants would be needed to achieve 90% power (1 - β) at a .05 alpha level (α = .05). To account for potential dropouts, we recruited 157 participants using MTurk. In total 20 participants were excluded because they indicated suspicion about the conformity manipulation (n = 15) or did not follow the instruction of the manipulation of self-regulatory thought (n = 5).

Participants

Our final sample consisted of 137 participants, of which 70% were women. Participants' ages ranged between 19 and 75 years, with a mean of age of 39.46 years (SD = 13.89). Participants were randomly assigned to one of the four conditions: conformity with no self-regulation strategy (conformity_NSR; n = 35), conformity with MCII (conformity_MCII; n = 31), control with no self-regulation strategy (control_NSR; n = 41) and control with MCII (control_MCII; n = 30).

Materials and Procedure

Participants completed the study on Qualtrics; they completed an informed consent form beforehand.

Social identification. We presented participants the same cover story as used in the pilot study. We explained that the survey was designed to compare the cognitive abilities of people who occasionally deal with social psychology experiments (i.e. MTurk participants) and people who deal with economic problems (i.e., bankers). Additionally, we asked participants for their social identification with the group of MTurk participants. We asked, "To what extent do you feel as part of the group of MTurk workers?", "To what extent do you identify yourself with the group of MTurk workers?" and "How important is it to you that your group obtains a good overall result?". Items were answered on 7-point Likert scales, ranging from 1 (*not at all*) to 7 (*very much*) and combined into one scale (α_{t1} = .83).

Next, we presented participants an example of the upcoming logical reasoning task. After this, all participants read a predetermined wish that focused on independently succeeding in solving the logical reasoning tasks. Participants read:

> Think about how nice it would be if you independently solved all of the following tasks successfully and could say to yourself: "Yes! I did it right!"

Expectation, incentive, and commitment. We assessed participants' incentive value, expectations, and commitment to the predetermined wish (i.e., "How important is it to you that you independently solve all of the following tasks successfully?", "How likely do you think it is that you independently solve all of the following tasks successfully?", "How disappointed would you feel if you did not independently solve all of the following tasks successfully?", respectively). The 7-point Likert scales ranged from 1 (*not at all*) to 7 (*very*).

Manipulation of self-regulation strategy. Participants were randomly assigned to the no self-regulation strategy or MCII condition. In the no self-regulation strategy condition participants were immediately directed to the logical reasoning task.

In the MCII condition, we asked participants to write down one positive aspect that they would associate with independently succeeding in solving the upcoming logical reasoning task. Participants read:

> What would be the best thing if you independently solved all of the following tasks successfully and could say to yourself: "Yes! I did it right!"? What would be the most wonderful thing about it?

For example, one participant named "I would feel accomplished". Next, participants were asked to mentally elaborate on the named positive aspect. Participants read:

> Now take a moment and imagine your best outcome. Imagine things fully. Please write thoughts and images down.

For example, the same participants named, "I would be proud of myself for being able to answer all of the questions on my own. It would be an accomplishment to be proud of".

We provided participants with the obstacle that might hinder them from independently succeeding in solving the logical reasoning task and asked them to mentally elaborate it. Participants read:

> Sometimes things don't work out as we would like them to. People tend to follow other people's behavior when they are unsure of how to act. This can often lead to mistakes. Imagine <u>yourself</u> following the behavior of other people when solving the cognitive tasks. Imagine things fully. Please write thoughts and images down.

For example, the same participant named, "I would observe how others acted and try to mimic their behavior if they appeared to be answering the questions successfully".

Finally, we presented participants an *if-then* plan, which we requested them to remember whenever they felt themselves following other people's behavior during the task. Participants read:

"If I feel that I follow other people's behavior, then I will tell myself: Ignore them!"

We asked participants to repeat and write down the plan before beginning the logical reasoning task.

Logical reasoning task. For the logical reasoning task, we consulted the same eight logical reasoning items with the fabricated diagrams, which we had used in the pilot study. The remaining questions in the survey included demographic questions, assessment of the manipulation of the self-regulatory thought and questions regarding participation in the study (e.g., how motivated participants were to work on the survey)[2].

Behavioral measures. We report how we measured the dependent variables, which were assessed either objectively (behavioral) or subjectively (self-report).

Conform behavior. We consulted the five critical items to measure conformity. Accordingly, participants in the conformity condition were able to conform zero to five times. We quantified conformity as the difference between the mean number of answers that agreed with the incorrect majority answers in the conformity condition and the mean number of answers in the control condition, being exactly the same incorrect answers.

To measure if MCII helps regulate one's tendency to conform, we compared the mean number of conform answers in the conformity condition using MCII with the mean number of conform answers in the conformity condition using no self-regulation strategy.

Correct behavior. Again, we consulted the five critical items to measure correct behavior on the task. Accordingly, participants were able to act correct zero to five times.

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[2] Additional measures were administered in Study-sets 1 to 3. As these measures are not the focus of this thesis, they are not addressed further.

We quantified correct behavior as the difference between the mean number of correct answers in the conformity condition using MCII and the mean number of correct answers in the conformity condition using no self-regulation strategy.

Self-report measures. As self-report measures, we repeated the three items asking for participants' social identification with the group of MTurk participants after the completion of the logical reasoning task. The three items were combined into one scale (α_{t2} = .88). After completing the study, which took approximately ten minutes, participants were thanked and paid for their participation in the survey.

Results

Randomization Check

With the exception of gender, we observed no significant differences between the conditions regarding all demographic variables and the social identification with the group before the logical reasoning task (all *p*s > .05). There were significantly more female participants in the MCII condition, χ^2 (3) = 8.36, p = .039[3].

Expectation, Incentive, and Commitment

Mean values for expectations (M = 5.12, SD = 1.49), incentive value (M = 6.07, SD = 1.10) and commitment (M = 4.84, SD = 1.68) were moderately high and did not differ between the conditions (all *p*s > .05).

Behavioral Measures

Conform behavior. To investigate our first a priori hypothesis, namely participants showing higher conformity in the conformity condition than in the control condition, we conducted planned contrasts (according to Furr & Rosenthal, 2003) for both conditions

[3] We included gender as covariate in order to ensure that our experimental effect would hold beyond the unequal distribution of gender between the conditions. Furthermore, there were no significant differences between males and females regarding the number of conform and correct answers on the task.

using no self-regulatory thought (conformity_NSR vs. control_NSR). In line with our prediction, participants in the conformity_NSR condition significantly more often chose the incorrect answers indicated by the supposed majority (M = 1.89, SD = 1.51), compared to participants in the control_NSR condition choosing exactly the same incorrect answers (M = 0.78, SD = 0.85), $t(51.73) = 3.84$, $p < .001$, $d = 0.93$. Accordingly, participants in the conformity_NSR condition were conform to the presented majority; we, again, successfully induced conformity with the computer-based paradigm.

To test our second a priori hypothesis that MCII would be an effective tool to reduce conformity throughout the task, we exclusively focused on both conformity conditions (conformity_MCII vs. conformity_NSR). In line with our prediction, planned contrasts revealed that participants in the conformity_MCII condition significantly less often chose the incorrect answers indicated by the supposed majority (M = 1.13, SD = 1.23), compared to participants in the conformity_NSR condition (M = 1.89, SD = 1.51), $t(63.78) = 2.22$, p = .030, $d = 0.55$ (Figure 3). Participants in the conformity_NSR went along with the supposed majority 37.8% of the time; this effect was reduced to 22.6% in the conformity_MCII condition.

Correct behavior. To test our third a priori hypothesis that MCII would help participants improve their performance on the task by increasing the number of correct answers, we exclusively focused on the two conformity conditions (conformity_MCII vs. conformity_NSR). Planned contrasts revealed that participants in the conformity_MCII condition tended to give a greater number of correct answers on the task (M = 3.06, SD = 1.73), compared to participants in the conformity_NSR condition (M = 2.34, SD = 1.57), $t(133) = 1.76$, p = .082, $d = 0.30$ (Figure 4).

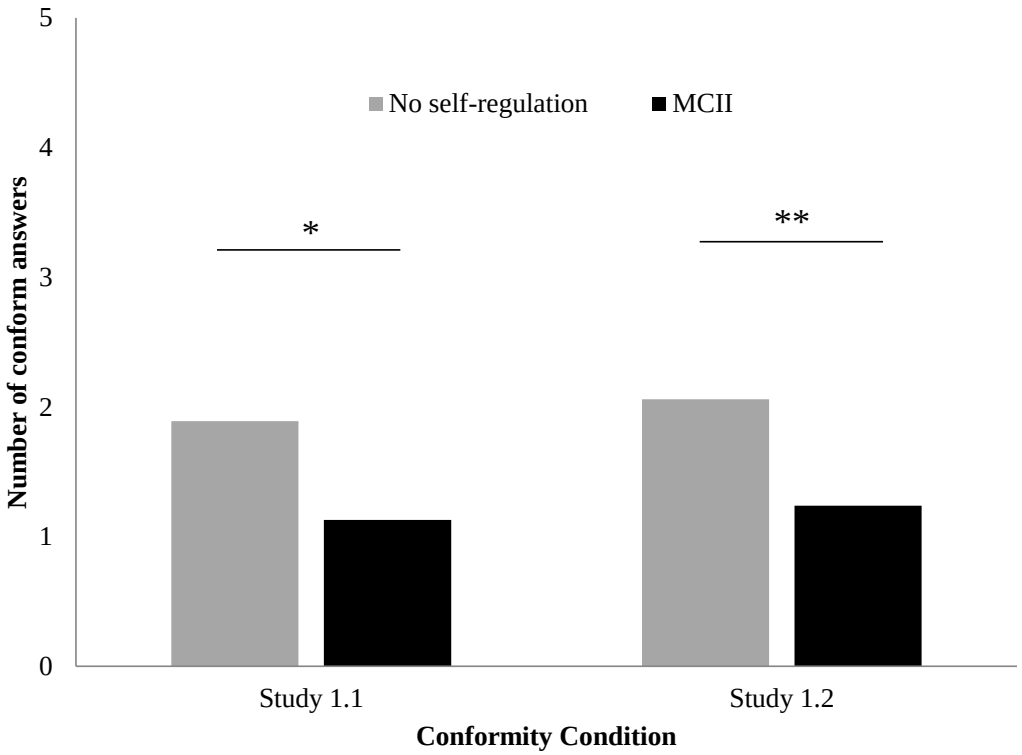

Figure 3. Studies 1.1 and 1.2: Mean number of conform answers for the conformity condition; * = p <. 05;** = p < .01; *** = p < .001.

Self-Report Measures

To test our a priori hypothesis that conformity and social identification are closely connected, we analyzed the two conformity conditions (conformity_MCII vs. conformity_NSR). Planned contrasts revealed that the conditions significantly differed regarding their social identification with the group of MTurk participants after the task (Time 2). Those in the conformity_MCII condition tended to identify less with the group (M = 4.28, SD = 1.49), compared to those in the conformity_NSR condition (M = 5.02, SD = 1.59), $t(133) = 1.92$, $p = .057$, $d = 0.32$.

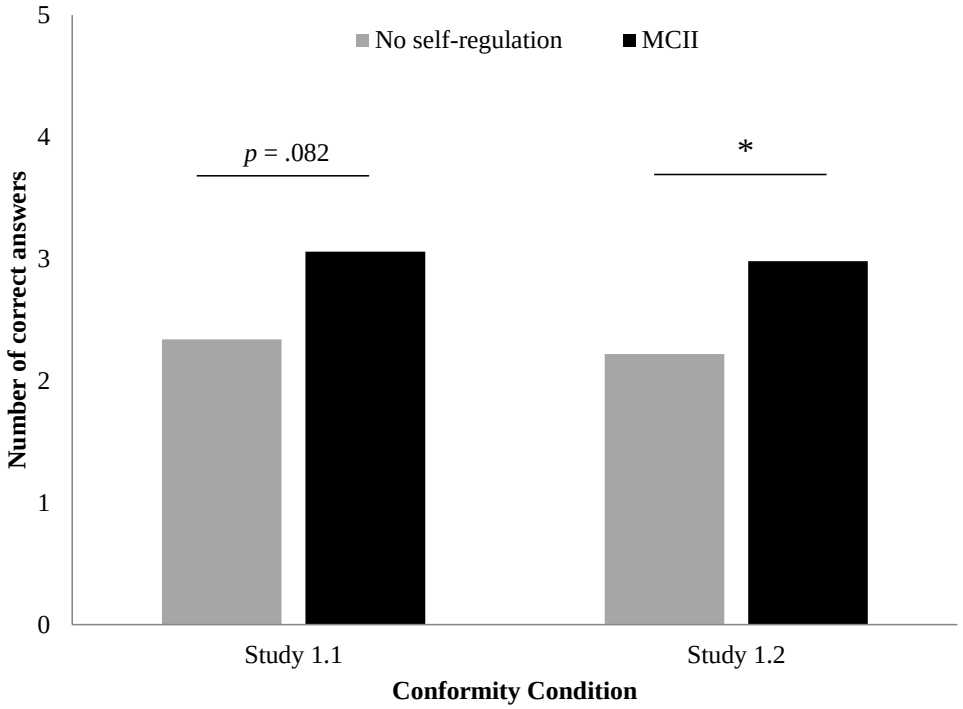

Figure 4. Studies 1.1 and 1.2: Mean number of correct answers for the conformity condition; * = $p < .05$;** = $p < .01$; *** = $p < .001$.

Social identification and conformity. We found a marginally significant positive correlation between the social identification assessed at Time 1 and the number of conform answers, $r(66) = .22$, $p = .076$, as well as between the number of conform answers and social identification assessed at Time 2, $r(66) = .45$, $p < .001$. The more participants identified themselves with the group, the more they conformed; the more they conformed, the more they identified themselves with the group afterwards. The correlations did not significantly differ from each other between the conformity conditions.

Next, we tested whether the effect of condition (conformity_MCII vs. conformity_NSR) on change of social identification was mediated by conformity behavior on the task. To do so, we first calculated a change score for the social identification by subtracting Time 1 from Time 2; the more negative the change score the more the social

identification decreased over the task. To test the predicted mediation, we followed a bootstrapping procedure using SPSS PROCESS macro provided by Hayes (2013). The indirect effect of the condition on social identification (change score) through conformity behavior during the logical reasoning task was significantly different from 0, 95% CI [-0.459, -0.027], with 5000 iterations (Figure 5). That is, participants in the conformity_MCII condition (vs. conformity_NSR) conformed less, which subsequently led to a reduced social identification with the group of MTurk participants. Within the mediation model, the direct effect of condition on change of social identification was not significant.

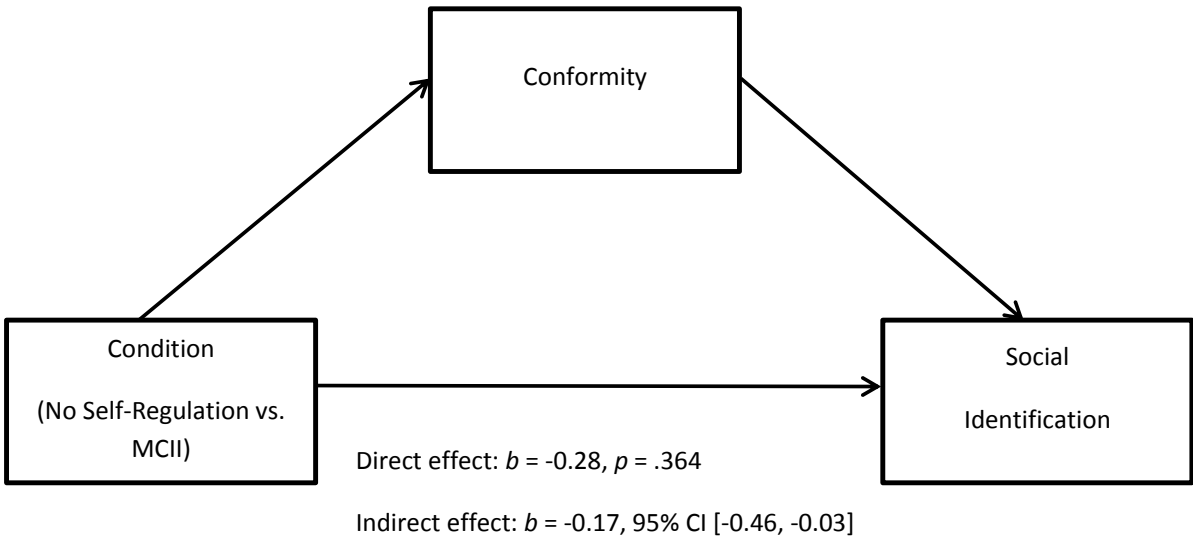

Figure 5. Study 1.1: Conformity behavior during the task as a mediator of the effect of condition (conformity_NSR vs. conformity_MCII) on social identification with the group of MTurk participants.

Discussion

We investigated if the self-regulation strategy of MCII can be an effective tool to regulate people's tendency to conform to a group majority and support people in attaining their goal of independently succeeding in solving the task. We used a challenging computer-based logical reasoning task, in which we aimed to induce conformity behavior. We tested if MCII would help

people to reduce the number of conform answers and increase the number of correct answers on the task, thereby supporting individuals in attaining their goal of independently succeeding in solving the task despite a deviant majority.

Our results supported our hypothesis: First, we successfully induced conformity in the context of CMC, thus being in line with previous research on conformity in computer-based contexts (e.g., Cinnirella & Green, 2007; Laporte, van Nimwegen, & Uyttendaele, 2010; Lee, 2006; Postmes & Spears, 2002; Rosander & Eriksson, 2012); participants in the conformity condition more often chose the incorrect answers indicated by the supposed majority, compared to participants in the control condition choosing the same incorrect answers.

Secondly, participants in the conformity condition reduced their tendency to conform, i.e., the number of conform answers when using MCII, compared to participants in the conformity condition using no self-regulation strategy.

Thirdly, participants in the conformity condition using MCII tended to give a greater number of correct answers on the logical reasoning task, compared to participants in the conformity condition using no self-regulation strategy. That is, MCII supported participants in attaining their goal of succeeding in solving the task on their own. The greater number of correct answers implies that participants not just blindly followed the instruction of ignoring other people's behavior by choosing any other option. Rather, participants more successfully completed the task on their own, irrespective of how the majority behaved.

Fourthly, we observed a strong connection between the identification with the group of MTurk participants and conformity during the task. This finding is similar to previous research, which found that social identification with the source of influence can be an important determinant of conformity (e.g., Cinnirella & Green, 2007; David & Turner, 1996; Postmes & Spears, 2002; Rogers & Lea, 2005). In the context of CMC, a salient social identity – if one is available – can be enough to enhance conformity, thus making the physical appearance of the

source of influence redundant (SIDE; Spears & Lea, 1992). Above that, the effect of condition (MCII vs. no self-regulation) on change of social identification was mediated by conformity behavior during the task, meaning that participants who mentally contrasted (vs. no self-regulation) behaved less conform and subsequently identified less with the group of MTurk participants after the task.

In sum, Study 1.1 showed that MCII can support the regulation of one's tendency to conform in a computer-based context, therefore helping participants to attain their own goal. In Study 1.2, we aimed to replicate our findings through the use of a slightly modified version of the logical reasoning task. Previous research indicated that conformity rises with increasing difficulty of the task (e.g., Deutsch & Gerard, 1955; Rosander & Eriksson, 2012). Thus, in our first study we presented logical reasoning items with increasing difficulty. However, we found that items with a medium level of difficulty were most appropriate for the needs of our study. The items were easy enough for participants to answer correctly when being focused, but were still challenging enough so that participants were not completely sure and may turn over to the majority to seek for guidance. In the next study, we replaced the easiest and the most difficult item by two items of medium difficulty level, thus consulting eight logical reasoning items of an equal medium difficulty level.

Study 1.2: Conformity: MCII vs. no Self-Regulation Strategy (Conceptual Replication)

We aimed to replicate the findings of Study 1.1. First, we hypothesized that participants in the conformity condition would more often choose the incorrect answers that were indicated by the supposed majority, compared to participants in the control condition choosing the same incorrect answers. Secondly, we hypothesized that participants in the conformity condition would less often choose the incorrect answers that were indicated by the supposed majority when having engaged in MCII, compared to participants in the conformity condition having engaged in no self-regulation strategy. Thirdly, we hypothesized that participants in the

conformity condition would give a greater number of correct answers when having engaged in MCII, thus being more likely to attain their goal of independently succeeding in solving the task, compared to participant in the conformity condition having engaged in no self-regulation strategy. Finally, we hypothesized a close connection between social identification and conformity, whereas the effect of MCII on change of social identification should be mediated by conformity behavior during the task.

Method

Power Analysis

We based our power analysis on Study 1.1. Accordingly, we slightly reduced the effect size to $d = 0.60$ and applied it to an a priori power analysis for four conditions within an ANOVA. The power analysis indicated that approximately 192 participants would be needed to achieve 90% power ($1 - \beta$) at a .05 alpha level ($\alpha = .05$). To account for potential dropouts, we recruited 206 participants using MTurk. In total, eleven participants were excluded because they indicated suspicion about the conformity manipulation ($n = 7$) or did not follow the instructions of the manipulation of self-regulatory thought ($n = 4$).

Participants

Our final sample consisted of 195 participants (65% women). Participants' ages ranged between 18 and 80 years, with a mean of age of 37.06 years ($SD = 13.09$). Participants were randomly assigned to one of the four conditions: conformity_NSR ($n = 50$), conformity_MCII ($n = 46$), control_NSR ($n = 53$), and control_MCII ($n = 46$).

Materials and Procedure

In Study 1.2, we used the same survey questions as presented in Study 1.1, however, we exchanged two critical items within the logical reasoning task so that we had eight items of medium difficulty level. The procedure of this study followed the exact same procedure as Study 1.1.

Behavioral measures. We report how we measured the dependent variables that were assessed either objectively (behavioral) or subjectively (self-report).

Conform and correct behavior. As in Study 1.1, we consulted the five critical items to assess participants' conform and correct behavior during the task and compared means of the conditions in accordance with our a priori hypotheses.

Self-report measures. The three items measuring social identification with the group of MTurk participants before the task ($\alpha_{t1} = .84$) as well as after the task ($\alpha_{t2} = .87$) were combined into each one scale. After the completion of the study, which took approximately ten minutes, all participants were thanked and paid for their participation in the survey.

Results

Randomization Check

We observed no significant differences between the conditions regarding all demographic variables and the social identification with the group before the logical reasoning task (all *p*s > .05).

Expectation, Incentive, and Commitment

Mean values for expectation ($M = 5.27$, $SD = 1.38$), incentive value ($M = 6.08$, $SD = 1.03$) and commitment ($M = 4.64$, $SD = 1.60$) were moderately high and did not differ between the conditions (all *p*s > .05).

Behavioral Measures

Conform behavior. Participants in the conformity_NSR condition significantly more often chose the incorrect answers indicated by the supposed majority ($M = 2.06$, $SD = 1.78$), compared to participants in the control_NSR condition choosing the same incorrect answers ($M = 0.47$, $SD = 0.61$), $t(191) = 5.99$, $p < .001$, $d = 1.21$.

Testing whether MCII helps to regulate one's tendency to conform, we observed that participants in the conformity_MCII condition (M = 1.24, SD = 1.30) gave less incorrect answers indicated by the supposed majority, compared to participants in the conformity_NSR condition (M = 2.06, SD = 1.78), $t(89.65) = 2.59$, $p = .001$, $d = 0.52$ (Figure 3). Participants in the conformity_NSR went along with the supposed majority 41.2% of the time; this effect was reduced to 24.8% in the conformity_MCII condition.

Correct behavior. Participants in the conformity_MCII condition gave a greater number of correct answers on the logical reasoning task (M = 2.98, SD = 1.53), compared to participants in the conformity_NSR condition (M = 2.22, SD = 1.89), $t(92.40) = 2.16$, $p = .033$, $d = 0.44$ (Figure 4).

Self-Report Measures

Testing for social identification with the group of MTurk participants, we observed that participants in the conformity_MCII condition identified less with the majority at Time 2 (M = 4.11, SD = 1.44), compared to participants in the conformity_NSR condition (M = 4.83, SD = 1.28), $t(191) = 2.44$, $p = .016$, $d = 0.35$.

Social identification and conformity. We found a significant positive correlation between the social identification with the group assessed at Time 1 and conformity behavior during the task, $r(102) = .20$, $p = .042$, as well as between conformity behavior during the task and social identification with the group assessed at Time 2, $r(102) = .49$, $p < .001$, thus confirming our results from the previous study. Correlations for the conformity conditions did not significantly differ from each other.

To test whether the effect of condition (MCII vs. no self-regulation) on change of social identification was mediated by conformity behavior, we first calculated a change score for social identification by subtracting Time 1 from Time 2 and included this as the dependent variable in a bootstrapping procedure using SPSS PROCESS macro provided by Hayes (2013). As in Study

1.1, the indirect effect of the condition on change of social identification through conformity behavior was significantly different from 0, 95% CI [-0.461, -0.047], with 5000 iterations. That is, participants in the conformity_MCII condition (vs. conformity_NSR) conformed less, which subsequently led to a reduced social identification with the majority. Within the mediation, the direct effect of condition on change of social identification now reached significance, 95% CI [-0.982, -0.042], showing that using MCII led to reduced social identification with the group of MTurk participants over the task.

Discussion

We aimed to replicate findings from the first study and consulted the same computer-based logical reasoning task in order to induce conformity. Thereby, we exchanged two logical reasoning items, so that the whole task consisted of eight items with equally medium difficulty.

We replicated the results from the first study. Conformity was successfully induced in the CMC context and MCII effectively regulated the tendency to conform and promoted correct behavior. Thus, MCII supported participants in attaining their goal of independently succeeding in solving the task. In addition, we confirmed our results of a connection between social identification with the source of influence (i.e., MTurk participants) and conformity during the task. The effect of condition (MCII vs. no self-regulation) on change of social identification was mediated by conformity behavior; those who engaged in MCII were less conform that subsequently led to a reduced social identification with the source of influence. The direct effect of condition on change of social identification reached significance. Accordingly, we may speculate that participants who engaged in MCII were less susceptible to the social influence of the majority (as can be seen in the reduced number of conform answers) so that they finally indicated to identify less with the majority.

However, one could question if it really is MCII (i.e., elaborating on positive future *and* present reality) that caused participants to regulate their tendency to conform. To test this assumption, we added indulging as an additional control condition in the following study.

Study 1.3: Conformity: MCII vs. Indulging

We added an indulging condition to underline the importance of obstacle elaboration in order to regulate one's tendency to conform and therefore to attain one's goal. Participants in the indulging condition positively fantasized about independently succeeding in solving the task, without regarding the obstacle of one's tendency to conform to the majority. We hypothesized that participants who were instructed to use MCII (vs. no self-regulation and indulging) would be more likely to reduce the number of conform answers on the task and attain their goal of independently succeeding in solving the task by increasing the number of correct answers. We further sought to replicate the link between social identification and conformity.

In this study, we additionally included three items asking about participants' self-perception of their tendency to conform. Since existing literature states that people often conform without being fully aware of it (e.g., Chartrand & Bargh, 1999) or sometimes even deny to be influenced (Hornsey & Jetten, 2004), we were interested if and to what extent participants realized their conforming behavior in the context of our computer-based paradigm. As mental contrasting leads to an interpretation of reality as an obstacle to reach the desired future (A. Kappes et al., 2013), we assumed that only participants engaging in MCII would perceive their tendency to conform to the majority as the obstacle holding them back from attaining their goal of independently succeeding in solving the logical reasoning task. Accordingly, we hypothesized that those in the conformity condition who engaged in MCII (vs. no self-regulation and indulging) would indicate less orientation towards and thus less conforming with other people's behavior (i.e., the supposed majority). We, therefore,

hypothesized that behavioral and self-report measurements of conformity would strongly correlate with each other.

Method

Power Analysis

The power analysis was based on Study 1.2, according to which we, again, slightly reduced the effect size to $d = 0.50$. We applied the effect size to an a priori analysis for six conditions within an ANOVA. The power analysis indicated that approximately 270 participants would be needed to achieve 90% power ($1 - \beta$) at a .05 alpha level ($\alpha = .05$). To account for potential dropouts, we recruited 301 participants using MTurk. We excluded 28 participants because they indicated suspicion about the conformity manipulation ($n = 17$) or did not follow the instructions of the manipulation of self-regulatory thought ($n = 11$).

Participants

Our final sample consisted of 273 participants, of which 61% were women. Participants' ages ranged between 19 and 74 years, with a mean of age of 37.71 years ($SD = 12.28$). Participants were randomly assigned to one of the six conditions: conformity_NSR ($n = 48$), conformity_MCII ($n = 39$), conformity_Indulging ($n = 42$), control_NSR ($n = 51$), control_MCII ($n = 44$), and control_Indulging ($n = 49$).

Materials and Procedure

We used the same logical reasoning items from Study 1.2 and followed the procedure of Studies 1.1 and 1.2.

In the newly added indulging condition, participants were presented the same predetermined goal as in the previous studies and other conditions and were asked about their incentive value, their expectations, and their commitment to attain this goal. As in the MCII condition, participants were requested to name and elaborate a positive aspect that they associated with the attainment of the goal. However, instead of presenting them with

the obstacle that holds them back from attaining the goal (as in the MCII condition), participants in the indulging condition were asked to name and elaborate a second best aspect that they associate with the attainment of the goal. Thereafter, we introduced participants to a pre-specified *if-then* plan, "If I solve all following tasks successfully, then I will feel great!", which they were requested to repeat. After the manipulation (MCII vs. no self-regulation strategy vs. indulging) participants were referred to the logical reasoning task.

Behavioral measures. We report how we measured the dependent variables that were assessed either objectively (behavioral) or subjectively (self-report).

Conform and correct behavior. As in the previous studies, we consulted the five critical items to assess participants' conform and correct behavior during the task and compared means of the conditions in accordance with our a priori hypotheses.

Self-report measures. As in the previous studies, we assessed participants' social identification with the group. Furthermore, we assessed participants' perception of their own conformity behavior.

Social identification. We combined the three items asking for social identification with the group of MTurk participants before the logical reasoning task (α_{t1} = .81) and after the logical reasoning task into each one scale (α_{t2} = .88).

Conformity perception. Finally, we included three items asking about participants' self-perception of conformity. We asked "How often did you take into account other people's behavior while solving the cognitive tasks?", "How often did you follow other people's behavior while solving the cognitive tasks?", as well as "How often were you conform to other people's behavior?". Items were answered on 7-point Likert scales, ranging from 1 (*never*) to 7 (*always*). The answers were combined into one scale (α = .90).

After the completion of the study, which took approximately ten minutes, all participants were thanked and paid for their participation in the survey.

Results

Randomization Check

We observed no significant differences between the conditions regarding all demographic variables and the social identification with the group before the logical reasoning task (all *p*s > .05).

Expectation, Incentive, and Commitment

Mean values for expectations ($M = 5.30$, $SD = 1.37$), incentive value ($M = 6.02$, $SD = 1.09$) and commitment ($M = 4.54$, $SD = 1.75$) were moderately high and did not differ between the condition (all *p*s > .05).

Behavioral Measures

Conform behavior. Planned contrasts revealed that participants in the conformity_NSR condition more often chose the incorrect answers indicated by the supposed majority ($M = 2.00$, $SD = 1.61$), compared to participants in the control_NSR condition choosing the same incorrect answers ($M = 0.45$, $SD = 0.54$), $t(56.89) = 6.33$, $p < .001$, $d = 1.66$.

Testing whether MCII helps to regulate one's tendency to conform, planned contrasts revealed that participants in the conformity_MCII condition gave less incorrect answers that were indicated by the supposed majority ($M = 1.36$, $SD = 1.20$), compared to participants in the conformity_Indulging condition ($M = 2.00$, $SD = 1.56$), or in the conformity_NSR condition ($M = 2.00$, $SD = 1.61$), $t(93.77) = 2.51$, $p = .014$, $d = 0.52$ (Figure 6). In total, participants in the conformity condition who indulged or used no self-regulation strategy went along with the false majority approximately 40.0% of the time; this effect was reduced to 27.2% in the conformity_MCII condition.

Correct behavior. Planned contrasts revealed that participants in the conformity_MCII condition did not give a greater number of correct answers on the task (M = 2.51, SD = 1.25), compared to participants in the conformity_Indulging condition (M = 1.95, SD = 1.51), or in the conformity_NSR condition (M = 2.17, SD = 1.59), $t(267) = 1.60$, $p = .110$, $d = 0.18$ (Figure 7). Although significance was not reached, a pattern towards significance was observed.

Self-Report Measures

Social identification. Testing for social identification with the group of MTurk participants, we observed that participants in the conformity_MCII condition identified less with the majority after the task (M = 4.29, SD = 1.41), compared to participants in the conformity_Indulging condition (M = 5.12, SD = 1.52) or in the conformity_NSR condition (M = 5.09, SD = 1.38), $t(267) = 2.67$, $p = .008$, $d = 0.32$.

Social identification and conformity. We replicated a positive correlation between social identification assessed at Time 1 and conformity behavior during the task, $r(130) = .26$, $p = .003$, as well as between conformity behavior during the task and social identification assessed at Time 2, $r(130) = .49$, $p < .001$. Correlations for the conformity groups did not significantly differ from each other.

We calculated a change score for social identification to test whether the effect of condition (MCII vs. other) on social identification was mediated by conformity behavior. Following the bootstrapping procedure using SPSS PROCESS macro provided by Hayes (2013), the indirect effect of condition on change of social identification through conformity behavior was significantly different from 0, 95% CI [-0.286, -0.014], with 5000 iterations. That is, participants in the conformity_MCII condition (vs. other) conformed less, which subsequently led to a reduced social identification with the majority. Within the mediation model, the direct effect of condition on change of social identification, 95% CI [-0.935, -

0.005] reached significance. Specifically, engaging in MCII led to reduced social identification with the group of MTurk participants over the task.

Conformity perception. In line with our assumptions, further analysis focused on the conformity conditions (conformity_MCII, conformity_Indulging, conformity_NSR). Planned contrasts revealed that participants in the conformity_MCII condition reported that their behavior during the task was less conform (M = 2.96, SD = 1.34) compared to participants in the conformity_Indulging condition (M = 4.03, SD = 1.8) or conformity_NSR condition (M = 3.59, SD = 1.53), $t(267) = 2.84$, $p = .005$, $d = 0.35$. We found a strong correlation between conformity behavior and self-perception of conformity, $r(129) = .58$, $p < .001$, whereas correlations did not significantly between the conditions.

Following the bootstrapping procedure using SPSS PROCESS macro provided by Hayes (2013), we found that the indirect effect of condition on change of social identification through self-perception of conformity was significantly different from 0, 95% [-0.354, -0.025], with 5000 iterations. Those who engaged in MCII perceived their behavior to be less conform and subsequently indicated to identify less with the group of MTurk participants. The direct effect of condition on social identification did not reach significance.

Discussion

In Study 1.3, we aimed to replicate the previous findings that MCII (vs. no self-regulation and indulging) helps to regulate one's tendency to conform to a majority and to attain one's goal of independently succeeding in solving the task despite a deviant majority. Thereby, we included the additional control condition indulging.

Participants in the conformity_NSR condition more often chose the incorrect answers indicated by the supposed majority compared to participants in the control_NSR condition choosing the same incorrect answers; that is, we successfully induced conformity with the computer-based paradigm. Furthermore, those who engaged in MCII (vs. no self-

regulation and indulging) were more likely to regulate their tendency to conform and to attain their goal of independently succeeding in solving the task by giving a greater number of correct answers. This finding is especially important, as self-help literature and the coaching industry (e.g., Hill & Stone, 1991; Peale, 2003) state that "thinking positively" is an effective strategy for realizing one's goal, thus presumably making the elaboration of an obstacle redundant. However, our results show that only when participants elaborated positive future *and* obstacle of present reality they were more likely to attain their goal. Similar to the behavioral measures of conformity, participants in the conformity_MCII condition reported their behavior to be less conform compared to participants in the conformity_NSR or in the conformity_Indulging condition. Finally, results confirmed the connection between social identification and conformity. The results of the mediation model supported previous findings, according to which MCII (vs. no self-regulation and indulging) seems to be helpful in making participants less susceptible to the social influence of the majority.

However, one could argue that the results (reduced conformity and improved performance) were driven by the additional information provided in the MCII condition. While participants using MCII received a clue concerning the obstacle of being influenced by other people's behavior (i.e. "People tend to follow other people's behavior when they are unsure of how to act"), participants who indulged or used no self-regulation strategy received no such additional information. Accordingly, one might suggest that the results found in the first three studies can instead be ascribed to differences in content information rather than the mode of self-regulatory thought (i.e. MCII). To demonstrate that it is not the provided content information but rather *how* people think about that content information that causes them to regulate their tendency to conform, we conducted a fourth study. We added the additional reverse contrasting (RC) condition. Utilizing this control condition, we aimed

to underline the importance of *how* and in what order participants elaborate on their goal in order to regulate their tendency to conform and to attain their goal despite a deviant majority.

Study 1.4: Conformity: MCII vs. Reverse Contrasting

We used the same procedure as in Study 1.3 but replaced the indulging condition with the reverse contrasting condition. We expected to replicate the finding that MCII (vs. no self-regulation and reverse contrasting) is an effective strategy to regulate one's tendency to conform and thus to support people in attaining their goal of independently succeeding in solving the task. We also aimed to replicate the link between social identification and conformity and the effects of MCII on both variables.

Method

Power Analysis

The power analysis was based on Study 1.3. We applied the effect size of $d = 0.50$ to an a priori analysis for six conditions within an ANOVA. The power analysis indicated that approximately 270 participants would be needed to achieve 90% power ($1 - \beta$) at a .05 alpha level ($\alpha = .05$). To account for potential dropouts, we recruited 300 participants using MTurk. A total of 20 participants were excluded because they indicated suspicion about the conformity manipulation ($n = 12$) or did not follow the instructions of the manipulation of self-regulatory thought ($n = 8$).

Participants

Our final sample consisted of 280 participants, of which 63% were women. Participants' ages ranged between 18 and 84 years, with a mean of age of 38.54 years ($SD = 13.94$). All participants were randomly assigned to one of the six conditions: conformity_NSR ($n = 53$), conformity_MCII ($n = 44$), conformity_RC ($n = 45$), control_NSR ($n = 51$), control_MCII ($n = 43$), and control_RC ($n = 44$).

Materials and Procedure

We used the same logical reasoning task as in Study 1.3 and followed the same procedure, whereas we did not ask for participants' self-perception of conformity. Participants in the reverse contrasting condition were presented the same wish as in the two other conditions (MCII and no self-regulation). They were then asked about their incentive, their expectation, and their commitment to realize the wish of independently succeeding in solving the logical reasoning task. Participants in the reverse contrasting condition first elaborated on the obstacle of being influenced by other people's behavior, and then named and elaborated on the best outcome of independently succeeding in solving the cognitive task. Next, we presented participants a predetermined plan ("If I solve all following tasks successfully, then I will feel great!"), which we asked them to repeat. After the manipulation (MCII vs. no self-regulation vs. reverse contrasting) participants were referred to the logical reasoning task.

Behavioral measures. We report how we measured the dependent variables that were assessed either objectively (behavioral) or subjectively (self-report).

Conform and correct behavior. As in the previous studies, we consulted the five critical items to assess participants' conform and correct behavior during the task and compared means of the conditions in accordance with our a priori hypotheses.

Self-report measures. We combined the three items asking for participants social identification before the logical reasoning task (α_{t1} = .86) as well as after the logical reasoning task into each one scale (α_{t2} = .87). After the completion of the study, participants were asked for their demographic data and received credit for their participation in the study.

Results

Randomization Check

We observed no significant differences between the conditions regarding all demographic variables and the social identification with the group before the logical reasoning task (all *p*s > .05).

Expectation, Incentive, and Commitment

Mean values for expectations ($M = 4.99$, $SD = 1.40$), incentive value ($M = 5.85$, $SD = 1.22$) and commitment ($M = 4.43$, $SD = 1.02$) were moderately high and did not differ between the conditions (all *p*s > .05).

Behavioral Measures

Conform behavior. Planned contrasts revealed that participants in the conformity_NSR condition more often chose the incorrect answers indicated by the supposed majority ($M = 2.17$, $SD = 1.50$), compared to participants in the control_NSR condition choosing exactly the same incorrect answers ($M = 0.45$, $SD = 0.70$), $t(74.27) = 7.52$, $p < .001$, $d = 1.46$.

Testing whether MCII helps to regulate one's tendency to conform, planned contrasts revealed that those in the conformity_MCII condition less often chose the incorrect answers indicated by the supposed majority ($M = 1.20$, $SD = 1.32$), compared to participants in the conformity_RC condition ($M = 1.96$, $SD = 1.78$) and in the conformity_NSR condition ($M = 2.17$, $SD = 1.50$), $t(100.71) = 3.29$, $p < .001$, $d = 0.65$ (Figure 6). That is, participant who reverse contrasted or used no self-regulation strategy went along with the false majority approximately 41.3% of the time, and this effect was reduced to 24.0% in the conformity_MCII condition.

Correct behavior. Planned contrasts revealed that participants in the conformity_MCII condition gave a greater number of correct answers on the task ($M = 2.57$, $SD = 1.50$), compared to participants in the conformity_RC condition ($M = 1.56$, $SD = 1.59$)

or in the conformity_NSR condition (M = 1.96, SD = 1.60), $t(274) = 2.16$, $p = .032$, $d = 0.26$ (Figure 7).

Self-Report Measures

Testing for social identification with the group of MTurk participants, planned contrasts revealed no significant difference between the conditions regarding the social identification with the group at Time 2.

Social identification and conformity. We found a positive correlation between the social identification assessed at Time 1 and conformity behavior during the task as well as between conformity behavior during the task and social identification assessed at Time 2, $r(142) = .39$, $p < .001$. The correlations did not significantly differ between the conformity conditions.

Next, we tested whether the effect of condition (MCII vs. other) on the change of social identification (change score) was mediated by conformity behavior during the task. Following a bootstrapping procedure using SPSS PROCESS macro provided by Hayes (2013), we found that the indirect effect of condition on change of social identification through conformity was significantly different from 0, 95% CI [-0.391, -0.087], with 5000 iterations; participants using MCII (vs. other) conformed less to the majority answers, which subsequently led to reduced social identification with the group of MTurk participants over the task. This time, the direct effect of condition on change social identification reached no significance.

Discussion

We aimed to replicate the findings that MCII (vs. no self-regulation and reverse contrasting) helps to regulate one's tendency to conform to the majority and thus supports attaining one's goal of independently succeeding in solving the task despite a deviant majority. This time, we included reverse contrasting as a control condition to underline the importance of *how* participants mentally elaborate on the positive future and the obstacle of

the present reality in order to regulate the tendency to conform and to improve the performance on the task.

In line with the previous findings, we found that MCII (vs. no self-regulation and reverse contrasting) helped participants to regulate their tendency to conform and improve their performance on the task by increasing the number of correct answers. Importantly, these results highlight that it is not the provided content information within the manipulation that leads to reduced conformity but rather *how* people think about their goal of independently succeeding in solving the task. Participants in the reverse contrasting condition elaborated on exactly the same content as participants in the MCII condition but in a different order. However, they conformed more often to the majority and were less likely to attain the goal of independently succeeding in solving the task, compared to participants engaging in MCII.

This is in line with the fantasy realization theory: MCII leads to goal commitment and behavior change when expectations to overcome the obstacle of the present reality are high. In contrast, reverse contrasting fails to activate the relational construct of the reality standing in the way of goal attainment, whereby expectations to reach one's goal are not activated. This leads to an unchanged goal commitment and finally to no behavior change (review by Oettingen, 2012). In our study, all participants reported having high expectations to attain the desired future of successfully solving the task. However, only those who used MCII (vs. no self-regulation and reverse contrasting) were more likely to regulate their tendency to conform and to increase correct behaviors. We may, therefore, deduce that our results can be ascribed to the mode of thought rather than to the provided content information.

Study 1.4 further confirmed the connection between social identification and conformity. Participants who used MCII (vs. other) were less conform that subsequently led

to a reduced social identification with the source of influence, i.e., the group of MTurk participants. However, we did not replicate the direct effect of condition on change of social identification.

In Study 1.5, we aimed to replicate former results and to verify the relevance of the mode of self-regulatory thought. To strengthen the validity of these findings, we again added the questions pertaining to participants' self-perception of conformity behavior (as done in Study 1.3). We aimed to show that even though participants in the reverse contrasting condition elaborate on the same present reality (i.e., one's tendency to conform to a majority) as participants in the MCII condition, they still would not interpret this as an obstacle holding them back from attaining the their goal and therefore would not identify their tendency to conform to that majority.

Study 1.5: Conformity: MCII vs. Reverse Contrasting (Conceptual Replication)

We aimed to replicate findings from the previous study and additionally included three items asking for participants' self-perception of conformity (according to Study 1.3). We hypothesized that the behavioral and self-report measurements of conformity would strongly correlate with each other. Specifically, that those who engage in MCII (vs. no self-regulation and reverse contrasting) would conform less to the majority answers (measured both behaviorally and subjectively) and would be more likely to attain the goal of independently succeeding in solving the task. Above that, we predicted to replicate findings that social identification with the source of influence (i.e., MTurk participants) and conformity are closely linked.

Method

Power Analysis

The power analysis was based on Study 1.4. We applied the effect size of $d = 0.50$ to an a priori analysis for six conditions within an ANOVA. The power analysis indicated that

approximately 270 participants would be needed to achieve 90% power (1 - β) at a .05 alpha level (α = .05). To account for potential dropouts, we recruited 290 participants using MTurk. We excluded 19 participants because they indicated suspicion about the conformity manipulation (*n* = 10) or did not follow the instructions of the manipulation of self-regulatory thought (*n* = 9).

Participants

Our final sample consisted of 271 participants, of which 59% were women. Participants' ages ranged between 19 and 71 years, with a mean of age of 36.07 years (*SD* = 11.51). All participants were randomly assigned to one of the six conditions: conformity_NSR (*n* = 52), conformity_MCII (*n* = 43), conformity_RC (*n* = 39), control_NSR (*n* = 51), control_MCII (*n* = 44), and control_RC (*n* = 42).

Materials and Procedure

We consulted the same logical reasoning task as in Studies 1.2 to 1.4 and followed the procedure of Study 1.4. Thereby, we included the three items asking about participants' self-perception of conformity behavior that we had already used in Study 1.3.

Behavioral measures. We report how we measured the dependent variables, which were assessed either objectively (behavioral) or subjectively (self-report).

***Conform and correct behavior*.** As in the previous studies, we consulted the five critical items to assess participants' conform and correct behavior during the task and compared means of the conditions in accordance with our a priori hypotheses.

Self-report measures. As in the previous studies, we assessed participants' social identification with the group. Furthermore, we assessed participants' perception of their own conformity behavior.

Social identification. We combined the three items asking for social identification with the group of MTurk participants before the logical reasoning task (α_{t1} = .85) as well as after the logical reasoning task into each one scale (α_{t2} = .88).

***Conformity perception*.** We combined the three items asking for participants' self-perception of conformity into one scale (α = .91). After the completion of the survey, participants were asked for their demographic data and received credit for their participation in the study.

Results

Randomization Check

We observed no significant differences between the conditions regarding all demographic variables and the social identification with the group before the logical reasoning task (all *p*s > .05).

Expectation, Incentive, and Commitment

Mean values for expectations (*M* = 5.05, *SD* = 1.41), incentive value (*M* = 5.83, *SD* = 1.35) as well as commitment (*M* = 4.56, *SD* = 1.66) were moderately high and did not differ between the conditions (all *p*s > .05).

Behavioral Measures

Conform behavior. Planned contrasts revealed that participants in the conformity_NSR condition more often chose the incorrect answers indicated by the supposed majority (*M* = 1.85, *SD* = 1.52), compared to participants in the control_NSR condition choosing exactly the same incorrect answers (*M* = 0.45, *SD* = 0.54), *t*(63.83) = 6.21, *p* < .001, *d* = 1.22.

Testing whether MCII helps to regulate one's tendency to conform, planned contrasts revealed that participants in the conformity_MCII condition less often chose the incorrect answers indicated by the supposed majority (*M* = 1.28, *SD* = 1.28), compared to

participants in the conformity_RC condition (M = 2.05, SD = 1.76) or in the conformity_NSR condition (M = 1.85, SD = 1.53), t(101.00) = 2.55, p = .002, d = 0.51 (Figure 6). Participants in the conformity_RC or in the conformity_NC condition went along with the false majority approximately 39.0% of the time, and this effect was reduced to 25.6% in the conformity_MCII condition.

Correct behavior. Planned contrasts yielded that participants in the conformity_MCII condition tended to give a greater number of correct answers on the task (M = 2.56, SD = 1.54) compared to participants in the conformity_RC condition (M = 1.82, SD = 1.50) or in the conformity_NSR condition (M = 2.25, SD = 1.62), t(265) = 1.75, p = .082, d = 0.22 (Figure 7).

Self-Report Measures

Social identification. Planned contrasts on the social identification with the group of MTurk participants at Time 2 indicated that participants in the conformity_MCII condition tended to identify less with the group (M = 4.14, SD = 1.56), compared to participants in the conformity_RC condition (M = 4.79, SD = 1.86) or in the conformity_NSR condition (M = 4.67, SD = 1.66), t(265) = 1.93, p = .061, d = 0.22.

Social identification and conformity. We found a positive correlation between social identification assessed at Time 1 and conformity behavior during the task r(134) = .26, p = .003, as well as between conformity behavior during the task and social identification assessed at Time 2, r(134) = .44, p < .001.

As in the previous studies, we calculated a change score for social identification and used this value to test whether the effect of condition (MCII vs. other) on social identification was mediated by conformity. We replicated previous findings: The indirect effect of condition on change of social identification through conformity behavior was significantly different from 0, 95% CI [-0.311, -0.039], with 5000 iterations. Specifically,

those in the conformity_MCII (vs. conformity_NSR and conformity_RC) conformed less, which subsequently led to reduced social identification with the group of MTurk participants. Within the mediation the direct effect of condition on change of social identification reached significance, 95% CI [-0.994, -0.121], indicating that participants' social identification with the source of influence decreased over the task when using MCII (vs. other).

Conformity perception. Planned contrasts revealed that participants in the conformity_MCII condition reported their behavior during the task to be less conform (M = 2.83, SD = 1.34) compared to participants in the conformity_RC condition (M = 3.73, SD = 1.99) or in the conformity_NSR condition (M = 3.40, SD = 1.47), $t(265) = 2.54$, $p = .012$, d = 0.30. We found a strong correlation between conformity behavior and self-perception of conformity, $r(134) = .61$, $p < .001$, whereas there was no significant difference between the correlations of the conformity conditions.

We measured whether the effect of condition (MCII vs. other) on change of social identification was also mediated by the self-perception of conformity. The indirect effect was significantly different from 0, 95% [-0.321, -0.039], with 5000 iterations; participants using MCII (vs. other) reported to have conformed less, which subsequently led to reduced social identification with the group of MTurk participants. Within the mediation model, the direct effect of condition on change of social identification was significant, 95% [-0.982, -0.111]. Thus, engaging in MCII led to decreased social identification with the group.

Discussion

In Study 1.5, we aimed to replicate the findings from Study 1.4: We tested if MCII (vs. no self-regulation strategy and reverse contrasting) would help to regulate one's tendency to conform, and thus help to attain the goal of independently succeeding in solving the logical reasoning task. Furthermore, we asked participants for their self-perception of

conformity behavior to confirm that only when elaborating on the positive future first and on the obstacle of the present reality afterwards, participants are able to identify and admit their tendency to conform to the majority.

As expected, participants in the conformity condition reduced the number of conform answers and gave a greater number of correct answers when using MCII, compared to participants who reverse contrasted or used no self-regulation strategy. This underlines that it is important *how* people mentally elaborate on their goal: Only when first elaborating on the desired future and then on the obstacle of the present reality, participants presumably interpreted their tendency to conform as the obstacle holding them back from attaining their goal.

In addition, we replicated the finding of a connection between social identification and conformity. Not only did we find that the effect of condition (MCII vs. other) on change of social identification was mediated by conformity behavior, but we also found a direct effect of condition on change of social identification. Those who used MCII indicated to identify less with the group of MTurk participants over the task, compared to participants using reverse contrasting or no self-regulation strategy. These results, found for both behavioral and self-report measurements of conformity, confirm our assumption from Studies 1.2 and 1.3: MCII leads to a decreased social identification with the source of influence and thus assumingly makes participants less susceptible to the social influence of a majority (as can be seen in the reduced number of conform answers).

Finally, behavioral and self-reported measurements of conformity were closely related. Participants who used the strategy of MCII (vs. no self-regulation and reverse contrasting) reported that they behaved less conform to the presented majority, which replicates findings from Study 1.3. As participants who reverse contrasted also elaborated on the obstacle of being influenced by the majority – but still indicated to be more conform to

the majority's answers compared to participants using MCII – we can deduce that the mode of thought about one's goal is decisive. Only when elaborating the positive future first and then the present reality, can the reality be interpreted as an obstacle standing in the way of independently succeeding in solving the task.

General Discussion Study-set 1

Consulting a computer-based logical reasoning task, we investigated if the strategy of MCII (vs. three relevant control conditions) can be an effective tool to regulate one's tendency to conform to a majority and support people in attaining their goal despite a deviant majority influence. In five studies, we confirmed our assumptions. First, we reliably induced conformity within in the context of CMC, revealing that conformity is not restricted to physical interactions between the source of influence and the target. Second, using MCII (vs. three relevant control conditions) led to the regulation of conformity behavior during the task; participants who engaged in MCII gave a lower number of incorrect answers that were indicated by a supposed majority. Third, using MCII (vs. three relevant control conditions) helped participants to attain their goal of independently succeeding in solving the logical reasoning task by giving a greater number of correct answers. Finally, we found a strong connection between social identification with the source of influence and conformity behavior during the task. MCII appeared to help participants by making them less susceptible to the social influence of the majority of MTurk participants.

Conformity in a Computer-Based Paradigm

The successful induction of conformity behavior within a computer-based context is in line with previous findings, especially those testing the SIDE model (e.g., Cinnirella & Green, 2007; Laporte et al., 2010; Lee, 2006; Postmes & Spears, 2002; Rosander & Eriksson, 2012; Spears & Lea, 1992). According to the SIDE model, intra- and inter-group processes are more powerful in the context of CMC than in face-to-face interactions, *if* a

strong sense of group identity is present. CMC (vs. face-to-face interaction) reduces the perception of in-group heterogeneity, whereas cues of social categories become more salient and the perception of intragroup similarity is emphasized (Postmes & Spears, 2002; Spears & Lea, 1992).

In the present research, we made social identity salient by forming a community of MTurk participants as an in-group, whose results were allegedly compared to those of an out-group (i.e., bankers). Even though MTurk participants are a highly diverse group (Buhrmester, Kwang, & Gosling, 2011), we assumed that CMC would reduce participants' in-group heterogeneity and instead emphasized intragroup similarity within our paradigm. Our results show that participants reported to socially identify with the group of MTurk participants. Furthermore, social categorization in terms of being similar to other MTurk participants was illustrated with the finding that the more participants reported to identify with the group the more they conformed to the group's judgments.

Self-Regulation of Conform and Correct Behavior

Earlier research on regulating conformity primarily focused on external factors that cause people to resist majority influence (e.g., Griskevicius, Goldstein, Mortensen, Cialdini, & Kenrick, 2006; Imhoff & Erb, 2009; Sun et al., 2016). The present research, however, utilized a mental strategy that helps people to regulate their tendency to conform and therefore to attain their goal despite deviant majority influence. Only MCII (vs. two relevant control conditions) appeared to promote the identification and reinterpretation of reality. That is, participants identified majority influence and their own tendency to conform to that majority as the obstacle standing in the way of attaining their goal (e.g., A. Kappes & Oettingen, 2014; A. Kappes et al., 2012; A. Kappes et al., 2013). As MCII is a strategy that is easily applicable and is used to self-regulate one's own behavior, it is independent of external sources or factors, such as someone calling attention to one's similarity to others. However, in this first Study-set MCII was partly

pre-set by the experimenter. To further strengthen the assumption that MCII can be used to regulate one's tendency to conform without the help of an external source (i.e., the experimenter), future research should leave participants free to identify obstacles and instrumental behaviors to overcome these obstacles. This would confirm that MCII is a content-independent strategy, transferable to various situations, making an external source pointing to someone's conformity completely redundant.

With regard to our results, two points have to be discussed: First, one may argue that participants in the MCII condition (vs. other) obtained more relevant information (i.e., "People tend to follow other people's behavior when they are unsure of how to act"), facilitating identification of the obstacle and subsequently the regulation of conformity. Studies 1.4 and 1.5 refute this notion. We utilized reverse contrasting as a control condition, in which participants elaborated on exactly the same best outcome and obstacle as participants in the MCII condition, but in a different order and followed by slightly different implementation intentions (i.e., "If I solve all following tasks successfully, then I will feel great!"). However, only when participants engaged in MCII did they significantly reduce the number of conform answers. We, therefore conclude that it is not the provided content information that led to an increased regulation of conformity but rather *how* participants thought about the content information. This is similar to previous research on the fantasy realization theory. It states that only when first elaborating on the desired future and subsequently on the present reality, can the future be taken as a reference point against which the present reality is perceived as the obstacle one has to overcome to attain one's goal. Reverse contrasting, in contrast, fails to activate the relational construct of reality standing in the way of goal attainment, wherefore people fail to realize the necessity of behavior change to attain one's goal (review by Oettingen, 2012).

We confirmed these findings using both, objective (i.e., behavior; Studies 1.1 to 1.5) as well as subjective (i.e., self-report; Studies 1.3 and 1.5) measurements. Only when using MCII

(vs. three relevant control conditions) did participants reduce the number of conform answers, as well as less were oriented towards the majority's behavior as indicated by their survey responses. Self-report measures demonstrated that participants indeed recognized that they were conform to the majority, whereas objective measurements showed that participants were only able to resist the majority's influence when engaging in MCII.

Second, one could argue that participants using MCII simply followed the instruction of the experimenter to ignore the majority's behavior (i.e., "If I feel that I follow other people's behavior, then I will tell myself: Ignore them!"), and as such conformed to the experimenter's request. The pattern we observed across the five studies refutes this theory: Participants did not simply choose any answer other than the one allegedly given by the majority, thus ignoring the majority's behavior as instructed by the experimenter. Instead of blindly following instruction, they rather chose the correct answer among the eight choices. In fact, those who adopted MCII (vs. other) gave a greater number correct answers on the task, and were therefore more likely to attain their goal of independently succeeding in solving the logical reasoning task. This finding can be explained by the fantasy realization theory, which states that when one has high expectation of attaining one's goal, mental contrasting can lead to goal commitment and behavior change. That is, high expectations of realizing one's goal strengthen the association between the desired future and present reality and therefore enhance one's goal pursuit (e.g., A. Kappes et al., 2012; Oettingen, 2012).

We observed this pattern (i.e., greater number of correct answers when engaging in MCII) across five studies, however only in Studies 1.2 and 1.4 did this reach significance (results in the other three studies were marginally significant). We conducted a meta-analysis consulting the MAVIS Meta-Analysis via Shiny software (Version 2.1; Hamilton, Aydin, & Mizumoto, 2014), to assess the general effect size of our manipulation on the number of correct answers. We used a random effects model to analyze all five studies. The

test for heterogeneity revealed that the effect sizes did not significantly differ between the five studies ($I^2 = 0\%$). Within the Studies 1.1 to 1.5 the overall effect size of MCII on the number of correct answers was *Hedges's g* = 0.36 [0.19, 0.53] based on $k = 5$ involving 576 participants (Figure 8). Accordingly, we showed across five studies that MCII (vs. other) helps participants to improve their performance on the logical reasoning task by giving a greater number of correct answers despite a deviant majority.

In sum, our results, measured both objectively and subjectively, indicate that MCII can be an effective strategy to deal with social pressure exerted through majority influence and therefore supporting goal striving in the face of a deviant majority.

Social Identification and Conformity

Perceived similarity with the source of influence is a determining factor when it comes to conformity (e.g., David & Turner, 1996). Only a little perceived similarity, for example, shared names or birthdays, may lead to enhanced conformity or compliance (Burger, Soroka, Gonzago, Murphy, & Somervell, 2001; Cialdini & Goldstein, 2004). Thus, the source of influence does not necessarily have to be physically present. Also, in the context of CMC, perceived similarity with the source of influence was shown to drive conformity behavior (e.g., Cinnirella & Green, 2007; Lea, Spears, & Watt, 2006; Rogers & Lea, 2005; Postmes & Spears, 2002; Rosander & Eriksson, 2012; Spears & Lea, 1992; Spears, Postmes, Lea, & Wolbert, 2002). In the present study, we first created a shared social identity with the source of influence by introducing a cover-story (MTurk participants vs. banker). With this, we aimed to define an in-group membership for the participants and made social identity salient, i.e., promoting social categorization of others as similar to self (*self-categorization theory*; David & Turner, 1996).

Our results reveal that the cover-story (i.e., the study investigates cognitive abilities of MTurk participants vs. banker) was effective: Participants socially identified with the

group of MTurk participants. In fact, the more participants identified with the group of MTurk participants the more they acted conform with the behaviors of their MTurk peers, which is in line with previous research stating that social identification and thus perceived similarity can be necessary for conformity behavior (e.g., David & Turner, 1996; Postmes & Spears, 1992).

Influence of conformity on subsequent social identification. Our results revealed an even more interesting connection, which to our knowledge, has only been minimally discussed in the existing literature: The relation between conformity and subsequent identification with the source of influence. Despite the lack of previous discussion, the relationship between the variables is not entirely surprising, since being in line with a group's behavior has been found to enhance one's perception of similarity, which may further support the adoption of the group's identity (Turner, 1991). It has been shown that interactions within groups can foster a meaningful and strong sense of identity (e.g., Postmes et al., 1999). Even though participants in the present research did not physically interact with each other, they still shared the commonality of working on a task, whose results were allegedly compared to an out-group. Presumably, this led to increased perception of an in-group and thus to social identification with the group of MTurk participants.

Such reciprocal relationships have been described also in other areas of psychological research. In his model of reciprocal determinism, Bandura (1977) found that strong past performance predicts high self-efficacy beliefs, which in turn predict high subsequent performance. That is, people who feel efficacious regarding a certain behavior perform better, and this performance, in turn, strengthens their feelings of efficacy. Results of the present research show a similar reciprocal relationship between social identification and conformity behavior. The more participants socially identified with the group, the more

they conformed to the group, and this conformity behavior, in turn, predicted social identification with the group.

Impact of MCII on social identification and conformity. MCII seems to be part of this reciprocal process; those who used MCII (vs. other) engaged less in conform behaviors and subsequently identified less with the source of influence (indirect effect). In three out of five studies (Studies 1.2, 1.3, and 1.5), we also found that MCII directly influenced participants' social identification with the source of influence. Specifically, using MCII (vs. other) led to a decrease in social identification with the group (direct effect). These findings lead us to two concluding speculations.

First, the indirect effect shows that MCII may lead to a different interpretation of the group's performance, which then resulted in less conformity. That is, participants in the MCII condition did not perceive the presented majority answers as a potential source of information, but rather as a distracting factor swaying their own behavior. It may have led them to reconsider the group's behavior and to independently identify the correct answer. The deviant behavior with regard to the group may have caused a decreased perceived similarity with the group and subsequently to less social identification. Future research should investigate the effects of MCII on a change of perception of the group, on the perception of the group's behavior, as well as on the associated alteration of social identification with the group.

Second, the direct effect of condition on social identification shows that MCII may directly lead to disregarding the group's behavior and therefore to a decrease in social identification with the group. Specifically, when participants are motivated to ignore the group's behavior, they may not perceive similarities to that group anymore, subsequently leading to decreased social identification. Future research should test the processes MCII elicits with regard to the perception of the group immediately after the manipulation.

It is worth noting, that it is not MCII per se that drives the decrease in social identification. MCII is a content-independent strategy, being effective across a wide range of life domains (e.g., interpersonal, achievement or health domain; review by Oettingen, 2012). It can be adopted for any goal and wish one wants to realize. In our research, we defined successfully solving the task as the goal, and defined the tendency to conform to the majority as an obstacle in the present reality. In doing so, we highlighted the necessity of disentangling oneself from majority influence in order to attain one's goal. This in turn may have led to the observed decrease in social identification. To illustrate the versatility of the strategy, one can also use MCII to increase one's social identification. For example, one could define establishing a close relationship with other group members as a goal, in which case non-conform actions would be the obstacle standing in the way of attaining that goal. In this reversed scenario, people engaging in MCII would then be more likely to increase their social identification with the group.

In summary, behavioral and self-report measures showed that MCII (vs. three relevant control conditions) is an effective mode of thought to support people in regulating their tendency to conform and thus to support them in attaining their goal of successfully solving the logical reasoning task. Nevertheless, parts of the manipulation and the *if-then* plan were pre-set, which was mandatory to test whether MCII can even be an effective strategy to regulate one’s tendency to conform. In Study-set 2, we aimed to extend our findings by investigating whether mental contrasting would help participants to generate *individual if-then* plans, which would effectively support participants’ regulation of their tendency to conform and thus the attainment of their goal of independently succeeding in solving the task.

Study-set 2: Self-Regulation of Conformity on the Internet – Individual Plan

In two experiments (N = 452; MTurk participants), we aimed to extend our findings from Study-set 1. In Study-set 1, we asked participants to remind pre-specified

implementation intentions (Gollwitzer, 1999, 2014) while working on the logical reasoning task. We now wished for participants to generate individual implementation intentions after they had engaged in mental contrasting in order to regulate their tendency to conform and to attain the goal of independently succeeding in solving the task. We aimed to show that the effects observed in Study-set 1 are not due to pre-defined implementation intentions, driving the regulation of one's tendency to conform. Rather, we wanted to investigate whether one's mode of thought would support participants in becoming aware of the obstacle and subsequently help them to generate effective implementation intentions to overcome that obstacle (i.e., regulate the tendency to conform).

To test our assumptions, we randomly assigned participants to a conformity or a control condition (as done in Study-set 1). All participants were requested to practice with five logical reasoning items so that they would get an idea of how the items would look like and what possible obstacles might hold them back from attaining the goal of independently succeeding in solving the logical reasoning task (introduction phase). Next, participants either engaged in MCII or in no self-regulation strategy (Study 2.1), or in MCII, in indulging or in no self-regulation strategy, respectively (Study 2.2). Subsequently, participants again worked on five logical reasoning items (experimental phase).

We aimed to investigate if participants who engaged in the strategy of MCII (vs. two relevant control conditions) would generate individual implementation intentions, which would help regulate their tendency to conform and thus be more likely to independently succeed in solving the logical reasoning task.

Study 2.1: Conformity: MCII vs. no Self-Regulation Strategy – Individual Plan

In Study 2.1, we had four assumptions: First, we expected that participants in the conformity condition would more often choose the incorrect answers that were indicated by

the supposed majority, compared to participants in the no self-regulation strategy condition choosing the same incorrect answers.

Secondly, we hypothesized that participants in the conformity condition would choose less often the incorrect answers indicated by the supposed majority when engaging in MCII with individually generated *if-then* plans, compared to participants in the conformity condition engaging in no self-regulation strategy.

Thirdly, we hypothesized that participants in the conformity condition would give a greater number of correct answers when using MCII, compared to participants in the conformity condition using no self-regulation strategy condition. Thus, participants in the conformity condition engaging in MCII should be more likely to attain their goal of independently succeeding in solving the task despite a deviant majority.

Fourthly, we expected to find a connection between social identification with the source of influence (i.e., MTurk participants) and conformity. Hence, the more participants socially identified with the group of MTurk participants, the more they would conform to the group's answers.

Method

Power Analysis

We based our power analysis on Study-set 1. Accordingly, we applied the effect size of $d = 0.60$ to an a priori power analysis for four conditions within an ANOVA. The power analysis indicated that approximately 164 participants would be needed to achieve 90% power ($1 - \beta$) at a .05 alpha level ($\alpha = .05$). To account for potential dropouts, we recruited 200 participants using MTurk. We excluded 23 participants because they indicated suspicion about the conformity manipulation ($n = 17$) or did not follow the instructions of the manipulation of self-regulatory thought ($n = 6$).

Participants

Our final sample consisted of 177 participants (57% women). Participants' ages ranged between 18 and 82 years, with a mean of age of 35.33 years (*SD* = 12.13). Participants were randomly assigned to one of the four conditions: conformity with no self-regulation strategy (conformity_NSR; *n* = 44) conformity with MCII (conformity_MCII; *n* = 40), control with no self-regulation strategy (control_NSR; *n* = 46), and control with MCII (control_MCII; *n* = 47).

Materials and Procedure

We informed participants about the procedure and asked them to complete an informed consent. Participants were presented the same cover-story that was used in the first Study-set. We stated that the study was designed to compare the cognitive abilities of people who occasionally deal with social psychology experiments (i.e., MTurk participants) and people who deal with economic problems (i.e., banker).

Social identification. We asked participants for their social identification with the group of MTurk participants. We used the same three items as in Study-set 1, "To what extent do you feel as part of the group of MTurk workers?", "To what extent do you identify yourself with the group of MTurk-workers?", and "How important is it to you that your group obtains a good overall result?". Items were answered on 7-point Likert scales, ranging from 1 (*not at all*) to 7 (*very much*). The answers were combined into one scale (α_{t1} = .81).

Logical reasoning task (introduction phase). Participants were randomly assigned to either the conformity or the control condition. We asked participants to work on five logical reasoning items (*Standard Progressive Matrices*; Raven, 1965)[4]. We presented the

[4] Participants worked on ten logical reasoning items in total (five items in the introduction phase and five items in the experimental phase); eight of the items were already used in Study-set 1. Thus, we added two new items from the *Standard Progressive Matrices* (Raven, 1965), which were of equal medium difficulty.

same diagrams claiming to show how other MTurk participants had answered in the past, as used in Study-set 1. Diagrams shown in the control condition displayed equally distributed answers. Diagrams shown in the conformity condition displayed the majority of participants choosing one specific answer. Specifically, in the conformity condition, the logical reasoning task consisted of two filler items (i.e., the majority of MTurk participants choosing the *correct* answer) and three critical items (i.e., the majority of MTurk participants choosing an *incorrect* answer). This introduction phase was conducted in order to familiarize participants with the task, as well as possible obstacles that might hold them back from independently succeeding in solving the subsequent logical reasoning items in the experimental phase. After the completion of the five items in the introduction phase, we informed participants that we would conduct a short mental exercise before the logical reasoning task progressed. To do so, we displayed participants the same wish as in Study-set 1. Participants read:

> Think about how nice it would be if you independently solved all of the following tasks successfully and could say to yourself: "Yes! I did it right!"

Expectation, incentive, and commitment. We assessed participants' incentive value, expectations, and commitment (i.e., "How important is it to you that you independently solve all of the following tasks successfully?", "How likely do you think it is that you independently solve all of the following tasks successfully?", "How disappointed would you feel if you did not independently solve all of the following tasks successfully?", respectively). The 7-point Likert scales ranged from 1 (*not at all*) to 7 (*very*).

Manipulation of self-regulation strategy. Participants were randomly assigned to the conditions MCII or no self-regulation strategy. In the no self-regulation strategy condition participants were immediately guided forward to the logical reasoning task (experimental phase).

In the MCII condition, we asked participants to name and elaborate on one positive aspect that they would associate with independently succeeding in solving the upcoming logical reasoning task, using the same wording as in Study-set 1. Participants read:

> What would be the best thing if you independently solved all of the following tasks successfully and could say to yourself: "Yes! I did it right!"? What would be the most wonderful thing about it?

Next, we provided participants with the obstacle that might hinder them from independently succeeding in solving the logical reasoning tasks and asked them to mentally elaborate it. Participants read:

> Sometimes things don't work out as we would like them to. People tend to follow other people's behavior when they are unsure of how to act. This can often lead to mistakes. Imagine <u>yourself</u> following the behavior of other people when solving the cognitive tasks. Imagine things fully. Please write thoughts and images down.

The following step differed from the first Study-set. We asked participants to generate their own *if-then* plan, defining exactly when and how they want to act to achieve their goal. That is, participants needed to identify a goal-relevant situational cue, i.e., an obstacle (e.g., one participant named "If I feel myself studying other's answers…"). They then had to link it to an instrumental goal directed behavior (e.g., the same participant named "…then I will redirect my attention to figuring out the problems myself.")

Logical reasoning task (experimental phase). Participants were again asked to work on five logical reasoning items (*Standard Progressive Matrices*; Raven, 1965). Importantly, these were not the same items as in the introduction phase. Participants were assigned to the same condition (i.e., conformity or control condition) as they were in the introduction phase. That is, a participant who was randomly assigned to the conformity

condition in the introduction phase was also assigned to the conformity condition in the experimental phase.

As in the introduction phase, the experimental phase in the conformity condition consisted of two filler items (i.e., diagrams showed the majority of MTurk participants choosing the *correct* answer) and three critical items (i.e., diagrams showed the majority of MTurk participants choosing an *incorrect* answer).

Behavioral measures. We report how we measured the dependent variables, which were assessed either objectively (behavioral) or subjectively (self-report).

Conform behavior. We consulted the three critical items of the experimental phase to measure conformity. Accordingly, participants were able to conform zero to three times. We quantified conformity as the difference between the mean number of conform answers that agreed with the incorrect majority answers in the conformity condition and the mean number of answers in the control condition being exactly the same incorrect answers.

To measure if MCII helps to regulate one's tendency to conform, we compared the mean number of conform answers in the conformity condition using MCII with the mean number of conform answers in the conformity condition using no self-regulation strategy.

Correct behavior. Again, we consulted the three critical items of the experimental phase to measure correct behavior. Accordingly, participants were able to answer correct zero to three times. We quantified correct behavior as the difference between the mean number of correct answers in the conformity condition using MCII and the mean number of correct answers in the conformity condition using no self-regulation strategy.

Self-report measures. After the experimental phase, we again assessed participants' social identification with the group of MTurk participants. We used the same three items as in the beginning and combined them into one scale ($\alpha_{t2} = .87$). Finally, we asked participants

for their demographic data. After the completion of the study, which took approximately 15 minutes, participants were thanked and received credit for their participation in the study.

Results

Randomization Check

We observed no significant differences between the conditions regarding all demographic variables and the social identification with the group before the logical reasoning task (all *p*s > .05).

Expectation, Incentive, and Commitment

Mean values for expectations ($M = 5.13$, $SD = 1.42$), incentive value ($M = 5.76$, $SD = 1.27$) and commitment ($M = 4.30$, $SD = 1.70$) were moderately high and did not differ between conditions (all *p*s > .05).

Behavioral Measures

All data, which will be reported in the following, exclusively focus on the experimental phase of the logical reasoning task.

Conform behavior. To investigate the first a priori hypothesis, namely participants in the conformity condition would more often choose the incorrect answers indicated by the supposed majority than participants in the control condition choosing the same incorrect answers, we conducted planned contrasts for the conditions using no self-regulatory thought (conformity_NSR vs. control_NSR). Participants in the conformity_NSR condition significantly more often chose the incorrect answers indicated by the supposed majority ($M = 1.23$, $SD = 0.96$), compared to participants in the control_NSR condition choosing exactly the same incorrect answers ($M = 0.26$, $SD = 0.45$), $t(59.95) = 6.08$, $p < .001$, $d = 1.30$. That is, we successfully induced conformity with the paradigm.

To investigate the second a priori hypothesis, namely participants in the conformity condition engaging in MCII with individually generated implementation intentions would

reduce the number of conform answers, compared to participants in the conformity condition engaging in no self-regulation strategy, we conducted planned contrasts for the conformity conditions (conformity_MCII vs. conformity_NSR). Participants in the conformity_MCII condition less often chose the incorrect answers indicated by the supposed majority (M = 0.60, SD = 0.81) compared to participants in the conformity_NSR condition (M = 1.23, SD = 0.96), $t(81.55) = 3.24$, $p < .001$, d = 0.71 (Figure 9).

Correct behavior. To investigate the third a priori hypothesis, namely participants in the conformity condition engaging in MCII with individually generated implementation intentions would give a greater number of correct answers compared to participants in the conformity condition engaging in no self-regulation strategy, we conducted planned contrasts for the conformity conditions (conformity_MCII vs. conformity_NSR). Participants in the conformity_MCII condition tended to give a greater number of correct answers on the task (M = 1.60, SD = 1.03), compared to participants in the conformity_NSR condition (M = 1.18, SD = 1.11), $t(81.93) = 1.79$, $p = .077$, d = 0.39 (Figure 10).

S**elf-Report Measures**

To test the a priori hypothesis that social identification and conformity are connected, further analysis exclusively focused on the two conformity conditions (conformity_MCII, conformity_NSR). There was no significant difference between the conditions concerning participants' social identification with the group of MTurk participants after the logical reasoning task.

Social identification and conformity. We found no significant correlation between social identification assessed at Time 1 and conformity behavior during the task. However, we found a positive correlation for conformity during the task and social identification assessed at Time 2, $r(84) = .33$, $p = .002$; the more participants acted conform to the

majority of MTurk participants, the more they identified themselves with the group of MTurk participants after the task.

To test whether the effect of condition (MCII vs. no self-regulation) on change of social identification was mediated by conformity behavior, we first calculated a change score for social identification by subtracting Time 1 from Time 2 and included this as the dependent variable in a bootstrapping procedure using SPSS PROCESS macro provided by Hayes (2013). The indirect effect of the condition on change of social identification through conformity behavior was significantly different from 0, 95% CI [-0.576, -0.107], with 5000 iterations. That is, participants in the conformity_MCII (vs. conformity_NSR) conformed less, which subsequently led to a reduced social identification with the group of MTurk participants. The direct effect of condition on change of social identification was not significant.

Discussion

We tested if engaging in the strategy of MCII with *individually* generated *if-then* plans, would help participants to regulate their tendency to conform to the majority and to attain their goal of independently succeeding in solving the logical reasoning task.

As expected, participants who engaged in MC and generated individual *if-then* plans, were less likely to choose the incorrect answers indicated by the supposed majority, compared to participants engaging in no self-regulation strategy. Thus, they were better able to regulate their tendency to conform. Furthermore, those who engaged in MCII (vs. no self-regulation) tended to give a greater number of correct answers on the task, thus being more likely to attain the goal of independently succeeding in solving the logical reasoning task.

Importantly, we can support our assumption that results of the first Study-set were not exclusively driven by a pre-specified *if-then* plan. Rather, when participants first elaborated on the desired future and subsequently on an obstacle in the present reality, they were able to generate effective *if-then* plans by themselves, which helped them better

regulate their tendency to conform and to independently succeeding in completing the experimental phase of the logical reasoning task.

We partially replicated the connection between social identification with the source of influence and conformity. Although there was no correlation between the initial social identification and conformity during the task, we found a positive correlation between conformity and social identification afterwards. Thereby, the effects of condition on change of social identification were mediated by conformity; engaging in MCII (vs. no self-regulation) caused participants to conform less, which in turn led to a lowered level of social identification with the group. However, even though participants engaging in MCII (vs. no self-regulation) reduced their identification with the group of MTurk participants over the task, the difference between the conditions regarding social identification with the group after the task was not significantly different. In a second study, we aimed to resolve and verify previous results. Thereby, we included the additional control condition indulging.

Study 2.2: Conformity: MCII vs. Indulging – Individual Plan

We aimed to replicate the findings from the previous study. Furthermore, we decided to include indulging as an additional control condition. We hypothesized that those in the conformity condition would more often choose the incorrect answers indicated by the supposed majority, compared to participants in the control condition choosing the same incorrect answers. Further, we expected that participants using MCII (vs. no self-regulation and indulging) with individually generated *if-then* plans were more likely to regulate their tendency to conform to the majority. Also, we hypothesized that MCII (vs. no self-regulation and indulging) helps participants attain their goal of independently succeeding in solving the logical reasoning task. Finally, we assumed a connection between social identification with the group and conformity.

Method

Power Analysis

Based on the previous study, we slightly reduced the effect size to $d = 0.50$ and applied it to an a priori power analysis for six conditions within an ANOVA. The power analysis indicated that approximately 270 participants would be needed to achieve 90% power ($1 - \beta$) at a .05 alpha level ($\alpha = .05$). To account for potential dropouts, we recruited 302 participants using MTurk. We excluded 26 participants because they indicated suspicion about the conformity manipulation ($n = 22$) or did not follow the instructions of the manipulation of self-regulatory thought ($n = 4$).

Participants

Our final sample consisted of 276 participants, of which 58% were women. Participants' ages ranged between 18 and 69 years, with a mean of age of 36.72 years ($SD = 11.46$). Participants were randomly assigned to one of the six conditions: conformity_NSR ($n = 46$), conformity_MCII ($n = 43$), conformity_Indulging ($n = 45$), control_NSR ($n = 50$), control_MCII ($n = 43$) and control_Indulging ($n = 49$).

Materials and Procedure

We consulted the same materials and followed the same procedure as in Study 2.1. We added indulging as an additional control condition. Participants were first presented the same wish as in the other conditions ("Think about how nice it would be if you independently solved all of the following tasks successfully and could say to yourself: Yes! I did it right!"). They were then asked about their incentive value, their expectations, and their commitment to attain this goal. As in the MCII condition, participants were then requested to name and elaborate on a positive outcome that they associate with the attainment of that goal. However, instead of asking them for an obstacle in the present reality (as in the MCII condition), participants were asked to name and elaborate on a

second best outcome that they associate with the attainment of that goal. Finally, we asked them to generate an individual *if-then* plan, which followed the structure of *if*... (positive outcome), *then*… (emotion). For example, one participant named "*If* I solved them independently, *then* I will feel proud".

Behavioral measures. We report how we measured the dependent variables that were assessed either objectively (behavioral) or subjectively (self-report).

Conform and correct behavior. As in Study 2.1, we consulted the three critical items from the logical reasoning task (experimental phase) to assess participants' conform and correct behavior during the task and compared means of the conditions in accordance with our a priori hypotheses.

Self-report measures. We combined the three items asking for social identification with the group of MTurk participants before the logical reasoning task (α_{t1} = .84) as well as after the logical reasoning task into each one scale (α_{t2} = .87). After the completion of the study, which took approximately 15 minutes, participants were thanked and received credit for their participation in the study.

Results

Randomization Check

We observed no significant differences between the conditions regarding all demographic variables and the social identification with the group before the logical reasoning task (all *p*s > .05).

Expectation, Incentive, and Commitment

Mean values for expectation (*M* = 5.14, *SD* = 1.39), incentive value (*M* = 5.67, *SD* = 1.44) and commitment (*M* = 4.22, *SD* = 1.65) were moderately high and did not differ between conditions (all *p*s > .05).

Behavioral Measures

All data, which will be reported in the following, exclusively focus on the experimental phase of the logical reasoning task.

Conform behavior. Planned contrasts yielded that participants in the conformity_NSR condition significantly more often chose the incorrect answers indicated by the supposed majority (M = 1.02, SD = 0.88) compared to participants in the control_NSR condition choosing exactly the same incorrect answers (M = 0.16, SD = 0.42), $t(63.37) = 6.03$, $p < .001$, $d = 1.26$.

Testing whether MCII helps to regulate one's tendency to conform, planned contrasts revealed that participants in the conformity_MCII condition significantly less often chose the incorrect answers indicated by the supposed majority (M = 0.65, SD = 0.95) compared to participants in the conformity_Indulging condition (M = 0.89, SD = 1.01) or in the conformity_NSR condition (M = 1.02, SD = 0.88), $t(270) = 2.32$, $p = .021$, $d = 0.28$ (Figure 11).

Correct behavior. Planned contrasts revealed that participants in the conformity_MCII condition tended to give a greater number of correct answers (M = 1.81, SD = 1.66) compared to participants in the conformity_Indulging condition (M = 1.56, SD = 1.09) or in the conformity_NSR condition (M = 1.33, SD = 0.92), $t(270) = 1.95$, $p = .052$, $d = 0.24$ (Figure 12).

Self-Report Measures

Testing for social identification with the group of MTurk participants, we observed a significant difference between the conditions concerning participants' social identification with the group assessed at Time 2, $t(270) = 2.44$, $p = .015$, $d = 0.30$; those in the conformity_MCII condition identified less with the group after the task (M = 3.96, SD = 1.52) compared to those in the conformity_Indulging condition (M = 4.62, SD = 1.52) or in the conformity_NSR condition (M = 4.75, SD = 1.62).

Social identification and conformity. There were no significant correlations between social identification with the group assessed at Time 1 and conformity during the task nor between conformity during the task and social identification with the group assessed at Time 2.

We followed the bootstrapping procedure using SPSS PROCESS macro provided by Hayes (2013) to test whether the effect of condition (MCII vs. no self-regulation strategy and indulging) on change of social identification was mediated by conformity behavior. Neither the indirect effect of condition on change of social identification through conformity nor the direct effect of condition on change of social identification was significant.

Discussion

We aimed to replicate the findings from the previous study, whereas we added the control condition of indulging. The study supported earlier findings with regard to the regulation of one's tendency to conform to majority answers in a computer-based logical reasoning task; those who engaged in MCII – generating individual *if-then* plans – significantly reduced the number of incorrect answers that were indicated by the supposed majority, compared to those who indulged or engaged not in a self-regulation strategy. In addition, engaging in MCII (vs. no self-regulation strategy and indulging) led to a greater number of correct answers on the task, thus helping participants attain the goal of independently succeeding in solving the task.

The indulging condition was added as a more stringent control condition, as participants also mentally elaborated on the provided wish and generated an *if-then* plan. Accordingly, our findings reveal that solely positively fantasizing about a wished-for future is not enough to regulate one's tendency to conform and to attain one's goal. It rather seems decisive *how* participants mentally elaborate on their goal of independently succeeding in

solving the task, thus paving the way for generating effective *if-then* plans, which support one's goal pursuit despite a deviant majority (e.g., Oettingen & Gollwitzer, 2010).

With regard to the connection between social identification and conformity, we were not able to replicate the findings of previous studies. There was neither a correlation between social identification and conformity nor did conformity mediate the effect of condition on change of social identification.

General Discussion Study-set 2

We examined whether mental contrasting with individually generated implementation intentions effectively regulates participants' tendency to conform within a computer-based logical reasoning task and helps them attain their goal of independently succeeding in solving the task. Across two studies we confirmed that MCII (vs. two relevant control conditions) reduces the number of conform answers. Our prediction that MCII (vs. two relevant control conditions) helps participants to attain their goal of independently succeeding in solving the task was partially confirmed. Finally, we found that social identification and conformity behavior appeared to be connected, although the results showed some inconsistencies. In addition, the effect of condition on change of social identification was only mediated through conformity behavior in Study 2.1.

Self-Regulation of Conform and Correct Behavior

As an extension of the first Study-set where we pre-specified the wish, obstacle, and *if-then* plan, Study-set 2 was less rigid with regard to the manipulation. Participants generated individual *if-then*-plans and still effectively regulated their tendency to conform. We can, therefore, deduce that specifying pre-determined *if-then* plans is not mandatory to reduce the number of conform answers. Our results show that participants seemed to be aware of their tendency to conform to the majority and identified it as the obstacle that could hold them back from goal attainment. Accordingly, they were able to generate individual *if –then* plans that

helped to regulate their tendency to conform. This confirms that it is not the explicit precept of an action that drives the regulation of one's tendency to conform within this context. Rather, it appears to be decisive *how* participants mentally elaborate on their goal of independently succeeding in solving the task, which in turn leads them to generate effective *if-then* plans and support goal pursuit (e.g., Oettingen & Gollwitzer, 2010).

Regarding the correct answers given on the task, participants in the conformity condition tended to improve their performance by giving a greater number of correct answers when engaging in MCII. However, this was not significant. Therefore, we conducted a meta-analysis consulting the MAVIS Meta-Analysis via Shiny software (Version 2.1; Hamilton et al., 2014) to assess the general effect size of our manipulation on the dependent variable of correct answers. We used a random effects model to analyze the two studies. The test for heterogeneity revealed that the effect sizes did not significantly differ between the two studies ($I^2 = 0\%$). In Studies 2.1 and 2.2 the overall effect size of MCII on the number of correct answers in the logical reasoning task was *Hedges's g* = 0.34 [0.06, 0.62] based on $k = 2$ involving 218 participants (Figure 13). Accordingly, we showed that across the two studies MCII (vs. other) helps participants to increase the number of correct answers and therefore to attain the goal of independently succeeding in solving the task. Nevertheless, the effects were generally small and therefore unstable, which was also true for the results in Study-set 1. Future studies may consult a larger sample size in order to investigate if this may increase the effect sizes and make the results more stable.

Social Identification and Conformity

While we found a strong link between social identification with the source of influence (i.e., the group of MTurk participants) in Study-set 1, Study-set 2 contained some inconsistencies concerning this connection. There was no correlation between social identification with the group before the task and conformity behavior during the task. The correlation between

conformity behavior during the task and social identification with the group afterwards, was only significant in Study 2.1. Also, the indirect effect of condition on change of social identification through conformity behavior was only observed in Study 2.1.

How can we explain the somewhat inconsistent findings, especially when comparing them to Study-set 1? The research on social identification and conformity within the context of CMC states that people can evolve a strong sense of group identity by interacting with each other (e.g., Postmes et al., 1999). In Study-set 2, we only included two filler items (i.e., the majority chose the correct answer), and only three critical items (i.e., the majority chose the incorrect answer). This is different from Study-set 1, in which participants were presented with three filler and five critical items. We assume that the perception of a common behavior (i.e., majority and participant agree on the answers) and thus an interaction with the group may have been too small to further strengthen social identification with the group of MTurk participants (as found in Study-set 1).

Furthermore, Study-set 2 provided only weak evidence that those who engaged in MCII identified less with the source of influence after the task (in contrast to Study-set 1). We attribute this to the individually generated *if-then* plans. Participants in Study-set 1 were explicitly requested to ignore other people's behavior in order to attain their goal. Ignoring the others from the beginning of the experiment may have led to less perceived similarity and therefore to less social identification after the task. In contrast, participants in Study-set 2 generated their own *if-then* plans to attain their goal. These plans may not have stated the necessity to ignore others. We can, therefore, assume that MCII facilitated the regulation of conformity but did not necessarily result in the ignoring of the group per se. This highlights the adequacy of MCII: It supports a reduction in conformity when the attainment of their goal requires it, but it is not in conflict with the inherent need to belong to a group.

In sum, Study-set 2 provides further support for our hypothesis that MCII can be an effective tool to regulate conformity within a computer-based logical reasoning task and help attain a goal despite a deviant majority. We showed that when elaborating on the desired future first and on the obstacle afterwards, participants subsequently generated effective *if-then* plans that helped them to overcome conformity. Nevertheless, the first two Study-sets were conducted in an experimentally designed environment; all participants aimed to attain the same wish and were confronted with the same obstacle of majority influence. We were, therefore, interested in extending our findings to a different context. Study-set 3 focused on individual goals that participants desired to attain, but which they subjectively acknowledge as being deviant to established group norms or majority opinions.

Study-set 3: Regulating Conformity by Promoting One's Uniqueness

In Study-sets 1 and 2, we showed in a computer-based paradigm that MCII is an effective strategy to help people act on their goal despite a deviant majority. In Study-set 3, we conducted three studies (N = 514, MTurk participants) to investigate if MCII can help people act on idiosyncratic goals outside a computer-based paradigm in which conformity is manipulated. Specifically, we examined if MCII helps people realize idiosyncratic wishes of uniqueness, which participants subjectively acknowledge as being non-conform, unusual, or divergent from the majority (e.g., extraordinary style, appearance). The attainment of such wishes requires the regulation of one's tendency to conform. We relied on the need for uniqueness (NfU) as a motivator to help people regulate their conformity. MCII was introduced as a strategy to support the goal of becoming unique in a specific area of their life.

In Study-set 3, we conducted three two-part studies. In the first part, we asked participants to name a wish concerning their desire to become more unique in a specific area of their life. Then participants engaged in MCII or indulging (Studies 3.1 and 3.2), or in

MCII or no self-regulation strategy, respectively (Study 3.3). After two weeks, we contacted participants and asked them if and to what extent they realized their wish of becoming unique in a certain area of their life.

Study 3.1: Realizing Unique Goals: MCII vs. Indulging

In Study 3.1, we tested if MCII (vs. indulging) can support people in realizing an idiosyncratic wish of becoming unique and therefore in regulating the tendency to conform to a subjectively acknowledged deviant majority. We asked participants for an idiosyncratic wish of becoming unique in a certain area of their life. Participants were then instructed to use MCII or indulging. After two weeks, we asked participants if and to what extent they were able to realize their idiosyncratic wish.

We had two hypotheses: First, we predicted that participants engaging in MCII (vs. indulging) would feel more energized, more committed, and have a clearer idea of how to implement the wish immediately after the manipulation (Time 1). We expected that these effects would still be present after two weeks (Time 2); participants engaging in MCII (vs. indulging) would have felt more energized and committed towards their wish, as well as had a clearer idea of how to implement the wish in the past two weeks.

Second, we predicted that participants engaging in MCII (vs. indulging) would be more likely to realize their wish. Specifically, participants in the MCII condition (vs. indulging condition) would take more actions to attain their wish within the two weeks, they would feel closer to the realization of their wish, and be more likely to have actually realized their wish after the two weeks.

Method

Power Analysis

We based our power analysis on previous studies investigating the effects of MCII versus relevant control conditions (e.g., d = 0.53-0.97: Christiansen et al., 2010; d = 0.46-

0.57: Duckworth et al., 2013; d = 0.65: Kirk et al., 2013). Accordingly, we assumed a medium-to-large effect size (d = 0.65). We applied this effect size to an a priori power analysis for two conditions within an independent t-test. The power analysis indicated that approximately 152 participants would be needed to achieve 99% power (1- β) at a .05 alpha level (α = .05). Due to potential dropouts, we recruited 300 participants online via MTurk. Two weeks later, 209 participants responded to the second questionnaire. Of these, we had to exclude 14 participants as they indicated having not a wish for becoming unique in a certain area of their life.

Participants

Our final sample consisted of 195 participants, of which 64% were women. Participants ages ranged from 19 to 71 years, with a mean of 38.75 years (SD = 12.39). Participants were randomly assigned to one of the two conditions: MCII (n = 92) or indulging (n = 103).

Materials and Procedure

The study consisted of two parts that were conducted two weeks apart. In the first part, participants were asked to complete an informed consent form. We stated that the aim of the study was to investigate the need for uniqueness, as well as the feasibility of unique wishes despite deviant social pressures and influences.

To make sure that participants fulfilled the conditions necessary for our study (i.e., having a desire to become unique), we asked participants on a 7-point Likert scale, ranging from 1 (*no, not at all*) to 7 (*yes, absolutely*), if they desire to be unique in a specific area of their life[5]. They then had to name the area in which they desire to become unique. For

[5] We also assessed participants' need for uniqueness (Self-Attributed Need For Uniqueness (SANU), Lynn & Harris, 1997) in order to ensure that our experimental effect would hold beyond levels of these variables.

example, one participant named, "i feel like everyone in my peer group dresses a certain way, i would like to express myself and stand out more in this area."

Next, we asked participants for a concrete wish, stating how exactly they want to become unique. Participants read:

> Think about the next two weeks, what is your most important wish or concern with regard to be unique in that area (e.g., work/school, style, family, art, certain abilities, emotional)? Please pick a wish that is challenging but that you can fulfill within the next 14 days. Note your wish using 3 – 6 words.

For example, the same participant named "to wear new and unique things."

Expectation, incentive, and commitment. We assessed participants expectations, incentive value, and commitment to their wish (i.e., "How likely do you think it is that you will realize your wish?", "How important is it to you that you will realize your wish?", "How disappointed would you feel if you did not realize your wish?", respectively). The 7-point Likert scales ranged from 1 (*not at all*) to 7 (*very*).

Manipulation of self-regulation strategy. Participants were randomly assigned to either the MCII or the indulging condition. In the MCII condition, we asked participants to name the best outcome, which they associate with the realization of their wish. Participants read:

> What would be the best outcome with regard to your wish? What would be the most wonderful thing about it? Write it down in 3 – 6 words.

For example, the same participant named "expressing myself as being different." Following this, we asked participants to elaborate on the best outcome. Participants read:

> Please imagine this best outcome in vivid detail and write about all the thoughts and images that come to your mind. Let your mind wander and allow these events and

> experiences to play out. Don't hesitate to give your thoughts and images free reign. Take as much time and space as you need.

For example, the same participant elaborated "people would notice me as someone who stands out and thinks for myself. i might make them think differently or inspire them to express themselves in a new way. i might make a new friend or start some conversation if someone asks me something about something new i might be wearing. i would feel like i was expressing my creativity and imagination".

Next, we asked participants to write down an obstacle that might hinder them from fulfilling their wish. Participants read:

> Sometimes things don't work out as we would like them to. What is it within you that holds you back from fulfilling your wish? What <u>in you</u> might hold you back? It can be an emotion, an irrational belief or a behavior. What is your main inner obstacle? Write it down in 3 – 6 words.

For example, the same participant named "if people disapprove". With similar instructions as stated with the best outcome, participants were asked to mentally elaborate on the obstacle they had named. For example, the same participant named "people might stare and criticize people might reject me people might tell me i look silly and it would be embarrassing."

Lastly, we asked participants to name an effective behavior to overcome the obstacle and to formulate an *if-then* plan, coming in the form of *if* [obstacle]…, *then* [behavior]… For example, the same participant named "[If] i get nervous about expressing my unique style, [then…] I do it anyway". Participants were reminded that they should repeat that plan to themselves whenever the obstacle occurs.

In the indulging condition, participants also named and elaborated on a positive outcome. Thereafter, they were asked to name and elaborate on a second best outcome that

they associate with realizing their wish. Participants were then guided to the next question, without creating *if-then* plans.

Energization, commitment, and clarity (T_1). To measure energization, participants were asked to answer three items. That is, "How active do you feel?", "How energized do you feel?", and "How empty do you feel?". The 7-point Likert scale ranged from 1 (*not at all*) to 7 (*very*). We reverse coded the last item and combined all three items into one scale ($\alpha = .81$).

To measure commitment towards the wish, participants were asked to answer three items. That is, "How disappointed would you feel if you did not realize your wish?", "How hard would it be for you if you did not realize your wish?", and "How determined are you to realize your wish?". The 7-point Likert scale ranged from 1 (*not at all*) to 7 (*very*). We combined all three items into one scale ($\alpha = .85$).

To measure the clarity participants had about realizing their wish, participants were asked "How clear is your idea of what you need to do to be successful in realizing your wish?". The 7-point Likert scale ranged from 1 (*not at all*) to 7 (*very*).

We then asked participants for their demographic data and for their MTurk-ID (i.e., an individualized code provided by Amazon Mechanical Turk) so that we could match data from the first and the second questionnaire. Finally, participants were thanked, informed that they would get an email including a link to the second questionnaire, and received payment for completing the first part of the survey. After two weeks, participants were sent an email with a weblink for the second part of our survey.

Energization, commitment, and clarity (T_2). We asked participants to indicate how energized, committed, and clear they had felt towards the realization of their wish over the past two weeks. To measure the energization, we used the same items as in the first questionnaire and combined them into one scale ($\alpha = .80$). To measure commitment, we

asked: “How determined were you to realize your wish?”. To measure clarity, we asked: “How clear was your idea of what you needed to do to be successful in realizing your wish?”. Again, the 7-point Likert scales ranged from 1 (*not at all*) to 7 (*very*).

Steps to realization (T_2). We asked participants to list all the steps they had taken to realize their wish of becoming unique in a specific area of their life. Thereby, we provided a text box, where participants could write down as much as they wanted to describe what they had done to realize their wish. Two independent raters, blind to condition, evaluated on a 7-point Likert scale ranging from 1 (*no steps at all*) to 7 (*as many as possible steps to realize the wish*) how many steps participants had taken to realize their wish ($\alpha = .96$).

Closeness to wish realization (T_2). We asked participants to indicate how close they felt to the realization of their wish using a scale ranging from 0% (*not at all*) to 100% (*very*). This item was included to measure the progress, which participants had made to realize their wish.

Wish realization (T_2). We asked participants if they had successfully realized their wish, on a 7-point Likert scale ranging from 1 (*not at all*) to 7 (*completely*).

Finally, we asked participants for their MTurk-ID so that we could match the two questionnaires. Participants were offered the chance to write down questions or comments they had concerning the survey. We debriefed them and paid them for their participation in the second part of the survey.

Results

Uniqueness, Expectation, Incentive, and Commitment

The desire to become unique was moderately high ($M = 4.86$, $SD = 1.54$). Expectation ($M = 4.91$, $SD = 1.29$), incentive value ($M = 5.37$, $SD = 1.44$), and commitment ($M = 4.35$, $SD = 1.71$) were moderatley high, indicating that participants followed our instructions (i.e., naming a wish that was important to them).

Energization, Commitment, and Clarity (T_1)

For the measures immediately after the manipulation, we conducted a one-way MANOVA, with condition as the independent variable and energization, commitment, and clarity as the dependent variables. We observed an overall effect of condition, $F(3, 191) = 4.74$, $p = .003$, Wilks' $\Lambda = .93$, $\eta_p^2 = .07$. Participants in the MCII condition felt more energized, $F(1, 193) = 5.07$, $p = .026$, $\eta_p^2 = .03$, were more committed, $F(1, 193) = 4.71$, $p = .031$, $\eta_p^2 = .02$, and had a clearer idea of what they should do to realize their wish, $F(1, 193) = 13.08$, $p < .001$, $\eta_p^2 = .06$ (see Table 2 for means and standard deviations).

Energization, Commitment, and Clarity (T_2)

For the measures after two weeks, we conducted a one-way MANOVA with condition as the independent variable and energization, commitment, and clarity as the dependent variables. The overall effect of condition was not significant, $F(3, 191) = 2.19$, $p = .091$, Wilks' $\Lambda = .97$, $\eta_p^2 = .03$. As we observed a tendency towards a significant difference between the conditions and were specifically interested in the differences between the conditions for each dependent variable, we conducted simple contrasts. Participants in the MCII condition felt more energized, $F(1, 193) = 4.69$, $p = .031$, $\eta_p^2 = .02$, were more committed, $F(1, 193) = 4.69$, $p = .032$, $\eta_p^2 = .02$, and had a clearer idea of what they should do to realize their wish, $F(1, 193) = 5.67$, $p = .018$, $\eta_p^2 = .03$, than participants in the indulging condition (see Table 2 for means and standard deviations).

Steps to Realization, Closeness to Wish Realization, and Wish Realization (T_2)

We conducted a one-way MANOVA, with condition as the independent variable and steps to realization, closeness to wish realization, and actual wish realization as the dependent variables. We observed an overall effect of condition, $F(3, 191) = 4.19$, $p = .007$, Wilks' $\Lambda = .94$, $\eta_p^2 = .06$. Participants in the MCII condition performed more steps, $F(1, 193) = 10.88$, $p = .001$, $\eta_p^2 = .05$, and felt closer to the realization of their wish, $F(1, 193) =$

5.03, $p = .026$, $\eta_p^2 = .03$, compared to participants in the indulging condition. However, actual wish realization did not significantly differ between the two conditions, $F(1, 193) = 2.74$, $p = .100$, $\eta_p^2 = .01$ (see Table 3 for means and standard deviations). The obtained experimental effects remained significant when we entered the need for uniqueness scores as a covariate into the analysis.

Mediating effect of energization. We used a bootstrapping procedure using SPSS PROCESS macro provided by Hayes (2013) to test whether the effect of condition (MCII vs. indulging) on the dependent variables steps to realization, closeness to wish realization, or actual wish realization was mediated by energization. To do so, we built a composite score of the three dependent variables, which we declared as wish fulfillment (i.e., steps to realization, closeness to wish realization, actual wish realization; $\alpha = .78$), as well as for energization at Time 1 and Time 2 ($\alpha = .61$). The indirect effect of condition on the dependent variable wish fulfillment through energization was significantly different from 0, 95% CI [-0.309, -0.047], with 5000 iterations. Participants who engaged in MCII (vs. indulging) felt more energized, which was subsequently associated with an increased likelihood of attaining their wish. Within the mediation, the direct effect of condition on wish fulfillment did not reach significance.

Discussion

In Study 3.1, we investigated if MCII (vs. indulging) can help people realize their wishes of becoming unique. These wishes are subjectively acknowledged as being deviant from the majority and therefore require non-conform actions to attain them.

According to our first hypothesis, we found that participants who engaged in MCII felt more energized and committed to their wish, compared to participants who indulged. In addition, participants in the MCII condition indicated to have a clearer idea of what they needed to do to realize their wish, compared to participants in the indulging condition.

These effects were found immediately after the manipulation of self-regulatory thought, as well as two weeks later.

Research on the fantasy realization theory states that people with high expectations to realize their wish, feel more energized when they mentally contrast in comparison to when they indulge (or dwell, or reverse contrast). Furthermore, studies have shown that energization mediates the effects of mental contrasting on wish fulfillment (e.g., Oettingen, 2012; Oettingen et al., 2001; Oettingen & Reininger, 2016; Sevincer, Busatta, & Oettingen, 2014). In the present study, we conceptually replicated this effect: Participants who engaged in MCII (vs. indulging) felt more energized and were more likely to attain their goal, i.e., the effect of MCII on wish fulfillment was mediated by energization. In sum, participants who used MCII (vs. indulging) not only felt more energized and committed to realize their wish, they were also more likely to engage in behaviors that were associated with the realization of that wish.

In line with our expectations, participants who engaged in MCII were more likely to attain their wish of being unique in a specific area of their life, accordingly regulating their tendency to conform, compared to participants who indulged. Specifically, participants in the MCII condition (vs. indulging) took more steps to attain the wish and indicated to feel closer to its realization. However, the dependent variable concerning the actual realization of the idiosyncratic wishes did not reach significance. This may be explained by the named wishes, as well as with the comments some participants stated at the end of the survey. Even though we specifically asked participants for wishes that were achievable within the next 14 days, some participants named wishes that take longer than two weeks to realize. Thus, the realization of these wishes was simply not manageable within this time span. For example, one person named the wish of publishing her own book about an extraordinary, critical topic. After two weeks, the person stated that she worked a lot on the book, but was not able

to publish it within this period. Accordingly, our dependent variable of closeness to wish realization was of importance since it indicated the progress people made on their wish.

Our results speak to the fact that MCII (vs. indulging) can be an effective strategy to regulate people's tendency to conform outside a computer-based paradigm. MCII supports the process of realizing idiosyncratic wishes, which one acknowledges as being unusual or deviant from the majority. In sum, Study 3.1 indicates that the previous results from Study-sets 1 and 2 may be generalizable: MCII helps to regulate one's tendency to conform and to attain one's own goal despite a deviant majority. To verify our results, we aimed to replicate our findings and conducted a second study.

Study 3.2: Realizing Unique Goals: MCII vs. Indulging (Replication)

In Study 3.2, we aimed to replicate the findings from the first study. We hypothesized that participants in the MCII condition would feel more energized, more committed, and have a clearer idea of what they needed to do to realize their wish, compared to participants in the indulging condition. We expected to find this for both, immediately after the manipulation as well as two weeks later. Further, we hypothesized that participants in the MCII condition would take more steps to realize their wish, would feel closer to the realization of their wish, and be more likely to have actually realized their wish after two weeks, compared to participants in the indulging condition.

Method

Power Analysis

We based our power analysis on Study 3.1, that is, we applied a medium effect size of $d = 0.65$ to an a priori power analysis for two conditions within an independent t-test. The power analysis indicated that approximately 152 participants would be needed to achieve 99% power (1- β) at a .05 alpha level ($\alpha = .05$). Due to potential dropouts, we recruited 221 participants via MTurk. Two weeks later, 172 participants responded to the

second questionnaire. Of these, we had to exclude 16 participants as they indicated having not a wish for becoming unique in a certain area of their life.

Participants

Our final sample consisted of 156 participants, of which 64% were women. Participants' age ranged from 18 to 80 years with a mean of 36.89 (*SD* = 12.76). Participants were randomly assigned to one of the two conditions: MCII (*n* = 86) or indulging (*n* = 70).

Procedure and Materials

We used the same materials and followed the same procedure as in Study 3.1.[6]

Energization, commitment, and clarity ($T_{1,2}$). As done in Study 3.1, we measured participant's energization, commitment, and clarity towards the realization of their wish immediately after the manipulation. The items were combined into one scale for energization (α = .73), and one scale for commitment (α = .86). After two weeks, we asked participants to indicate their energization, commitment, and clarity towards the realization of their wish over the past two weeks. For energization, we combined the three items into one scale (α = .83).

Steps to realization, closeness to wish realization, and wish realization (T_2). As done in Study 3.1, we measured three dependent variables to assess if participants engaging in MCII (vs. indulging) were more likely to realize their wish. As for the steps to realization, two independent raters, blind to condition, evaluated how active participants were to realize their wish (α = .94).

At the end of both questionnaires, we asked participants for their MTurk-ID so that we could match the two questionnaires. Participants were offered the chance to write down

[6] We, again, assessed participants' need for uniqueness (Self-Attributed Need For Uniqueness (SANU), Lynn & Harris, 1997) in order to ensure that our experimental effect would hold beyond the impact of this construct.

comments and questions they had concerning the survey. We debriefed them and paid them credit for their participation in both parts of the study.

Results

Uniqueness, Expectation, Incentive and Commitment

The desire to become unique in a certain area of the individual's life (M = 5.19, SD = 1.53), expectation (M = 4.94, SD = 1.41), incentive value (M = 5.37, SD = 1.59), and commitment (M = 4.44, SD = 1.90) were moderately high.

Energization, Commitment, and Clarity (T_1)

For the measures immediately after the manipulation, we conducted a one-way MANOVA, with condition as the independent variable and energization, commitment, and clarity as the dependent variables. This time, there was no overall effect of condition, $F(3, 152) = 0.69$, $p = .555$, Wilks' $\Lambda = .98$, $\eta_p^2 = .01$. Also, simple contrasts revealed no significant differences between the conditions for the three items (all ps > .05; Table 4 for means and standard deviations).

Energization, Commitment, and Clarity (T_2)

For the measures after two weeks, we conducted a one-way MANOVA with condition as the independent variable and energization, commitment, and clarity as the dependent variables. The overall effect of condition was not significant, $F(3, 152) = 1.68$, $p = .175$, Wilks' $\Lambda = .97$, $\eta_p^2 = .03$. However, simple contrasts revealed that participants in the MCII condition felt more energized, $F(1, 152) = 4.53$, $p = .035$, $\eta_p^2 = .03$, and tended to have a clearer idea of what they should do to realize their wish, $F(1, 152) = 3.46$, $p = .065$, $\eta_p^2 = .02$, than participants in the indulging condition. Even though there was no significant difference between the conditions regarding participants' commitment, we observed a similar pattern as in Study 3.1, $F(1, 152) = 2.69$, $p = .103$, $\eta_p^2 = .02$ (see Table 4 for means and standard deviations).

Steps to Realization, Closeness to Wish Realization, and Wish Realization (T_2)

We conducted a one-way MANOVA with condition as the independent variable and steps to realization, closeness to wish realization, and wish realization as the dependent variables. There was an overall effect of condition, $F(3, 152) = 3.41$, $p = .019$, Wilks' $\Lambda = .94$, $\eta_p^2 = .06$. Participants in the MCII condition performed more steps to realize their wish, $F(1, 152) = 8.35$, $p = .004$, $\eta_p^2 = .05$, felt closer to the realization of their wish, $F(1, 152) = 5.32$, $p = .022$, $\eta_p^2 = .03$, and tended to be more likely to realize their wish of becoming unique in a certain area of their life, $F(1, 152) = 3.33$, $p = .070$, $\eta_p^2 = .02$, compared to participants in the indulging condition (see Table 3 for means and standard deviations). The obtained experimental effects remained significant when we entered the need for uniqueness scores as a covariate into the analysis.

Mediating effect of energization. To test whether the effect of condition (MCII vs. indulging) on the dependent variables steps to realization, closeness to wish realization, or actual wish realization was mediated by energization, we consulted a bootstrapping procedure using SPSS PROCESS macro provided by Hayes (2013). We built a composite score of the three dependent variables, which we declared as wish fulfillment (i.e., steps to realization, closeness to wish realization, final wish realization; $\alpha = .76$), as well as for energization at Time 1 and Time 2 ($\alpha = .53$). The indirect effect of condition on the dependent variable of wish fulfillment through energization did not reach significance.

Since the Cronbach's alpha of energization at Time 1 and Time 2 was comparatively low, we included both values separately into the mediation analysis. The indirect effect of condition on wish fulfillment through energization at Time 1 was not significant. However, the indirect effect of condition on wish fulfillment through energization at Time 2 was significantly different from 0, 95% CI [-0.368, -0.017], with 5000 iterations. Participants who engaged in MCII (vs. indulging) felt more energized regarding their wish during the

past two weeks and accordingly had higher success in attaining the wish of becoming unique in a specific area of their life. Within the mediation, the direct effect of condition on wish fulfillment did not reach significance.

Discussion

In Study 3.2, we aimed to replicate the findings from Study 3.1. However, there was no significant difference between the conditions regarding energization, commitment, and clarity immediately after the manipulation. Still, we confirmed previous findings regarding participants' energization, commitment, and clarity over the past two weeks; those who engaged in MCII (vs. indulging) indicated that they had a clearer idea of how to implement their wish, they felt more energized and tended to be more committed towards their wish during the two weeks after the manipulation. Accordingly, the effect of condition on wish fulfillment was mediated by the participants' energization over the past two weeks.

As expected, participants who used the self-regulation strategy of MCII (vs. indulging) took more steps to implement their wish of becoming unique in a certain area of their life. Furthermore, participants in the MCII condition (vs. indulging) felt closer to the realization of their goal and tended to be more likely to actually achieve their wish. In sum, the second study confirmed previous findings. The strategy of MCII (vs. indulging) appears to be an effective tool to help people regulate their tendency to conform and to attain idiosyncratic wishes, which they subjectively acknowledge as unusual and deviant from the majority.

In the first two studies, we included indulging as a control condition. However, research on positive fantasies indicates that indulging lowers energization and effort towards one's goal, in comparison to questioning fantasies or factual thoughts (review by Oettingen, 2012). Simply positively fantasizing allows the individual to enjoy the desired future in the here and now, wherefore the individual does not experience the necessity to act to attain the

wished-for future (e.g., H.B. Kappes, & Oettingen, 2011; Oettingen, 2012, Oettingen & Schwörer, 2013). We can therefore not say with certainty if the observed differences between MCII and indulging regarding wish fulfillment can be ascribed to MCII increasing participants' energization, or to indulging simply decreasing energization. Accordingly, we aimed to conceptually replicate our findings by comparing MCII with a no self-regulatory strategy control condition, which should not have a de-energizing effect.

Study 3.3: Realizing Unique Goals: MCII vs. no Self-Regulation Strategy

We aimed to replicate findings from Studies 3.1 and 3.2, this time comparing MCII with a no self-regulatory strategy condition. Our hypotheses were as in the previous two studies: We hypothesized that participants engaging in MCII would feel more energized, more committed and have a clearer idea of what they needed to do to realize their wish, compared to participants engaging in no self-regulatory thought. We expected to find this for both, immediately after the manipulation and two weeks later. Further, we hypothesized that participants in the MCII condition would take more steps to realize their wish, would feel closer to the realization of their wish, and be more likely to have actually realized their wish after two weeks, compared to participants in the no self-regulation strategy condition.

Method

Power Analysis

We applied an effect size of $d = 0.65$ to an a priori power analysis for two conditions within an independent t-test. The analysis indicated that approximately 152 participants would be needed to achieve 99% power (1- β) at a .05 alpha level ($\alpha = .05$). Because of a potential dropout, we recruited 243 participants online using MTurk. Two weeks later, 172 participants responded to the second questionnaire. Of these, we had to exclude nine participants as they indicated having not a wish for becoming unique in a certain area of their life.

Participants

Our final sample consisted of 163 participants, of which 63% were women. Participants' age ranges between 22 and 75 years, with a mean of 37.77 (*SD* = 11.34). All participants were randomly assigned to one of the two conditions: MCII (*n* = 80) or no self-regulation strategy (*n* = 83).

Materials and Procedure

The materials and procedure of this study were the same as in the Studies 3.1 and 3.2. However, we replaced the indulging condition with a no self-regulation strategy condition. Participants in this condition also had to name an area of their life in which they desire to be unique. We further asked them to name a specific wish that expresses this desire to become unique. After participants had indicated their expectation, incentive value, and commitment to achieve that wish they were immediately guided to the next questions, without elaborating their wish or generating *if-then* plans.

Energization, commitment, and clarity ($T_{1,2}$). We measured participants' energization, commitment, and clarity towards the realization of their wish immediately after the manipulation. The items were combined into one scale for energization (α = .76), and one scale for commitment (α = .80).

Two weeks later, we asked participants to indicate their energization, commitment, and clarity towards the realization of their wish over the past two weeks. For energization, we combined the three items into one scale (α = .81).

Steps to realization, closeness to wish realization, and wish realization (T_2). As done in the previous two studies, we measured three dependent variables to assess if participants engaging in MCII (vs. no self-regulation strategy) were more likely to realize their wish. As for the steps to realization, two independent raters, blind to condition, evaluated how active participants were to realize their wish (α = .91).

At the end of both questionnaires, we asked participants for their MTurk-ID so that we could match the two questionnaires. Participants were offered the chance to write down comments and questions they had concerning the survey. We debriefed them and paid them credit for their participation in both parts of the study.

Results

Uniqueness, Expectation, Incentive, and Commitment

Mean values for the desire to become unique (M = 5.87, SD = 1.15), expectation (M = 5.01, SD = 1.43), incentive value (M = 5.54, SD = 1.33) and for commitment (M = 4.83, SD = 1.66) were moderately high.

Energization, Commitment, and Clarity (T_1)

For the measures immediately after the manipulation, we conducted a one-way MANOVA with condition as the independent variable and energization, commitment, and clarity as the dependent variables. We found a tendency for an overall effect of condition, $F(3, 159) = 2.47$, $p = .064$, Wilks' $\Lambda = .96$, $\eta_p^2 = .05$. Participants in the MCII condition showed a tendency to feel more energized, $F(1, 161) = 3.05$, $p = .083$, $\eta_p^2 = .03$, and had a clearer idea of what they should do to realize their wish, $F(1, 161) = 6.60$, $p = .011$, $\eta_p^2 = .04$, compared to participants in the no self-regulation strategy condition. There was no significant difference between the conditions for commitment, $F(1, 161) = .64$, $p = .425$, $\eta_p^2 = .01$ (see Table 5 for means and standard deviations).

Energization, Commitment, and Clarity (T_2)

For the measures after two weeks, we conducted a one-way MANOVA with condition as the independent variable and energization, commitment, and clarity as the dependent variables. We found an overall effect for condition, $F(3, 159) = 4.44$, $p = .005$, Wilks' $\Lambda = .92$, $\eta_p^2 = .08$. Participants in the MCII condition showed a tendency to feel more energized, $F(1, 161) = 3.79$, $p = .053$, $\eta_p^2 = .02$, and had a clearer idea of what they

should do to realize their wish, $F(1, 161) = 9.65$, $p = .002$, $\eta_p^2 = .06$, compared to participants in the no self-regulation strategy condition. There was no significant difference between the conditions for commitment, $F(1, 161) = 1.59$, $p = .208$, $\eta_p^2 = .01$ (see Table 5 for means and standard deviations).

Steps to Realization, Closeness to Wish Realization, and Wish Realization (T_2)

We conducted a one-way MANOVA with condition as the independent variable and steps to realization, closeness to wish realization, and wish realization as the dependent variables. There was no overall effect of condition, $F(3, 159) = 1.84$, $p = .142$, Wilks' $\Lambda = .97$, $\eta_p^2 = .03$. Simple contrasts revealed that participants in the MCII condition performed more steps to realize their wish, $F(1, 161) = 4.46$, $p = .036$, $\eta_p^2 = .03$, felt closer to the realization of their wish, $F(1, 161) = 4.01$, $p = .047$, $\eta_p^2 = .02$, and showed a tendence to be more likely to realize their wish of becoming unique, $F(1, 161) = 2.09$, $p = .150$, $\eta_p^2 = .01$, compared to participants in the no self-regulation strategy condition (see Table 6 for means and standard deviations).

Mediating effect of energization. We conducted a bootstrapping procedure using SPSS PROCESS macro provided by Hayes (2013) to test whether the effect of condition (MCII vs. no self-regulation) on the dependent variables steps to realization, closeness to wish realization and actual wish realization was mediated by energization. We built a composite score of the three dependent variables, which we declared as wish fulfillment (i.e., steps to realization, closeness to wish realization, final wish realization; $\alpha = .79$), as well as for energization at Time 1 and Time 2 ($\alpha = .61$). As in Study 3.1, the indirect effect of condition on the dependent variable wish fulfillment through energization was significantly different from 0, 95% CI [-0.307, -0.022], with 5000 iterations. Participants who used MCII (vs. no self-regulation) felt more energized regarding their wish, which was

subsequently associated with an increased likelihood of attaining the wish. Within the mediation, the direct effect of condition on wish fulfillment did not reach significance.

Discussion

In Study 3.3, we aimed to replicate previous findings, this time comparing MCII with a no self-regulatory strategy condition. As expected, participants engaging in MCII (vs. no self-regulation strategy) felt more energized and had a clearer idea of what to do to implement their wish, immediately after the manipulation as well as two weeks later. Furthermore, participants engaging in MCII (vs. no self-regulation strategy) took more steps to implement their wish, indicated to feel closer to its attainment, and tended to be more likely to actually realize their wish. Thereby, the effect of condition on wish fulfillment was mediated by participants' energization towards the wish. In sum, these results indicate that MCII helps participants attain their wish of becoming unique in a specific area of their life and thus reduces their tendency to conform to a subjectively acknowledged deviant majority.

Importantly, we observed these effects when comparing MCII to no self-regulatory thought. We can thus exclude prior speculations that it was indulging that places participants in a mood of relaxation, therefore causing the difference between the conditions regarding wish realization. We can rather assume that it is the strategy of MCII that lead to enhanced energy, strengthened goal pursuit, and finally to behavior change to realize one's goal.

General Discussion Study-set 3

In Study-sets 1 and 2, we showed in a computer-based paradigm that MCII is an effective strategy to support people acting on their goal despite a deviant majority. In Study-set 3, we showed outside a computer-based paradigm that MCII (vs. indulging or no self-regulation strategy) supports people in attaining idiosyncratic wishes of becoming unique in a specific area of their life. These wishes were subjectively acknowledged as deviant from

the majority and its norms, and therefore required the regulation of one's tendency to conform. Overall, we observed that participants who engaged in MCII indicated – immediately after the manipulation as well as two weeks later – feeling more energized and committed regarding their wish, as well as stated to have a clearer idea of what to do to implement the wish, compared to participants who indulged or did not use a self-regulation strategy.

Regarding wish realization, we confirmed our hypotheses: Those who engaged in MCII (vs. indulging or no self-regulation) took more steps to achieve their wish, felt closer to its attainment, and showed a tendency towards successfully realizing the wish. The effect of MCII on wish fulfillment was mediated by energization. In sum, participants engaging in MCII did not just feel more active regarding their wish, they also appeared to change their behavior and were finally more likely to attain their wish.

Self-Regulation of Conformity and Promoting Uniqueness

The theory of optimal distinctiveness states that groups, which are too large often fail to satisfy the individual's need for uniqueness. Accordingly, if people perceive themselves as being too similar to others they are motivated to engage in behaviors that differentiate them from the group, to reestablish a sense of uniqueness (e.g., Brewer, 1991; Snyder & Fromkin, 1980). Similar results were shown in a study conducted by Imhoff and Erb (2009). They showed that those who have a high need for uniqueness were less likely to conform to a relevant peer group when they were made aware of their similarities to that group. However, to make people aware of their similarities to others and thus to motivate them to engage in non-conform actions, an external source of information was needed, which pointed to the similarity to others.

In our research, we also relied on people's need for uniqueness to motivate them to engage in non-conform actions to realize their wish. However, we used a mental strategy

that makes an external source, which points to the participant's similarity to others, redundant. MCII helps identify an obstacle in the present reality and leads to a reinterpretation of reality as an obstacle standing in the way of goal attainment (A. Kappes et al., 2013). This was especially important for the needs of our studies, as people often deny to be influenced by others (Hornsey & Jetten, 2004, 2005) and therefore fail identifying their tendency to conform as the obstacle standing in the way to realize idiosyncratic wishes of uniqueness. The results of the present research may be explained by these underlying mechanisms of MCII. Presumably, MCII helped participants identify the obstacle that holds them back from attaining their wish of becoming unique: their tendency to conform.

In sum, MCII can be individually adapted and works independently of external sources; it is an easy strategy that can help people realize idiosyncratic wishes that are deviant from the majority and its norms.

Impacts on Realizing Wishes for Uniqueness

People differ in their magnitude of need for uniqueness (NfU); those with high NfU are more likely to engage in uncommon styles of interpersonal interactions, compared to those with low NfU (e.g., Maslach et al., 1985). In the present research, we included the Self-Attributed Need for Uniqueness scale (SANU; Lynn & Harris, 1997). To account for differences in peoples' magnitude of NfU, we included it as covariate and found that it did not affect our results.

NfU is not only a trait variable, but also depends on the individual's temporary motivation. Accordingly, certain situational conditions (e.g., larger groups, a group of peers) may elicit a stronger need to be different from others (e.g., Imhoff & Erb, 2009). In our studies, we, therefore, explicitly asked participants to name an area of their life, in which they currently perceive themselves as being too similar to others (i.e., conform). Hence, we assumed that participants would state idiosyncratic wishes, which imply a current need to

regain a sense of uniqueness within a specific area of their life. In line with this, participants' incentive to realize their wish should be high. Our data show that this requirement was matched, as the mean incentive value across Studies 3.1 to 3.3 was above mid-range (M = 5.43).

Using MCII to Realize Wishes for Uniqueness

Literature on mental contrasting has shown that mental contrasting is an effective tool for both, approach and avoidance goals. When people mentally contrast about approach goals, they identify and elaborate on a positive future (e.g., getting a good grade in an upcoming exam) and contrast it with a negative present reality (e.g., neglecting studying) holding them back from attaining the positive future. When people mentally contrast about avoidance goals, they identify and elaborate on a negative feared future (e.g., lung cancer due to extensive cigarette consumption) and contrast this with the positive present reality they could lose when the negative future becomes reality (e.g., health; Oettingen et al., 2010). In the present research, an avoidance goal, i.e., avoiding the feared future of being indistinguishable from other people due to conforming, could also have been used (deindividuation; Deindividuation Theory [DT]; Festinger, Pepitone, & Newcomb, 1952; Social Identity Model of Deindividuation Effects [SIDE], e.g., Reicher, Spears, & Postmes, 1995). However, there is a reason why we opted for an approach goal (i.e., attaining uniqueness).

In an unpublished pilot study (Riess & Oettingen, unpublished raw data), we examined peoples' general evaluation of the terms *non-conformity* and *uniqueness*. We observed that – in a direct comparison to uniqueness – people often apprehend non-conformity as something negative, which they associate with aggression or rebellion. Uniqueness, in contrast, implied a more positive connotation: One stands out because of one's singularity and unique abilities, but not for rebelling against others or existing norms.

Based on these findings, we opted for the positive goal of becoming unique in a certain area of life instead of an avoidance goal regarding conform behaviors in order to ensure high incentive to realize the wish.

Indeed, participants in Study-set 3 showed high incentives and expectations to attain their wish of becoming unique and were finally more likely to realize their wish when engaging in MCII (vs. indulging or no self-regulation). In sum, Study-set 3 supported the hypothesis that MCII (vs. indulging or no self-regulation) can be an effective strategy to support people in acting on their wishes despite a subjectively acknowledged deviant majority. Outside an experimentally designed paradigm, we found that MCII supported the realization of one's idiosyncratic wish of becoming unique and thus appeared to help regulate one's tendency to conform to a deviant majority.

General Discussion

Majority groups often sway our opinions, attitudes, or behaviors. Fear of exclusion or insecurity about the correct behavior can result in the adoption of the behaviors displayed by majorities. However, conforming to others may lead us to overlook our own goals and wishes; we sometimes even engage in disadvantageous or detrimental behaviors, just to avoid being different.

In the present research, we investigated if the strategy of mental contrasting with implementation intentions (MCII) can be an effective tool to regulate the tendency to conform and to support attaining personal goals despite deviant majority influence. The results of Study-set 1 revealed that MCII (vs. three relevant control conditions) is an effective tool to regulate the tendency to conform to a deviant majority and to support the attainment of a goal within a computer-based paradigm. The results of Study-set 2 extended these findings. We observed that participants formulated effective *if-then* plans to regulate their tendency to conform after engaging in mental contrasting (vs. two relevant control conditions) and subsequently were more

likely to attain their goal within a computer-based paradigm. The results of Study-set 3 confirm that our findings can be generalized beyond a computer-based paradigm. MCII (vs. two relevant control conditions) helped participants attain idiosyncratic wishes of becoming unique in a certain area of their life, which participants subjectively acknowledged to be deviant from the majority.

Influencing Factors on Conformity: Majority Influence and Context

In the present research, the Study-sets differed regarding the contexts in which the social influence occurred. Study-sets 1 and 2 were conducted in the context of CMC and participants did not physically interact with the source of influence (i.e., display of a diagram with bogus majority influence). Study-set 3 requested participants to think of a wish in an area of their personal life, in which they presumably physically interact with a deviant majority (i.e., interacting with real-life majority influence). Even though the experimental designs differed between the Study-sets (i.e., independently succeeding in solving a computer-based logical reasoning task in Study-sets 1 and 2, and realizing an idiosyncratic wish despite a deviant majority in Study-set 3), we observed across all studies that MCII effectively regulates one's tendency to conform and thus was independent of context in which the social influence was exerted. This further supports the notion that MCII is a content-independent strategy, which is applicable to different contexts.

The Need for Uniqueness and the Need to Belong

Our research explicitly focused on regulating conformity and thus promoting non-conform behavior to pave the way attaining one's goal despite a deviant majority. Non-conformity is to be distinguished from anti-conformity. Literally, non-conformity is any behavior that is not conform, while anti-conformity is specifically defined as a behavior that is inconsistent with norms, positions, or standards of others based on one's motives, such as provocation of a group conflict (Nail et al., 2000). Anti-conformity is an attempt to gain

attention and recognition by actively rebelling against influence through others (Maslach et al., 1985; Nail, 1986; Nail et al., 2000). The aim of the present research was neither to provoke behaviors that are consistently in contrast to the majority nor to provoke behaviors that are against fundamentally established social norms. We aimed to support people in regulating their tendency to conform when perceiving the realization of their own goal to be stressed by a deviant majority. Thus, we sought to help people engage in smart and wise goal selection, one of the effects MCII leads to (Oettingen, 2012), as well as to support them to engage in independent behaviors. These independent behaviors can be non-conform – but do not have to result in anti-conformity (Maslach et al., 1985) – or can be conform; it represents active individual choices instead of merely *re*-actions to the choices of others (Hollander, 1975; Nail, 1986; Nail et al., 2000). In sum, the present research was conducted to motivate people to act in service of their personal well-being, satisfying their need to be unique as well as their need to belong (*optimal distinctiveness;* e.g., Brewer, 1991; Hornsey & Jetten, 2004).

Goal attainment by flexible information processing. Despite leading to smart and wise goal selection, MCII strengthens *flexible* information processing and allows people to stay open for alternative goal-directed behaviors. That is, MCII does not fix a rigid behavior to attain one's goal (e.g., consistently ignoring other people's behavior), it rather allows people to flexibly adjust their behaviors, i.e., changing one's behavior, when realizing that a different behavior may be more effective to attain one's goal (e.g., integrating other people's behavior when it seems effective for goal attainment; Wieber et al., 2014; reviews by Gollwitzer, 2014; Oettingen, 2012). Further, MCII allows people to sensitively adjust their goal striving to the strength and activation of the goal; they should stop striving for goals they have attained (i.e., when goal strength is reduced) and pause striving in inappropriate

contexts (i.e., the goal is not activated; Gollwitzer, Parks-Stamm, Jaudas, & Sheeran, 2008; review by Gollwitzer, 2014).

In the present research, similar processes may have taken place. In our first two Study-sets, participants followed the goal of independently succeeding in solving the task, i.e., finding as many as possible correct answers on the task. There were five critical items (where the presented majority gave an *incorrect* answer) and three filler items (where the presented majority gave the *correct* answer), thus participants would be most successful to attain that goal when sometimes non-conforming (as for the critical items) and sometimes conforming to the majority (as for the filler items). Indeed, participants engaging in MCII improved their performance on the critical items (i.e., non-conforming) but were also as good as all other participants on the filler items (i.e., conforming; see Table 1 for mean values and standard deviation of filler items). One might interpret the fact that participants in the MCII condition did not differ from participants in the control condition regarding the correct answers on the filler items as an indication that MCII did not keep away participants from choosing the correct answer. Thus, it seems likely that after engaging in MCII participants show flexible information processing and primarily focus on the task. Specifically, when the majority was wrong (as for the critical items) participants chose the correct answers and thus were *not* conform to the deviant majority; when the majority was correct (as for the filler items) participants chose the correct answer and thus were conform to the majority.

Theoretical Implications

Previous research on conformity primarily focused on the reasons and consequences of conformity, whereas a possible regulation of the tendency to conform received less attention (e.g., Asch, 1951, 1956; Baron et al., 1996; Bond & Smith, 1996; Cialdini & Goldstein, 2004; Crutchfield, 1955; Deutsch & Gerard, 1955). Previous approaches to

regulate conformity mainly required external sources that motivated people to engage in non-conform behaviors (Imhoff & Erb, 2009; Sun et al., 2016). In contrast, the present research introduced a mental tool to regulate one's tendency to conform; MCII is an individually applicable strategy that can make an external source pointing to the individual's conformity redundant (as shown in Study-set 3).

Furthermore, the present research adds to the literature on optimal distinctiveness; people constantly strive for the optimal balance between the need to be unique and the need to belong to the group (Brewer, 1991; Hornsey & Jetten, 2004; Maslach et al., 1985; Snyder & Fromkin, 1980). MCII appears to support this balancing act. People can apply the strategy to idiosyncratic goals of restoring their uniqueness, whereas when elaborating on the obstacle of their tendency to conform to the majority they should remind themselves to satisfy both, i.e., the need to be unique and the need to belong. Are they able and willing to surmount the obstacle and pursue their individual goal, potentially risking to be outstanding? Would pursuing their individual goal even lead to exclusion? Or should they avoid being deviant from others and conform to prevent possible punishment? Thus, MCII should help to find a way that satisfies both needs.

The present research adds further insight into goal striving when facing obstacles that include social pressure and inherent needs. When people engage in MCII they usually mentally contrast the wished-for future with the (inner) obstacle holding them back from attaining that future (e.g., Oettingen, 2000; 2012; 2014; Oettingen & Reininger, 2016; Oettingen & Schwörer, 2013). People in the present research elaborated on an inner obstacle (i.e., one's tendency to conform to belong to the group), which included a social component. Thus, striving for one's goal despite a deviant majority not only results in attaining that goal but also affects the individual's relation to the surrounding people. In sum, MCII can help to attain goals even when the obstacle contains social pressure.

Limitations and Future Research

At first glance, one limitation in Study-sets 1 and 2 is the predetermined content of the self-regulatory thought. However, this was mandatory for Study-set 1, as the aim was to test whether MCII can be an effective mode of thought to regulate one's tendency to conform. Results of Study-sets 2 and 3, however, show that MCII is also effective to regulate one's tendency to conform, even when not being precisely pre-determined. In Study-set 2, we slackened the predetermined manipulation by asking participants to specify individual *if-then* plans; participants were still able to regulate their tendency to conform and to attain their goal. In Study-set 3, we showed that with individually formulated wishes, obstacle, and implementation intentions MCII helps to attain one's goal of uniqueness and to regulate one's tendency to conform.

Literature on mental contrasting has shown that its effects can be transferred across domains. For example, when mentally contrasting about an interpersonal concern, the resulting expectancy-dependent energization is transferred to studying for an upcoming exam (e.g., Johannessen, Oettingen, & Mayer, 2012; Oettingen, 2012; Oettingen et al., 2009). Future studies should investigate if engaging in MCII to regulate one's tendency to conform regarding a specific concern could also be transferred to different contexts and subsequently generally sensitize and motivate people to reflect on their personal aims, opinions, and behaviors.

Additionally, future research might focus on the computer-based paradigm, which provided obviously correct or incorrect answers. However, conformity often plays a key role when there is no definite right or wrong answer, such as moral concerns or political issues (e.g., even when disapproving, would one conform to the majority and accept it to deport refugees back to their home countries, when these are not completely safe?). Future studies should, therefore, focus on investigating whether MCII can help to regulate one's tendency

to conform in ambiguous issues or everyday concerns, where is no definite correct or incorrect answer.

Conclusion

Thinking back to the example posed in the beginning, of whether you would follow your colleagues at the talk or sticking to your own personal goal of finishing your paper, you could resolve this conflict by engaging in MCII. By employing this strategy, you would become more aware of the obstacle holding you back from attaining your goal, that is, your tendency to conform to the group, and therefore better able to identify and engage in appropriate behavior to overcome that obstacle and achieve your goal of finishing the paper.

The findings of the present research suggest that using MCII can be an effective way to regulate one's tendency to conform and attain one's own goal despite a deviant majority. As we are constantly exposed to real or imagined pressure by others, it seems worthwhile that we pause and reflect on our behaviors. Is this behavior really beneficial with regard to what I want, believe or am convinced of, or am I simply doing it because everyone else does it? MCII is a cost- and time-efficient strategy, which can be helpful for situations in which one directly faces a deviant majority (e.g., public election) or in which one indirectly experiences social influence (e.g., guidelines, norms).

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Appendix Study-set 1

Table 1

Study-set 1: Means of correct answers on filler items on the logical reasoning task

	Control						Conformity					
	MCII		No Treatment		Indulging/ RC[7]		MCII		No Treatment		Indulging/ RC	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Study 1.1 (*N* = 137)	(*n* = 30)		(*n* = 41)				(*n* = 31)		(*n* = 35)			
	2.87	0.43	2.54	0.87			2.84	0.58	2.97	0.43		
Study 1.2 (*N* = 195)	(*n* = 46)		(*n* = 53)				(*n* = 46)		(*n* = 50)			
	2.78	0.55	2.75	0.75			2.96	0.21	2.74	0.75		
Study 1.3 (*N* = 273)	(*n* = 44)		(*n* = 51)		(*n* = 49)		(*n* = 39)		(*n* = 48)		(*n* = 42)	
	2.84	0.37	2.71	0.83	2.69	0.71	2.95	0.22	3.00	0.00	2.74	0.73
Study 1.4 (*N* = 280)	(*n* = 43)		(*n* = 51)		(*n* = 44)		(*n* = 44)		(*n* = 53)		(*n* = 45)	
	2.76	0.61	2.61	0.75	2.66	0.71	2.89	0.39	2.81	0.52	2.73	0.75
Study1.5 (*N* = 271)	(*n* = 44)		(*n* = 51)		(*n* = 42)		(*n* = 43)		(*n* = 52)		(*n* = 39)	
	2.81	0.58	2.80	0.45	2.67	0.85	2.98	0.15	2.94	0.31	2.64	0.84

Note. High scores indicate higher levels of correct answers on the filler items of the task, respectively, whereas numbers can range from 0-3. MCII = Mental Contrasting with Implementation Intentions. RC = Reverse Contrasting.

[7] The condition indulging was consulted in Study 1.3, the condition reverse contrasting was consulted in Studies 1.4 and 1.5

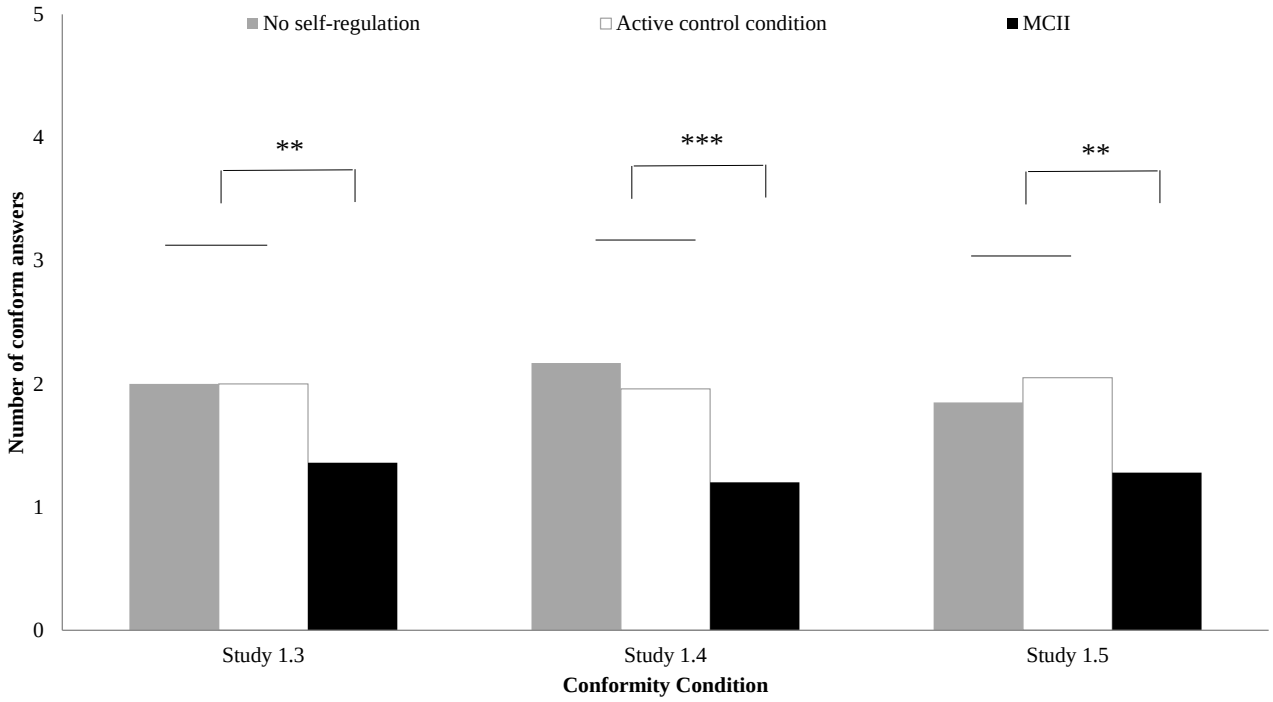

Figure 6. Studies 1.3 to 1.5: Mean number of conform answers for the conformity condition. In Study 1.3 the active control condition was indulging; in Studies 1.4 and 1.5 the active control condition was reverse contrasting. * = $p < .05$;** = $p < .01$; *** = $p < .001$

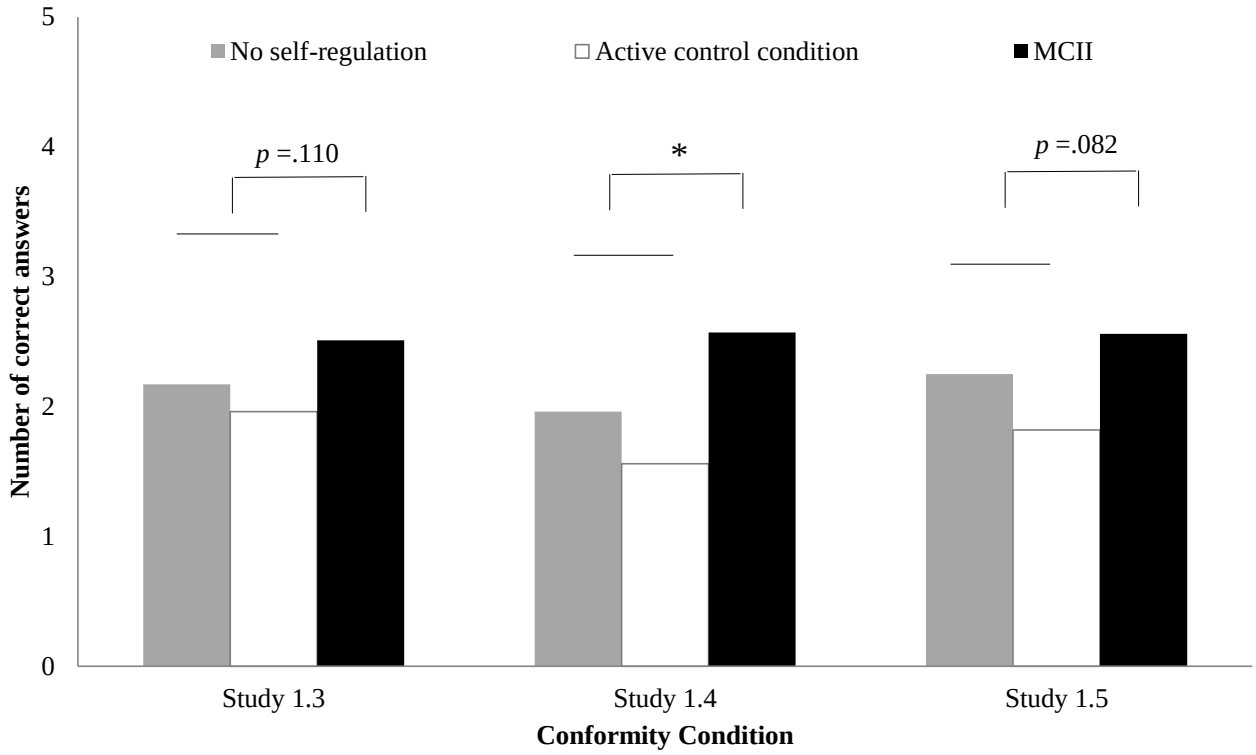

Figure 7. Studies 1.3 to 1.5: Mean number of correct answers for the conformity condition. In Study 1.3 the active control condition was indulging; in Studies 1.4 and 1.5 the active control condition was reverse contrasting. * = $p < .05$;** = $p < .01$; *** = $p < .001$.

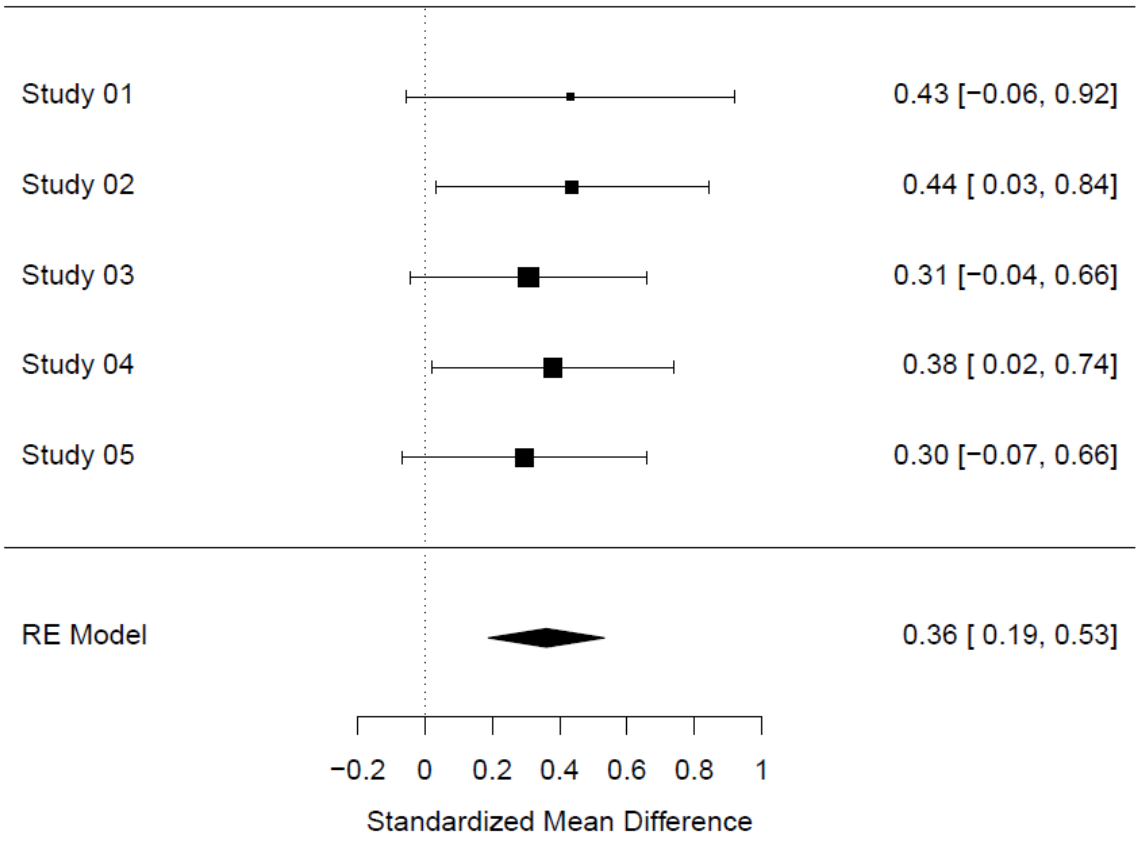

Figure 8. Studies 1.1 to 1.5: Forest plot, random effects model for the variable correct answers on the logical reasoning task.

Appendix Study-set 2

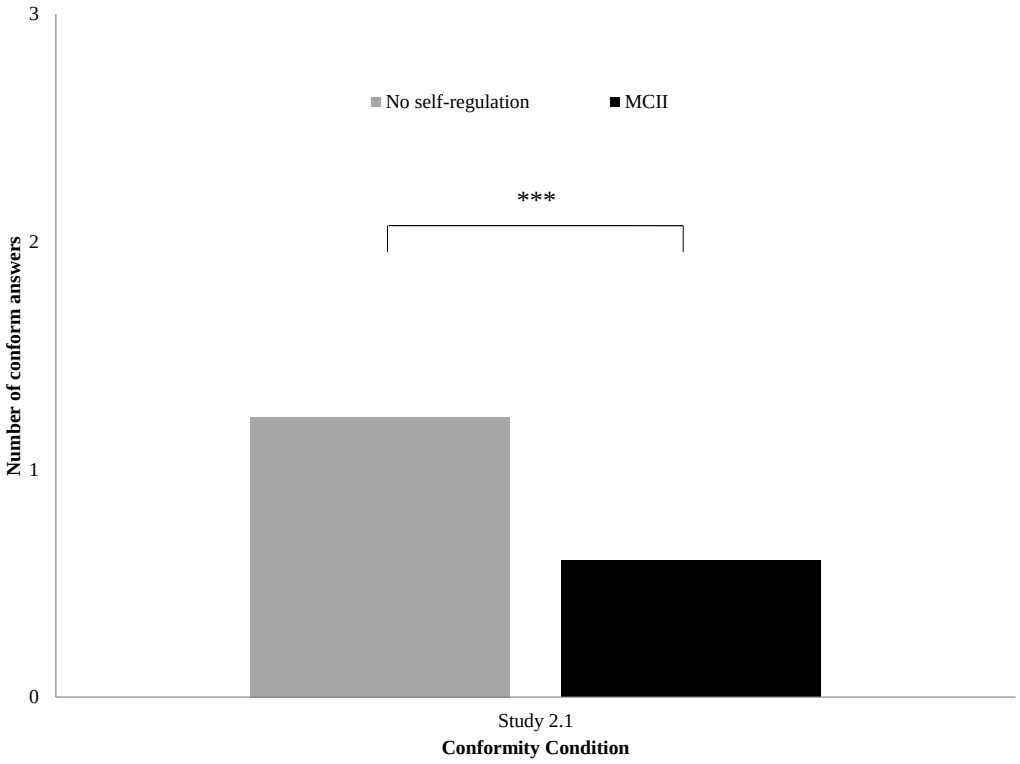

Figure 9. Study 2.1: Mean number of conform answers for the conformity condition. * = $p <$ .05;** = $p < .01$; *** = $p < .001$.

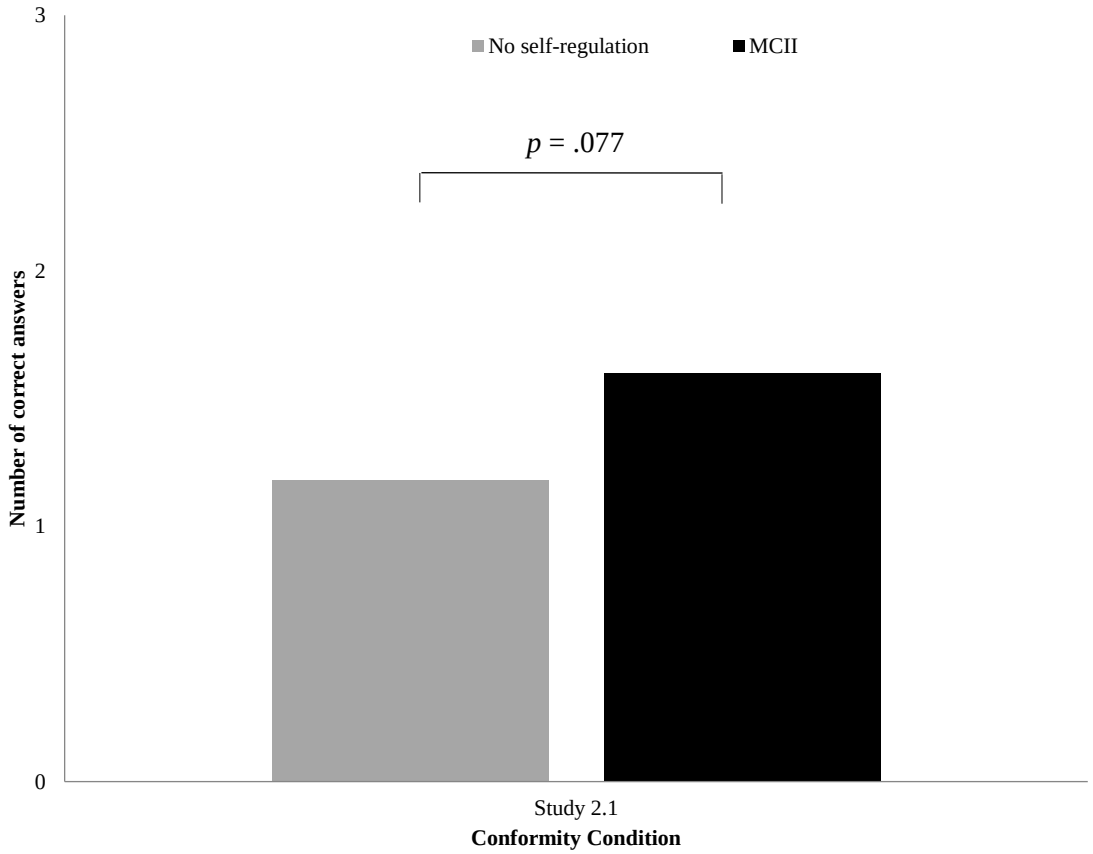

Figure 10. Study 2.1: Mean number of correct answers for the conformity condition * = $p <$ .05;** = $p <$ .01; *** = $p <$ .001.

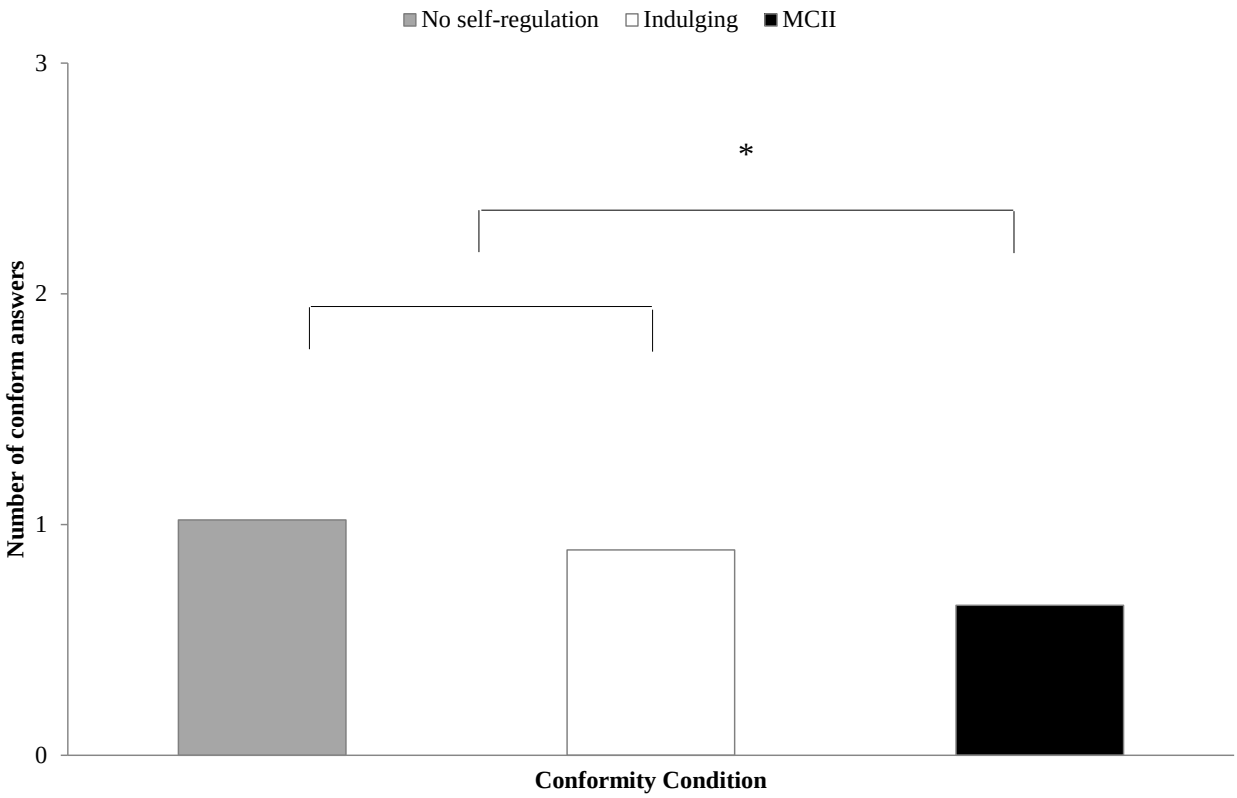

Figure 11. Study 2.2: Mean number of conform answers for the conformity condition. * = p< .05;** = p < .01; *** = p < .001.

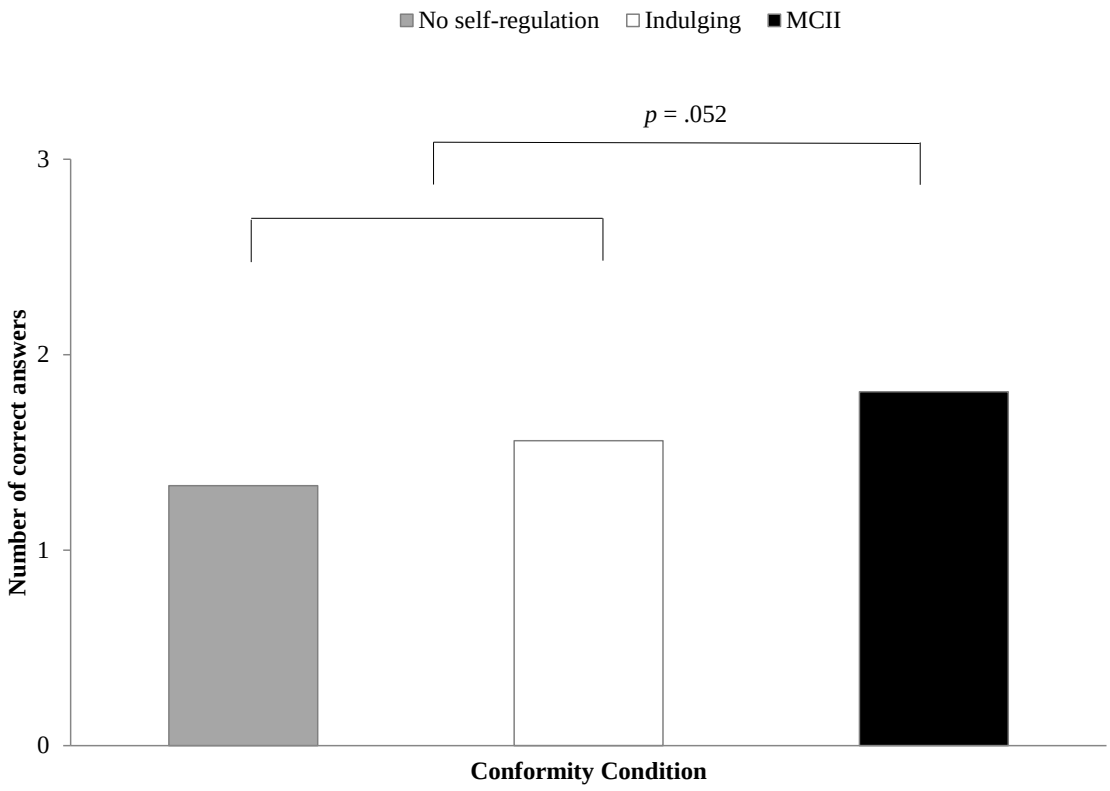

Figure 12. Study 2.2: Mean number of correct answers for the conformity condition.

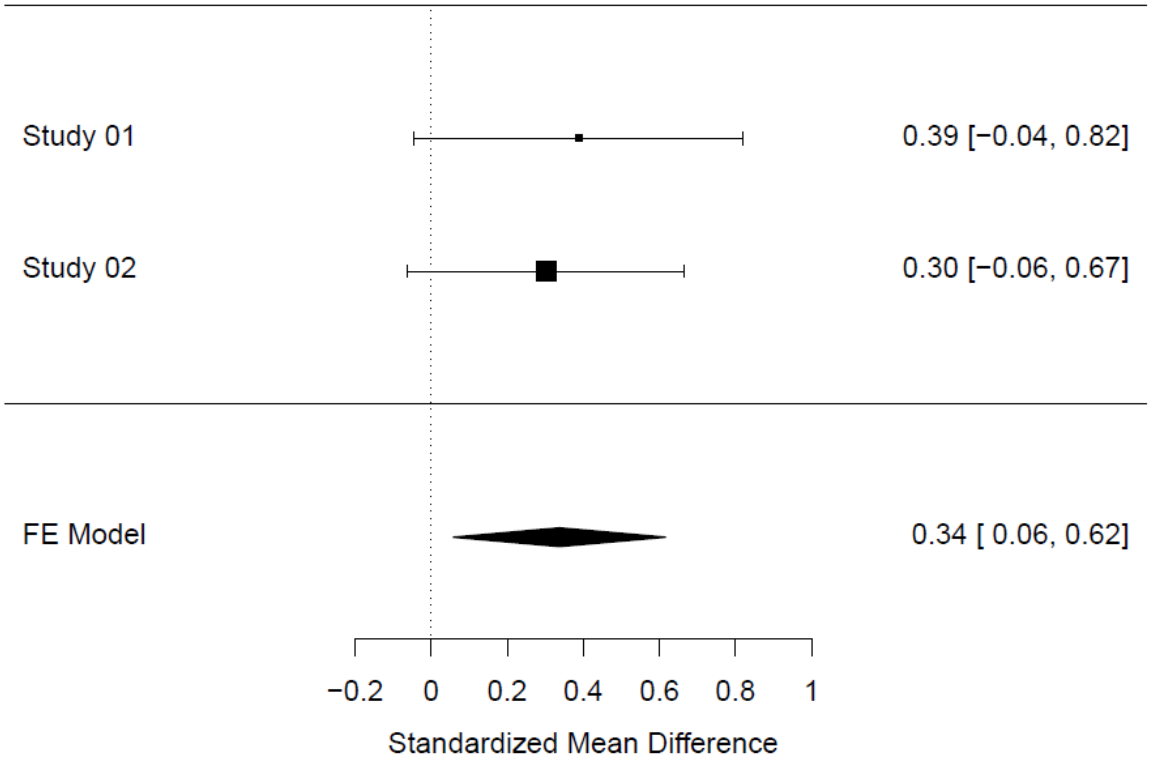

Figure 13. Studies 2.1 and 2.2: Forest plot, random effects model for the variable correct answers on the logical reasoning task.

Appendix Study-set 3

Table 2

Study-set 3, Study 1 Means of energization, commitment and clarity immediately (T_1) and two weeks after the manipulation (T_2)

	MCII (n = 92)		Indulging (n = 103)	
	M	*SD*	*M*	*SD*
Study 3.1 (N = 195)				
Energization (T_1)	5.64	1.04	5.26	1.29
Commitment (T_1)	5.11	1.39	4.68	1.39
Clarity (T_1)	6.17	1.06	5.50	1.47
Energization (T_2)	5.31	1.28	4.89	1.42
Commitment (T_2)	5.41	1.58	4.89	1.75
Clarity (T_2)	5.64	1.26	5.16	1.55

Note. Items were rate on 7-point Likert scales ranging from 1 (*not at all*) to 7 (*very*).
MCII = Mental Contrasting with Implementation Intentions.

Table 3

Study-set 3, Studies 1 and 2 Number of performed steps to realize one's wish, closeness to wish realization as well as actual wish realization

	MCII		Indulging	
	M	*SD*	*M*	*SD*
Study 3.1 (*N* = 195)	(*n* = 92)		(*n* = 103)	
Steps to realize	5.59	1.46	4.77	1.93
Closeness to realization	64.27	28.49	55.07	28.70
Wish realization	4.39	1.80	3.96	1.82
Study 3.2 (*N* = 156)	(*n* = 86)		(*n* = 70)	
Steps to realize	5.35	1.39	4.02	2.06
Closeness to realization	62.80	29.21	51.91	29.47
Wish realization	4.36	1.97	3.79	1.94

Note. The items "steps to realize" and "wish realization" were rated on 7-point Likert scales ranging from 1 (*not at all*) to 7 (*very*), whereas "closeness to realization" was assessed on a scale ranging from 0% to 100%. MCII = Mental Contrasting with Implementation Intentions.

Table 4

Study-set 3, Study 2 Means of energization, commitment and clarity immediately (T_1) and two weeks after the manipulation (T_2)

	MCII (n = 86)		Indulging (n = 70)	
	M	*SD*	*M*	*SD*
Study 3.2 (N = 156)				
Energization (T_1)	5.47	1.13	5.43	1.12
Commitment (T_1)	5.07	1.47	4.77	1.44
Clarity (T_1)	5.71	1.28	5.71	1.33
Energization (T_2)	5.27	1.39	4.76	1.62
Commitment (T_2)	5.38	1.64	4.94	1.70
Clarity (T_2)	5.49	1.42	5.01	1.66

Note. Items were rate on 7-point Likert scales ranging from 1 (*not at all*) to 7 (*very*).
MCII = Mental Contrasting with Implementation Intentions.

Table 5

Study-set 3, Study 3 Means of energization, commitment and clarity immediately (T_1) and two weeks after the manipulation (T_2)

	MCII (n = 80)		No self-regulation (n = 83)	
	M	*SD*	*M*	*SD*
Study 3.3 (N = 163)				
Energization (T_1)	5.43	1.13	5.09	1.29
Commitment (T_1)	5.10	1.32	4.94	1.37
Clarity (T_1)	5.86	1.17	5.34	1.43
Energization (T_2)	5.44	1.24	5.02	1.48
Commitment (T_2)	5.63	1.38	5.33	1.63
Clarity (T_2)	5.86	1.30	5.12	1.71

Note. Items were rate on 7-point Likert scales ranging from 1 (*not at all*) to 7 (*very*).
MCII = Mental Contrasting with Implementation Intentions.

Table 6

Study-set 3, Study 3 Number of performed steps to realize one's wish, closeness to wish realization as well as actual wish realization

	MCII (n = 80)		No self-regulation (n = 83)	
	M	*SD*	*M*	*SD*
Study 3.3 (N = 163)				
Steps to realize	4.99	1.20	4.48	1.79
Closeness to realization	64.84	24.93	56.35	28.95
Wish realization	4.44	1.68	4.04	1.86

Note. The items "steps to realize" and "wish realization" were rated on 7-point Likert scales ranging from 1 (*not at all*) to 7 (*very*), whereas "closeness to realization" was indicated on a scale ranging from 0% to 100%. MCII = Mental Contrasting with Implementation Intentions.

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