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How can we master the 2020 Coronavirus pandemic? The role of planning at social levels

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ABSTRACT

Mastering global challenges such as the 2020 Coronavirus pandemic requires implementing effective responses at various social levels. Leadership teams (governmental, industrial) need to integrate available information to introduce effective regulation and update their decisions as new information becomes available. Groups (families, peers, teams) need to act persistently, even when these actions oppose members' individual short-term interests. Moreover, individuals need to stay calm and act diligently, while dealing with emotions of threat and resisting counterproductive social influence. Our research programme on implementation intentions at social levels suggests that collective if-then plans facilitate goal attainment for teams, groups, and individuals in social contexts. We therefore analyse how if-then planning can help master global human challenges such as the 2020 Coronavirus pandemic.

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“Jetzt zu dem, was mir heute das Dringendste ist: Alle staatlichen Maßnahmen gingen ins Leere, wenn wir nicht das wirksamste Mittel gegen die zu schnelle Ausbreitung des Virus einsetzen würden: Und das sind wir selbst.”

[“Now let us turn to what is most important to me today: All government action would be in vain if we would not employ the most powerful measure against the fast spread of the virus: And this is us.”]

Angela Merkel, German Chancellor (Süddeutsche Zeitung, 18 March 2020)

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The 2020 Coronavirus pandemic first and foremost required behavioural responses: Technical intervention was costly, laborious, or simply not available when it was needed. For instance, even though the development of an effective vaccine against SARS-CoV-2, the virus causing the COVID-19 respiratory disease, commenced at an unprecedented speed (Thanh Le et al., 2020), a product usable at scale was still a month away when finalising this review in November 2020. Changing everybody's behaviour was therefore the only immediately available option during the Coronavirus pandemic (for readability, we refer to the SARS-COV-2 pandemic and the resulting COVID-19 disease conjointly as *Coronavirus pandemic*). Governments and CEO boards needed to pass legislation and set rules to protect citizens and employees. Families and peer groups needed to change their behaviours and persistently stick to these rules even when there are personal costs. And individuals needed to change their behaviours even when the overwhelming emotions of threat and increasing maladaptive social influence made it hard to think clearly. Social and behavioural sciences can help tap into the human capability of changing behaviour swiftly and wilfully (Van Bavel et al., 2020), and this is particularly true for the thriving field of motivation science. Here, we discuss our programme of research on a motivation science intervention that can help promote resilient responses required during a pandemic: planning at social levels.

The problem

The challenges of the Coronavirus pandemic were manifold but we focus on three key levels, which are involved when responding to a global pandemic: Teams in leadership positions, such as governments or CEO boards, make decisions on regulations; groups, such as families or partners, implement these regulations; and individuals, such as family members or spouses, regulate their actions accordingly. It is important to note that these levels interact with one another and other challenges can arise as well. The point we seek to make is that each of these three levels faces specific challenges, and considering these social levels thus is key to responding effectively during a pandemic.

Teams in leadership positions made important decisions during the Coronavirus pandemic, and a key challenge for such teams was managing the wealth of information as it became available (Thürmer, Wieber, et al., 2020a). Scientists from different disciplines and different global agencies contributed their knowledge and their assessment of the situation (e.g., on whether and when to wear face masks) and team members were exposed to different sets of information. Accordingly, teams had access to more information than a single individual, giving teams the potential to make highly informed decisions. Unfortunately, teams often do not integrate the available

information (e.g., insights from epidemiologists, health care professionals, and public administration), leading to suboptimal decisions (Schulz-Hardt & Mojzisch, 2012; Stasser & Titus, 2003; Thürmer et al., 2018). But even when a decision had been reached, new information became available continuously as the situation evolved (e.g., new research indicated that wearing facial masks in public is highly beneficial). Teams thus needed to evaluate their decisions against today's new facts constantly. Unfortunately, teams are also hesitant to revise their decisions in the light of new information (Sleesman et al., 2017).

The societal groups that make up our personal life (families, partners, roommates) eventually needed to implement many of the proposed measures. Families had to stay home together instead of arranging play-dates for the kids, partners had to cancel their date-nights, and roommates had to learn how to share their flat 24/7. All these behaviours are challenging because they require persistence and often are uncomfortable. They require putting the group's interests over one's immediate self-interest (Kerr, 1983, 2013; Van Lange et al., 2013). But when actions become uncomfortable or costly in the long run, people tend to give up on their goals (Klinger, 1975).

Even when individuals are committed to implementing all the necessary actions, overwhelming emotions of threat and inappropriate social influences easily derail goal pursuit. The individual experience of threat entails powerful emotional and cognitive responses (Jonas et al., 2014). Specifically, the protection of the self can take precedence over socially constructive goals when under threat, leading to so-called self-defeating behaviours (Kopetz & Orehek, 2015). For instance, thinking of the threat of an infection may lead to actions that seemingly protect me, such as hoarding medical equipment, but endanger medical facilities. Individuals moreover easily lose sight of their goals when exposed to maladaptive social norms (i.e., others' expectations or behaviours). For instance, I might have a reasonable shopping list with only one bottle of disinfectant on it. But when I see that everybody is buying multiple bottles, I will also try to get as many as possible. While there are excellent reviews on individual action control (e.g., Carver & Scheier, 2017; Hofmann et al., 2012; Sheeran & Webb, 2016), substantially fewer studies have investigated how to improve action control at social levels (but see Gagné, 2018). In the present review, we therefore focus on our programme of research on collective planning as an effective means to improve joint goal attainment.

Towards a solution: if-then planning at social levels

A basic intuition that many scientists and the general public adhere to is that people need to be highly motivated (i.e., have a strong commitment) to have

a chance to meet their set goals. This is certainly true, although a strong goal commitment is just a necessary first step but by no means a sufficient condition. Systematic research shows that even those strongly committed to their goals often fail to attain them (Sheeran & Webb, 2016), while those who lack commitment never do so (Sheeran, 2002). To reach one's goals it is also necessary to prospectively plan how to implement them (Gollwitzer, 1993, 1999, 2018). A family with the goal "We want to socially distance" may additionally form the if-then plan "And if we go shopping, then we will stay at least 2 meters away from other people."

An abundance of research indicates that individuals benefit greatly from making such additional if-then plans (i.e., forming *implementation intentions*; IIs) that spell out exactly when, where, and how to act to reach one's goal (meta-analyses covering different behavioural domains by Adriaanse, Vinkers et al., 2011; Bélanger-Gravel et al., 2013; Chen et al., 2015; Gollwitzer & Sheeran, 2006; McWilliams et al., 2019; Silva et al., 2018; Toli et al., 2016; Vilà et al., 2017; & Webb et al., 2012). A recent meta-analysis of meta-analyses integrated many of these reports and found a medium effect size of $d = .54$ (Keller et al., 2020). In fact, in a recent study on reducing snacking habits, if-then plans had similar effects as financial incentives, and these effects of if-then plans lasted longer than those of financial incentives (Achtziger et al., 2019). Moreover, so-called collaborative implementation intentions can even support complementary actions that two people jointly perform (e.g., breast self-examination; Prestwich et al., 2005; or exercise, 2012; review by Prestwich & Kellar, 2014). In the context of the Coronavirus pandemic, it should be pointed out that this effect size is comparable to typical effect sizes of drugs on the symptoms of diseases that they have been designed for (Leucht et al., 2015). A behavioural if-then planning intervention to curb a pandemic may thus not only be readily available but also highly impactful.

As our analysis of the challenges during the Coronavirus pandemic shows, many of the needed behaviours were not performed by individuals in isolation but by teams, groups, and individuals in social contexts. This is not surprising, as humans are highly dependent on each other for survival (e.g., Sober & Wilson, 1998), and therefore perform tasks and make decisions together (Kerr & Tindale, 2004; Tindale & Kameda, 2017). Regarding teams and groups, the question arises how these social entities can act most effectively.¹ Teams and groups are assemblies of mutually interdependent members, seeking to attain a common goal. Building on the literature on group cognition (Hinsz et al., 1997; Levine & Smith, 2013; E. R. Smith & Semin, 2004), we assume that actions are distributed across members. In

¹While acknowledging the importance of group identification for collective actions (Sassenberg & Wolfin, 2008), we are most interested in the interactive aspects of groups.

other words, groups act to attain their goals (von Cranach et al., 1986) by performing tasks (taskwork) and coordinating their actions (teamwork; Marks et al., 2001). In line with the view that group actions go beyond merely performing the task at hand, teamwork behaviours have a great impact on team effectiveness (Crawford & Lepine, 2013). But even when individuals strive for their own goals, they are susceptible to the impact of others.

The question regarding planning then is: Is *collective planning* possible and effective? We define collective planning parsimoniously as a *plan referring to the team or group*. Thereby, collective plans refer to the social unit (e.g., we, us, ours; a “We-plan”) and individual plans refer to the individual (e.g., I, me, mine; an “I-plan”). Classic implementation intentions refer to the individual (e.g., “*And if I encounter situation S, then I will show response R*”), and we therefore recently introduced a new type of plan that refers to the group: *collective implementation intentions* (cIIs; e.g., “*And if We encounter situation S, then We will show response R*”) (Thürmer et al., 2015a). When forming such “We-plans” or cIIs, group members specify when, where, and how the group wants to act towards set goals by specifying opportune situations and goal-directed actions.

We started our research on We-plans as part of the interdisciplinary research group *limits of intentionality* at the University of Konstanz. Our reasoning was the following: At the individual level, if-then plans are effective because they unequivocally spell out when, where, and how to act. As these plans always refer to the individual, there is also no question *who* ought to act (i.e., the person making the plan). Consequently, according to our quick and dirty reasoning, specifying the response in relation to a social unit should diminish the accuracy of the plan and thus disrupt its positive effects.

Our first empirical results proved us wrong, however. Groups with collective if-then plans made better decisions (Thürmer et al., 2015b) and were also more likely to revise their decisions in the light of new information (Wieber et al., 2015a). Delving into the rich literature on small groups soon made us realise why collective plans were so effective. Group members can pursue collective goals (e.g., Kramer et al., 2013; Weldon & Weingart, 1993), and humans are well-adapted to acting jointly with others (Sebanz et al., 2006). Accordingly, when it comes to setting goals, the simple distinction between *We* and *I* can make a big difference (Kleingeld et al., 2011; Mitchell & Silver, 1990). In one set of studies (van Mierlo & Kleingeld, 2010), We-goals led to choosing cooperative task strategies but I-goals to more competitive strategies. In a sense, group members with strict *ego-centric I-goals* were agnostic to the needs of the group. As our first studies indicated (Wieber et al., 2012), We-plans seemed to be effective. We soon turned to the differences between We-plans and I-plans. Our argument is that the We/I-distinction is also important for the prospective planning of one’s goal

striving. Referring to the group in a We-if-then plan should increase focus on the group and should thereby help teams and groups to strive for their goals more effectively, while individual if-then plans may or may not lead to behaviour directed towards attaining collective goals. In this review, we report research that tested the assumption that collective-focused goal striving should be particularly helpful when all members' contributions are needed, using three representative situations: First, we report research indicating that teams with cIIs were more likely to integrate socially distributed information in their decisions and to consider temporally distributed information to later adjust their decisions. Second, we report research indicating that group members with cIIs were more likely to cooperate at a personal cost and to persist despite discomfort to attain group goals. Third, we report research indicating that individuals with IIs refrained from creating excuses for a threatening task, and group members with a cII managed to stick to their shopping list even when the social context promoted impulse buying.

Planning and team decisions

Important decisions are often made by teams in leadership positions (Thürmer, Wieber, et al., 2020a). For instance, parliaments debate legislation, board of directors supervise organisations, and governments govern countries. And when one person makes the final decision (e.g., the president in many presidential democracies), even those decisions are ideally influenced by a team jointly working on the issue (Tindale & Jeremy, 2020). The benefits of making these decisions in teams are potentially larger when information is socially distributed (i.e., different team members have complementary expertise). For instance, with regard to the 2020 Coronavirus pandemic, epidemiologists, medical doctors, and public health experts jointly contributed to understanding whether and how wearing masks reduces the risk of infections. Policy makers had to gather and integrate this information to make the best decisions possible. Moreover, in evolving situations, new information may emerge over time, and teams thus may face temporally distributed information. In the case of wearing masks, initial evidence for their effectiveness was lacking but some scientists suspected potential benefits and many countries accordingly introduced respective measures – with apparent positive consequences (Greenhalgh et al., 2020; Klompas, Morris, Sinclair et al., 2020; World Health Organization, 2020a). Still, some research suggested that masks may pose additional risks such as self-infections from touching one's face to adjust the mask (Klompas, Morris, Shenoy et al., 2020; World Health Organization, 2020b, 2020c). In fact, the World Health Organisation explicitly stated that their guidelines “will be revised as more data become available” (World Health Organization, 2020c, p. 1). Policy makers thus needed to update their decisions continuously,

a task that groups commonly do not master well. In two sets of studies, we tested whether if-then planning can help teams update their decisions when new information emerges.

Planning decisions to integrate socially distributed information

A common reasoning for using teams to make decisions is that different people can contribute their perspectives, thereby allowing for more informed decisions. For instance, in the context of the 2020 Coronavirus pandemic, different members of a task force were able to bring unique expertise to the table, such as economic, medical, and epidemiological information. A basic intuition then is that such decision-making teams can make better decisions than each individual could alone. From an informational point of view, teams have this potential to make better decisions when at least two conditions are fulfilled: (a) Members can share initially unshared information and thus learn from each other, and (b) integrating all this information available to the team leads to a different (and better) decision than those made by each individual alone (Schulz-Hardt & Mojzisch, 2012). Decision contexts that fulfil these conditions are referred to as *hidden profile* problems (Stasser et al., 1989), because the best alternative is initially hidden from each individual member. Unfortunately, teams routinely disregard unshared information – even if it comes up during discussions (Gigone & Hastie, 1993, 1997; Mojzisch, Grouneva, & Schulz-Hardt, 2010; Mojzisch & Schulz-Hardt, 2010) and instead rely on their common knowledge (i.e., shared information; Tindale & Kameda, 2000; Tindale & Sheffey, 2002). Teams thus make suboptimal decisions in hidden profile situations (Lu et al., 2012; Mesmer-Magnus & DeChurch, 2009).

We (Thürmer et al., 2015b) reasoned that if-then planning may help teams in such situations. Individual if-then plans (IIs) are known to help break routines (Aarts, Dijksterhuis & Midden, 1999) and can trigger deliberating about one's decisions (Doerflinger et al., 2017; Henderson et al., 2007). Referring to the team in a We-if-then plan (cII) should thus help teams consider crucial socially distributed information (i.e., initially unshared information) and improve decisions in hidden profile situations.

We tested this prediction in an interactive laboratory experiment with university students ($N = 28$ triads, i.e., 84 participants). We asked teams of three students to make four decisions. As real-world decisions usually have consequences for decision makers, we promised a monetary reward for each correct decision. Teams were then randomly assigned to a cII condition or a control condition. Teams in the cII condition specified a critical situation (coming to a decision) and a helpful strategy (reviewing available information), and linked the two in an if-then format: "And when we finally take the decision sheet to note our preferred alternative, then we will go over the advantages of the non-preferred alternatives again." Teams in the control

condition added the same response strategy to their goal but without the if-then link: “We will go over the advantages of the non-preferred alternatives again.” Teams then worked on three hidden profile decisions. For each profile, team members first received individual information pointing to a suboptimal decision alternative (Table 1). After studying their materials individually, teams gathered and discussed which alternative to choose, with a time limit of up to 6 minutes. We recorded and coded the team discussions according to well-established procedures (see Thürmer et al., 2018). At the end of their discussion, teams marked their preferred alternative on a decision sheet. In line with prior research, teams largely failed to solve the hidden profile decision cases (6% correct decisions). However, we observed an effect of the planning condition: While none of the teams in the control condition solved any of the hidden profiles (0% cases solved), approximately one third of the teams in the cII condition solved at least one case (12% cases solved, see Table 2). With respect to the recorded discussions, teams in the cII condition indeed recapitulated more information, especially crucial, previously unshared information. Thus, the cII indeed improved hidden profile decisions, apparently by enhancing the consideration of unshared information.

To replicate these effects under more controlled conditions, we conducted a second laboratory experiment with individual participants ($N = 51$ students). Design and procedures were largely identical to the interactive study, with the key difference that participants did not take part in a team discussion. Instead, they followed an animated team discussion (with one avatar representing them), during which all available information came up (see Figure 1). Again, participants who had formed the cII to review key information made better decisions (48% cases solved) than participants who only had included this strategy in an additional goal (control condition; 18% cases solved, Table 2).

None of the decision cases studied in our past research dealt with public health issues, such as the 2020 Coronavirus pandemic. However, many of the characteristics of these decision cases are likely to be similar. First, information during pandemics is socially distributed among members of a team. Our findings indicate that the cII to review information indeed facilitated using such distributed information effectively. Second, decisions during a pandemic are made under time pressure. Our interactive laboratory experiment imposed a strict 6-minute time limit on teams and the cII did facilitate decision making under these conditions. Third, decisions during a pandemic put people, companies, and nations at stake. Even though we cannot impose such high stakes in the laboratory, all hidden profile decisions were incentivised. Our results thus indicate that cIIs may improve decisions even when decision makers are already highly motivated to make a good decision.

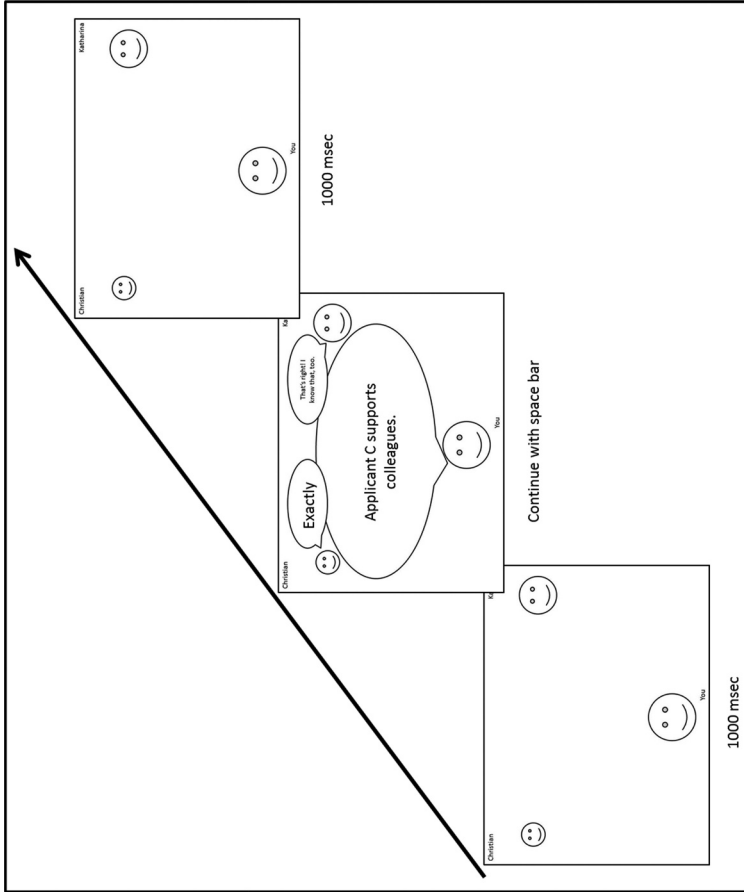


Figure 1. Computer-animated group discussion with distributed information (hidden profile paradigm): A pre-scripted statement of an argument that the participant received prior the group discussion (i.e., applicant C supports colleagues) is displayed and socially validated by the other two group members. Reprinted by permission from Wiley, *Journal of Behavioral Decision Making* (Thürmer et al., 2015b).

Table 1. Information distribution prior to the discussion in hidden profiles (unshared information is crucial, Experiments 1 and 2). Reprinted by permission from Wiley, Journal of Behavioral Decision Making (Thürmer et al., 2015b).

Type of information	Alternative		
	Best	Second	Third
Hidden profile cases (Experiments 1 and 2)			
Shared information			
Positive	0	3	6
Neutral	3	0	0
Negative	3	3	0
Unshared information			
Positive	9	3	0
Neutral	0	6	3
Negative	0	0	6
Total pre-discussion information per participant			
Positive	3	4	6
Neutral	3	2	1
Negative	3	3	2
Total information available to the team			
Positive	9	6	6
Neutral	3	6	3
Negative	3	3	6

Note. Shared information items are given to each group member prior to the discussion; unshared information items are just given to one group member prior to the discussion.

Table 2. Decision quality in hidden profiles (unshared information is crucial) and manifest profiles (unshared information is trivial), and unshared information recapitulated by condition. Reprinted by permission from Wiley, Journal of Behavioral Decision Making (Thürmer et al., 2015b).

Decision quality	Condition		χ^2	p	ϕ
	Control	Implementation intention			
Experiment 1: Decisions after pre-scripted discussions ($N = 51$ individuals)					
Number of optimal decisions: hidden profile	4 out of 22 (18%)	14 out of 29 (48%)	4.96	.03	.31
Experiment 2: Decisions in interactive group discussions ($N = 28$ triads)					
Number of optimal decisions: in 3 hidden profiles	0 out of 42 (0%)	5 out of 42 (12%)	5.32	.02	.25
Percentage of mentioned, previously unshared advantages of the best alternative reviewed	20% ($SD = 27\%$)	31% ($SD = 34\%$)	4.31	.04	–
Number of optimal decisions: manifest profile	13 out of 14 (93%)	14 out of 14 (100%)	1.04	.31	–

Planning decisions to integrate temporally distributed information

The 2020 Coronavirus pandemic was an evolving situation and thus posed a second challenge for decision makers, that is, information only became

available over time. This means that a decision that was once wise later turns out to be suboptimal. Examples from the 2020 Coronavirus pandemic include the recommendation to use facemasks in public (initially not advisable to later advisable), the necessity to close schools (initially not necessary, then necessary, as of November 2020 not necessary), and the stance on border controls and closures (open borders to closed borders to open borders). And, eventually, all costly restrictions need to be lifted when they no longer seem necessary. Thus, even when a team manages to share and integrate available information initially, it has to revise this decision when new information becomes available.

Teams also fail to heed such temporally distributed information and stick to their investment decisions or even increase their investment (i.e., escalate their commitment; Molden & Hui, 2011; Sleesman et al., 2012, 2017). Recent research has, for instance, demonstrated that medical teams may fail to terminate a patient's treatment that turns out to be ineffective (Turpin et al., 2019). Among the many determinants of the escalation of commitment (Sleesman et al., 2012; Staw & Ross, 1989), self-justification processes play a prominent role (Staw, 1976). According to this perspective, people escalate their commitment to avoid the dissonance between choosing an initial investment and the realisation that this was a mistake. In line with this hypothesis, it has been found that the failure to reduce commitment in response to negative feedback is positively related to (a) being personally responsible for the initial decision, (b) having previously expended resources (i.e., sunk cost, time invested), and (c) feeling personally threatened by the negative feedback (i.e., ego threat). We therefore reasoned that teams may find it difficult to distance themselves from their initial decision. But as if-then planning can be used to promote complex cognitive responses (Doerflinger et al., 2017; Martiny-Huenger et al., 2011), we argued that teams can resort to collective plans to take an onlookers perspective.

To test this assumption, we conducted two experimental studies with interactive teams (Exp. 1: $N = 39$ triads, i.e., 117 participants; Exp. 2: $N = 46$ triads, i.e., 138 participants; Wieber et al., 2015a). We expected that forming cIIs regarding when, where, and how to act (i.e., making We-if-then plans) should facilitate initiating a self-distancing response (i.e., taking the perspective of neutral observers). In both studies, we asked teams of three students to make decisions regarding a Kindergarten project as a city council committee (Haslam et al., 2006; see also Dietz-Uhler, 1996). The scenario commenced in three consecutive phases. In each phase, teams received information on the actual state of the project, discussed it, and made a unanimous investment decision. The information received in Phase 1 was unanimously positive (4 pros, 0 cons) and thus supported the initial investments; however, the information in Phase 2 was mixed (2 pros, 2 cons) and in Phase 3 it was mostly negative (1 pro, 3 cons), calling for more moderate investments. The amount of money invested in the project at the end of each phase served as the dependent variable.

Before working on the decision scenarios, teams were randomly assigned to different planning conditions. In Study 1, all teams formed the goal “We want to make the optimal investment decision in each phase!” and then added the strategy to take an observer’s perspective in one of two formats (cII vs. control). Teams in the cII condition added an implementation intention “If we are about to make an investment decision, then we will judge the project as neutral observers who are not responsible for earlier decisions!”; teams in the control condition added a self-distancing goal intention without specifying a critical situation “We want to judge the project as neutral observers who are not responsible for earlier investment decisions!”.

In Study 2, teams were randomly assigned to one of three conditions (control: no goal or plan, goal intention only, goal intention plus implementation intention), with the goal and the plan being identical to those used in Study 1. This way, we sought to test whether only the goal to make good decisions would be sufficient to de-escalate commitment. Moreover, we adapted the scenario instructions to make clear that funds not invested in the current project would be available to other important projects. This way, we sought to make it easier to justify lower investments.

In line with our assumptions, teams with the self-distancing cII reduced their high levels of investment (Study 1, see [Figure 2](#)) or maintained their moderate levels of investment (Study 2, see [Figure 3](#)) after negative feedback. Teams that had merely formed goal intentions, however, escalated even though they had added self-distancing goal intentions (Study 1) and this level of escalation was comparable to control teams without such a goal (Study 2).

Our line of research on decision-making and cIIs raises important implications for decision makers during the Coronavirus pandemic. Preparing to consider all available information before making a decision as well as later adjusting decisions was crucial for effective management of the 2020 Coronavirus pandemic as well as a speedy recovery of societies afterwards. Our research shows that cIIs can facilitate team decisions by increasing the use of socially distributed information when making initial decisions; moreover, cIIs facilitate the use of temporally distributed information to revise past decisions (Thürmer et al., 2015b; Wieber et al., 2015a).

Planning and group behaviour

The decisions regarding the 2020 Coronavirus pandemic needed to be implemented widely. Social distancing meant that families could not get together, partners could not go out on a date, and roommates had to remain in their apartment together. Equally, school closures and home office regulations required families to take on home schooling, provide workspace, and maintain family life. All these measures to combat the 2020 Coronavirus

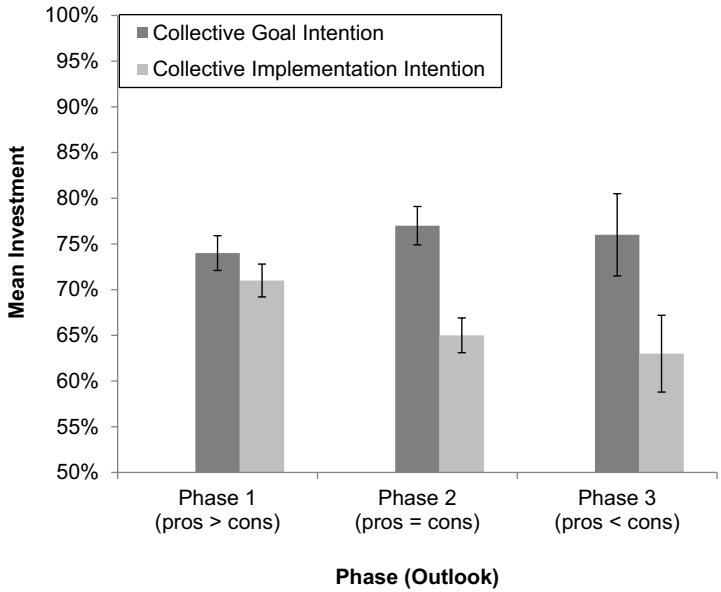


Figure 2. Escalation of commitment, Study 1: mean investment (percentage of the available budget) by intention ($N = 39$ triads) in Phase 1 (positive project outlook), Phase 2 (mixed project outlook), and Phase 3 (negative project outlook). Error bars represent standard errors. Adapted from Wieber et al. (2015a). Copyright pertains to the authors. Adapted with permission.

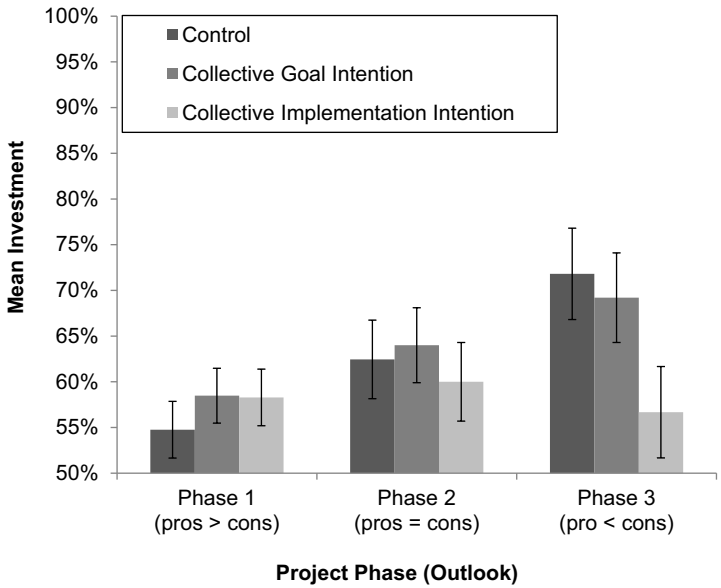


Figure 3. Escalation of commitment, Study 2: mean investment (percentage of the available budget) by intention ($N = 46$ triads) in Phase 1 (positive project outlook), Phase 2 (mixed project outlook), and Phase 3 (negative project outlook). Error bars represent standard errors. Adapted from Wieber et al. (2015a). Copyright pertains to the authors. Adapted with permission.

pandemic posed at least two challenges: These actions had to be performed persistently over a longer period and they were personally costly (e.g., increased loneliness causing discomfort or even mental health issues). It was therefore personally tempting for all of us to give up on our good intentions and start free riding on the effort of others, for instance, when younger people got together for so-called “Corona-Parties”. We assume that collective implementation intentions (cIIs) help focus on collective outcomes and therefore argue that We-if-then plans should help perform costly collective actions. Such social dilemmas also provide an optimal context to investigate potential differences between individual and collective planning.

Planning to cooperate at a personal cost

Group interests and individual interests are often in conflict (Kerr, 1983, 2013), and behaving in one’s group’s best interests in such situations requires individual sacrifices (Hardin, 1968). Resolving such *social dilemmas* is difficult (Komorita & Parks, 1995; J. M. Weber et al., 2004) because it is tempting to follow selfish incentives even when one has antagonistic group goals (Sheldon & Fishbach, 2011). For instance, even when a company has the goal to stick to the social distancing measures, it may be tempting to keep shops open to secure business. At the same time, unconditional cooperation may encourage others to take a free ride and defect. As Lewin (1939, p. 121) put it, “*a man who does not show backbone [...] invites the bestiality of the mob*”. With regard to groups, unconditional cooperation may encourage others to take a free ride and exploit the group. Conditional cooperation, such as tit-for-tat strategies in repeated interactions, is therefore the most adaptive behaviour in dilemma situations.

Recent research shows that if-then planning can activate the mental representation of a superordinate goal, and thereby help prioritise it over conflicting goals (Kirk et al., 2011; Stroebe et al., 2013). Moreover, if-then planning can promote actions that are personally costly (e.g., Hall et al., 2012; Trötschel & Gollwitzer, 2007; Nickerson & Rogers, 2010). We therefore assume that furnishing a cooperative group goal with a cII to focus on the group outcome can help prioritise group goals over selfish goals, even when this comes at a personal cost. Moreover, we assume that cIIs will create a collective focus. This implies that cII effects ought to be specific to one’s group, promoting cooperative decisions within one’s group but not with outsiders. Similarly, we assumed that cIIs create a certain situation-response link. This implies that cII effects ought to be specific to the planned situation, promoting cooperative decisions in the specified situation but not in unrelated situations (cf. Masicampo & Baumeister, 2012). In short, cIIs should be able to promote conditional cooperation.

To test these predictions, Thürmer, Wieber, et al. (2020b) conducted an experiment with university students ($N = 134$). We developed an airline pricing game (based on Sheldon & Fishbach, 2011) that posed a dilemma between a collectively profitable choice that was individually unprofitable (cooperation) and an individually profitable choice that was collectively unprofitable (defection). To intensify this dilemma experience, participants were paid according to their decisions. Participants took on the role of an airline CEO to decide on the pricing of the airline's tickets for different routes; they could either choose standard pricing (cooperate) or discount pricing (defect). Each route was also serviced by another airline that also had to choose between these two pricing options, and the outcome of both airlines' decisions influenced each other in a prisoner's dilemma game fashion (see Figure 4): If both airlines choose standard pricing, passenger numbers remain stable and both airlines earn good revenue. If one airline chooses discount pricing while the other one chooses standard pricing, however, most passengers take advantage of the discount pricing. Accordingly, the discount pricing airline earns maximum revenue and the standard pricing airline earns minimum revenue. Last, if both airlines choose discount pricing, passenger numbers remain stable but both airlines earn lower revenue due to the lower ticket prices.

Importantly, participants' airline was said to belong to an alliance of airlines, the *Flugallianz*. On alliance routes, the alliance would independently market some of the tickets and the revenue for each connection would be equally divided between the two airlines servicing the respective route (see Figure 5). We constructed the alliance pay-off matrices by subtracting equal amounts from each airline and displaying the sum in a separate alliance field. Since the alliance pay-off was divided 50–50 between both airlines, the actual pay-offs in the alliance case were identical to the individual matrices.

After reading thorough task instructions and passing comprehension checks, participants received a “decision training.” The training either contained the cII “When we are about to make our pricing decision, then we will consider the Flugallianz's revenue,” the II “When I am about to make our pricing decision, then I will consider my airline's revenue,” or a neutral control plan, neither referring to the group, nor the individual: “When the decision screen appears, then a decision has to be made.” Participants then played eight rounds of the airline pricing game against other airlines in the Flugallianz (i.e., group members).

As outlined above, we sought to test whether cII effects would spill over to (a) strangers and (b) structurally similar situations. To this end, participants played eight rounds of the airline pricing game against airlines not in the Flugallianz (i.e., non-group members; Figure 4). Then, a structurally similar investment task followed. In this hypothetical investment task (adapted from Fischbacher et al., 2001), each participant had 10,000 USD that could be

a)

	Other airline chooses the regular price (a)	Other airline chooses the discount price (b)
You choose the regular price (A)	Other airline gets: 8 Your airline gets: 8	Other airline gets: 10 Your airline gets: 5
You choose the discount price (B)	Other airline gets: 5 Your airline gets: 10	Other airline gets: 6 Your airline gets: 6

b)

	Other airline chooses the regular price (a)	Other airline chooses the discount price (b)
You choose the regular price (A)	Other airline gets: 7 Your airline gets: 7	Other airline gets: 9.5 Your alliance gets: 1
You choose the discount price (B)	Other airline gets: 4.5 Your alliance gets: 1	Other airline gets: 6 Your alliance gets: 0

Figure 4. a) No-alliance (outsider) payoff matrix. In this prisoner’s dilemma task, the regular price (A) can be considered to be the cooperative decision due to the higher joint payoff ($A,a > B,b$); the discount price (B) can be considered to be the defect decision due to the higher individual payoff ($B,a > A,a$; $B,b > A,b$). Adapted from Thürmer, Wieber, et al. (2020b) based on the Creative Commons Attribution License (CC BY).

b) Alliance payoff matrix. alliance payoffs are payed to the players 50/50, and this matrix thus leads to identical payoffs to the no-alliance matrix. However, alliance payoffs visualise the difference in joint payoffs according to each combination of decisions. Adapted from Thürmer, Wieber, et al. (2020b) based on the Creative Commons Attribution License (CC BY).

invested in a common project account with another player or be kept in one’s own account, with the other player facing the same two choices. All contributions to the common project account would be added, and each airline would receive 75% of the total amount. Investing was thus a good opportunity to make money if both airlines contributed, but required trusting the other player to contribute equally. Dependent measures were the number of cooperative decisions (i.e., number of trials where standard pricing was

chosen) in the alliance and the non-alliance pricing task as well as the money invested in the hypothetical investment game.

We first analysed the decisions in the airline pricing game. When playing against a group member, participants with the cII to consider the Flugallianz revenue cooperated more than participants with the II to consider their airline's revenue or control participants with an unrelated plan (Figure 5). This demonstrates that cIIs can promote collective cooperation that is costly for the individual. Note that participants were paid according to their decisions; participants with cIIs thus sacrificed some of their payment to support the group goal. But did cIIs increase cooperation with anyone? Our results indicate they did not: When looking at the decisions in rounds playing against strangers (i.e., airlines not in the Flugallianz), no difference between conditions emerged. One might wonder whether cIIs lead to unlimited cooperation within groups. This could be problematic, for instance, when certain group members take advantage of the other members. The results from the structurally similar investment task suggest that this is not the case. Again, no cII effect emerged (Figure 6).

To sum up, the present study indicates that cIIs promote goal-directed cooperation within one's group and in the situation planned for. These findings are key to the situation of a global pandemic. Cooperation with regard to the agreed-upon measures, such as staying at home instead of earning money or exercising one's democratic right to demonstrate, was called-for and necessary. At the same time, as the pandemic went on, worries about excessive financial burden and limitations on democratic liberties increased. In this context, it is important to know that if-then planning with cIIs does not turn citizens into collectivist robots but rather supports striving for valued group goals. Put differently, strategic planning with cIIs promotes strategic cooperation that is goal-directed and occurs in the situation planned for.

Planning to persist despite discomfort

Our research discussed so far used monetary incentives as a means to increase the relevance to participants, providing a major parallel to real-world decisions during a pandemic. However, even though money provides a powerful incentive (V. L. Smith, 1976), much of our life is not directly related to money. Moreover, for many of our decisions and actions, the consequences we might have to face are not even that clear. Will I contract the Coronavirus when I have a drink with a few friends in the park? Will I then infect others whom I love? And will they (or me) get really sick? All of these consequences are uncertain.

Such psychological reality (cf. Lewin, 1936) includes that some actions require persistence and are costly in the sense that they pose discomfort, and

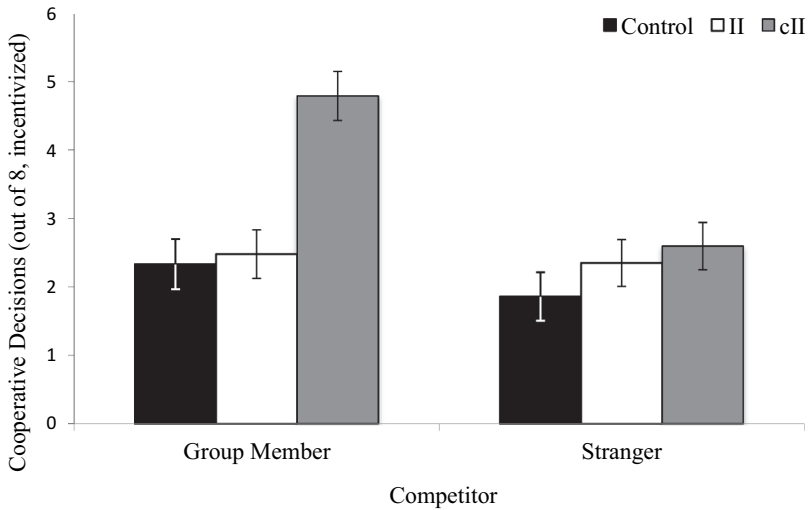


Figure 5. Incentivised Prisoner’s Dilemma game results: number of cooperative decisions in incentivised airline-pricing game that participants had planned for with reference to their group. Error bars represent standard errors. II: Individual implementation intention, cII: collective implementation intention. Adapted from Thürmer, Wieber, et al. (2020b) based on the Creative Commons Attribution License (CC BY).

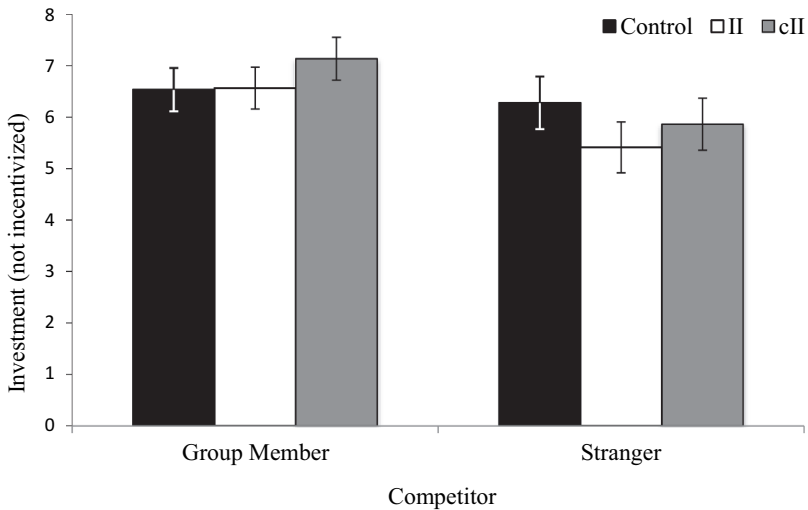


Figure 6. Non-incentivised investment task results: amount of cooperative investment that participants had not planned for. Error bars represent standard errors. II: Individual implementation intention, cII: collective implementation intention. Adapted from Thürmer, Wieber, et al. (2020b) based on the Creative Commons Attribution License (CC BY).

that this discomfort may easily derail goal striving. For instance, even when a parent had the goal to stick to the social distancing measures, it was tempting to have the kids play with the neighbours in the driveway to be able to get some work done (e.g., finish writing an important manuscript). Or a teenager who felt the social pain of loneliness just had to meet friends, putting them at risk.

We (Thürmer et al., 2017) conducted a second set of experiments with university students (Exp. 1: $N = 52$ triads, i.e., 156 participants; Exp. 2: $N = 41$ triads, i.e., 123 participants) that made cooperation costly in much the same way. Specifically, we used a well-established physical persistence task (adapted from Bray, 2004) where three group members have to hold a medicine ball. During such tasks, the group depends on each member (Kerr & Hertel, 2011; Kerr et al., 2007; B. Weber & Hertel, 2007): Whenever one member fails, the group fails. Moreover, failure is visible to every group member, imposing individual costs for giving up as well. However, holding a weight induces muscle pain soon before one's physical strength is exhausted. This pain is uncomfortable and can lead to doubts whether one is able to persist much longer. All of this tempts performers to give up prematurely, imposing individual as well as collective costs. We argued that cIIs to ignore muscle pain and boost self-efficacy (i.e., telling oneself that one can do it) can help improve physical persistence. We added individual planning conditions to explore the difference between individual and collective plans. As there are individual incentives to performing well, IIs should also improve performance; however, we assumed that cIIs would lead to a group focus and thus to different patterns of group interaction.

Groups of three all formed the goal to perform well and then engaged in a baseline persistence round. Before the second, experimental round, all groups received strategies that are known to help deal with unpleasant states (Thürmer et al., 2013; Wieber et al., 2011) such as muscle pain. These strategies varied in their focus (individual vs. collective) and format (control vs. if-then), leading to individual conditions (II vs. individual control) and collective conditions (cII vs. collective control). II groups received the individual if-then plan "And if my muscles hurt, then I will ignore the pain and tell myself: I can do it!" cII groups received the same if-then plan but in collective phrasing: "And if our muscles hurt, then we will ignore the pain and tell ourselves: We can do it!" and control groups received the same information in an individual or collective phrasing but not in an if-then format (i.e., "We [I] will ignore our [my] muscle pain and tell ourselves [myself]: We [I] can do it!"; [individual phrasing in brackets]). Besides performance (task persistence), we analysed verbal group interaction. Participants were free to talk as much or as little as they wanted, and we therefore expected to see differences in line with the task strategies that people decided to use.

As expected, both the II and the cII groups improved their performance in comparison to the respective control groups without an if-then plan (Figure 7). This supports the assumption that individual and collective goal striving are possible in groups, and that both types of goal striving can be supported by respective if-then plans. Importantly, groups that had formed a cII communicated more than II groups as indicated by the number of words spoken during task performance. Groups that had formed a cII also used more first person plural pronouns (we, us ours) whereas II groups used more first person singular pronouns (I, me, mine). This pattern of results suggests that both IIs and cIIs can support performance but that they do so in different ways: While IIs support individual goal striving (e.g., little and self-centred interaction), cIIs support collective goal striving (e.g., more and group-centred interaction).

We only measured verbal interaction in this first experiment, leaving open whether interaction impacted performance or the other way round. To clarify the causal direction of our findings, we manipulated task communication in a second experiment also using interactive small groups. Our reasoning was as follows: If cIIs support collective goal striving, they should lead to better performance when the task is well suited for collective goal striving (e.g., encourages verbal interaction), and if IIs support individual goal striving, they should lead to better performance when the task is well suited for individual goal striving (e.g., prevents verbal interaction). We

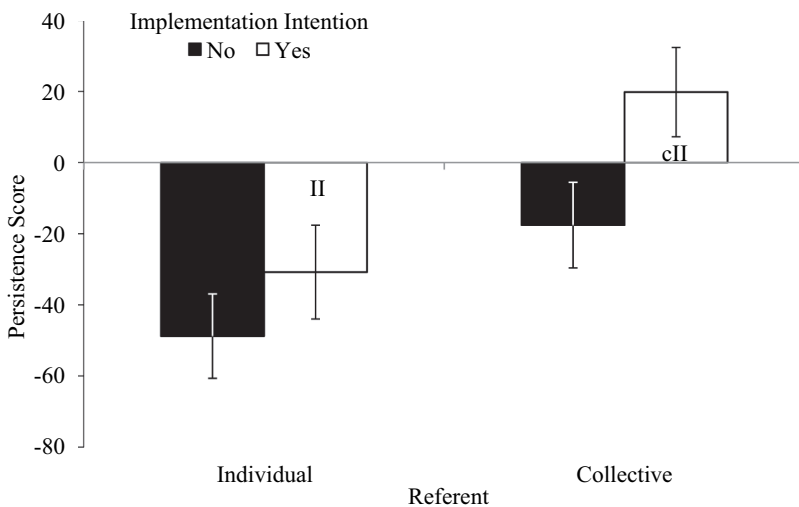


Figure 7. Cooperative persistence, Experiment 1: Mean persistence scores (experimental [sec] minus baseline [sec]) by implementation intention and referent. Error bars represent standard errors. II: Individual implementation intention, cII: collective implementation intention. Adapted from Thürmer et al. (2017) based on the Creative Commons Attribution License (CC BY).

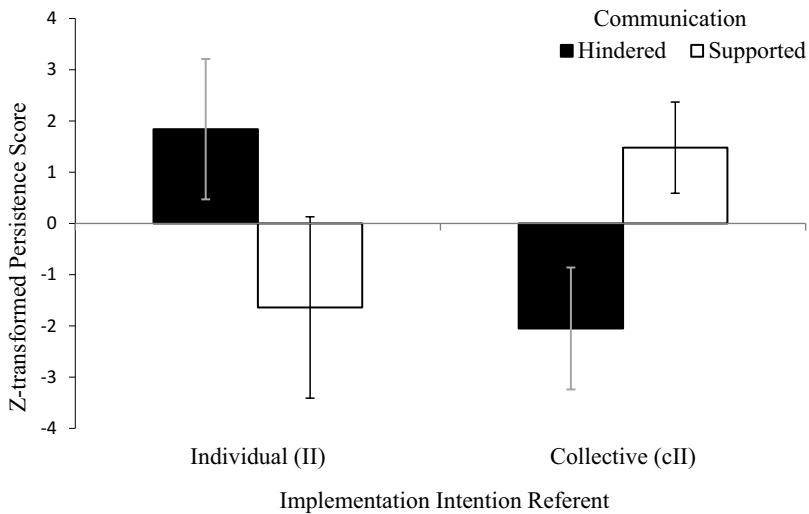


Figure 8. Cooperative persistence, Experiment 2: z-transformed persistence scores by implementation intention referent and communication. Error bars represent standard errors. II: Individual implementation intention, cII: collective implementation intention. Adapted from Thürmer et al. (2017) based on the Creative Commons Attribution License (CC BY).

therefore manipulated whether communication was encouraged or prevented during the persistence task. As predicted, the cII led to better performance when participants were encouraged to communicate (e.g., faced each other and wore a headset around their neck) and the II led to better performance when participants could not communicate (e.g., looked away from each other and wore a headset on their ears, Figure 8). Both experiments are therefore in line with our assumptions that IIs support individual goal striving, that cIIs support collective goal striving, and that both types of implementation intentions can support group performance.

Our main finding that planning can increase persistence in uncomfortable group tasks is key for the 2020 Coronavirus pandemic. During the pandemic, people had to persist, even when this was uncomfortable. The personal, social, and economic costs of social distancing grew day by day, and the temptation to give up on it thus increased constantly. From this perspective, one may argue that it would be best to only emphasise the importance of social distancing to the individual (i.e., avoiding to get sick oneself). However, working in a group can be highly motivating, especially for those least capable (Kerr & Hertel, 2011; Köhler, 1926; Witte, 1989). What is more, recent individual-level studies on if-then planning and physical performance indicate mixed results. For instance, IIs to ignore physical exertion had no effect on performance and led to higher ratings of perceived exertion (Bieleke

& Wolff, 2017) – but they also led to reduced cognitive activation in areas typically related to exerting self-control (i.e., the dorsolateral prefrontal cortex [DLPFC]; Wolff et al., 2018). Moreover, if-then planning was observed to improve endurance for those who believe that sports ability is malleable but not for those who think their sports ability is fixed (Hirsch et al., 2020). Lastly, our full-factorial design allowed us to compare the effects of We-if-then plans versus I-if-then plans in groups. While the effects of We-if-then plans apparently rely on group communication, the effects of I-if-then plans do not. In sum, recent findings indicate that the framing and the content of if-then plans are key to their success. If-then planning is thus not a “magic pill” or a quick fix but an intervention that needs to be applied skilfully. We return to this topic in the discussion.

Planning and curbing social influences

When it comes to implementing individual behaviours during crisis, the choices are to adapt and thrive or to hide and wane. While it is easy to proscribe to adaptive behaviours from a safe and cool distance, emotional and social pressures in the situation can lead to choosing behaviours that serve short-term needs but are maladaptive in the long run. During the 2020 Coronavirus pandemic people saw themselves confronted with questions such as “Will I contract the virus?”, “Am I in danger?”, or “How will I do financially?” All these questions are not only threatening to one’s health and physical well-being but, more generally, to one’s sense of control and ability. Feelings of anxiety and self-doubt are consequently ubiquitous. Immediate responses to protect this sense of ability may be quite maladaptive, such as finding excuses why one cannot thrive during the pandemic.

Moreover, as Robert Frank, an economist, points out with regard to regular health behaviour, “By far the greatest injury caused by someone’s decision to become a smoker is the harm caused by making others more likely to smoke as well” (Frank, 2020, p. 13). Frank thus highlights the enormous *behavioural* impact that observing others has on us. In the context of a pandemic, this implies that “bad examples”, or even just doing what used to be normal, can have a detrimental impact. For instance, people may find it hard not to shake hands when they meet their acquaintances. Moreover, observing others engaging in detrimental behaviours may encourage and justify behaving in this way oneself. For instance, one may be determined to stick to one’s shopping list but grab a few extra bottles of disinfectant when observing others hoarding this item. During the 2020 Coronavirus pandemic, such hoarding had widespread negative consequences such as a shortage of certain consumer goods (e.g., toilet paper) and crucial medical equipment (e.g., respiratory masks).

We argue that skilful self-regulation may empower individuals to protect their on-going pursuits against emotions of threat and unwanted social influences. Specifically, we focus on two prominent self-defeating behaviours (Baumeister & Scher, 1988; Kopetz & Orehek, 2015), creating excuses for poor performance instead of trying hard (Berglas & Jones, 1978; McCrea, 2008) and acting in line with social norms that run counter to one's goals (Cialdini, 2012; Sherif, 1936). What both of these phenomena have in common is that they protect one's short-term interests (i.e., protecting one's self-image of competence or adherence to group norms) but run counter to one's long-term pursuits. In two sets of studies, we sought to test how planning can help individuals attain their goals in such difficult social contexts.

Planning to reduce self-handicapping

Facing important performance tasks can lead to questioning whether one can succeed, which gives rise to feelings of self-doubt and worry. While being unable to ensure success, having external reasons for poor performance at hand can at least soften the negative impact of failure on one's self-image and help save face in front of others. Such excuse making seemed ubiquitous during the 2020 Coronavirus pandemic, as even some presidents preferred to blame international organisations for the Coronavirus instead of working on their countries' health care system. And excuse making was also obvious when joggers claimed that they were unable to slow down to keep a safe distance or elderly citizens arranged doctor's visits so they encountered their friends.

Excuse making has been studied extensively under the rubric of *self-handicapping* (Berglas & Jones, 1978; McCrea, 2008). Self-handicapping includes proclaiming hindrances to one's performance, such as claiming that one is not feeling well (claimed self-handicapping) or actually creating performance hindrances, such as going out the night before an important exam (behavioural self-handicapping). What both behaviours have in common is that they preserve one's perceived ability after failure, both in one's own view and in the view of others (McCrea & Hirt, 2001). In comparison to merely claiming hindrances, creating actual performance obstacles has the advantage that the resulting excuses are highly valid (e.g., being hung over doubtlessly impairs exam performance) but at the same time are very costly (i.e., actually impaired performance). Men are more likely to exhibit behavioural self-handicapping than women (Hirt et al., 2003), apparently because women, on average, place a greater value on effort (Hirt & McCrea, 2009; McCrea, Hirt, Hendrix et al., 2008; McCrea, Hirt, Milner et al., 2008). But even claiming obstacles to one's performance can have social costs such that people find self-handicappers

unappealing (Hirt et al., 2003). Self-handicapping thus is a costly strategy to protect the self from implications of poor outcomes and deal with feelings of worry and self-doubt. Ideally, one would regulate these emotions in other, less costly ways.

Implementation intentions help deal with detrimental emotions, with little if any costs attached (Schweiger Gallo et al., 2018, 2009; Webb et al., 2012). We thus predicted that forming an if-then plan helps individuals overcome their performance-related worries, thereby reducing self-handicapping behaviour. We (Thürmer et al., 2013) investigated this hypothesis in two laboratory experiments with university students (Exp. 1: $N = 104$ participants; Exp. 2: $N = 130$ participants). All participants formed the goal to perform well on an upcoming task and adopted strategies to reduce self-doubt and increase self-efficacy. The adopted strategies were either phrased in an if-then format (implementation intention: “And when I start with Part 2 of the study, then I will ignore my worries and tell myself: I can do it!”) or not (control: “I will ignore my worries in Part 2 of the study and tell myself: I can do it!”). The task in Part 2 was either described as an intelligence test (highly threatening) or as an assessment of perception style (less threatening). Participants then had an opportunity to claim a self-handicap (report undue life-stress in a questionnaire, Experiment 1) or behaviourally self-handicap (inadequately prepare for the task in Part 2, Experiment 2). As predicted, implementation intentions reduced claiming self-handicaps to levels observed in the low-threat control conditions (Figure 9). Experiment 2 demonstrated the reduction of behavioural self-handicapping among chronic self-handicappers (Figure 10),

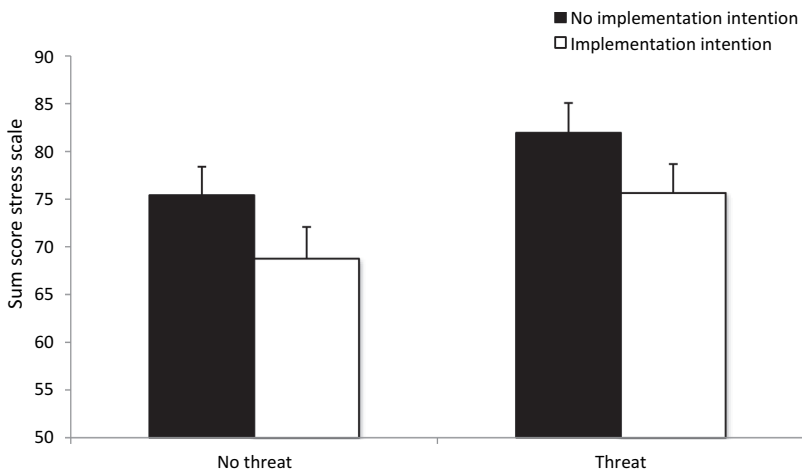
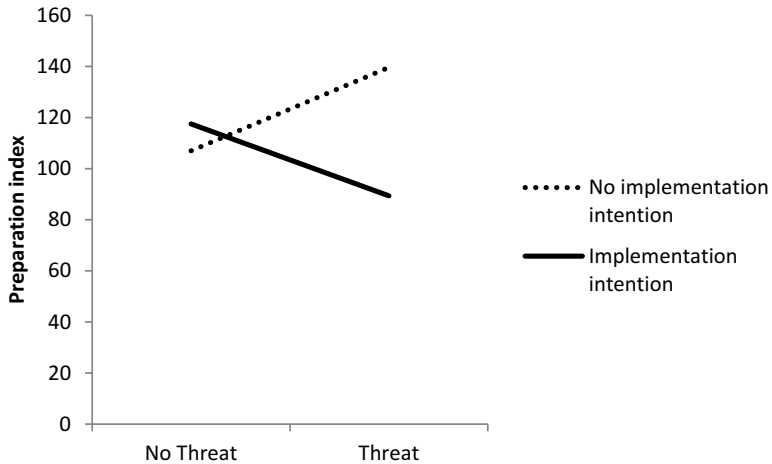
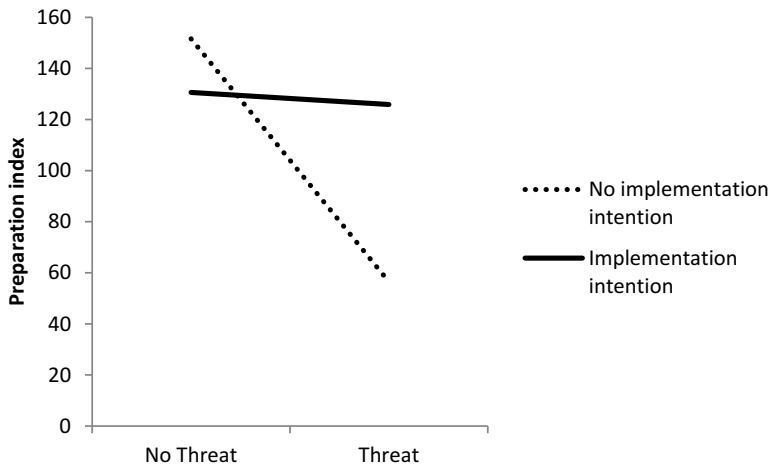


Figure 9. Claimed self-handicapping, Experiment 1: reported stress sum-score by threat and implementation intention conditions. Reprinted by permission from Springer: Motivation and Emotion (Thürmer et al., 2013).

a)



b)



Figures 10. (a and b) Behavioural self-handicapping, Experiment 2: predicted practice index scores for (a) low behavioural self-handicapping individuals and (b) high behavioural self-handicapping individuals. Reprinted by permission from Springer: Motivation and Emotion (Thürmer et al, 2013).

who chose to look at uninformative test-items instead of studying crucial task instructions for the upcoming intelligence test in Part 2.

The social implications of these behaviours are clear: While creating self-handicaps allows “saving face” it hampers goal attainment and productivity, prevents learning, and reflects poor sportsmanship. In the context of the

2020 Coronavirus pandemic, such behaviours could have been fatal, for instance, when people self-handicapped with regard to hygiene behaviours, social distancing, or hospital visits. Failing to adhere to these behaviours reduced feelings of threat but increased the chances of spreading the Coronavirus.

Planning to reduce automatic social influence

Making excuses helps maintain the self-image of being an able person in the face of others and therefore serves, to some degree, social purposes. However, others can also influence our behaviour much more directly, through the force of unwritten social rules that guide our behaviour, *social norms* (Cialdini, 2012; Sherif, 1936). Our second set of studies focuses on using if-then planning to curb such immediate social influences on impulse-buying (Thürmer, Bieleke, et al., 2020 Thürmer, Wieber, et al. 2020a; 2020b). Impulse buying, that is, purchasing unplanned items during a shopping trip, was ubiquitous during the 2020 Coronavirus pandemic. At the onset of the first shutdown, people in different countries started hoarding a variety of products, including hand sanitisers, dry foods, condoms and red wine, or even toilet paper. Rather than reflecting an increased need, many of the purchases seemed to be driven by the perception that others were buying these products. As one consumer put it “if I wait until next week there may be nothing left” (Brooks & Hay, 2020). These thoughts and feeling may be especially common when it comes to grocery shopping, as people often buy groceries for their family (Polegato & Zaichkowsky, 1994) and thus may feel responsible to secure supplies for their loved ones under all circumstances. Accordingly, unplanned purchases (impulse buying) are very common when it comes to buying groceries (Park et al., 1989).

The observation or even just the expectation that others impulse buy may increase unplanned purchases. Young people have been observed to buy more unplanned products when they are around their peers whom they believe approve of impulse buying (Luo, 2005; Rook & Fisher, 1995). Such social norms apparently encourage giving in to buying exciting but unplanned items. In the context of the 2020 Coronavirus pandemic, this would mean that the observation of a norm to hoard hand sanitisers lead to setting the goal to stock up on this item (Fishbein & Ajzen, 1975), which consequently lead to persistently seeking to acquire hand sanitisers (Carver & Scheier, 1998; Thürmer, Scheier, et al., 2020).

In addition to normative influences that entail a deliberate decision, we argue that this social impact may also operate quite automatically and counter to set goals. Research by Serfas et al. (2016) supports this perspective. Participants decided whether products on a computer screen were on their shopping list for a dinner with friends. Tempting products attracted participants' attention, as

assessed via eye tracking, even when participants had the goal to focus on necessities only. Similarly, mere goals were found to be ineffective to decline an inappropriate request by a likable experimenter (Gollwitzer et al., 2011, Study 2; Wieber et al., 2014, Study 2). Mere goal intentions thus are not sufficient to regulate implicit social influences, which may also promote impulse buying in a more automatic fashion and with little conscious deliberation.

This reasoning opens up the alarming possibility that people hoarded on impulse during the 2020 Coronavirus pandemic, even when they had the goal to buy only what they really need. Merely convincing people to stick to their shopping lists was thus not sufficient to prevent shortages on certain items, such as hand sanitiser. How can people self-regulate their behaviour to stick to their goals, even when social pressures are rising? At the individual level, if-then planning creates strong situation-response links (Martiny-Huenger et al., 2017; Webb & Sheeran, 2007; Wieber & Sassenberg, 2006) that help initiate the goal-directed response (then part) once the critical situation specified in the if-part is encountered. Perceptual effects of if-then plans can be observed within milliseconds after the specified situation (if-part) arises (Wieber et al., 2015b). In a sense, if-then plans strategically delegate action control to a cue in the environment, thereby helping to reach set goals (Gollwitzer, 2014). We consequently argue that adding collective if-then plans (cIIs) to take only what one needs should further automate goal striving and thus help stick to one's shopping list in social contexts.

To test this prediction, Thürmer, Bieleke, et al. (2020, Study 1) established two different group memberships among university students ($N = 124$) – one with a detrimental norm and one with a supportive norm. Qualitative and quantitative pretesting showed that students feel that they belong to the *peer group* of their friends from home and their *fellow student group* of their friends from university, that both groups are important, but that they have different norms when it comes to shopping: While peers have an indulgence norm and support impulse buying (see also Luo, 2005), fellow students do not adhere to such a norm but instead prefer being frugal. In the first part of the main experiment, student participants read a text describing either typical student activities (e.g., meeting at a friend's house to study together) or typical peer activities (e.g., meeting at a friend's house to hang out together). In the second part of the experiment, participants first formed one of three plans before performing an impulse buying task (Table 3). cII participants formed a collective if-then plan constituting a useful strategy (“And if we want to put something in our shopping basket, then we will only take what we really need!”). Participants in one control condition received the same strategy but without having to form an if-then link (“We will only take into our shopping basket what we really need!”), and a second control condition received an if-then plan that contained all the relevant words but that did not constitute a helpful strategy (“And if we want something that we

Table 3. Systematic variation of the wording of the self-regulation strategy (plan) in Study 1 Adapted from Thürmer, Bieleke, et al., (2020), based on the Creative Commons (CC BY 4.0) licence.

Condition and Strategy Wording	Strategy Content	
	If-then format	Useful strategy
Implementation Intention: "Whenever we want to put something in our shopping cart, then we will take only what we really need"	✓	✓
Strategy-Control: "We will only put things in our shopping cart that we really need"	x	✓
If-Then-Control: "Whenever we want something that we really need, then we will put it in our shopping cart"	✓	x

really need, then we will put it in our basket!"). Thereby, we sought to determine whether the if-then format alone contributes to cII effects. Participants' task was to shop for dinner for their respective group (peers at home vs. fellow students) to prepare pasta with tomato sauce. Analysing the content of their shopping basket revealed that the cII indeed reduced impulse purchases in groups with but also without detrimental norms (Figure 11). Moreover, the if-then format further improved the effectiveness of the helpful strategy to take only what one needs. This finding suggests that the if-then format indeed contributes to cII effects.

Adolescents may be especially susceptible to social influences (Oettingen & Gollwitzer, 2015). We therefore conducted a second, large-scale survey study to investigate the correlates of impulse buying in a large sample

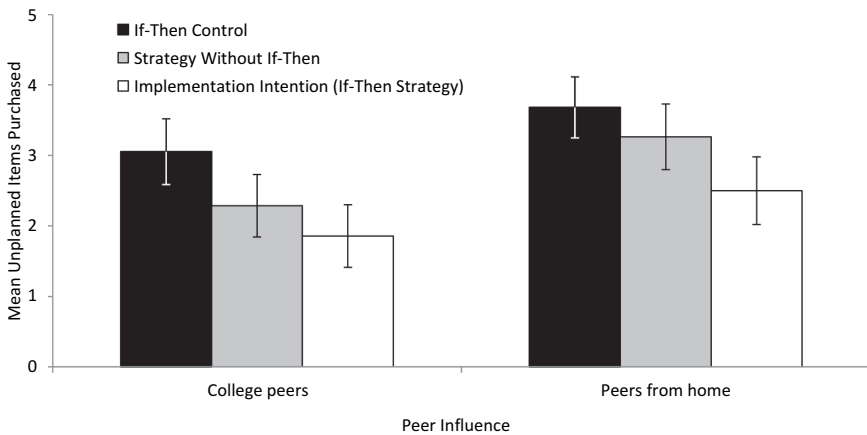


Figure 11. Impulse buying under social influence, Experiment 1: number of unplanned items purchased by intention condition and peer influence (Study 1). Error bars represent standard errors. Adapted from Thürmer, Bieleke, et al. (2020), based on the Creative Commons (CC BY 4.0) licence.

($N = 773$) of high-school students (Thürmer, Bieleke, et al., 2020, Study 2). The automaticity of shopping with peers and peer expectations (i.e., injunctive norms) emerged as predictors of impulse buying. In line with our reasoning that if-then planning can curb this influence, the plan condition moderated this relation: The correlations of automaticity and impulse purchases as well as expectations and impulse purchases emerged in the control condition but were significantly weaker in the if-then planning condition, as indicated by significant interactions. In sum, cIIs can support goal-directed behaviour, even in the presence of detrimental norms.

With regard to the 2020 Coronavirus pandemic, combating automatic social influences was important. People may have failed to realise that they were susceptible to automatic social influences, which easily derailed their goal striving. It is therefore not sufficient to convince people to stick to their shopping lists, keep a safe distance, and wash their hands properly (i.e., increase commitment to these goals); it is equally important to communicate to them that they need to specify when, where, and how they want to attain these goals, ideally in an if-then format. Preventing people from engaging in inherently pleasurable actions, such as meeting with friends or hugging, were among the most important immediate responses to the 2020 Coronavirus pandemic. A key contribution of our research pertains to preventing such detrimental actions (i.e., the focus rests on not acting). However, individual if-then plans are not always effective in reducing habitual unhealthy behaviours (Adriaanse, Gollwitzer, et al., 2011) and future research should therefore clarify if similar moderators qualify for We-if-then planning effects.

General discussion

The immediate response to the 2020 Coronavirus pandemic was social and behavioural, with responses including informed decision making in leadership teams, cooperative behaviour in groups such as families, and goal-directed behaviour of individuals despite emotions of threat and undue social influence. Our programme of research on collective planning demonstrates that a simple We-if-then plan (collective implementation intention, cII) can contribute much to mastering these tasks. First, teams with cIIs were more likely to integrate socially distributed information in their decisions and to consider temporally distributed information to later adjust their initial decisions. Second, group members with cIIs were more likely to cooperate at a personal cost and to persist despite discomfort to attain group goals. Third, individuals with IIs refrained from creating excuses for an upcoming threatening task and shoppers with a cII managed to stick to their shopping list instead of yielding to automatic social influences on impulse buying.

Limitations and need for future research

Party politics seemed to play an undue role in the response to the Coronavirus pandemic. For instance, in a US state-level analysis of social distancing policy responses, political party affiliation emerged as the most consistent predictor for governors' decisions to introduce social distancing measures (Adolph et al., 2020). This research raises the interesting question of how planning could help overcome partisan biases and lead to more impartial decisions in leadership teams. Research on partisan biases in individuals commonly takes a goal conflict perspective (Van Bavel & Pereira, 2018) and argues that situational and dispositional factors can skew information processing towards identity-conform conclusions. Accuracy is thus just one concern that political beings have with regard to evaluating information and making decisions; whether the received information confirms one's political orientation also matters. Our study on social dilemmas suggests that cIIs may help prioritise central goals and thus could be used to strengthen the goal to process all available information impartially. It should be noted, however, that none of our studies included complex real-world scenarios or experienced decision-makers. Nevertheless, we did pay participants for their decisions in a number of studies, thus imposing stakes to participants. Moreover, most of our decision-making teams consist of people who went to a university, many of whom will become decision-makers during their career. It is therefore plausible that the positive effects of We-if-then planning translate to high-stakes decisions during the 2020 Coronavirus pandemic (Thürmer, Wieber, et al., 2020a). Still, future research should test this assumption.

Our research so far leaves open how multi-team systems or organisations can use if-then planning. Organisations benefit greatly from deliberately considering the best course of action, such as strategic planning, as well as swift action control, such as using routines (Pentland et al., 2012). If-then planning may be a way to combine both approaches, helping organisations to implement thoroughly deliberated decisions swiftly. In this regard, Gagné (2018) suggests that organisations may benefit from structuring their strategic planning in line with the principles of collective if-then planning, a highly fruitful direction for future research.

Social groups such as families then need to implement many of the health behaviours proscribed in policy decisions. Our studies show that cIIs promote behaviours that are structurally similar to effective health behaviours (i.e., are personally costly or uncomfortable and require persistence). More direct evidence for the effectiveness of cIIs in promoting health behaviours comes from a recent correlational study (Lehmann et al., 2019). Collective if-then planning emerged as a powerful predictor for the effectiveness of a behavioural health intervention among staff nurses. Given that the principles of health

behaviour change apply to private as well as professional actions alike (Michie et al., 2011), collective if-then planning should effectively support health-related behaviours in the general public as well as in professionals. Moving beyond an immediately available behavioural response, collective if-then planning could also support the implementation of pharmaceutical interventions once they become available. Compliance is key to pharmaceutical interventions, and behavioural components may increase compliance. At the individual level, first evidence indicates the effectiveness of if-then planning in this regard (Jackson et al., 2006; O'Carroll et al., 2014; Trevisan et al., 2020). At the social level, such an intervention could for instance help shift norms towards accepting vaccines thereby promoting lasting social change (Cialdini, 2012). Although this reasoning is speculative at this point, it represents a promising avenue for future research.

A related question concerns whether including other people in one's plans is beneficial. As our research indicates, addressing the entire group is an effective means of promoting group goal attainment. Research on *collaborative implementation intentions* indicates that if-then planning with a partner can promote health-goal attainment (e.g., breast self-examination; Prestwich et al., 2005; or exercise, 2012). Interestingly, the positive effects of collaborative implementation intentions do not seem to extend to curbing unhealthy eating behaviour (Prestwich et al., 2014). Related research indicates that patients might use dyadic planning spontaneously, thereby assigning complementary roles for goal attainment (Burkert et al., 2011; see also Scholz & Hornung, 2008). Future research should investigate whether this type of planning can also help people execute their roles within groups more effectively and whether spelling out the complementary actions of different group members supports group goal attainment.

Our research has highlighted a number of interpersonal and group-level processes leading to cII effects but we have not investigated the associated micro-level intra-individual processes. In this regard, the neuro-physiological basis of cII effects seems particularly interesting. The neuro-physiological processes underlying if-then planning in individuals (Wieber et al., 2015b; Wolff et al., 2018) and spontaneous action planning at the dyadic level (Kourtis et al., 2019) are quite well understood. Linking both streams of research as well as using neuro-physiological measures during performance tasks (Wolff et al., 2019) would help understand the processes underlying cII effects. Understanding these processes in turn may facilitate crafting the most powerful interventions, tailored to the challenges at hand (Gollwitzer et al., 2010).

At the individual level, feelings of threat and anxiety steered coping responses during the Coronavirus pandemic. Our research on self-handicapping suggests that individual if-then planning can help mitigate such individual-level experiences of threat. Fruitful extensions of this line of

research would include social consequences of threats as well as collective threats (i.e., to groups) and investigating how I-if-then plans vs. We-if-then plans help deal with these threats. For instance, recent research demonstrates that being confronted with negative expectations about a group one belongs to (i.e., stereotype threat) may reduce peoples' social approach motivation (Martiny & Nikitin, 2019). Moreover, group members may engage in costly behavioural defences to protect their group against threatening out-group criticism (Thürmer & McCrea, 2018; Thürmer & McCrea, 2021; Thürmer et al., 2019). Future research should investigate how planning can mitigate these defensive responses to collective threats.

Regarding social influences, our research focuses on automatic reminders of one's social group. In real life, group members likely respond to behaviours that have an impact on them, thereby modulating future responses. Investigating this interplay between individual-level and group-level information processing in determining decisions and behaviour would be highly informative (Levine & Tindale, 2015). Moreover, unwanted social influence may stifle commitment to the superordinate goal, especially when others are not committed. One's own commitment is a pre-requisite for if-then planning effects to occur, and many of the discussed behaviours also require the commitment and compliance of other people to be effective (e.g., people in one's surrounding with regard to social distancing). In social contexts, it may therefore be important to (a) ensure one's own commitment, and (b) convince others to commit to the same goals. With regard to ensuring one's own commitment, goal setting (i.e., setting specific and challenging goals) is highly effective (Locke & Latham, 1990, 2013) and also well-understood at the team-level (Kleingeld et al., 2011; Kramer et al., 2013). Recent evidence actually indicates that setting SMART goals jointly with a medical expert may be particularly effective in the health domain (Mann et al., 2016). With regard to influencing others, classic research indicates that if-then planning can help implement effective persuasive strategies at the right time (e.g., objecting to racist remarks quickly; Gollwitzer & Brandstätter, 1997). When We-if-then plans to remind each other of new behavioural norms are shared among the members of a larger social group, this may increase the acceptance and impact of social influence attempts. For instance, the goal to comply with social distancing recommendations could be supported by the plan "And if we notice that somebody is getting closer than 2 meters, then we ask them to keep a safe distance". To our knowledge, research to date is mute to using collective plans in this way.

Translational impact and application

At least three key questions regarding using cIIs during the 2020 Coronavirus pandemic remain open: 1) Do cIIs work in the field? 2) What

are the costs, risks, and benefits of using cIIs?, and 3) How can cIIs be delivered to a large number of people? Our research has not addressed any of these questions directly but we can turn to related research to provide answers.

Implementation intention effects have been observed in a broad range of applied settings, including individual health behaviour (Adriaanse, Vinkers et al., 2011; Bélanger-Gravel et al., 2013; Vilà et al., 2017) and entrepreneurial decisions (Adam & Fayolle, 2015; van Gelderen et al., 2017). Moreover, although we conducted controlled experiments to assess causal effects, most of our studies include observations of actual behaviour. These behaviours had consequences to participants, including experiencing discomfort during a strenuous task or reduced remuneration. When it comes to generalising laboratory results to field setting, the observation of actual behaviour is key (Baumeister et al., 2010), especially in interacting groups (Moreland et al., 2010). Although we did not observe participants during their everyday life, it is thus likely that our results will have a translational impact.

The second question concerns the costs, risks, and benefits of forming cIIs. The up-front costs to the individual or team are small. Participants in our laboratory studies took about five minutes on average to form the respective goals and plans, using only pencil and paper methodologies. Even when assuming that an intervention in a field setting may require more explanation upfront, minimal time-investment is required. Concerning the risks, one may fear that if-then planning leads to rigidly following a chosen course of action. This could prove detrimental, for instance, when the situation at hand changes (e.g., see our section “planning decisions to integrate temporally distributed information”). Indeed, in one study, individuals with if-then plans stuck to their chosen course of action and thus missed unexpected opportunities when they were under time pressure (Masicampo & Baumeister, 2012). However, a series of follow-up studies indicates that individuals manage to let go of maladaptive plans as soon as they receive performance feedback (Gollwitzer et al., 2008). What is more, a host of research indicates that the behavioural effects of if-then plans are contingent on commitment to the superordinate goal as well as the plan itself (Achtziger et al., 2012). In other words, if-then plans only impact behaviour when one wants them to (Legrand et al., 2017). With regard to cIIs, our study on social dilemmas (Thürmer, Wieber, et al., 2020b) indicates that cII-effects are situation-specific and group-specific, implying that they impact behaviour only in the designated manner. All these studies suggest that cIIs are safe to administer.

But what about the benefits of cII interventions? A concern may be that the effects of behavioural interventions are too small to actually make a difference in applied settings. However, a recent meta-analysis of meta-analyses found that if-then planning had a medium effect size, on average

($d = .54$; Keller et al., 2020). Although all these meta-analyses combine individual-level effects, the group-level studies reported in the present review yielded effects of similar size. As more evidence on the effectiveness of collective implementation intentions emerges, future meta-analyses should provide reliable estimates of their effect sizes. Yielding effects of this magnitude would indicate that cIIs could indeed be effective during pandemics, as they are comparable to typical effect sizes of pharmaceutical drugs on the diseases they target (Leucht et al., 2015). Moreover, even medical solutions such as using vaccines rely on behavioural compliance, and behavioural interventions such as cIIs can thus complement these medical approaches. In sum, a behavioural if-then planning intervention was readily available, could have been highly impactful, and used complementary to other approaches in curbing the 2020 Coronavirus pandemic.

Finally, during a pandemic, one would need a way to administer cII interventions to a large number of people at the same time. Translating basic research findings into large-scale interventions is no easy endeavour (Cohen & Sherman, 2014), as one needs to reach and engage people with minimal effort. One way to achieve this would be to administer planning in questionnaires at a large scale, much like we did in most of the studies discussed here. Another approach would be to have people develop their own plans, tailored to their current situations and goals. In this regard, mental contrasting with implementation intentions (MCII; review by Oettingen et al., 2013) could be a promising approach. During mental contrasting, one contrasts fantasies about desired future outcomes with present obstacles (Oettingen, 2012). This combination ensures that plans address relevant obstacles for the individual. MCII effects were observed in intervention studies targeting stress reduction in medical students (Saddawi-Konefka et al., 2017), reducing meat consumption among university students (Loy et al., 2016), and preventing sleep procrastination (Valshtein et al., 2020), among others. Moreover, a large-scale study demonstrated that MCII can help quitting smoking (Mutter et al., 2020). Pertinent to the context of population-wide interventions, MCII has been implemented in the freely available mobile-app WOOP (woopmylife.org; Oettingen, 2014). Taking a similar approach, cII interventions could be implemented in existing interactive platforms, such as Slack, Trello, or WhatsApp, or newly developed (governmental) apps. A potential limitation of such an approach is that people need to realise that they are facing an obstacle and what the obstacle is about. In the case of new situations, such as the 2020 Coronavirus pandemic, people would benefit from information about potential obstacles. Alternatively, public information campaigns or team trainings could include pre-formulated plans such as those used in the present research. These plans were effective in our studies and are likely to be effective in applied settings.

Conclusion

Journalists, writers, and politicians frequently seek to find positive sides to the difficult situation created by the 2020 Coronavirus pandemic. People helped each other, moved closer together, and realised what they can jointly achieve. The current research underscores and refines these intuitions. It is not only that we benefit from each other emotionally; planning collectively helps us to actively thrive and jointly attain our goals, even during the Coronavirus pandemic.

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References

- Aarts, H., Dijksterhuis, A. P., & Midden, C. (1999). To plan or not to plan? Goal achievement or interrupting the performance of mundane behaviors. *European Journal of Social Psychology*, 29(8), 971–979. [https://doi.org/10.1002/\(SICI\)1099-0992\(199912\)29:8<971::aid-ejsp963>3.0.CO;2-A](https://doi.org/10.1002/(SICI)1099-0992(199912)29:8<971::aid-ejsp963>3.0.CO;2-A)
- Achtziger, A., Bayer, U. C., & Gollwitzer, P. M. (2012). Committing to implementation intentions: Attention and memory effects for selected situational cues. *Motivation and Emotion*, 36(3), 287–300. <https://doi.org/10.1007/s11031-011-9261-6>
- Achtziger, A., Glas, A., Kenning, P., & Rudolph, T. (2019). Comparing the effects of financial incentives and implementation intentions on unhealthy snacking behavior in employees. *Current Psychology*. Online-first article. <https://doi.org/10.1007/s12144-019-00425-4>
- Adam, A. F., & Fayolle, A. (2015). Bridging the entrepreneurial intention–behaviour gap: The role of commitment and implementation intention. *International Journal of Entrepreneurship and Small Business*, 25(1), 36–54. <https://doi.org/10.1504/IJESB.2015.068775>
- Adolph, C., Amano, K., Bang-Jensen, B., Fullman, N., & Wilkerson, J. (2020). Pandemic politics: Timing state-level social distancing responses to COVID-19. *Journal of Health Politics, Policy and Law*, Online-first Article. <https://doi.org/10.1215/03616878-8802162>
- Adriaanse, M. A., Gollwitzer, P. M., De Ridder, D. T. D., de Wit, J. B. F., & Kroese, F. M. (2011). Breaking habits with implementation intentions: A test of underlying processes. *Personality & Social Psychology Bulletin*, 37(4), 502–513. <https://doi.org/10.1177/0146167211399102>
- Adriaanse, M. A., Vinkers, C. D. W., De Ridder, D. T. D., Hox, J. J., & De Wit, J. B. F. (2011). Do implementation intentions help to eat a healthy diet? A systematic review and meta-analysis of the empirical evidence. *Appetite*, 56(1), 183–193. <https://doi.org/10.1016/j.appet.2010.10.012>

- Baumeister, R. F., & Scher, S. J. (1988). Self-defeating behavior patterns among normal individuals: Review and analysis of common self-destructive tendencies. *Psychological Bulletin*, 104(1), 3–22. <https://doi.org/10.1037/0033-2909.104.1.3>
- Baumeister, R. F., Vohs, K. D., & Funder, D. C. (2010). Psychology as the science of self-reports and finger movements: Whatever happened to actual behavior? In C. R. Agnew, D. E. Carlston, W. G. Graziano, & J. R. Kelly (Eds.), *Then a miracle occurs: focusing on behavior in social psychological theory and research* (pp. pp. 12–27). Oxford University Press.
- Bélanger-Gravel, A., Godin, G., & Amireault, S. (2013). A meta-analytic review of the effect of implementation intentions on physical activity. *Health Psychology Review*, 7(1), 23–54. <https://doi.org/10.1080/17437199.2011.560095>
- Berglas, S., & Jones, E. E. (1978). Drug choice as a self-handicapping strategy in response to noncontingent success. *Journal of Personality and Social Psychology*, 36(4), 405–417. <https://doi.org/10.1037/0022-3514.36.4.405>
- Bieleke, M., & Wolff, W. (2017). That escalated quickly—planning to ignore RPE can backfire. *Frontiers in Physiology*, 8(736), <https://doi.org/10.3389/fphys.2017.00736>
- Bray, S. R. (2004). Collective efficacy, group goals, and group performance of a muscular endurance task. *Small Group Research*, 35(2), 230–238. <https://doi.org/10.1177/1046496403260531>
- Brooks, B., & Hay, A. (2020, February 28). Hoarding in the USA? Coronavirus sparks consumer concerns. *Reuters Business News*, Retrieved from. <https://www.reuters.com/article/us-china-health-usa-hoarding-idUSKCN20M37V>
- Burkert, S., Scholz, U., Gralla, O., Roigas, J., & Knoll, N. (2011). Dyadic planning of health-behavior change after prostatectomy: A randomized-controlled planning intervention. *Social Science & Medicine*, 73(5), 783–792. <https://doi.org/10.1016/j.socscimed.2011.06.016>
- Carver, C. S., & Scheier, M. F. (1998). *On the self-regulation of behavior*. Cambridge University Press.
- Carver, C. S., & Scheier, M. F. (2017). Self-regulatory functions supporting motivated action. In A. J. Elliot (Ed.), *Advances in motivation science* (Vol. 4, pp. pp. 1–37). Academic Press.
- Chen, X.-j., Wang, Y., Liu, L.-l., Cui, J.-f., Gan, M.-y., Shum, D. H. K., & Chan, R. C. K. (2015). The effect of implementation intention on prospective memory: A systematic and meta-analytic review. *Psychiatry Research*, 226(1), 14–22. <https://doi.org/10.1016/j.psychres.2015.01.011>
- Cialdini, R. B. (2012). The focus theory of normative conduct. In P. A. M. Van Lange, A. W. Kruglanski, & E. T. Higgins (Eds.), *Handbook of theories of social psychology*. (Vol. 2 pp. 295–311). SAGE Publications Ltd.
- Cohen, G. L., & Sherman, D. K. (2014). The psychology of change: Self-affirmation and social psychological intervention. *Annual Review of Psychology*, 65(1), 333–371. <https://doi.org/10.1146/annurev-psych-010213-115137>
- Crawford, E. R., & Lepine, J. A. (2013). A configural theory of team processes: Accounting for the structure of taskwork and teamwork. *Academy of Management Review*, 38(1), 32–48. <https://doi.org/10.5465/amr.2011.0206>
- Dietz-Uhler, B. (1996). The escalation of commitment in political decision-making groups: A social identity approach. *European Journal of Social Psychology*, 26(4), 611–629. [https://doi.org/10.1002/\(SICI\)1099-0992\(199607\)26:4<611::aid-ejsp781>3.0.CO;2-6](https://doi.org/10.1002/(SICI)1099-0992(199607)26:4<611::aid-ejsp781>3.0.CO;2-6)

- Doerflinger, J. T., Martiny-Huenger, T., & Gollwitzer, P. M. (2017). Planning to deliberate thoroughly: If-then planned deliberation increases the adjustment of decisions to newly available information. *Journal of Experimental Social Psychology*, 69(1), 1–12. <https://doi.org/10.1016/j.jesp.2016.10.006>
- Fischbacher, U., Gächter, S., & Fehr, E. (2001). Are people conditionally cooperative? Evidence from a public goods experiment. *Economics Letters*, 71(3), 397–404. [https://doi.org/10.1016/S0165-1765\(01\)00394-9](https://doi.org/10.1016/S0165-1765(01)00394-9)
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior. An introduction to theory and research*. Addison-Wesley.
- Frank, R. H. (2020). *Under the influence, putting peer pressure to work*. Princeton University Press.
- Gagné, M. (2018). From strategy to action: Transforming organizational goals into organizational behavior. *International Journal of Management Reviews*, 20(S1), S83–S104. <https://doi.org/10.1111/ijmr.12159>
- Gigone, D., & Hastie, R. (1993). The common knowledge effect: Information sharing and group judgment. *Journal of Personality and Social Psychology*, 65(5), 959–974. <https://doi.org/10.1037/0022-3514.65.5.959>
- Gollwitzer, P. M. (1993). Goal achievement: The role of intentions. *European Review of Social Psychology*, 4(1), 141–185. <https://doi.org/10.1080/14792779343000059>
- Gollwitzer, P. M. (1999). Implementation intentions: Strong effects of simple plans. *American Psychologist*, 54(7), 493–503. <https://doi.org/10.1037/0003-066X.54.7.493>
- Gollwitzer, P. M. (2014). Weakness of the will: Is a quick fix possible? *Motivation & Emotion*, 38(3), 305–322. <https://doi.org/10.1007/s11031-014-9416-3>
- Gollwitzer, P. M. (2018). The goal concept: A helpful tool for theory development and testing in motivation science. *Motivation Science*, 4(3), 185–205. <https://doi.org/10.1037/mot0000115>
- Gollwitzer, P. M., & Brandstätter, V. (1997). Implementation intentions and effective goal pursuit. *Journal of Personality and Social Psychology*, 73(1), 186–199. <https://doi.org/10.1037/0022-3514.73.1.186>
- Gollwitzer, P. M., Parks-Stamm, E. J., Jaudas, A., & Sheeran, P. (2008). Flexible tenacity in goal pursuit. In J. Y. Shah & W. L. Gardner (Eds.), *Handbook of motivation science* (pp. pp. 325–341). Guilford Press.
- Gollwitzer, P. M., & Sheeran, P. (2006). Implementation intentions and goal achievement: A meta-analysis of effects and processes. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 38, pp. pp. 69–119). Elsevier Academic Press.
- Gollwitzer, P. M., Sheeran, P., Trötschel, R., & Webb, T. L. (2011). Self-regulation of priming effects on behavior. *Psychological Science*, 22(7), 901–907. <https://doi.org/10.1177/0956797611411586>
- Gollwitzer, P. M., Wieber, F., Myers, A. L., & McCrea, S. M. (2010). How to maximize implementation intention effects. In C. R. Agnew, D. E. Carlston, W. G. Graziano, & J. R. Kelly (Eds.), *Then a miracle occurs: Focusing on behavior in social psychological theory and research*. (pp. 137–161). New York.
- Greenhalgh, T., Schmid, M. B., Czypionka, T., Bassler, D., & Gruer, L. (2020). Face masks for the public during the covid-19 crisis. *BMJ*, 369, m1435. <https://doi.org/10.1136/bmj.m1435>
- Hall, P. A., Zehr, C. E., Ng, M., & Zanna, M. P. (2012). Implementation intentions for physical activity in supportive and unsupportive environmental conditions: An experimental examination of intention–behavior consistency. *Journal of Experimental Social Psychology*, 48(1), 432–436. <https://doi.org/10.1016/j.jesp.2011.09.004>

- Hardin, G. (1968). The tragedy of the commons. *Science*, 162(3859), 1243–1248. <https://doi.org/10.1126/science.162.3859.1243>
- Haslam, S. A., Ryan, M. K., Postmes, T., Spears, R., Jetten, J., & Webley, P. (2006). Sticking to our guns: Social identity as a basis for the maintenance of commitment to faltering organizational projects. *Journal of Organizational Behavior*, 27(5), 607–628. <https://doi.org/10.1002/job.370>
- Henderson, M. D., Gollwitzer, P. M., & Oettingen, G. (2007). Implementation intentions and disengagement from a failing course of action. *Journal of Behavioral Decision Making*, 20(1), 81–102. <https://doi.org/10.1002/bdm.553>
- Hinsz, V. B., Tindale, R. S., & Vollrath, D. A. (1997). The emerging conceptualization of groups as information processes. *Psychological Bulletin*, 121(1), 43–64. <https://doi.org/10.1037/0033-2909.121.1.43>
- Hirsch, A., Bieleke, M., Schüler, J., & Wolff, W. (2020). Implicit theories about athletic ability modulate the effects of if-then planning on performance in a standardized endurance task. *International Journal of Environmental Research and Public Health*, 17(7), 2576. <https://doi.org/10.3390/ijerph17072576>
- Hirt, E. R., & McCrea, S. M. (2009). Man smart, woman smarter? Getting to the root of gender differences in self-handicapping. *Social and Personality Psychology Compass*, 3(3), 260–274. <https://doi.org/10.1111/j.1751-9004.2009.00176.x>
- Hirt, E. R., McCrea, S. M., & Boris, H. I. (2003). “I know you self-handicapped last exam”: gender differences in reactions to self-handicapping. *Journal of Personality and Social Psychology*, 84(1), 177–193. <https://doi.org/10.1037/0022-3514.84.1.177>
- Hofmann, W., Schmeichel, B. J., & Baddeley, A. D. (2012). Executive functions and self-regulation. *Trends in Cognitive Sciences*, 16(3), 174–180. <https://doi.org/10.1016/j.tics.2012.01.006>
- Jackson, C., Lawton, R. J., Raynor, D. K., Knapp, P., Conner, M. T., Lowe, C. J., & Closs, S. J. (2006). Promoting adherence to antibiotics: A test of implementation intentions. *Patient Education and Counseling*, 61(2), 212–218. <https://doi.org/10.1016/j.pec.2005.03.010>
- Jonas, E., McGregor, I., Klackl, J., Agroskin, D., Fritsche, I., & Holbrook, C. Nash, K., Proulx, T., & Quirin, M. (2014). Threat and defense: From anxiety to approach. In J. M. Olson, M. P. Zanna, et al. (Eds.), *Advances in experimental social psychology* (Vol. 49, pp. pp. 219–286). Academic Press.
- Keller, L., Gollwitzer, P. M., & Sheeran, P. (2020). Changing behavior using the model of action phases. In M. S. Hagger, L. Cameron, K. Hamilton, N. Hankonen, & T. Lintunen (Eds.), *The handbook of behavior change* (pp. pp. 77–88). Cambridge University Press.
- Kerr, N. L. (1983). Motivation losses in small groups: A social dilemma analysis. *Journal of Personality and Social Psychology*, 45(4), 819–828. <https://doi.org/10.1037/0022-3514.45.4.819>
- Kerr, N. L. (2013). Social dilemmas. In J. M. Levine (Ed.), *Group processes* (pp. pp. 85–110). Psychology Press.
- Kerr, N. L., & Hertel, G. (2011). The Köhler group motivation gain: How to motivate the ‘weak links’ in a group. *Social and Personality Psychology Compass*, 5(1), 43–55. <https://doi.org/10.1111/j.1751-9004.2010.00333.x>
- Kerr, N. L., Messé, L. A., Seok, D.-H., Sambolec, E. J., Lount, R. B., Jr., & Park, E. S. (2007). Psychological mechanisms underlying the Köhler motivation gain. *Personality & Social Psychology Bulletin*, 33(6), 828–841. <https://doi.org/10.1177/0146167207301020>

- Kerr, N. L., & Tindale, R. S. (2004). Group performance and decision making. *Annual Review of Psychology*, 55(1), 623–655. <https://doi.org/10.1146/annurev.psych.55.090902.142009>
- Kirk, D., Gollwitzer, P. M., & Carnevale, P. J. (2011). Self-regulation in ultimatum bargaining: goals and plans help accepting unfair but profitable offers. *Social Cognition*, 29(5), 528–546. <https://doi.org/10.1521/soco.2011.29.5.528>
- Kleingeld, A., van Mierlo, H., & Arends, L. (2011). The effect of goal setting on group performance: A meta-analysis. *Journal of Applied Psychology*, 96(6), 1289–1304. <https://doi.org/10.1037/a0024315>
- Klinger, E. (1975). Consequences of commitment to and disengagement from incentives. *Psychological Review*, 82(1), 1–25. <https://doi.org/10.1037/h0076171>
- Klompas, M., Morris, C. A., & Shenoy, E. S. (2020). Universal masking in the Covid-19 Era. *New England Journal of Medicine*, 383(2), e9. <https://doi.org/10.1056/NEJMc2020836>
- Klompas, M., Morris, C. A., Sinclair, J., Pearson, M., & Shenoy, E. S. (2020). Universal masking in hospitals in the Covid-19 Era. *New England Journal of Medicine*, 382(21), e63. <https://doi.org/10.1056/NEJMp2006372>
- Köhler, O. (1926). Kraftleistungen bei Einzel- und Gruppenarbeit. [physical performance in individual and group situations]. *Industrielle Psychotechnik*, 3(1), 274–282.
- Komorita, S. S., & Parks, C. D. (1995). Interpersonal relations: Mixed-motive interaction. *Annual Review of Psychology*, 46(1), 183–207. <https://doi.org/10.1146/annurev.ps.46.020195.001151>
- Kopetz, C., & Orehek, E. (2015). When the end justifies the means: Self-defeating behaviors as “rational” and “successful” self-regulation. *Current Directions in Psychological Science*, 24(5), 386–391. <https://doi.org/10.1177/0963721415589329>
- Kourtis, D., Woźniak, M., Sebanz, N., & Knoblich, G. (2019). Evidence for we-representations during joint action planning. *Neuropsychologia*, 131(1), 73–83. <https://doi.org/10.1016/j.neuropsychologia.2019.05.029>
- Kramer, W. S., Thayer, A. L., & Salas, E. (2013). Goal setting in teams. In E. A. Locke & G. P. Latham (Eds.), *New developments in goal setting and task performance*. (pp. 287–310). New York: Routledge, Taylor & Francis Group.
- Legrand, E., Bieleke, M., Gollwitzer, P. M., & Mignon, A. (2017). Nothing will stop me? Flexibly tenacious goal striving with implementation intentions. *Motivation Science*, 3(2), 101–118. <https://doi.org/10.1037/mot0000050>
- Lehmann, A. I., Brauchli, R., & Bauer, G. F. (2019). Goal pursuit in organizational health interventions: the role of team climate, outcome expectancy, and implementation intentions. *Frontiers in Psychology*, 10(154). <https://doi.org/10.3389/fpsyg.2019.00154>
- Leucht, S., Helfer, B., Gartlehner, G., & Davis, J. M. (2015). How effective are common medications: A perspective based on meta-analyses of major drugs. *BMC Medicine*, 13(1), 253253. <https://doi.org/10.1186/s12916-015-0494-1>
- Levine, J. M., & Smith, E. R. (2013). Group cognition: Collective information search and distribution. In D. Carlston (Ed.), *Oxford handbook of social cognition*. (pp. 616–633). Oxford University Press.
- Levine, J. M., & Tindale, R. S. (2015). Social influence in groups. In M. Mikulincer, P. R. Shaver, J. F. Dovidio, & J. A. Simpson (Eds.), *APA handbook of personality and social psychology, Volume 2: Group processes* (pp. pp. 3–34). American Psychological Association.
- Lewin, K. (1936). *Principles of topological psychology*. McGraw-Hill.

- Lewin, K. (1939). Field theory and experiment in social psychology: Concepts and methods. *American Journal of Sociology*, 44(6), 868–896. <https://doi.org/10.1086/218177>
- Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance*. Prentice-Hall.
- Locke, E. A., & Latham, G. P., Eds.. (2013). *New developments in goal setting and task performance*. Routledge Academic.
- Loy, L. S., Wieber, F., Gollwitzer, P. M., & Oettingen, G. (2016). Supporting sustainable food consumption: mental contrasting with implementation intentions (MCII) aligns intentions and behavior. *Frontiers in Psychology*, 7(607). <https://doi.org/10.3389/fpsyg.2016.00607>
- Lu, L., Yuan, Y. C., & McLeod, P. L. (2012). Twenty-five years of hidden profiles in group decision making. *Personality and Social Psychology Review*, 16(1), 54–75. <https://doi.org/10.1177/1088868311417243>
- Luo, X. (2005). How does shopping with others influence impulsive purchasing? *Journal of Consumer Psychology*, 15(4), 288–294. https://doi.org/10.1207/s15327663jcp1504_3
- Mann, D. M., Palmisano, J., & Lin, J. J. (2016). A pilot randomized trial of technology-assisted goal setting to improve physical activity among primary care patients with prediabetes. *Preventive Medicine Reports*, 4, 107–112. <https://doi.org/10.1016/j.pmedr.2016.05.012>
- Marks, M. A., Mathieu, J. E., & Zaccaro, S. J. (2001). A temporally based framework and taxonomy of team processes. *The Academy of Management Review*, 26(3), 356–376. <https://doi.org/10.5465/AMR.2001.4845785>
- Martiny-Huenger, T., Martiny, S. E., Parks-Stamm, E. J., Pfeiffer, E., & Gollwitzer, P. M. (2017). From conscious thought to automatic action: A simulation account of action planning. *Journal of Experimental Psychology: General*, 146(10), 1513–1525. <https://doi.org/10.1037/xge0000344>
- Martiny-Huenger, T., Thürmer, J. L., Issa, M., & Gollwitzer, P. M. (2011). Über die Unterstützung reflektiver Verhaltensdeterminanten. *Psychologische Rundschau*, 62, 179–187. <https://doi.org/10.1026/0033-3042/a000087>
- Martiny, S. E., & Nikitin, J. (2019). Social identity threat in interpersonal relationships: activating negative stereotypes decreases social approach motivation. *Journal of Experimental Psychology: Applied*, 25, 117–128. <https://doi.org/10.1037/xap0000198>
- Masicampo, E. J., & Baumeister, R. F. (2012). Committed but closed-minded: When making a specific plan for a goal hinders success. *Social Cognition*, 30(1), 37–55. <https://doi.org/10.1521/soco.2012.30.1.37>
- McCrea, S. M. (2008). Self-handicapping, excuse making, and counterfactual thinking: Consequences for self-esteem and future motivation. *Journal of Personality and Social Psychology*, 95(2), 274–292. <https://doi.org/10.1037/0022-3514.95.2.274>
- McCrea, S. M., & Hirt, E. R. (2001). The role of ability judgments in self-handicapping. *Personality & Social Psychology Bulletin*, 27(10), 1378–1389. <https://doi.org/10.1177/01461672012710013>
- McCrea, S. M., Hirt, E. R., Hendrix, K. L., Milner, B. J., & Steele, N. L. (2008). The worker scale: Developing a measure to explain gender differences in behavioral self-handicapping. *Journal of Research in Personality*, 42, 949–970. <https://doi.org/10.1016/j.jrp.2007.12.005>
- McCrea, S. M., Hirt, E. R., & Milner, B. J. (2008). She works hard for the money: valuing effort underlies gender differences in behavioral self-handicapping.

- Journal of Experimental Social Psychology*, 44(2), 292–311. <https://doi.org/10.1016/j.jesp.2007.05.006>
- McWilliams, L., Bellhouse, S., Yorke, J., Lloyd, K., & Armitage, C. J. (2019). Beyond “planning”: A meta-analysis of implementation intentions to support smoking cessation. *Health Psychology*, 38(12), 1059–1068. <https://doi.org/10.1037/hea0000768>
- Mesmer-Magnus, J. R., & DeChurch, L. A. (2009). Information sharing and team performance: A meta-analysis. *Journal of Applied Psychology*, 94(2), 535–546. <https://doi.org/10.1037/a0013773>
- Michie, S., van Stralen, M. M., & West, R. (2011). The behaviour change wheel: A new method for characterising and designing behaviour change interventions. *Implementation Science*, 6, 42. <https://doi.org/10.1186/1748-5908-6-42>
- Mitchell, T. R., & Silver, W. S. (1990). Individual and group goals when workers are interdependent: Effects on task strategies and performance. *Journal of Applied Psychology*, 75(2), 185–193. <https://doi.org/10.1037/0021-9010.75.2.185>
- Mojzisch, A., Grouneva, L., & Schulz-Hardt, S. (2010). Biased evaluation of information during discussion: Disentangling the effects of preference consistency, social validation, and ownership of information. *European Journal of Social Psychology*, 40(6), 946–956. <https://doi.org/10.1002/ejsp.660>
- Molden, D. C., & Hui, C. M. (2011). Promoting de-escalation of commitment. *Psychological Science*, 22(1), 8–12. <https://doi.org/10.1177/0956797610390386>
- Moreland, R. L., Fetterman, J. D., Flagg, J. J., & Swanenburg, K. L. (2010). Behavioral assessment practices among social psychologists who study small groups. In C. R. Agnew, D. E. Carlston, W. G. Graziano, & J. R. Kelly (Eds.), *Then a miracle occurs: Focusing on behavior in social psychological theory and research*. (pp. 28–53). Oxford University Press.
- Mutter, E. R., Oettingen, G., & Gollwitzer, P. M. (2020). An online randomised controlled trial of mental contrasting with implementation intentions as a smoking behaviour change intervention. *Psychology & Health*, 35(3), 318–345. <https://doi.org/10.1080/08870446.2019.1634200>
- Nickerson, D. W., & Rogers, T. (2010). Do you have a voting plan? *Psychological Science*, 21(2), 194–199. <https://doi.org/10.1177/0956797609359326>
- O’Carroll, R. E., Chambers, J. A., Dennis, M., Sudlow, C., & Johnston, M. (2014). Improving medication adherence in stroke survivors: Mediators and moderators of treatment effects. *Health Psychology: Official Journal of the Division of Health Psychology, American Psychological Association*, 33(10), 1241–1250. <https://doi.org/10.1037/hea0000082>
- Oettingen, G. (2012). Future thought and behaviour change. *European Review of Social Psychology*, 23(1), 1–63. <https://doi.org/10.1080/10463283.2011.643698>
- Oettingen, G. (2014). *Rethinking positive thinking: Inside the new science of motivation*. Penguin.
- Oettingen, G., & Gollwitzer, P. M. (2015). *Self-regulation in adolescence*. Cambridge University Press.
- Oettingen, G., Wittchen, M., & Gollwitzer, P. M. (2013). Regulating goal pursuit through mental contrasting with implementation intentions. In E. A. Locke & G. P. Latham (Eds.), *New developments in goal setting and task performance* (pp. 523–548). Routledge.
- Park, C. W., Iyer, E. S., & Smith, D. C. (1989). The effects of situational factors on in-store grocery shopping behavior: The role of store environment and time

- available for shopping. *Journal of Consumer Research*, 15(4), 422–433. <https://doi.org/10.1086/209182>
- Pentland, B. T., Feldman, M. S., Becker, M. C., & Liu, P. (2012). Dynamics of organizational routines: A generative model. *Journal of Management Studies*, 49(8), 1484–1508. <https://doi.org/10.1111/j.1467-6486.2012.01064.x>
- Polegato, R., & Zaichkowsky, J. L. (1994). Family food shopping: Strategies used by husbands and wives. *Journal of Consumer Affairs*, 28(2), 278–299. <https://doi.org/10.1111/j.1745-6606.1994.tb00852.x>
- Prestwich, A., Conner, M., Lawton, R., Bailey, W., Litman, J., & Molyneaux, V. (2005). Individual and collaborative implementation intentions and the promotion of breast self-examination. *Psychology and Health Education Research*, 20, 743–760. <https://doi.org/10.1080/14768320500183335>
- Prestwich, A., Conner, M. T., Lawton, R. J., Ward, J. K., Ayres, K., & McEachan, R. R. C. (2012). Randomized controlled trial of collaborative implementation intentions targeting working adults' physical activity. *Health Psychology*, 31(4), 486–495. <https://doi.org/10.1037/a0027672>
- Prestwich, A., Conner, M. T., Lawton, R. J., Ward, J. K., Ayres, K., & McEachan, R. R. C. (2014). Partner- and planning-based interventions to reduce fat consumption: Randomized controlled trial. *British Journal of Health Psychology*, 19(1), 132–148. <https://doi.org/10.1111/bjhp.12047>
- Prestwich, A., & Kellar, I. (2014). How can the impact of implementation intentions as a behaviour change intervention be improved? *European Review of Applied Psychology*, 64(1), 35–41. <https://doi.org/10.1016/j.erap.2010.03.003>
- Rook, D. W., & Fisher, R. J. (1995). Normative influences on impulsive buying behavior. *Journal of Consumer Research*, 22(3), 305–313. <https://doi.org/10.1086/209452>
- Saddawi-Konefka, D., Baker, K., Guarino, A., Burns, S. M., Oettingen, G., Gollwitzer, P. M., et al. (2017). Changing resident physician studying behaviors: A randomized, comparative effectiveness trial of goal-setting versus use of WOOP. *Journal of Graduate Medical Education*, 9(4), 451–457. <https://doi.org/10.4300/jgme-d-16-00703.1>
- Sassenberg, K., & Woltin, K.-A. (2008). Group-based self-regulation: The effects of regulatory focus. *European Review of Social Psychology*, 19(1), 126–164. <https://doi.org/10.1080/10463280802201894>
- Scholz, U., & Hornung, R. (2008). Social exchange processes, health behaviour, and health behaviour change. *Zeitschrift für Gesundheitspsychologie*, 16(3), 131–134. <https://doi.org/10.1026/0943-8149.16.3.131>
- Schulz-Hardt, S., & Mojzisch, A. (2012). How to achieve synergy in group decision making: lessons to be learned from the hidden profile paradigm. *European Review of Social Psychology*, 23(1), 305–343. <https://doi.org/10.1080/10463283.2012.744440>
- Schweiger Gallo, I., Bieleke, M., Alonso, M. A., Gollwitzer, P. M., & Oettingen, G. (2018). Downregulation of anger by mental contrasting with implementation intentions (MCII). *Frontiers in Psychology*, 9. <https://doi.org/10.3389/fpsyg.2018.01838>
- Schweiger Gallo, I., Keil, A., McCulloch, K. C., Rockstroh, B., & Gollwitzer, P. M. (2009). Strategic automation of emotion regulation. *Journal of Personality and Social Psychology*, 96(1), 11–31. <https://doi.org/10.1037/a0013460>

- Sebanz, N., Bekkering, H., & Knoblich, G. (2006). Joint action: Bodies and minds moving together. *Trends in Cognitive Sciences*, 10(2), 70–76. <https://doi.org/10.1016/j.tics.2005.12.009>
- Serfas, B. G., Büttner, O. B., & Florack, A. (2016). Using implementation intentions in shopping situations: How arousal can help shield consumers against temptation. *Applied Cognitive Psychology*, 30(5), 672–680. <https://doi.org/10.1002/acp.3241>
- Sheeran, P. (2002). Intention-behavior relations: A conceptual and empirical review. *European Review of Social Psychology*, 12(1), 1–36. <https://doi.org/10.1080/14792772143000003>
- Sheeran, P., & Webb, T. L. (2016). The intention-behavior gap. *Social and Personality Psychology Compass*, 10, 503–518. <https://doi.org/10.1111/spc3.12265>
- Sheldon, O. J., & Fishbach, A. (2011). Resisting the temptation to compete: Self-control promotes cooperation in mixed-motive interactions. *Journal of Experimental Social Psychology*, 47(2), 403–410. <https://doi.org/10.1016/j.jesp.2010.11.003>
- Sherif, M. (1936). *The psychology of social norms*. Harper.
- Silva, M. A. V. D., São-João, T. M., Brizon, V. C., Franco, D. H., Mialhe, F. L., & Zhang, Q. (2018). Impact of implementation intentions on physical activity practice in adults: A systematic review and meta-analysis of randomized clinical trials. *Plos One*, 13(11), e0206294. <https://doi.org/10.1371/journal.pone.0206294>
- Sleesman, D. J., Conlon, D. E., McNamara, G., & Miles, J. E. (2012). Cleaning up the big muddy: A meta-analytic review of the determinants of escalation of commitment. *Academy of Management Journal*, 55(3), 541–562. <https://doi.org/10.5465/amj.2010.0696>
- Sleesman, D. J., Lennard, A., McNamara, G., & Conlon, D. (2017). Putting escalation of commitment in context: A multi-level review and analysis. *Academy of Management Annals*. <https://doi.org/10.5465/annals.2016.0046>
- Smith, E. R., & Semin, G. R. (2004). Socially situated cognition: Cognition in its social context. In M. P. Zanna (Ed.) *Advances in experimental social psychology*. (Vol. 36 pp. 53–117). Academic Press. [https://doi.org/10.1016/s0065-2601\(04\)36002-8](https://doi.org/10.1016/s0065-2601(04)36002-8)
- Smith, V. L. (1976). Experimental economics: Induced value theory. *American Economic Review*, 66(2), 274–279. <https://doi.org/10.2307/1817233>
- Sober, E., & Wilson, D. S. (1998). *Unto others: The evolution and psychology of unselfish behavior*. Harvard University Press.
- Stasser, G., Taylor, L. A., & Hanna, C. (1989). Information sampling in structured and unstructured discussions of three- and six-person groups. *Journal of Personality and Social Psychology*, 57(1), 67–78. <https://doi.org/10.1037/0022-3514.57.1.67>
- Stasser, G., & Titus, W. (2003). Hidden profiles: A brief history. *Psychological Inquiry*, 14, 304–313. <https://doi.org/10.1080/1047840X.2003.9682897>
- Staw, B. M. (1976). Knee-deep in the big muddy: A study of escalating commitment to a chosen course of action. *Organizational Behavior and Human Performance*, 16(1), 27–44. [https://doi.org/10.1016/0030-5073\(76\)90005-2](https://doi.org/10.1016/0030-5073(76)90005-2)
- Staw, B. M., & Ross, J. (1989). Understanding behavior in escalation situations. *Science*, 246(4927), 216–220. <https://doi.org/10.1126/science.246.4927.216>
- Steiner, I. D. (1972). *Group process and productivity*. Academic Press.
- Stroebe, W., van Koningsbruggen, G. M., Papies, E. K., & Aarts, H. (2013). Why most dieters fail but some succeed: A goal conflict model of eating behavior. *Psychological Review*, 120(1), 110–138. <https://doi.org/10.1037/a0030849>

- Süddeutsche Zeitung (18 March 2020). Merkels Ansprache im Wortlaut. Retrieved from: <https://www.sueddeutsche.de/politik/angela-merkel-rede-coronavirus-wortlaut-1.4850582>
- Thanh Le, T., Andreadakis, Z., Kumar, A., Gómez Román, R., Tollefsen, S., Saville, M., et al (2020). The COVID-19 vaccine development landscape. *Nature Reviews. Drug Discovery*, 19(5), 305–306. <https://doi.org/10.1038/d41573-020-00073-5>
- Thürmer, J. L., & Bieleke, M., Wieber, F., & Gollwitzer, P. M. (2020). If-then plans regulate automatic peer-influence on impulse buying. *European Journal of Marketing*, 54(9), 2079–2105. <https://doi.org/10.1108/EJM-05-2018-0341>
- Thürmer, J. L., & McCrea, S. M. (2018). Beyond motivated reasoning: Hostile reactions to critical comments from the outgroup. *Motivation Science*, 4(4), 333–346. <https://doi.org/10.1037/mot0000097>
- Thürmer, J. L., & McCrea, S. M (2021). Disentangling the Intergroup Sensitivity Effect: Defending the ingroup or enforcing general norms? *European Journal of Social Psychology* (Online-first Article). <https://doi.org/dx.doi.org/10.1002/ejsp.2748>
- Thürmer, J. L., McCrea, S. M., & Gollwitzer, P. M. (2013). Regulating self-defensiveness: If-then plans prevent claiming and creating performance handicaps. *Motivation and Emotion*, 37(4), 712–725. <https://doi.org/10.1007/s11031-013-9352-7>
- Thürmer, J. L., McCrea, S. M., & McIntyre, B. M. (2019). Motivated collective defensiveness: Group members prioritize counterarguing out-group criticism over getting their work done. *Social Psychological and Personality Science*, 10(3), 382–392. <https://doi.org/10.1177/1948550618762298>
- Thürmer, J. L., Scheier, M. F., & Carver, C. S. (2020). On the mechanics of goal striving: Experimental evidence of coasting and shifting. *Motivation Science*, 6(3), 266–274. <https://doi.org/10.1037/mot0000157>
- Thürmer, J. L., Wieber, F., & Gollwitzer, P. M. (2015a). Planning high performance: Can groups and teams benefit from implementation intentions? In M. D. Mumford & M. Frese (Eds.), *The psychology of planning in organizations: Research and applications* (pp. pp. 123–145). Routledge.
- Thürmer, J. L., Wieber, F., & Gollwitzer, P. M. (2015b). A self-regulation perspective on hidden-profile problems: If–then planning to review information improves group decisions. *Journal of Behavioral Decision Making*, 28(2), 101–113. <https://doi.org/10.1002/bdm.1832>
- Thürmer, J. L., Wieber, F., & Gollwitzer, P. M. (2017). Planning and performance in small groups: Collective implementation intentions enhance group goal striving. *Frontiers in Psychology*. <https://doi.org/10.3389/fpsyg.2017.00603>
- Thürmer, J. L., Wieber, F., & Gollwitzer, P. M. (2020a). Management in times of crisis: Can collective plans prepare teams to make and implement good decisions? *Management Decision*, Online-first Article. <https://doi.org/10.1108/MD-08-2020-1088>
- Thürmer, J. L., Wieber, F., & Gollwitzer, P. M. (2020b). Strategic self-regulation in groups: Collective implementation intentions help cooperate when cooperation is called for. *Frontiers in Psychology*, 11(3247). <https://doi.org/10.3389/fpsyg.2020.561388>
- Tindale, R. S., & Jeremy, R. W. (2020). Group decision-making. In O. Braddick (Ed.), *Oxford research encyclopedia of psychology*. Oxford University Press.
- Tindale, R. S., & Kameda, T. (2000). ‘Social sharedness’ as a unifying theme for information processing in groups. *Group Processes & Intergroup Relations*, 3(2), 123–140. <https://doi.org/10.1177/1368430200003002002>
- Tindale, R. S., & Kameda, T. (2017). Group decision-making from an evolutionary/adaptationist perspective. *Group Processes & Intergroup Relations*, 20(5), 669–680. <https://doi.org/10.1177/1368430217708863>

- Tindale, R. S., & Sheffey, S. (2002). Shared information, cognitive load, and group memory. *Group Processes & Intergroup Relations*, 5(1), 5–18. <https://doi.org/10.1177/1368430202005001535>
- Tindale, R.S., Wieber, F., Schultze, T., & Schulz-Hardt, S. (2018). Hidden profile discussion coding. In E. Brauner, M. Boos, & M. Kolbe (Eds.), *The cambridge handbook of group interaction analysis* (pp. pp. 565–574). Cambridge University Press.
- Toli, A., Webb, T. L., & Hardy, G. E. (2016). Does forming implementation intentions help people with mental health problems to achieve goals? A meta-analysis of experimental studies with clinical and analogue samples. *British Journal of Clinical Psychology*, 55(1), 69–90. <https://doi.org/10.1111/bjc.12086>
- Trevisan, D. D., São-João, T., Cornélio, M., Jannuzzi, F., de Sousa, M. R., Rodrigues, R., et al. (2020). Effect of an ‘implementation intention’ intervention on adherence to oral anti-diabetic medication in brazilians with type 2 diabetes. *Patient Education and Counseling*, 103(3), 582–588. <https://doi.org/10.1016/j.pec.2019.10.003>
- Trötschel, R., & Gollwitzer, P. M. (2007). Implementation intentions and the willful pursuit of prosocial goals in negotiations. *Journal of Experimental Social Psychology*, 43(4), 579–598. <https://doi.org/10.1016/j.jesp.2006.06.002>
- Turpin, M. H., Meyers, E. A., Fugelsang, J. A., Friedman, O., & Bialek, M. (2019). Sunk cost bias and withdrawal aversion. *The American Journal of Bioethics*, 19(3), 57–59. <https://doi.org/10.1080/15265161.2018.1563653>
- Valshtein, T. J., Oettingen, G., & Gollwitzer, P. M. (2020). Using mental contrasting with implementation intentions to reduce bedtime procrastination: Two randomised trials. *Psychology & Health*, 35(3), 275–301. <https://doi.org/10.1080/08870446.2019.1652753>
- Van Bavel, J. J., Baicker, K., Boggio, P. S., Capraro, V., Cichocka, A., Cikara, M., et al. (2020). Using social and behavioural science to support COVID-19 pandemic response. *Nature Human Behaviour*, 4, 460–471. <https://doi.org/10.1038/s41562-020-0884-z>
- Van Bavel, J. J., & Pereira, A. (2018). The partisan brain: An identity-based model of political belief. *Trends in Cognitive Sciences*, 22(3), 213–224. <https://doi.org/10.1016/j.tics.2018.01.004>
- van Gelderen, M., Kautonen, T., Wincent, J., & Biniari, M. (2017). Implementation intentions in the entrepreneurial process: Concept, empirical findings, and research agenda. *Small Business Economics*. <https://doi.org/10.1007/s11187-017-9971-6>
- Van Lange, P. A. M., Joireman, J., Parks, C. D., & Van Dijk, E. (2013). The psychology of social dilemmas: A review. *Organizational Behavior and Human Decision Processes*, 120(2), 125–141. <https://doi.org/10.1016/j.obhdp.2012.11.003>
- van Mierlo, H., & Kleingeld, A. (2010). Goals, strategies, and group performance: Some limits of goal setting in groups. *Small Group Research*, 41(5), 524–555. <https://doi.org/10.1016/10.1177/1046496410373628>
- Vilà, I., Carrero, I., & Redondo, R. (2017). Reducing fat intake using implementation intentions: A meta-analytic review. *British Journal of Health Psychology*, 22(2), 281–294. <https://doi.org/10.1111/bjhp.12230>
- von Cranach, M., Ochsenein, G., & Valach, L. (1986). The group as a self-active system: Outline of a theory of group action. *European Journal of Social Psychology*, 16(3), 193–229. <https://doi.org/10.1002/ejsp.2420160302>
- Webb, T. L., Schweiger Gallo, I., Miles, E., Gollwitzer, P. M., & Sheeran, P. (2012). Effective regulation of affect: An action control perspective on emotion regulation. *European Review of Social Psychology*, 23(1), 143–186. <https://doi.org/10.1080/10463283.2012.718134>

- Webb, T. L., & Sheeran, P. (2007). How do implementation intentions promote goal attainment? A test of component processes. *Journal of Experimental Social Psychology*, 43(2), 295–302. <https://doi.org/10.1016/j.jesp.2006.02.001>
- Weber, B., & Hertel, G. (2007). Motivation gains of inferior group members: A meta-analytical review. *Journal of Personality and Social Psychology*, 93(6), 973–993. <https://doi.org/10.1037/0022-3514.93.6.973>
- Weber, J. M., Kopelman, S., & Messick, D. M. (2004). A conceptual review of decision making in social dilemmas: Applying a logic of appropriateness. *Personality and Social Psychology Review*, 8(3), 281–307. https://doi.org/10.1207/s15327957pspr0803_4
- Weldon, E., & Weingart, L. R. (1993). Group goals and group performance. *British Journal of Social Psychology*, 32(4), 307–334. <https://doi.org/10.1111/j.2044-8309.1993.tb01003.x>
- Wieber, F., Gollwitzer, P. M., & Sheeran, P. (2014). Strategic regulation of mimicry effects by implementation intentions. *Journal of Experimental Social Psychology*, 53, 31–39. <https://doi.org/10.1016/j.jesp.2014.02.002>
- Wieber, F., & Sassenberg, K. (2006). I can't take my eyes off of it - attention attraction effects of implementation intentions. *Social Cognition*, 24(6), 723–752. <https://doi.org/10.1521/soco.2006.24.6.723>
- Wieber, F., Thürmer, J. L., & Gollwitzer, P. M. (2012). Collective action control by goals and plans: Applying a self-regulation perspective to group performance. *American Journal of Psychology*, 125(3), 275–290. <https://doi.org/10.5406/amerjpsyc.125.3.0275>
- Wieber, F., Thürmer, J. L., & Gollwitzer, P. M. (2015a). Attenuating the escalation of commitment to a faltering project in decision-making groups: An implementation intention approach. *Social Psychological and Personality Science*, 6(5), 587–595. <https://doi.org/10.1177/1948550614568158>
- Wieber, F., Thürmer, J. L., & Gollwitzer, P. M. (2015b). Promoting the translation of intentions into action by implementation intentions: Behavioral effects and physiological correlates. *Frontiers in Human Neuroscience*, 9(395). <https://doi.org/10.3389/fnhum.2015.00395>
- Wieber, F., von Suchodoletz, A., Heikamp, T., Trommsdorff, G., & Gollwitzer, P. M. (2011). If-then planning helps school-aged children to ignore attractive distractions. *Social Psychology*, 42(1), 39–47. <https://doi.org/10.1027/1864-9335/a000041>
- Witte, E. H. (1989). Köhler rediscovered: The anti-Ringelmann effect. *European Journal of Social Psychology*, 19(2), 147–154. <https://doi.org/10.1002/ejsp.2420190206>
- Wolff, W., Bieleke, M., Hirsch, A., Wienbruch, C., Gollwitzer, P. M., & Schüler, J. (2018). Increase in prefrontal cortex oxygenation during static muscular endurance performance is modulated by self-regulation strategies. *Scientific Reports*, 8(1), 15756. <https://doi.org/10.1038/s41598-018-34009-2>
- Wolff, W., Thürmer, J. L., Stadler, K.-M., & Schüler, J. (2019). Ready, set, go: Cortical hemodynamics during self-controlled sprint starts. *Psychology of Sport and Exercise*, 41, 21–28. <https://doi.org/10.1016/j.psychsport.2018.11.002>
- World Health Organization. (2020a). *Advice on the use of masks in the community, during home care and in health care settings in the context of the novel coronavirus (2019-nCoV) outbreak: Interim guidance*, 29 January 2020. <https://apps.who.int/iris/handle/10665/330987>
- World Health Organization. (2020b). *Advice on the use of masks in the context of COVID-19: Interim guidance*, 5 June 2020. <https://apps.who.int/iris/handle/10665/332293>
- World Health Organization. (2020c). *Advice on the use of masks in the context of COVID-19: Interim guidance*, 6 April 2020. <https://apps.who.int/iris/handle/10665/331693>