JORRIT ALKEMA

READY, SET, GO(AL)!

New Directions in Goal-Setting Research

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Jacobus (*Jorrit*) Alkema

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New Directions in Goal-Setting Research

DROOM, DURF, DOE(L)!
Nieuwe ontwikkelingen in het onderzoek naar het zetten van doelen

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CHAPTER 1:

GENERAL INTRODUCTION

Goals matter. Not only when Feyenoord plays a match against Ajax, but even more so in our day-to-day lives. Goals motivate us by giving direction and allowing us to (fully) focus on certain objectives that we want to achieve (Miner, 2015). Personally, I set goals for many aspects in both my personal and professional lives:

"How many kilometres am I going to run today?"

"How much money shall I save up this month?"

"How many student essays will I grade today?"

"How many paragraphs will I write today to complete my PhD dissertation?"

We are often successful in reaching our goals. But this is not always the case. I mean, how many times have I set myself an objective to run a certain number of kilometres, only to find myself lowering this objective whilst running or ending up not going for a run at all. To gain an understanding of whether, why, and how setting goals – and (not) being able to reach those goals – affects people's performance behaviours is not only what lies at the core of (the development of) a theory on goal-setting, but also the *raison d'être* of this PhD project.

Whilst the ancient Greeks already recognised the significance of setting goals (e.g., Aristotle's notion of τέλος, which translates to 'purpose' or 'goal'), the basis

for our contemporary perceptions and applications was laid in the 1960s, when 'founding father' Locke (1966; 1968) made the first theoretical claims on the superiority of specific (versus unspecific) goals or performance standards in effectuating positive performance effects. From this moment, it took more than 20 years of empirical research before Goal-Setting Theory (abbrev. GST; Locke & Latham, 1990) was officially introduced – based on approximately 400 conducted studies at that time (Locke & Latham, 2019).

Why might it be effective to set goals? Defined as "the object or aim of an action to attain a specific standard of proficiency, usually within a specified time limit" (Locke & Latham, 2002, p. 705), GST proposes that goals influence performance by (1) directing people's attention towards goal-relevant activities, by (2) energising people's intensity of efforts consistent with the goal difficulty levels, and by (3) enhancing people's persistence or determination over time. Moreover, goals affect behaviour indirectly by (4) "leading to the arousal, discovery, and/or use of task-relevant knowledge and strategies" (Wood & Locke, 1990 – see: Locke & Latham, 2002, p. 707). In addition to these four mediating mechanisms through which goals affect performance, GST also emphasises four moderators enabling a linear relationship between goal (difficulty) and performance: ability, goal commitment, performance feedback, and situational resources or constraints (Chen, Latham, Piccolo & Itzchakov, 2021; Latham & Locke, 2007).

Evidently, GST has contributed to acknowledging the motivational power of goals: It has brought about one of the most extensive research streams on motivation in the field of organisational behaviour (Berson, Halevy, Shamir & Erez, 2015), resulting in GST becoming the most valid and practical work motivation theory (Locke & Latham, 2019; Miner, 2003; Pinder, 2008). Subsequently, this inspirational power of goals has been embraced by the corporate world, as organisations have incorporated goal-setting principles into multiple aspects of their business endeavours (Kleingeld, van Mierlo, & Arends, 2011). For instance, consider the practice of creating (personal) performance development plans where employees identify areas for improvement, for which goals are set, progress is monitored and measured, and where supervisors and subordinates together strategise how to achieve the set objectives. Moreover, the practice of setting goals that are specific, measurable, attainable, relevant, and time-bound – also known as S.M.A.R.T. goals (Doran, 1981) – is highly popular and employed in many professional contexts (Ogbeiwi, 2017; Van den Broeck, Carpini, Leroy & Dierendorff, 2017).

Even though much is already known about the goal concept, the practice of setting goals, and the associated behavioural and psychological effects, hinting at the maturity and comprehensiveness of GST as it is, the theory's rather open nature (i.e., GST was developed through induction) allows for continual new discoveries and updates to be made (Locke & Latham, 2020). Such developments often happen

in interplay with the world of practitioners, as organisations are in constant search of new(er) ways to further enhance employee motivation (Lunenburg, 2011). And whilst managers and organisations widely recognise and employ goal-setting as a technique to increase employee effectiveness (DuBrin, 2008), but are also aware of the high likelihood that no two organisations are fully alike (Lippmann & Aldrich, 2014), it suggests the need to ongoingly update GST in order to allow for customised goal-setting approaches, which are most beneficial to the organisations. This, in itself, stresses the importance of GST research and gives credence to this doctoral thesis, which hopes to cater to such tailoring needs as voiced by organisations and practitioners.

Even though GST's original claims as stipulated in 1990 have held up rather well (Locke & Latham, 1990; 2020), subsequent research endeavours have been proposing and testing for multiple theoretical and practical expansions. The main aim (dare I say 'goal') of this PhD dissertation is to provide such novel extensions, specifically targeted at shaping and advancing (some of the) current discussions that are taking place regarding the practice of setting goals. One of these discussions centres on goal-setting in teams: as teams in the last decades have become the basic way of organising human capital in organisations (Mathieu, Gallagher, Domingo & Klock, 2019), goal research has shifted some of its focus to the team level (e.g., Kleingeld, van Mierlo & Arends, 2011; Kramer, Thayer & Salas, 2013). However, this focus has rather restricted itself to examining the effect of (assigned or

participatively-set) team goals upon team performance, whereas it would be interesting to know and understand how teams themselves would actually decide upon setting a team goal – especially as many organisations nowadays employ self-managing teams (Millikin, Hom & Manz, 2010).

Another recent discussion talks about extending GST with a theory of minimal and maximal goal standards (Giessner, Stam, Kerschreiter, Verboon & Salama, 2020). In connecting these theories, a more thorough understanding is developed on how different types of goal standards impact the individual goal striving process and associated task satisfaction perceptions over time. Giessner and colleagues (2020) proposed other theoretical concepts – in addition to task satisfaction – that could potentially influence the (self-regulatory) goal striving mechanism in light of different types of goal standards; especially the self-efficacy concept (Bandura, 1997) makes for a viable, interesting avenue to explore. Self-efficacy has already been successfully incorporated into GST (Locke & Latham, 1990; 2002; 2019) – playing a substantial role in linking externally-assigned goals and self-set goals (cf.., Locke's (1991) motivation hub). Thus, updating the GST – goal standards link with the (impact of changes in) individual self-efficacy perceptions over time will further stimulate the existing conversation and inform how managers could go about setting goals.

Another direction in which GST has evolved deals with the performance effects of so-called stretch goals. Stretch goals, which are goals "that are considered

virtually unattainable" (Thompson, Hochwater, & Mathys, 1997, p. 48), have lately garnered more attention when scholars started to re-examine the previously proclaimed uselessness of setting such overtly difficult goals (cf., Locke, 1982; Erez & Zidon, 1984) and check for successful stretch goal-setting – performance applications (e.g., Ahmadi, Jansen & Eggers, 2021; Gary, Yang, Yetton & Sterman, 2017; Kerr & Landauer, 2004; Sitkin, See, Miller, Lawless & Carton, 2011). Empirical research shows rather varied efficacy of a stretch goal-setting (Ahmadi et al., 2021; Gary et al., 2017), for which it would be highly valuable to know whether certain boundary conditions could help to explain the occurrence of this heterogeneous effectivity.

As stated before, I have set myself a goal to come up with theoretically profound and practically sound contributions to these contemporary GST discussions. By conducting empirical research, mostly experimental in nature, I have tested for different goal-related conceptual configurations at varying levels of analysis. The results of the studies featured in this PhD dissertation provide (re)new(ed) insights on the goal-setting mechanism, which could be translated into (hands-on) recommendations to practitioners looking to reap the rewards of setting goals. Before providing further details about the contents of the remaining chapters featured in this book, it is important to explicate something: as these chapters are the product of a collaboration between me and my supervisors/co-authors, the first-

person plural (i.e., we) instead of the first-person singular (i.e., I) will be used throughout these chapters to acknowledge our team efforts.

Dissertation overview

In Chapter 2, we are mainly focused on goal-setting at the team level. Specifically, we are interested in how individual team members' thoughts on what team goals should be influence the actual team goal-setting process, and whether this process positively drives team performance. Based on well-established insights on the workings of the group polarisation phenomenon as well as on newer understandings regarding goal standards, we propose that teams, entrusted with setting goals for team performance, will show more aspirational shifts for maximal goal standards (i.e., ideals) compared to minimal goal standards (i.e., oughts). Consequently, these shifts in aspiration levels on maximal goals particularly drive team performance. Further, we anticipate that teams engaging in a conscious process of team goal-setting will outperform teams that do not do so, which provides a practical intervention for (structuring) teamwork. To test for these predictions, we conducted two studies where 868 (i.e., Study 1) and 1003 (i.e., Study 2) participants had to work together in teams of 4.

Chapter 3 moves the focus to the individual level. When individuals experience ongoing goal-setting successes by being able to teach their goals, this positively affects outcomes beyond higher productivity, such as higher perceptions of self-

efficacy (Bandura, 1991). But what happens when individuals face continued adversity? We examine how people react over time when they are confronted with continuous negative performance feedback (i.e., failing to reach their goals), and whether the individuals' responses could be altered using goal standards procedures. Specifically, we expect that experienced self-efficacy levels within individuals will decrease, with a stronger reduction for externally-set minimal (versus maximal) goals. Moreover, individuals will self-set lower goal standards over time as well, with a stronger reduction for externally-set minimal (versus maximal) goals too. Ultimately, in line with the theoretical notions as put forward by Locke's (1991) so-called motivation hub, we propose that self-efficacy beliefs of individuals over time will facilitate the impact of ongoing negative performance feedback – either on its own or in interaction with externally-set minimal (versus maximal) goal standards – upon self-set goal standards levels in such a way, that the decline in self-set goal levels will be largest for maximal (versus minimal) self-set standards. We conducted three studies (Study 1: N = 223; Study 2: N = 124; Study 3: N = 253) to test for our beliefs.

Our focus in Chapter 4 remains on goal-setting at the individual level. Particularly, we are examining the practice of setting goals that have an infinitely small likelihood of being reached as they are set at extremely difficult levels (i.e., stretch goals – see Sitkin et al., 2011). Such stretch goals go beyond 'simple' or traditional goal-setting approaches, which generally argue for the pointlessness of

setting impossible performance objectives for individuals in (further) driving individual productivity outcomes (e.g., Locke, 1982; Erez & Zidon, 1984). However, recent research shows successful effects of stretch goals which are contingent upon certain conditions (Ahmadi et al., 2021; Sitkin et al., 2011). In line with the more contemporary literature, we foresee that stretching goals to levels that are extremely difficult (i.e., impossible) will likely result in positive task performance effects. Moreover, we expand upon the contingencies or boundary conditions by exploring for the role of task meaningfulness. We contend that task meaningfulness (reflected in task significance) will make it more likely for individuals to accept a stretch goal. As a motivational resource or context, exposure to task significance stimuli combined with individual stretch goal-setting will result in more enhanced task performance. To check for these expectations, three studies were conducted by us (Study 1: N = 405; Study 2: N = 553; Study 3: N = 423).

In Chapter 5, the final chapter of this book, I review the findings of the preceding empirical chapters, reflect upon the theoretical and practical implications of the outcomes, and refine my personal thoughts on the future and importance of goal-setting (research).

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CHAPTER 2:

ASPIRATIONAL SHIFTS: HOW TEAM POLARISATION INCREASES TEAM PERFORMANCE THROUGH MAXIMAL GOAL STANDARDS SETTING

For organisations to be effective and successful in their work performance, both practitioners and management scholars have underlined the imperative role that motivation plays (Pinder, 2008) – defined as "those psychological processes involved with the arousal, direction, intensity, and persistence of voluntary actions that are goal directed" (Mitchell, 1997, p.60). Consequently, goal-setting is an essential feature of motivation – something that has been established in research spanning multiple decades and multiple levels of analysis (e.g., Lewin, Dembo, Festinger & Sears, 1944; Kleingeld, Van Mierlo & Arends, 2011; Locke & Latham, 1990; 2019).

From the outset, goal-setting theory (abbrev. GST) and research on goal-setting centred mainly on the individual level, where individual goals are known to positively contribute to individual performance outcomes (Locke & Latham, 1990; 2002; 2019). More recently, attention has shifted to the team level. Teams have more and more become the primary focus in organisations in terms of structuring work and motivating work (Kozlowski & Bell, 2002). This change is reflected in studies trying to understand how goal-setting in teams impacts team performance (DeShon, Kozlowski, Schmidt, Milner & Wiechmann, 2004; Marks, Mathieu & Zaccaro,

2001; Wegge & Haslam, 2005). Research shows that setting group or team goals pushes team performance further than solely individual goal-setting (Kleingeld et al., 2011).

Beyond supporting this goal-behaviour link on the team level, the relatively sparse body of research on the team goal-setting process has mainly reduced itself to the effects of the goal source (i.e., whether the goal is solely set by an external authority or whether teams have some level of involvement – e.g., Wegge & Haslam, 2005) or multilevel goals (i.e., whether the goals are set for the team as a whole and/or for individual team members – e.g., DeShon et al., 2004). Although it discloses some insights in the workings of team goal-setting, it hardly explains the *actual* decision-making process that takes place within teams to come up with a common team goal.

Based on the team decision-making literature, the phenomenon of group-induced attitude polarisation (i.e., group polarisation; Moscovici & Zavalloni, 1969; Myers & Lamm, 1976) allows for a meaningful avenue to consider with regard to foreseeing the team goal-decision procedure. Even though this polarisation idea predominantly has been employed to explain team attitude formation and attitudinal shifts within individuals (Myers & Lamm, 1976; Isenberg, 1986), most frequently leading to team decisions with higher levels of risky biases and corresponding decisional consequences (i.e., Stoner's, 1961, *risky* shifts), we contend that this rather negative connotation also holds for team-level goal-setting. In particular, we develop a framework outlining that when teams are enabled to set a common goal

themselves, the level of individual team members' pre-discussion team goal perceptions will be boosted as a result of a team discussion. This common, higher team-set performance goal will in turn elevate team performance.

In addition, we integrate research and theorising on the self-regulatory nature of goals in our framework – extending goal-setting theory's primary focus on determining particular goal elements such as difficulty, specificity, and feedback (Locke & Latham, 2002). Literature on a goal's self-regulatory function (e.g., Brendl & Higgins, 1996; Carver & Scheier, 1990) differentiates between two goal standards used by individuals to self-regulate their goal striving behaviours: Minimal standards set a goal reference point that needs to *at least* be achieved, and maximal standards set an aspirational reference point that somebody *ideally* aims to achieve (Idson, Liberman, & Higgins, 2000; Giessner, Stam, Kerschreiter, Verboon & Salama, 2020).

Both goal standards have demonstrated particular implications for goal striving or performance behaviours – where higher-set minimal and/or maximal standards increase subsequent performance levels (Corker & Donnellan, 2012; Giessner et al., 2020; Locke & Bryan, 1968). Where this has been studied on the individual level, we explore the impact of those two standards on the team-level and theorise on the team-level goal-setting process. We argue that the polarisation mechanism will especially augment the post-discussion team-set maximal standard compared to the team-set minimal standard, because the individuals' pre-discussion maximal standard levels should already be set at higher levels, effectuating the actual shift to

be larger. Subsequently, given that specific, difficult goals are known to lead to higher performance levels (Locke & Latham, 2002), we further assume that the polarisation effect on the team-set maximal standard primarily drives higher team performance.

The current research, thus, integrates literature on goal-setting, self-regulation and team polarisation and extends previous theorising in three important ways. First, we show that individual team members polarise their goal standards perceptions when they engage in a joint team goal-setting interaction. Second, we show how such goal polarisation effects positively impacts the actual team performance. More specifically, we argue and show that shifts in maximal goal standards especially drive team performance. Given these insights, we lastly argue that polarisation effects can have rather positive effects for teams when considering team goal-setting. Therefore, instead of thinking about (the occurrence of) polarisation in rather negatively connotated terms such as 'riskiness' and the linked non-positive consequences, we suggest that the process of polarisation in the realm of team goal-setting should be perceived as something quite beneficial. We suggest referring to polarisation effects as *aspirational shifts* to underscore how helpful and aspiring the process of deciding upon common team goal standards can be for team task performance.

Goals, goal-setting, and goal standards

A goal is "the object or aim of an action to attain a specific standard of proficiency, [usually] within a specified time limit" (Locke & Latham, 2002, p.705). It serves both as a motivational enhancer and as a reference standard to evaluate of human performance (Eisenhardt, 1985; Kaplan & Norton, 1996; Meyer, 2002; Lewin et al. 1944). Goals have a motivational function in itself as they reveal specific ambition levels (Lewin et al., 1944; Starbuck, 1963).

The value of goals within organisational contexts has been primarily established by Locke and Latham's (1990) goal-setting theory - a framework that defines how goals associate with actual task performance. The basic premise of this theory is that specific and difficult goals (compared to easy and ambiguous goals) increase an individual's task performance (Bipp & Kleingeld, 2011; Locke & Latham, 1990; 2019). Such individual-level goals provide directed attention and mobilised energy for goal achievement. Consequently, setting specific and difficult goals provides a highly effective, and relatively simple mean of increasing an individual's motivation and performance (Kleingeld et al., 2011; Locke & Latham, 2002).

Goals offer reference points, which allows for regulation and evaluation of human behaviour towards attempting to reach those goals (Brendl & Higgins, 1996; Scheier & Carver, 1988; Vallacher & Wegner, 1989). Instead of treating goals as a univocal concept, the literature on a goal's self-regulatory nature has differentiated two important goal standards as reference points – minimal and maximal goal standards – both assumed to have impact on behaviour, decision making and

judgments of goal achievement (Brendl & Higgins, 1996; Corker & Donnellan, 2012; Gould, 1939; Giessner et al., 2020; Wang & Johnson, 2012; Xiong & Wang, 2018). Minimal standards represent oughts "that a person must attain or […] that must be met" (Idson, Liberman & Higgins, 2000, p.254), whereas maximal standards represent aspirations or ideals that one likes to achieve (Higgins, Shaw & Friedman, 1997; Giessner et al., 2020). Although minimal goals most often indicate lower difficulty levels than maximal goals, the differentiation of these two goal standards is not just purely a differentiation of goal difficulty. First, both goals induce a different value function for the performance evaluation (Giessner et al., 2020). This is because minimal goal standards are the threshold to differentiate between negative and non-negative valence whereas maximal goal standards are threshold between non-positive and positive valence experiences (Brendl & Higgins, 1996). Second, both goals are assumed to function as differential regulatory systems (Idson et al., 2000, Lalot, Quiamzade, & Falomir-Pichastor, 2018). Maximal goals set reference points for hopes and accomplishments, minimal goal focus on safety and oughts.

Early goal-setting research also explored these goal standards as "minimal" and "hoped-for" goals (Locke, 1967; Locke & Bryan, 1968, 1969). This particular research in an academic setting revealed that both goal standards predict student performance, but "hoped-for" (i.e., maximal) goal levels were slightly better predictors of student grades (see also Wood & Locke, 1987). However, subsequent research by Corker and Donnellan (2012) indicates that the boundaries set with

minimal levels may be a better predictor of student performance in those situations in which there is no variation on maximal set goals (i.e., when all students aim for the top grades with their maximal goal levels). The maximal and minimal goal standards are also key concepts in negotiation research and have both shown to have implications for negotiation outcomes (cf., Galinsky, Mussweiler, & Medvec, 2002; Giessner et al., 2020; Schaerer, Schweinsberg, Thornley, & Swaab, 2020).

In summary, both goal standards have direct implications for individual motivation. Nevertheless, under most circumstances, difficult and, thus, maximal goal levels should be most motivating for actual performance (Locke & Latham, 1990; 2002) and negotiation outcomes (Galinsky et al., 2002).

From individual- to team-level goals

Goal-setting theory predominantly concentrates on the individual level of analysis. Yet, current organisational practices, where organisations increasingly organise its workforces into team structures (LePine, 2003; Ilgen, 1999), seemingly warrants a change in unit of analysis. This is further supported by the increased and more frequent consideration of the many facets of teams and team functioning in the management research realm (Mathieu et al., 2017). Hence, more recent studies have been conducted centring on team-level goal-setting and team performance effects (for an overview, see: Kleingeld et al., 2011; O'Leary-Kelly, Martocchio & Frink, 1994). A team is a "set of two or more people interacting dynamically, interdependently, and adaptively towards a common and valued goal, each having

specific roles or functions to perform and a limited life-span of membership" (Salas, Dickinson, Converse & Tannenbaum, 1992, p. 4). It also clearly recognises that goals make for an important element of team functioning (Cohen & Bailey, 1997; Kowlowski & Ilgen, 2006; Salas, Dickinson, Converse & Tannenbaum, 1992).

In general, the main claim in goal-setting theory about goal specificity and difficulty driving performance was found to also hold for the team level (Kleingeld et al., 2011). Moreover, Wegge and Haslam (2005) observed that this beneficial team-level performance effect of team goals is present for distinct team goal-setting strategies centred on goal source (i.e., the extent to which a goal is autonomously or externally assigned). Specifically, they found comparable team performance improvements for each of the examined team goal-setting techniques (Wegge & Haslam, 2005). However, whereas Wegge and Haslam tested for fully externally assigned and participatively-set (i.e., not fully autonomous nor external, but collaborative) team goals, completely autonomous self-set team goals were outside their scope. However, it is important to consider this, because self-managed or self-managing teams have become the norm in many organisations due to their purported positive effects upon parameters such as team performance/productivity (e.g., Cohen & Bailey, 1997; Cohen & Ledford Jr., 1994; Garson & Stanwyck, 1997).

In addition to goal source, another area of interest for team goal-setting studies concerns the amount and focal level of goals. For instance, Crown and Rosse (1995) considered assigning goals (i.e., individual-level egocentric goals, individual-level goals focused on team performance contributions ['group-centric'], or team-level

goals) either in isolation or in combination. They showed that a combination of group-centric and team-level goals works best to increase team productivity (Crown & Rosse, 1995). Subsequently, DeShon and colleagues (2004) also looked into workings of multiple goals, whilst simultaneously considering multiple levels of analysis (i.e., individual- and team-level). They demonstrated that aggregated individually-set team performance goals positively contribute to team goal-oriented efforts and strategies, ultimately resulting in improved team performance (DeShon et al., 2004). Even though both studies allowed for advanced understandings into individual- and team-level regulatory processes, including goal-setting, and related team-oriented performance outcomes, they forego to practically explain the actual team goal-setting mechanism: either by externally assigning goals to teams (cf., Crown & Rosse, 1995), or by merely asking an individual to – in isolation – self-set a team goal and aggregate individual team members' goal perceptions to reflect the team goal (cf., DeShon et al., 2004). In this paper, we focus on the performance consequences of the actual process of team goal-setting – focusing on how individual team members' goal perception for the team combine into actual collective team goal-setting.

Team decision-making: polarisation on goal standards

As mentioned before, many organisations nowadays rely on self-managing teams (Katzenbach & Smith, 1993, Millikin, Hom & Manz, 2010). Such teams are known for little authority differentiation and allow for considerable influence on

work-related decision-making – such as e.g., setting performance goals (Hollenbeck, Beersma & Schouten, 2012; Kirkman & Rosen, 1999). As put forward by decision-making literature, any team ideally recognises that it is likely to encounter team decision-making errors or biases (Duffy, 1993). Specifically, our attempt to explain the team goal-setting process – where individual team members come together and partake in agreeing together upon a common goal – guides us towards the probable role of social interaction and social contextual factors. While different biases can influence team decision processes (Jones & Roelofsma, 2000; Zhu, 2013) we argue that team polarisation should be particularly prone when it comes to team-level goal-setting process.

Group or team polarisation, also more formally known as group-induced attitude polarisation, occurs "when an initial tendency of individual group members towards a certain direction is enhanced following group interaction" (Isenberg, 1986, p. 1141). The phenomenon mainly centres on the formation of team attitudes and related outcomes, where team attitudes more probably move in the direction of, and beyond the team members' initial preferred stance – rather than displaying a shift away from a neutral attitudinal starting point (Isenberg, 1986; Lamm & Myers, 1978; Sunstein, 2002; 2009). Two special cases of the polarisation phenomenon exist: risky and cautious shifts. Risky shifts (Stoner, 1961) occur when teams overall become more risk seeking than the pre-discussion individual tendencies which were already indicative of risk seeking. Cautious shifts happen when risk averse pre-discussion viewpoints become even more risk averse post-discussion. In either case,

"the average response of the individual group members is more extreme after discussion" (Jones & Roelofsma, 2000, p. 1144).

The occurrence of attitudinal polarisations in team decision-making has been argued to be mainly due to (1) sharing arguments in teams resulting in an increased persuasiveness of these arguments (Vinokur & Bernstein, 1978) and (2) social comparison processes which will make extreme opinions more desirable (Baron & Roper, 1976). Later, (3) intergroup comparisons and the resulting shifts to group prototypes (Turner, Wetherell & Hogg., 1989) were also considered as causes. Empirical support is available for all three explanations suggesting that all processes might often combine to produce attitudinal polarisation.

Prior research has indeed shown that group polarisation effects influence organisational phenomena. For instance, voter behaviour in 2016 US election seem to have been biased by polarised Twitter exchanges between voters (Grover, Kar, Dwivdei, & Janssen 2019). Corporate boards' decision on acquisitions premiums have been shown to be biased by group polarisation effects (Zhu, 2013). We argue that goals have similar properties as attitudes. Kruglanski and Stroebe (2005) reasoned that "attitudes, affects, goals, and behavioural information are all beliefs, albeit of different sorts" (p.327). Therefore, a distinction between the concepts of attitude and goal might be rather misleading. Goals, inasmuch as attitudes, are mental representations and should, thus, have the same underlying functional principles – independent of its content (Carlston & Smith, 1996). Consequently, we

may assume that principles of team decision-making related to attitude formation in teams can be applicable to goal formation in teams.

Hence, applying insights from both individual goal-setting and team polarisation, we anticipate that team members first form initial ideas on what goals to set based on their own previous performance of a task (cf., Lewin et al., 1944). Based on this experience, individuals should be able to extrapolate to potential team goal standards (i.e., individually-set, pre-discussion team goal standards). This assumption is supported by literature on social projection (Cadinu & Rothbart, 1996; Robbins & Krueger, 2005) – a process in which individuals project their own beliefs, attitudes, or values onto groups. Once the team discusses these goal standards, we believe that these will be enhanced to higher levels following team discussion – shifting to "riskier" team-set team goal standards (cf., Myers, 2007). These shifts that lead to more challenging goal standards are assumed because goals are mental representations of aspirations (Lewin et al., 1944; Locke & Latham, 2002) and, thus, indicate already an implied upward direction, which should result in even more challenging, higher-set goals (Myers, 2007). Correspondingly, we anticipate that the jointly or team-set, post-discussion team goal standards shall be higher compared to the average of individually-set, pre-discussion team goal standards.

H1: Team-set team goal standards will exceed the (aggregated) individually-set team goal standards.

As we distinguish two different goal standards, namely minimal and maximal standards, we argue that the degree to which teams polarise in their goal-setting process differs for these standards: Maximal goal standards represent more ideal aspirations, which aim at positive experiences (versus non-positive) and, almost always, represent rather challenging goal levels. In contrast, minimal goal standards focus on those levels defining non-negative (versus negative) experiences and provide a safety or a minimal level still producing satisfaction. As a consequence, they also have lower levels of difficulty – at least when compared to maximal goal standards for the same overarching goals (Brendl & Higgins, 1996; Corker & Donnellan, 2012; Giessner et al., 2020).

Based on the assumption that shifts due to polarisation will show added extremity when the initial average team members' attitudes already are pointed towards a clear direction rather than a neutral stance, we expect a riskier shift in deciding upon maximal goal standards compared to minimal goal standards. As risky shifts are associated with potential non-positive consequences in team attitudes as well, and the word 'risk' in itself has a rather negative connotation, we will from now on refer to *aspirational shifts* to clearly demarcate both the existence and application of this particular polarisation shift in the goal-setting realm. Aspirations are "strong desire[s] to achieve something high or great" (Merriam-Webster, 2021), which ties in nicely with the goal-setting process having a positive outlook. As group polarisation is a tendency to amplify individual pre-discussion positions in the post-discussion decision, and as the maximal (versus minimal)

standard represents a more aspirational and more extreme starting point of reference, it is more probable for the maximal (versus minimal) standard to shift to even higher (i.e., riskier) team-set goal standard levels after discussion. Furthermore, prior research suggest that group polarisations can result in riskier but also more cautious shifts (Burnstein & Vinokur 1973). As minimal goal standards set oughts that need to be achieved, these goals could potentially be interpreted as a loss frame and might even result in lower team goal-setting. At the same time, those minimal goals are still setting some basic ambition level. Therefore, we do not theorise that there is cautious shift for minimal goal standard, but we argue that we will find stronger *aspirational shifts* for maximal compared to minimal goal standards.

H2: Polarisation will result in stronger aspirational shifts in maximal team goal standards compared to minimal team goal standards.

Having provided a rationale for the polarisation mechanism to affect the team goal standards setting process, the potential consequences of this process on subsequent team performance can now be considered. As mentioned before, team goals (over and beyond individual goal-setting) exert a motivating force on team performance (Kleingeld et al., 2011). With regard to the two team-set goal standards, we expect the maximal (versus minimal) standard to be the strongest predictor of team task performance (cf., DeShon et al., 2004; Locke & Latham, 2002; Wegge & Haslam, 2005). The maximal goal standard is the one that

corresponds most to a difficult, yet still achievable level of aspiration (cf., Brendl & Higgins, 1996; Corker & Donnellan, 2012; Wang & Johnson, 2012), and should therefore lead to higher team task performance levels.

H3: Higher team-set maximal goal standards will result in higher team task performance.

We further anticipate that the team polarisation phenomenon itself is driving subsequent team task performance levels. This is mainly because of the motivational role of goals – which energises team members towards goal attainment (Lewin et al., 1944) - and the confidence and certainty group polarisation creates (Stroebe & Fraser, 1971; Zalesny, 1990; Zhu, 2013). More precisely, it is assumed that group polarisation increases confidence about the initial goals and therefore further enhances confidence about the group goal. This is due to the sharing of similar opinions and increased ambitions (cf., Echterhoff, Higgins, & Groll, 2005; Zhu, 2013). As a stronger group polarisation effect suggests that teams will reveal a larger discrepancy between their average individually-set, pre-discussion team goal standard levels and the jointly-set, post-discussion team goal standard levels, we argue that these polarisations also increase the confidence of team members in those common goals and, therefore, mobilise more efforts directed towards attaining these enhanced goal standard levels. Consequently, the team polarisation on goal standards should drive the increased performance levels in teams. As we assume

that *aspirational shifts* are stronger for maximal goal standards compared to minimal goal standards (i.e., Hypothesis 2), we predict that especially the shift on maximal goal standards drives team task performance:

H4: Polarisation on maximal team goal standards increases team task performance.

Finally, based on goal-setting theory's main claim that setting specific and challenging goals increases performance (Locke & Latham, 2002) and previous research indicating that this extends to the team level (DeShon et al., 2004; Wegge & Haslam, 2005), we tested whether those teams engaging in consciously setting team level goals outperform those who do not in our Study 2. This is because the conscious process of team goal-setting should polarise the aspirations levels and therefore those teams' higher goal levels should result in an improved performance. To test for this, we created two experimental conditions: A control condition *without* jointly-set team goal standards, and a treatment condition *with* jointly-set team goal standards. As mentioned before, team-level goals – above and beyond individual-level goal-setting – positively enhance team performance (Kleingeld et al., 2011), which we expect to also hold in our research. This translates into the following hypothesis:

H5: Compared to teams that do not set team goal standards together, teams that partake in setting team-set team goal standards show higher levels of team task performance.

Overview of studies

We conducted two team studies to test for our ideas. Both studies are experimental in nature, and let individuals and later teams engage in brainstorming activities (Guilford, 1971; Osborn, 1957). Hypothesis 5 is only tested in Study 2 where we manipulate team (versus no team) goal-setting in Study 2. Otherwise, we measure individual goals set for the team, actual joint team goals set and actual team performance of the team to test out model.

STUDY 1

Method

Participants

The sample consisted of 868 Business Administration students that were randomly assigned to one of the 217 four-person teams. Thirty-two percent of the participants was female, and the mean age of the participants was 18.61 years (*SD* = 1.10).

Procedure

The study has been conducted in a large conference hall. Due to the size of the experimental session, the experimenter was assisted by a team of assistants involved before, during, and after the experimental sessions. Upon arrival, participants were instructed to find a table that corresponded with their randomly assigned team number. On each table, all participants could find an individual booklet, which included an explanation of the task requirements and an individual questionnaire. For the entire team, there was also a shared team booklet with a team questionnaire (which was closed and not yet visible on each table).

We instructed participants not to speak to each other before the start of the session. Once all participants were seated, they were told to carefully read the instructions alone, which explained to them that they would participate in a brainstorm challenge. Then, they were first instructed to individually perform a brainstorming task for the duration of 180 seconds (Step 1). After this time period,

they commenced filling out their individual questionnaires. Here, they were informed that they would work on another brainstorming task – this time in a team-setting with the other three team members they were seated with.

Before performing the team brainstorming task, they were asked individually to indicate their own perceptions on team goal standards for the subsequent team brainstorming task performance (Step 2). More explicitly, they were requested to write down a minimal standard (i.e., how many alternative uses they *at least* can come up with) and the maximal standard (i.e., how many alternative uses they *ideally* can come up with) for the team brainstorming task on their individual questionnaire.[I]

Next, the team phase started, where team members were allowed to interact with each other. We asked them to agree upon minimal and maximal goal standards together for the upcoming team performance on the brainstorming task (Step 3). After discussion, each team had to write down these standards on their team questionnaire, which means there is one, team-set number for both the maximal and minimal standard.

[I] Additionally, we asked participants to indicate, both individually and in teams, their 'realistic' standard (i.e., how many alternative uses they thought they would realistically be able to come up with). This realistic standard was not part of our initial theorising, and the results showed very high correlations with the minimal and maximal goal standards (coefficients of > .80), which signals potential issues of multicollinearity in statistical analyses. Further, the realistic goals were on average between the minimal and maximal standard. Therefore, we excluded the realistic goal from our analysis. We are happy to share the data and findings with the interested reader.

Subsequently, all teams received a signal to simultaneously start the team brainstorming task – once again for the duration of 180 seconds (Step 4). Afterwards, they were asked to evaluate their team performance by counting the number of alternative uses the team was able to actually come up with and write this number down on their individual questionnaires and provide answers to a few additional questions on task satisfaction and self-efficacy, providing input for another, later research paper. Figure 2.1 gives a detailed visual overview of the steps making up the experimental procedure.

Insert Figure 2.1 about here

Task

The task employed in the study was the Brainstorming (or 'Alternative Uses') Task (Guilford, 1971). The task specifically instructed participants to come up with as many as possible ways to use a specific object. The objects that were used, namely a course book (for the individual brainstorm task) and a plastic 1 litre water bottle (for the team brainstorm task), were selected for reasons of simplicity and applicability; all participants have knowledge about what the objects are and what they look like. Moreover, this particular task was selected because it was previously employed in both individual goal-setting (e.g., Larey & Paulus, 1995; Latham & Locke, 1979) and team goal-setting studies (e.g., Wegge & Haslam, 2005)

Measures

Individually- and team-set team goal standards. Goal standards were measured by having the participants, either individually and pre-discussion (i.e., Step 2) or together in teams and post-discussion (i.e., Step 3), determine the specific goal that corresponds with minimal and maximal goal standards for the number of alternative uses the team would be able to generate for a familiar object.

Team performance. Team performance was measured by having the students count the number of alternative uses they were actually able to come up during the brainstorm task.

Seriousness. This was assessed with the following item: "How serious did you take the team brainstorm task?", for which they only had two answer options to select from, namely 'serious' or 'not serious'. This measure was included as a control question, to check for the levels of effort and engagement of our participants in this task.

Results

Preliminary analyses

Checking for missing values, where data was missing completely at random due to not correctly filling out the individual questionnaires or not writing down team-set team goal standards, using a complete case of listwise deletion approach resulted in 9 teams being excluded from our sample. Moreover, based on responses given to the *Seriousness* measure, we also opted to exclude 2 teams in which at least two

team members indicated that they did not take the team brainstorm task serious. Hence, a total of 11 teams were excluded. This perfectly aligns with assertions made by Schafer (1999) and Bennett (2001) that a missing rate of 5-10% should be considered inconsequential (i.e., 11 out of 217 teams corresponds with about 5%). In the end, we were left with a final sample of 824 participants belonging to 206 teams, of which 70.1% were men and 29.9% were women. The sample's mean age equalled 18.62 years (*SD* = 1.25).

Finally, to examine whether these 206 teams correctly counted and reported their number of alternative uses they were able up with, a random check was performed on 40 teams by comparing and contrasting the alternative uses as written down in the team questionnaire to the number reported in the individual team members' questionnaires. This check showed that each of these teams reported the results correctly, enabling us to assume that all participating teams reported team task performance correctly.

Individual team-level measures

Table 2.1 displays correlations amongst individual-level variables. Our interest in the effects of goal standards setting on team task performance inherently directs attention to the team-level of analysis. As the team members are asked to set team goal standards individually (i.e., prior to team discussion and team goal standards setting), these individually-set team goal standards need to be transformed into

aggregated variables to allow for comparison with the jointly-set team goal standards.

Insert Tables 2.1 and 2.2 about here

Following the compositional models created by Chen, Mathieu & Bliese (2005), which synthesises the works of Chan (1998) and Kozlowski and Klein (2000), we apply the summary index model for our aggregation purposes. This model is based on the notion that the aggregate-level variables are merely averaged individual-level variables (Chen et al., 2005). This particular model further denotes no necessity for sharedness of experience or interdependence (i.e., within-group agreements and interrater reliabilities). This is in line with our theory and experimental set-up in which individual-level team goal-setting was independently rated and we would not expect a sharedness of these goals as there has been no prior team interaction yet. Therefore, we create an averaged mean team score for these individually-set team goals to test whether these are different from the jointly-set team goals. An *aspirational shift* would be present if team-set team goal standards are higher than the averaged individually-set team standards. In other words, a positive difference would indicate that teams do not just average their individual standards, but polarise and, thus, increase their team goal standards. For our analyses on team task performance (i.e., Hypotheses 3 and 4), we also created a mean value for the individual brainstorming performance to control for the individual performance

effects within teams. This particular variable also follows the logic of the summary index model. Table 2.2 displays correlations amongst team-level variables.

Individually-set versus team-set team goal standards

A 2 (*Goal Standards*: minimal goal versus maximal goal) by 2 (*Source:* individually-set versus team-set) repeated-measures analysis of variance was conducted with both factors representing within-subjects factors. For *Goal Standards*, a significant main effect was found, F (1, 205) = 1712.12, $p < .001$, η_p^2 = .89. Maximal goal standards were on average higher (M = 23.70, SD = 6.29) than minimal goal standards (M = 10.28, SD = 3.12). Moreover, *Source* also yielded a main effect, F (1, 205) = 24.44, $p < .001$, η_p^2 = 11. The aggregated individually-set team goal standards were lower (M = 16.52, SD = 4.26) than the team-set team goal standards (M = 17.45, SD = 4.88). Thus, overall, team-set goal standards were higher than individually-set team goal standards – supporting Hypothesis 1.

These main effects were qualified by the predicted interaction effect, F (1, 205) = 10.74, $p < .001$, η_p^2 = .05. A simple main effect analysis showed that the effect of *Source* is stronger within the maximal goal standard, F(1, 205) = 20.55, $p < .001$, η_p^2 = .09, compared to the minimal goal standard, F(1, 205) = 7.69, $p < .001$, η_p^2 = .04. Thus, the *aspirational shift* is more than double in effect size for maximal (versus minimal) goal standards. Figure 2.2 depicts a visual representation of this *aspirational shift*. This pattern supports Hypothesis 2.

Insert Figure 2.2 about here

Effects of team goal standards on team task performance

We performed hierarchical linear modelling (HLM) regression analyses to test for our predictions of the effect of team goal standards and team polarisations on team task performance (i.e., Hypotheses 3 and 4). Table 2.3 summarises HLM results. In the first step, we regressed the mean individual performance (i.e., *iPerform*) on team performance in the first step. This analysis yielded a significant effect of individual performance upon team performance; teams that – on average – have better performing individuals also performed better as a team.

Insert Table 2.3 about here

In step 2a, we added the aggregated individually-set goal standards (i.e., *iMin* and *iMax*). Neither *iMin* nor *iMax* further enhanced team task performance. In step 2b, we exchanged the individually-set goal standards for the team-set goal standards (i.e., *tMin* and *tMax*). In this step, only *tMax* was a positive and significant predictor of team performance over and above the actual ability of team members. Thus, higher set maximal team goal standards increase team performance – confirming Hypothesis 3.

In step 3, we tested for the effects of team polarisation on team performance by considering both *Source* levels simultaneously (i.e., including *iMin, iMax,* tMin and

tMax). As predicted in Hypothesis 4, team-set maximal team goal standard relates significantly and positively to team performance. As we controlled for the aggregated individually-set team goal standards here, this finding confirms that the *aspirational shift* on maximal team goals is the main driver of improvements in team task performance.

STUDY 2

Method

Participants

The sample consisted of 1003 Business Administration students that were randomly placed into 251 teams (250 four-person teams + 1 three-person team). Thirty-one percent of the participants were female, and the average age of the participants was 18.59 years (*SD* = 1.19).

Procedure

On a procedural level, this study closely replicates the procedure of Study 1. One main difference to Study 1 takes place in the team phase part. Whereas Study 1 had the same instructions for all teams, the current study had two sets of instructions: 126 teams were randomly instructed to agree upon team-set goal standards for the upcoming team brainstorming task (*treatment condition*; replicating Study 1). The other 125 teams were instructed to determine, as a team, what the most creative alternative use was for the focal object during the individual brainstorming round (*control condition*).

Task

Similar to Study 1, the task employed in this study was the Brainstorming (or 'Alternative Uses') Task (Guilford, 1971). The task specifically instructed participants to come up with as many as possible ways to use a specific object.

Measures

Individually- and team-set team goal standards. Again, goal standards were measured by having the participants, either individually and pre-discussion (i.e., Step 2) or together in teams and post-discussion (i.e., Step 3), determine the specific amount that corresponds with minimal and maximal goal standards for the number of alternative uses the team would be able to generate for a familiar object. Note that Step 3 was only implemented in the treatment condition and not in the control condition. In other words, team-set team goal standards were only measured for half of the sample.

Team task performance and *Seriousness* were measured the same way as in Study 1.

Results

Please note that Hypotheses 1 to 4 are only tested with those teams in the *treatment condition*. This is because only in this condition, we asked the team to consciously set maximal and minimal team-set goals together as a team.

Preliminary analyses

Checking for missing values following the same criteria as in Study 1 (i.e., data was missing completely at random due to not correctly filling out the individual questionnaires or not writing down team-set team goal standards), 9 teams were listwise deleted from our sample. In addition, we opted for excluding 1 team where one of its members set a ridiculously high maximal goal standard (i.e., *iMax* of

1000000), which could heavily distort our subsequent analyses. Furthermore, based on responses given to the *Seriousness* measure, 5 teams were removed from our sample. In these teams at least two team members indicated that they did not take the team brainstorm task seriously. Thus, a total of 15 teams were excluded, which makes for a missing rate of almost 6%, which should be thought of as insignificant (Bennett, 2001; Schafer, 1999) and leaves us with a final sample of 943 participants distributed over 236 teams, of which the average age was 18.58 years (*SD* = 1.16) and 32.2% was female.

Also, a random check was performed on 50 teams to check whether teams correctly counted and reported their number of alternative uses they were able up with. This check showed that each of these teams was able to report the results correctly, which allows us to assume that the other teams also reported performance outcomes correctly.

Individual to team-level measures

Table 2.4 displays correlations amongst individual-level variables. Parallel to the previous study, we aggregate the individual-level data in the current study following the summary index model (Chen et al., 2005). Table 2.5 displays correlations amongst team-level variables.

Insert Tables 2.4 and 2.5 about here

Individually-set versus team-set team goal standards

This analysis was only conducted within the treatment condition (n = 122; control condition: n = 114), because only in this condition we measured the team-set goals. A 2 (*Goal Standards*: minimal goal versus maximal goal) by 2 (*Source:* individually-set versus team-set) repeated-measures analysis of variance was performed with both factors representing within-subjects factors to test hypotheses 1 and 2. For *Goal Standards*, a significant main effect was found, F (1, 121) = 1300.00, $p < .001$, $\eta_p^2 = .92$. Maximal goal standards were on average set at higher levels (M = 27.83, SD = 7.05) than minimal standards (M = 13.69, SD = 4.12). Moreover, *Source* yielded a main effect too, F (1, 121) = 42.40, $p < .001$, $\eta_p^2 = .26$. The mean level of the individually-set standards was lower (M = 19.91, SD = 5.16) than the team-set standards (M = 21.61, SD = 6.01). So, generally, team-set team goal standards were higher than individually-set team standards – confirming Hypothesis 1.

Moreover, these main effects were qualified by the expected interaction effect, F (1, 121) = 6.91, $p = .01$, $\eta_p^2 = .05$. Simple main effect analysis shows that the effect of *Source* is stronger within the maximal standard, F (1, 121) = 29.43, $p < .001$, $\eta_p^2 = .20$, compared to the minimal standard, F (1, 121) = 24.00, $p < .001$, $\eta_p^2 = .17$. This indicates that the *aspirational shift* is approximately 20 percent larger in size for maximal (versus minimal) team goal standards, which supports Hypothesis 2. Figure 2.3 depicts a visual representation of this *aspirational shift*.

Insert Figure 2.3 about here

Effects of goal standards on team task performance

To test for Hypotheses 3 and 4, we performed HLM analyses to see if our predictions about the effect of team goal standards and team polarisations influencing team task performance are accurate. Table 2.6 displays the HLM results for the *treatment condition*.

Insert Table 2.6 about here

Firstly, we regressed the mean individual task performance upon team task performance to control for individual performance effects within teams. This step demonstrates that, for both conditions, the significant impact of individual performance and team performance is positively directed. To put it differently, the higher the individual performance of team members is, the higher the team task performance will be.

Subsequently, in step 2a, we added the aggregated individually-set team goal minimal and maximal standards. Neither of these aggregated standards further increased team task performance. Next, we continued with regressing for the team-set team goal standards (i.e., Step 2b). This analysis shows that the team-set maximal team goal standard positively and significantly predicts team performance

beyond the individual ability of team members. Thus, when teams decide together upon maximal standards, this beneficially affects team task performance – which supports our theorising as denoted in Hypothesis 3.

In the final step, Step 3, the impact of team polarisation upon team task performance was investigated – considering both *Source* levels simultaneously. Here, the results display that mainly the team-set maximal team goal standard significantly and positively predicts team performance. Since we controlled for the aggregated individually-set team goal standards, this finding shows that the team polarisation on maximal team goal standards enhances team task performance – backing up our Hypothesis 4.

Treatment versus control condition

To check for our Hypothesis 5, specifically to see whether this difference aligns with our expectation that setting team goal standards together with the team leads to higher levels of team task performance (compared to not doing so), we first performed an independent-samples t-test. A significant difference was established in the performance scores between the control and treatment condition; $t(234) = -6.66$, $p < .001$. Specifically, the treatment condition showed higher performance levels than the control condition: $M_{Control} = 19.94$; $SD = 5.06$ versus $M_{Treatment} = 24.34$; $SD = 5.09$.

Additionally, we checked Hypothesis 5 by performing HLM regression analyses. Table 2.7 displays the HLM results. The base model (i.e., Step 1) considers

the mean individual task performance upon team task performance to control for individual performance effects within teams. Effectively, it shows that higher levels of individual task performance of team members positively relate to team task performance.

Insert Table 2.7 about here

Next, in step 2, we added the aggregated individually-set team goal minimal and maximal standards (*iMin* and *iMax*). This step demonstrates that, for both conditions, *iMin* and *iMax* do not further drive team performance over and above the team members' ability.

Finally, in the last regression model (i.e., Step3), we added a variable (i.e., *Condition*) to differentiate this study's two experimental conditions: *treatment* and *control*. A positive association of *Condition* upon team brainstorming performance is found (see Table 2.7), which suggests that the *treatment condition* results in higher task performance in teams compared to the *control condition*. Hence, when teams together have to determine common team goal standards, this results in higher performance levels than when they do not do so (and only think about the team goal standards individually). This finding is in line with previous theorising and confirms our Hypothesis 5.

DISCUSSION

The current research integrates goal-setting theory on a team level with group polarisation literature and also considers the self-regulatory nature of goals by accounting for maximal and minimal goal standards. Our studies show that teams polarise (i.e., difference between the averaged individually-set team goal standards and the team-set goal standards) when they are asked to set team goals. These *aspirational shifts* towards higher team-set goal levels seems especially pronounced for maximal goal standards as compared to minimal ones. Further, those shifts on maximal goal standards increase team performance. While our second study confirmed the results of the first one, it also showed that asking teams to consciously set their maximal and minimal goal standards (versus not focusing a discussion on innovativeness of ideas) increases performance. Thus, it provides a simple yet effective advice for teams: Engage in a joint session to determine your ambitious (maximal) goals as a team.

Theoretical and practical implications

Previous research has convincingly shown that team goal-setting contributes to team performance over and above individual goal-setting (DeShon et al., 2004; Wegge & Haslam, 2005). We show a motivational mechanism that can explain why team goals might show these increased performance effects. If team members consciously convert their own individual perceptions on team goals into shared team

goals, they polarise and set more difficult goals, especially on the upper maximal standards they expect to achieve. Although team polarisation effects are an established and classical team phenomena, prior research has focused only on attitude shifts and decision-making in groups (Isenberg, 1986; Myers, 2007). The current research establishes that this group phenomenon can be extended to team goal-setting as well.

We further draw attention to previous research on minimal and maximal goal standards (e.g., Brendl & Higgins, 1996; Corker & Donnellan, 2012; Giessner et al., 2018; Gould, 1939; Wang & Johnson, 2012). While those standards have been, to the best of our knowledge, only been studied on an individual level of analysis, we showed that those standards also play a role at a team-level. We showed that different performance effects take place for minimal and maximal team-set goal standards. Specifically, the maximal team goal standard – which is the most ambitious standard to achieve in comparison to the minimal team goal standard – impacts team performance most favourably. In other words, if teams set higher (i.e., more difficult/challenging) maximal standards, team task performance will increase - independent of the minimal goal standard. Thus, extending previous research on the team goal-setting related to the team performance association (cf., Kleingeld et al., 2011; Wegge & Haslam, 2005), we show that maximal (versus minimal) goal standards drive team performance. Moreover, our research demonstrates that team polarisation occurs when setting common team goal standards, and that this effect

is stronger for more 'aspirational' maximal goal standards. And this is, as outlined above, the main driving force for team performance.

Our theorising and research also provide a new perspective on group polarisation. Whereas literature on team polarisation so far has focused on attitude shifts (Isenberg, 1986; Lamm & Myers, 1978 – see Jones & Roelofsma, 2000), we show that polarisation effects extend to goals. However, whereas group polarisation effects in attitude and decisional shifts are generally considered as dangerous bias (e.g., Sunstein, 2002; 2009), polarisation shifts of goals seem to have rather positive effects on performance. To differentiate this positive team polarisation effect from the negatively valanced attitude shifts in teams, we refer to these as '*aspirational shift*s'. In this way we emphasise the positive motivational function team polarisation has for team goal-setting.

For practitioners looking to contribute to the team goal-setting process, we foresee different approaches dependent upon their level of involvement. For the lowest contribution level – when teams are self-managing – practitioners merely should facilitate that a team goal-setting process alike the one described in both studies occurs. Hence, goal-setting guidelines should be created and communicated to the teams in order to make this happen, to benefit from the manifestation of aspirational shifts due to team polarisation and resulting performance improvements.

In case team goals are completely externally assigned (i.e., higher level of goal-setting involvement), our advice is to focus on maximal (versus minimal) team

standards. These goals reflect the more challenging (i.e., higher) standards, which should positively drive team task performance. By varying the difficulty levels of maximal goal standards, managers and supervisors may be able to determine what particular goal level hits the sweet spot of being perceived as both specific and challenging (enough) – thus enabling teams to perform better – but not too difficult or plainly impossible (cf., setting stretch goals (Sitkin, See, Miller, Lawless & Carton, 2011) for the team).

When a leader involves him- or herself in the team goal-setting process to a medium extent, where he or she is looking to facilitate a team goal-setting process whilst instituting his/her thoughts on the team performance standards, we would advocate for him or her to focus on minimal (versus maximal) team goal standards. Essentially, the leader ought to communicate his/her idea on what the minimal team performance standard at least should be to the individual team members. As the minimal goal reflects the lower-level performance standard, this should inspire individual team members to themselves come up with (corresponding) maximal team standards which will be used as input in the team discussion that leads to the actual team-set team goal standards.

In general, giving some weight to our second study, where the impact of having teams decide upon common team goal standards (versus no team-set team goals) together is clearly demonstrated, leaders seem to benefit from enabling such a team goal-setting procedure.

Limitations and strengths

It is important to acknowledge certain conditions that may limit the generalisability of our findings and provide input for future research endeavours. First, in the current research, teams get to set goals themselves. In practice, managers or supervisors might want to set goals for teams. Whilst we suggest that enhancing the maximal goal level might be advisable, this still has to be shown in future research. Even though research by Wegge and Haslam (2005) has shown similar performance results of self-set and externally-set team goals on subsequent performance, we think that future research might explore how external goal-setting can make use of minimal and maximal standards. For instance, we suggest that keeping a possible minimal goal level and increasing the difficulty of maximal goal level might be a better way for team performance than increasing both levels to the same degree.

In addition, concerning the employed teams and context in this study, if we were to apply the dimensional scaling framework for describing teams as put forward by Hollenbeck, Beersma, and Schouten (2012), our employed teams would score relatively low on temporal stability (i.e., working shortly together for the first time), low on authority differentiation (i.e., self-managing), and low on skill differentiation (i.e., equally skilled individuals). Our results definitely seem to hold for this type of team, but we need to recognise that it brings about uncertainty to what extent the team goal standards setting, and related performance behaviours of these teams also hold for alternative team types and other (professional) work contexts. Yet, previous

studies on teams and goal-setting shows that its (performance) effects seem to hold in numerous occasions (e.g., laboratory studies, field studies, student environments, professional environments - see Kleingeld et al., 2011; Locke & Latham, 2002; 2006; Wegge & Haslam, 2005), and thus we expect that our findings might extend and extrapolate to other settings. Nonetheless, it provides another future research avenue.

With regard to the employed task in the current research, extending our paradigm to a diverse range of performance tasks should further elucidate the performance effects of goal standards setting. We chose the brainstorming task as it has been a task often used in goal-setting research (Latham, Erez & Locke, 1988; Latham & Saari, 1979; Wegge & Haslam, 2005). Therefore, our research relates to previous goal-setting research and, as said above, we might assume that these effects generalise to other team tasks as well (e.g., Gary et al., 2017). Nevertheless, future research has to support this assumption.

In addition to replicating the current study in different settings with different tasks and different goal standard setting approaches, complementary questions are raised which open up potential new research avenues. For instance, as we observe a polarisation effect involving an *aspirational shift* between the prior- and post-team-discussion goal standard positions, does an individual's risk aversion attitude affect the individually-set team goal standards? And does this carry over in the team-set team goal standards, by either limiting or enhancing the observed shift? Similarly,

does an individual's level of self-efficacy impacts the individually-set team standards, ultimately impacting the team-set team goals?

By exploring all these avenues and finding answers to the raised questions, we are not only able to find out even more specifics about the team goal-setting process but seem to further establish goal standards and team polarisation as incorporated elements of team goal-setting.

Conclusion

Team goals offer an effective and proven way to motivate and direct team members in their performance behaviours. By making team members individually determine two distinct team goal standards – minimal standards that at least need to be achieved and maximal standards that should be aspired towards to – for a team's performance on a task prior to the actual team decision-making on team goal standards, a process of team polarisation is triggered in which the team-set team goal standards are higher and more aspirational compared to the average positions of the individual team members. Team polarisation is particularly prominent for the maximal goal standard, which the current study shows to be the primary driver of team task performance. This positive effect, referred to by us as *aspirational shift*, should clearly be enabled and maintained by managers and supervisors in order to be able to capitalise on its beneficial team performance behaviours.

TABLES & FIGURES OF CHAPTER 2

Table 2.1.

Table 2.2.

Table 2.3.

Table 2.4.

Table 2.5.

Table 2.6.

Table 2.7.

&

Figure 2.1.

Figure 2.2.

Figure 2.3.

Table 2.1.

Means, standard deviations, sample size and correlations amongst individually-set team goal standards

Variables	*M*	*SD*	*N*	1.	2.
1. *iMin*	10.08	4.57	824		
2. *iMax*	22.96	9.04	824	.66**	–

Note: *iMin* & *iMax* are the individually-set minimal and maximal team goal standards.

**. Significant at the 0.01 level (2-tailed).
*. Significant at the 0.05 level (2-tailed).

Table 2.2.

Means, standard deviations, sample size and correlations amongst team-level variables

Variables	*M*	*SD*	*n*	1.	2.	3.	4.	5.	6.
1. *iMin*^	10.08	3.11	206						
2. *iMax*^	22.96	5.99	206	.73*					
3. *tMin*	10.47	3.44	206	.82*	.64*				
4. *tMax*	24.42	7.35	206	.60*	.78*	.59*			
5. Team task performance	23.43	5.89	206	.40*	.38*	.33*	.40*		
6. Individual task performance ^	8.98	1.76	206	.50*	.48*	.47*	.37*	.56*	-

Note: *iMin* & *iMax* are the individually-set minimal and maximal team goal standards. *tMin* and *tMax* are the team-set minimal and maximal team goal standards.

^. Aggregated variable: average of individual-level variables (per team)
**. Significant at the 0.01 level (2-tailed).
*. Significant at the 0.05 level (2-tailed).

Table 2.3.

Summary of hierarchical regression analyses for variables predicting team task performance (n = 210)

Predictor Variables	Step 1			Step 2a			Step 2b			Step 3		
	B	*SE B*	*β*	*B*	*SE B*	*β*	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Individual task performance^	1.88	.19	.56**	1.58	.22	.47**	1.65	.21	.50**	1.63	.22	.49**
iMin^				.20	.16	.10	–	–	–	.37	.21	.19
iMax^				.08	.08	.08	–	–	–	-.12	.10	-.12
tMin							-.09	.13	-.05	-.26	.17	-.15
tMax							.20	.07	.25**	.23	.07	.29*
Model *F*		95.09**			34.65**			38.49**			29.90**	
R^2		.32			.34			.36			.37	
ΔR^2		-			.02**			.04**			.05**	
Adjusted R^2		.32			.33			.35			.36	

Note: *iMin* & *iMax* are the individually-set minimal and maximal team goal standards. *tMin* and *tMax* are the team-set minimal and maximal team goal standards.

^. Aggregated variable: average of individual-level variables (per team)
**. Significant at the 0.01 level (2-tailed).
*. Significant at the 0.05 level (2-tailed).

Table 2.4.

Means, standard deviations, sample size and correlations amongst individually-set team goal standards

Variables	*M*	*SD*	*N*	1.	2.
1. *iMin*	13.22	7.51	943		
2. *iMax*	27.48	11.33	943	.53**	–

Note: *iMin* & *iMax* are the individually-set minimal and maximal team goal standards.

**. Significant at the 0.01 level (2-tailed).
*. Significant at the 0.05 level (2-tailed).

Table 2.5.

Means, standard deviations, sample size and correlations amongst team-level variables

Variables	*M*	*SD*	*N*	1.	2.	3.	4.	5.	6.
1. *iMin*^	13.27	4.48	236						
2. *iMax*^	27.88	8.45	236	.61**					
3. *tMin*	14.25	4.42	122	.82**	.70**				
4. *tMax*	28.96	7.60	122	.69**	.80**	.64**			
5. Team task performance	22.22	5.53	236	.18**	.22**	.39**	.49**		
6. Individual task performance ^	9.96	1.88	236	.42**	.44**	.53**	.57**	.46**	

Note: *iMin* & *iMax* are the individually-set minimal and maximal team goal standards. *tMin* and *tMax* are the team-set minimal and maximal team goal standards.

^. Aggregated variable: average of individual-level variables (per team)
**. Significant at the 0.01 level (2-tailed).
*. Significant at the 0.05 level (2-tailed).

Table 2.6.

Summary of hierarchical regression analyses for variables predicting team task performance (n = 122)

Predictor Variables	Step 1			Step 2a			Step 2b			Step 3		
	B	*SE B*	*β*	*B*	*SE B*	*β*	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Individual task performance^	1.51	.21	.56**	1.40	.26	.52**	1.10	.25	.41**	1.19	.26	.44**
iMin^				-.10	.20	-.07	–	–	–	-.23	.24	-.17
iMax^				.11	.11	.15	–	–	–	-.09	.14	-.11
tMin							.01	.12	.01	.17	.15	.15
tMax							.17	.07	.25*	.24	.09	.36**
Model *F*		53.62**			18.15**			21.58**			13.80**	
R^2		.31			.32			.35			.37	
ΔR^2		-			.00			.05**			.06**	
Adjusted R^2		.30			.30			.34			.35	

Note: *iMin* & *iMax* are the individually-set minimal and maximal team goal standards. *tMin* and *tMax* are the team-set minimal and maximal team goal standards.

^. Aggregated variable: average of individual-level variables (per team)
**. Significant at the 0.01 level (2-tailed).
*. Significant at the 0.05 level (2-tailed).

Table 2.7.

Summary of hierarchical regression analyses for variables predicting team task performance (N = 236)

Predictor Variables	Step 1			Step 2			Step 3		
	B	*SE B*	*β*	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Individual task performance^	1.35	.17	.46**	1.34	.20	.46**	1.29	.17	.44**
iMin^				-.03	.09	-.03	-.07	.08	-.06
iMax^				.02	.05	.03	.08	.05	.12
Condition (0 = *control*; 1 = *treatment*)							4.66	.58	.42**
Model *F*		62.38**			20.70**			18.15**	
R^2		.21			.21			.38	
ΔR^2		-			.00			.17**	
Adjusted R^2		.21			.20			.37	

Note: *iMin* & *iMax* are the individually-set minimal and maximal team goal standards.

^. Aggregated variable: average of individual-level variables (per team)
**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

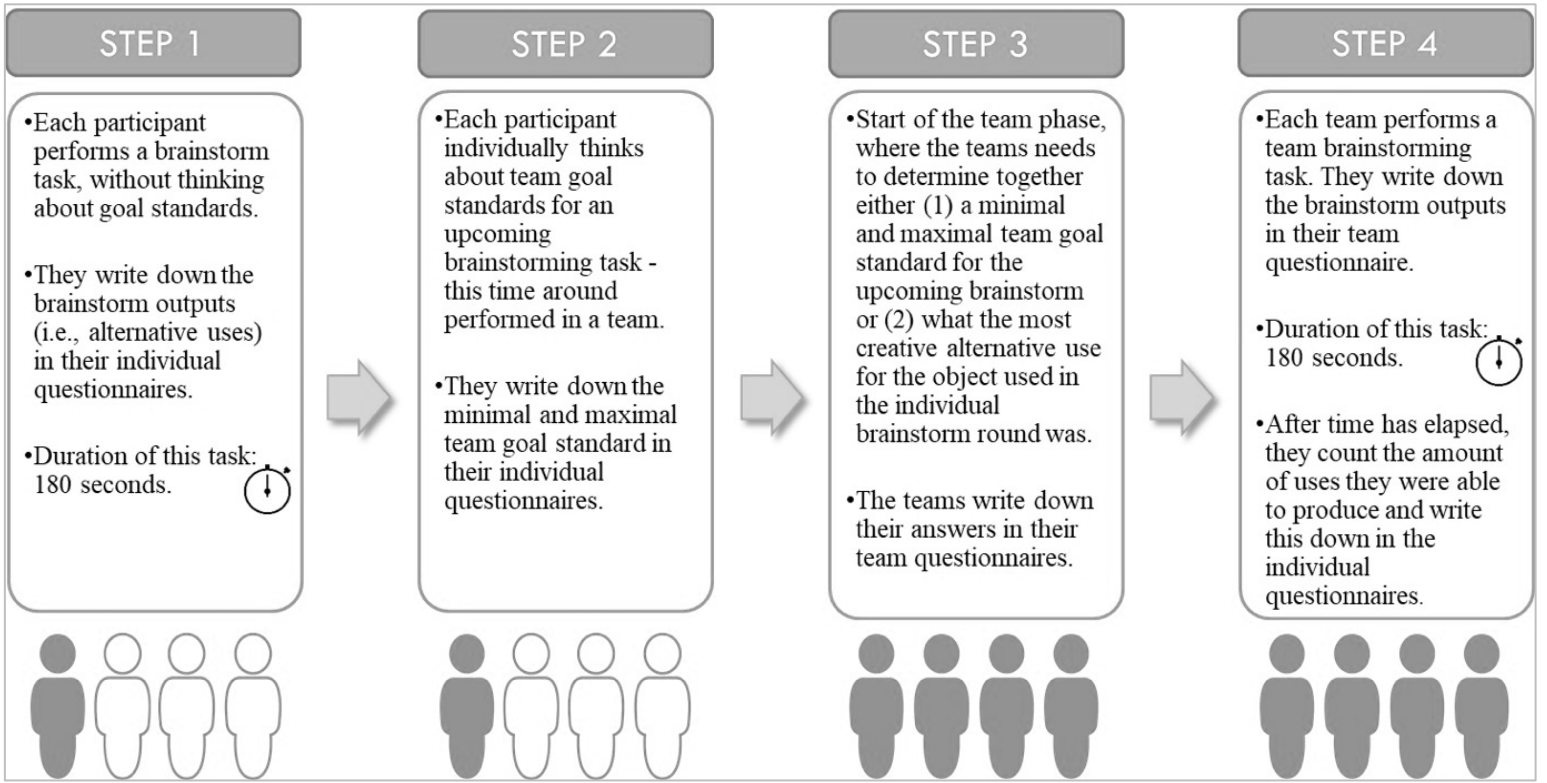

Figure 2.1. *Detailed visual overview of the four steps making up the experimental procedure*

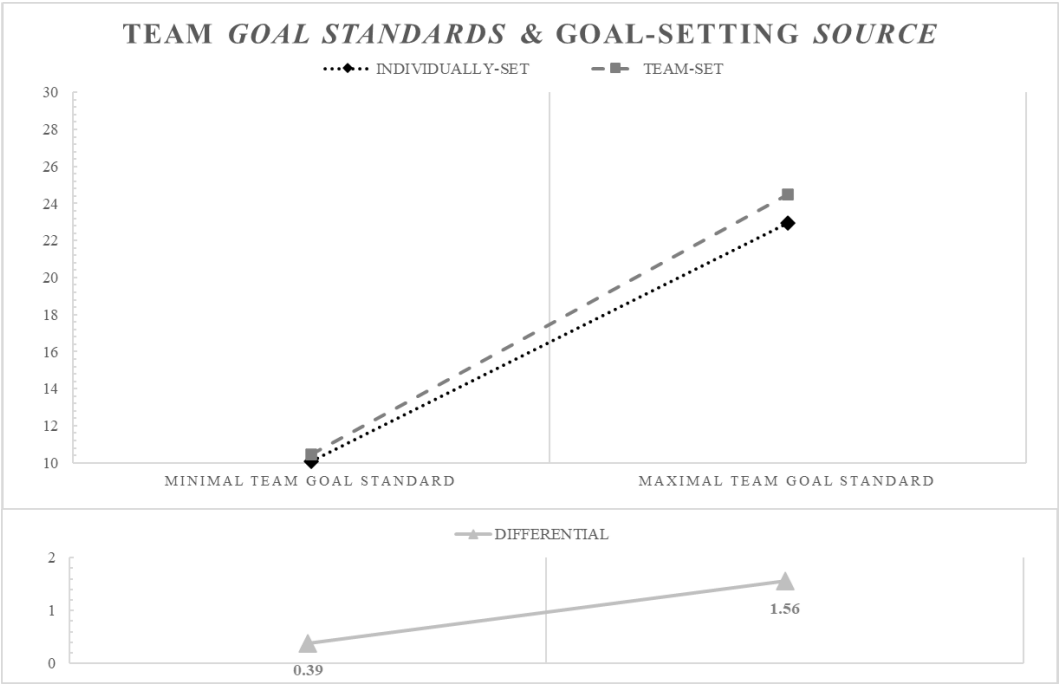

Figure 2.2. *Graphical representation of the team polarisation between team goal standards and goal-setting source. The upper half of the figure shows the difference between minimal and maximal team goal standard for each of the two goal-setting sources (i.e., individuals or teams). The differential denotes the polarisation effect (i.e., the difference in means between individually-set and team-set goal standard) for minimal and maximal goals.*

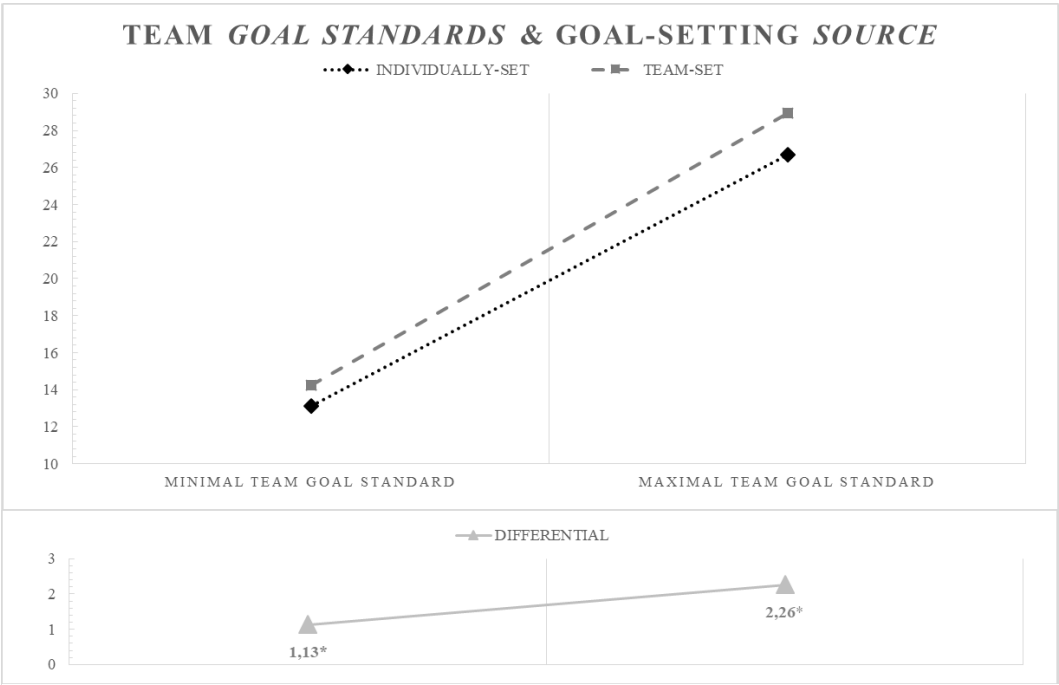

Figure 2.3. *Graphical representation of the team polarisation between team goal standards and goal-setting source. The upper half of the figure shows the difference between minimal and maximal team goal standard for each of the two goal-setting sources (i.e., individuals or teams). The differential denotes the polarisation effect (i.e., the difference in means between individually-set and team-set goal standard) for minimal and maximal goals.*

CHAPTER 3:

HOW TO MANAGE THE EFFECTS OF FAILURE ON SELF-EFFICACY AND SELF-SET GOALS OVER TIME: THE ROLE OF MAXIMAL AND MINIMAL GOAL STANDARDS

For leaders or supervisors, one of their main concerns is enabling continued motivation within subordinates. The most valid and practical way through which this is achieved is by setting goals (Latham, 2009); widely accepted as a motivational means by practitioners (DuBrin, 2008). In general, successfully, and continuously reaching performance goals has mostly beneficial impacts upon individuals, like enhanced self-efficacy beliefs and higher feelings of job satisfaction (e.g., Latham, Locke & Fassina, 2006; Bandura, 1991).

However, setting ambitious goals also increases the likelihood that employees will more often experience failure rather than success. What are the consequences of constantly failing to meet one's performance goals? Consider a sales representative that gets high targets and often, if not always, experiences not reaching these, or an athlete that aims for top placements but does not deliver over longer periods of time. For their managers or coaches, it creates an area of strain through which they must navigate carefully: On the one hand, they need to provide their subordinates with specific, challenging goals (Locke & Latham, 1990; 2002; 2019), as these are meant to increase performance via individual's self-efficacy beliefs (i.e., conscious beliefs or judgements about whether he or she expects to be

capable to attain, commit to or accept the goals – see: Bandura, 1982; Erez & Kanfer, 1983). On the other hand, setting (too) difficult goals increases the risk of employees not being able to reach them – in other words, makes it more plausible to experience constant failure (Ordóñez, Schweitzer, Galinsky, & Bazerman, 2009). If failure is repeatedly experienced over time, it should effectuate a decrease in personal self-efficacy beliefs – or morale in general – and might lead to a state of learned helplessness (Mikulincer, 1994). Further, negative performance feedback may effectuate downward goal revisions of the *self-set* goals by subordinates (Ilies & Judge, 2005; Kluger & DeNisi, 1996).

To resolve this dilemma, we integrate the theoretical framework of minimal and maximal goal standards and its effects on evaluations of goal-performance discrepancies (Brendl & Higgins, 1996; Giessner, Stam, Kerschreiter, Verboon, & Salama, 2020), and argue that the nature of goals – minimal standards (i.e., that *at least* ought to be achieved) and maximal standards (i.e., that *ideally* should be reached) - plays an important role in the decrease versus maintenance of self-efficacy beliefs and levels of self-set goals over time. These goal standards initiate different self-regulatory processes concerning psychological reactions after failure. We argue and show that setting goals as maximal standards buffers against decreases in self-efficacy and levels of self-set goals over time. In contrast, minimal goal standard provides the actual ground for a constant decrease in self-efficacy and levels of self-set goals over time.

Our research provides a dynamic perspective on goal-setting by studying the effects of ongoing failure on individuals' self-goal-setting and the development of their self-efficacy beliefs. Further, by integrating the framework of minimal and maximal goal standards with goal-setting theory, we show the goal standard type influences whether failure results in decreases or maintenance of self-efficacy beliefs and level of self-goal-setting. As a result, we thirdly provide managerial recommendations on how to make use of (maximal) goal standards in organisational settings.

Goal-setting and the potential side effects of (too) difficult goals

A goal is "the object or aim of an action to attain a specific level of proficiency, [usually] within a specified time limit" (Locke & Latham, 2002, p. 705). Having such a proficiency standard in place provides an individual with insights in how effective he or she has been relative to this goal (Schunk & Zimmerman, 2012). Put differently, a goal provides individual reference point influencing a person's self-regulatory and motivational behaviours. This linkage between goals and human behaviour, in that goals are responsible for human behaviour (Ryan, 1970), makes for one of the fundamental beliefs that underlies the theory on goal-setting (Pinder, 2008).

Goal-setting theory (abbrev. GST; Locke & Latham, 1990) argues that, compared to the so-called 'do your best' goals or 'specific yet easy' goals, having goals that are *both* specific and difficulty (i.e., very challenging but attainable)

reliably leads to higher individual task performance (Locke & Latham, 1990; 2002, 2019). This suggest that – as a motivational strategy positively affecting an individual's performance behaviour(s) – goal-setting is shown to be effective, since it directs both attention and effort towards set goals (i.e., effectively enhancing an individual's focus). Moreover, it serves an energising function, affects the levels of persistence, and allows for the development of task-relevant knowledge and strategies (Locke, Shaw, Saari, & Latham, 1981 - see Locke & Latham, 2002). A process through which challenging goals increase motivation is one's self-efficacy beliefs (Bandura, 1986; Locke & Latham, 1991) because more difficult goals are indicating confidence (Salancik, 1977). Perceived self-efficacy "concerns people's beliefs in their capability to mobilise the motivation, cognitive resources, and courses of action needed to exercise control over events in their lives" (Wood & Bandura, 1989, p. 364). And self-efficacy beliefs are influencing self-set goal levels with stronger self-efficacy beliefs relating to higher self-set goals (Appelbaum & Hare, 1996; Bandura & Locke, 2003).

While challenging goals have been shown to have such positive effects on performance and motivation, they might come with some negative side effects (Ordóñez et al., 2009). One of those might be psychological costs of failing to reach the goal which increases with setting more difficult goals. Research in negotiation, for instance, has shown that satisfaction is reduced when high-quality outcomes are not achieved (Galinsky, Mussweiler, & Medvec, 2002). Furthermore, failing to achieve challenging goals can reduce individuals' beliefs in their own abilities and

intelligence (Mussweiler & Strack, 2000). Therefore, Ordóñez and colleagues raised the question in how far failure might actually harm self-efficacy beliefs. If the principles of setting very difficult goals are used in practice, we can expect that many employees might fail more than once to achieve their goals, and this should have detrimental consequences for their self-efficacy beliefs. Consequently, we address this issue of reoccurring failure and its effects on self-efficacy as well as subsequent self-set goals. For this, a more recent perspective on goal standards might help to understand under what circumstances goals might have such negative consequences and under what circumstances they do not.

A theory of maximal and minimal goal standards

A theoretical extension of GST has been recently offered by Giessner and colleagues (2020) and is well suited to address the question under which conditions ongoing failure to reach one's goals might have negative side effects on self-efficacy and self-set goals. Based on earlier research by Gould (1939) and theorising of Brendl and Higgins (1996; see also Giessner & van Knippenberg, 2008; Kessler, Neumann, Mummendey, Berthold, Schubert, & Waldzus, 2010), they describe a theory of maximal and minimal goal standards and its effects on how individuals experience goal-performance discrepancies (i.e., failures and successes to reach a goal).

Minimal goals are oughts "that a person must attain or standards that must be met" (Idson, Liberman & Higgins, 2000, p.254). This reference point separates

negative from non-negative valence areas. In contrast, maximal goals are ideals that a person aspires towards. This reference point separates non-positive from positive valence regions (Brendl & Higgins, 1996). Giessner and colleagues (2020) recently integrated these reference points with GST and showed that minimal and maximal goal standards change the subjective experiences of goal-performance discrepancies in predictable ways. More precisely, in the case of goal failure, maximal goals result in relatively positive evaluations the smaller the goal-performance discrepancy is. In contrast, minimal goals results in negative evaluations independently of the actual goal-performance discrepancy. In other words, especially the situation of being relatively close to a goal reveals the strongest difference between a maximal and minimal goal standard as reference points, because participants showed much higher satisfaction and were more likely to accept a negotiation offer than participants in a minimal goal standard condition. This finding is especially relevant for the current research, as we assume that setting difficult goals (as suggested by goal-setting theory) will result often in not reaching these goals but also should imply that the goal-performance discrepancies are on average not extreme. Therefore, our study will focus on how setting either minimal or maximal goal standards will impact the subjective experiences of individuals undergoing repeated failure.

Goal internalisation

As mentioned before, different goal sources (i.e., goals set by a leader, self-set goals, goals from other external sources) can be employed in the goal-setting

process (Latham & Marshall, 1982). Initially, these goal sources were considered rather discretely, yet later studies showed that they should also be considered sequentially, in that having assigned goals (e.g., from an external source) will inspire the difficulty level of self-set goals (e.g., Locke, Frederick, Buckner & Bobko, 1984; Locke & Latham, 1990; 2002; Meyer & Gellatly, 1988). This implies a process of goal internalisation, which the present study explores as well.

Expanding previous research, we focus on how this goal internalisation process functions for minimal and maximal goal standards (Brendl & Higgins, 1996; Giessner et al., 2020). As input for internalisation, an external goal will be set as either a minimal or maximal standard. In a first step, individuals need to internalise these goals. Furthermore, we also assume that setting an external minimal or maximal standard will trigger individuals to self-set more reference points than just the one provided (cf., Wang & Johnson, 2012; Zhao, Ye, Wu, & Hu, 2018). Thus, extending the previous theorising, we explore how externally setting a specific and difficult goal standard results in the internalisation of various reference points. In the current paper, we focus on the minimal and maximal goal standards as reference points.

If the externally assigned goal is a minimal standard, we assume, in accordance with GST (Locke & Latham, 1990; 2002), that individuals internalise the minimal goal and, at the same time, also set a maximal goal standard that is higher than the minimal one. In contrast, those individuals who receive an externally set maximal goal, will internalise this goal and set additionally a minimal standard that is lower

than the maximal goal. Given that we focus on the same objective goal level for the externally set goal, we, therefore, assume that on average, the self-set goals will be higher for the individuals in a minimal compared to the minimal condition (i.e., the average of self-set maximal and minimal goal).

H1: At T1 (i.e., time point before performance and feedback), individuals will self-set higher goal standards when they have internalised an assigned minimal compared to a maximal goal standard.

Self-efficacy

Failing on the internalised goals should reduce one's self-efficacy beliefs as we outlined above (Ordóñez et al., 2009). Furthermore, Locke and Latham (2002) considered self-efficacy and self-set goals to be "most immediate, conscious determinants of action, [and] as such, they can mediate the effects of external incentives" (p. 709). While challenging goals are on the one hand assumed to increase performance, the potential failure to reach these goals constitutes a threat to keep one's self-efficacy level.

In the Social Cognitive Theory (SCT, Bandura, 1986, 1997; Wood & Bandura, 1989), self-efficacy is considered to be a central regulatory mechanism for our motivation and performance. There are different sources of self-efficacy beliefs. The most influential source is mastery experiences, the actual performance of an action, and the experience of successfully mastering obstacles. However, failures

are assumed to create doubts and adversely affect one's self-efficacy beliefs for a specific task. Moreover, one's self-efficacy beliefs relate positively to the level of self-set goals (Brown, Cron & Slocum, 1998; Lerner & Locke, 1995; Locke & Latham, 1990; Wood & Bandura, 1989). When individuals have confidence in their own capabilities to undertake a certain task well, they are more predisposed to imagine probable future successes, which translates into higher personally-set goals (Brown, Jones & Leigh, 2005). The other side on the coin, however, is that lowered levels of self-efficacy would result in lowered self-set goals.

In summary, external goals, self-efficacy, and self-set goals are in a triadic relationship (Bandura, 1997; Locke, 1991). We further build on this and consider the role of goal standards and the effect of time – especially on repeated failure.

Performance feedback and self-efficacy over time

Given that failure feedback provides doubts over one's capabilities and, therefore, reduces one's self-efficacy beliefs (Bandura, 1986, 1997; Wood & Bandura, 1989), continuous failure should decrease self-efficacy beliefs over time. This is due to the pivotal role that (performance) feedback plays in the process of goal pursuit: Knowing how one is performing (cf., the mastery experiences) compared to certain goal standards qualifies one to not only alter their effort-directed behaviours and strategies, but also adjust their psychological beliefs – such as self-efficacy – accordingly (Tolli & Schmidt, 2008).

Previous research by Tolli and Schmidt (2008) indeed showed already that negative feedback can lower self-efficacy over time. However, their experimental study with an anagram task let participants perform in two blocks of 10 rounds and provided only feedback once. To our knowledge, studies so far have not causally tested how repeated failures will influence self-efficacy over time. But in line with the previous finding from Tolli and Schmidt (2008) and SCT (Bandura, 1986, 1997; Wood & Bandura, 1989), we predict that self-efficacy should decrease over time when individuals are confronted with repeated failures.

H2: Over time, continuous negative performance feedback will decrease experienced (task) self-efficacy within individuals.

This effect would represent indeed a negative side effect of goal-setting as outlined by Ordóñez and colleagues (2009). Extending previous theorising on goal-setting and building on the theory of maximal and minimal goal standards (Giessner et al., 2020) we challenge the view that repeated failure always results into a downward spiral for self-efficacy. Distinguishing between externally-set minimal or maximal goal standards, we argue that task self-efficacy should decrease stronger under minimal compared to maximal goal standards as reference points. This is because minimal goals render the perception of failure as categorical negative. As a consequence, repeated failure should increase the doubts in one's capabilities to be able to perform well in a task. In contrast, maximal standards set ideals and not

reaching those might not be perceived as a negative state. Overall, individuals still experience a reasonable level of satisfaction after failing a maximal goal standard compared to a minimal goal standard. They perceive failure as a non-positive state and not as negative per se (Brendl & Higgins, 1996). Therefore, we expect that repeated failure will have less impact in one's self-efficacy beliefs if one repeatedly fails on such maximal goal standards.

H3: Over time, continuous negative performance feedback will show a stronger decrease in experienced (task) self-efficacy within individuals for externally-set minimal compared to maximal goal standards.

Goal revision over time

Performance feedback allows for determining how far apart an individual is in terms of their personal goals and performance. This comparison, also known as a goal-performance discrepancy (GPD), effectuates what or how much an individual will adjust in his or her effort-directed behaviours and strategies (Campion & Lord, 1982; Kluger & DeNisi, 1996; Ilies & Judge, 2005). Individuals can deal with negative GDP (i.e., failures) in two ways: Increasing performance or decreasing their goals (Tolli & Schmidt, 2008). Such downward revisions of goals have been shown in sport and business contexts (Donovan & Williams, 2003; Ilies & Judge, 2005) and are consistent with goal-setting theory (Locke & Latham, 2002) and SCT (Bandura, 1986, 1997), because such goal revision reflect individuals' adjustments

based on their own beliefs of how capable they are to accomplish a task (i.e., their self-efficacy beliefs). In other words, negatively-directed goal revision takes place based on the performance feedback that signals failing to reach the externally-set goal. We aim to replicate this effect in our studies and argue that over time the level of self-set standards will drop when individuals are continuously provided with negative performance feedback (i.e., a negative GDP).

H4: Negative performance feedback over time will decrease the average level of self-set goal standards.

However, this effect has been shown to depend on, for example, the attributions individuals make (Tolli & Schmidt, 2008). Attributing the failure to internal causes increase the negative goal revision process. In the current paper we add another moderating factor that relates to the properties of the goals itself – namely the maximal and minimal goal standards. Similar to our prediction on self-efficacy, we argue that minimal standard renders the subjective perception of the goal failure as a negative state and lowers the subjective self-efficacy beliefs for the specific task (cf., Brendl & Higgins, 1996; Giessner et al., 2020). The negative GPD should, therefore result in a negative goal revision (despite a constant requirement of the external goal-setting). In contrast, failure on maximal goal standards is non-positive and the subjective capabilities are not or less influenced by a negative GPD. Consequently, a negative goal revision is less likely to occur.

H5: Negative performance feedback over time will show a stronger decrease in the average levels of self-set goal standards of individuals for externally-set minimal compared to maximal goal standards.

A theoretical integration

While we predicted effects on self-efficacy beliefs and on self-set goals separately, previous theorisations on SCT (Bandura, 1986, 1997), goal-setting (i.e., Locke's (1991) motivation hub), and goal revision research (Tolli & Schmidt, 2008) predict that changes in the subjective self-efficacy are a precursor of adjustments to the goal revision process. In line with this postulation, we predict that the effects of failure on goal revision are mediated by the subjective self-efficacy beliefs on the task. By practically exploring for the effects of repeated failures on the trajectories of self-efficacy and goal revision, and theoretically extending prior theorising by integrating the theory of maximal and minimal goal standards (Giessner et al., 2020), we argue for a moderated mediation effect. The mediation of repeated failure on goal revision via self-efficacy beliefs should be more pronounced under assigned minimal compared to maximal goal standards (see Figure 3.1 for a depiction of the conceptual model). In that way, we aim to show the negative side effects of goals (Ordóñez et al., 2009).

H6: Individual self-efficacy beliefs mediate the negative association between negative performance feedback over time and the level of self-set goal standards.

H7: The interaction between negative performance feedback over time and assigned goal standard will impact the level of self-set goal standards via the self-efficacy beliefs.

Insert Figure 3.1 about here

Additionally, our research also sets out to explore whether the goal revision process is differentially impacted on the self-set goal standards. We consciously made no predictions as we felt that previous theorising did not allow us to make differential predictions here. We will nonetheless discuss these aspects in our analyses and discussion.

Overview of studies

To test for all of this, we report three experimental studies with repeated measurements in this paper. Even though there are differences with regard to the specific experimental set-ups of these studies, all of them ask participants to perform a certain task multiple times for which they will receive performance feedback. Whereas Study 1 and Study 2 used actual feedback based on the task performance scores, this was controlled for (i.e., manipulated performance feedback) in Study 3. And where Study 1 and Study 3 were conducted in a behavioural laboratory (i.e., controlled environment) with students as participants, Study 2 made use of a panel and a diversified pool of participants.

STUDY 1

Method

Participants

In total, 232 undergraduate business students at a Dutch business school participated in this study in exchange for course credit. 57.8% percent of the sample are women (n = 134), and just over 96% is between the ages 18-24.

Procedure

The study was conducted in a behavioural lab environment with soundproof cubicles equipped with desktop computers and supporting hardware. Participants received course credits for their participation. Upon arrival, participants were instructed to read an introductory text, explaining that they were about to partake in a concentration test of which the performance score could be a proxy for (future) career success. After this, the participants were randomly assigned to one of two conditions – either they were presented an externally-set minimal or maximal goal (i.e., *Assigned Goal Standard* manipulation; abbrev. *AGS*). In the minimal condition (coded "0"), participants were assigned a standard for the concentration task that read that 'the concentration score should at least be 120 points'. For the maximal condition (coded "1"), the concentration score 'should ideally be 120 points'. Such wording manipulation has been used in previous research to manipulate goal standards (cf., Giessner & van Knippenberg, 2008; Giessner et al., 2020). Before actually starting the first round of the concentration test, all participants were

required to answer questions concerning their *task self-efficacy* (abbrev. *TSE*) beliefs and their *minimal* and *maximal self-set goal standard* (abbrev. *SSGS*).

Then, the concentration task commenced and after 180 seconds, the participants were automatically redirected to a new page where they were told to wait for the results of the task. Subsequently, they were presented a score. This score (i.e., performance feedback) did correspond to the actual number of scored points in the performance task. At this point in time, they were asked to answer questions again concerning their *TSE* beliefs and *SSGSs.* Afterwards, they performed another round of the concentration task with the same *AGS* of 120 as provided in round 1. This process continued until they performed the concentration four times – representing our variable *Time*.

Task

The task employed is the D2 attention- and concentration-test (Brickenkamp, 1981). The task requires participants to select, in a row of eight options and an unknown number of lines, all lowercase letters d that are accompanied by two lines – resembling the lowercase letter I without a tittle – either both below the letter, above the letter, or one above and one below the letter and has been used previously to study effects of minimal and maximal goal standards (Giessner et al., 2020).

Measures

TSE was measured by asking participants to indicate their perception on statements reflecting the level of experienced efficacy. The three-item self-efficacy

measure is based on the three-item measures created by Spreitzer (1995) and Tierney & Farmer (2002), with adjustments to the wording of the statements to better reflect the specific task used in this study. On a five-point Likert scale – ranging from *totally disagree* to *totally agree* – participants have to rate the following statements: 'I can get a good score on this test', 'I am able to do well in this test', and 'I can succeed in this test'. The Cronbach's alphas for all four times ranged between .88 and .93.

To measure *SSGS,* participants were simply asked to write down two self-set goal standards, as in a number reflecting the minimal score that they feel they should at least obtain and the maximal score that they ideally achieve.

Results

Preliminary analyses

Out of the 232 participants, to test for our expectations that specifically call for continuous negative performance feedback (i.e., failing to meet the *AGS*), we had to exclude 108 participants who were able to (at least once) meet the *AGS.* Thus, our final sample consists of 124 participants, with a 57.3%-42.3% female-male distribution and somewhat over 95% falling in the 18-24 age bracket. Supplementary analyses were performed for the 108 participants who were able to reach the AGS at least once, which can be found in the section 'Supplementary analyses Study 1' at the end of this chapter.

Assigned and self-set goal standards

To test for *H1*, the correlation between *AGS* and both *SSGS* show significant, negative associations (see Table 3.1 for the detailed statistics). Thus, an assigned maximal (versus minimal) goal standard makes for lower *minimal* and *maximal SSGS*, confirming *H1*. More specifically, a comparison between the mean levels of each *SSGS* shows that the difference between the *AGS* conditions is significant for *minimal SSGS*, $t(120) = 2.66$, $p = .01$ and *maximal SSGS*, $t(95.52) = 3.39$, $p < .001$. The corresponding means are displayed in Table 3.2 (see Time 1). Overall, the results confirm our *H1*.

Insert Table 3.1 & Table 3.2 about here

Task self-efficacy development

To test for *H2* and *H3*, we performed random coefficient modelling (RCM; Bliese & Ployhart, 2002) to determine the overall pattern of, and individual variances in *TSE* change. The Level 2 model is specified with the intrapersonal variable *Time*, the between individuals variable grand-mean centred *AGS* (Yaremych, Preacher & Hedeker, 2021), and a *Time* × *AGS* cross-level interaction term as predictors of *TSE*.[I]

I Following Bliese & Ployhart (2002), we started with specifying the Level 1 model (i.e., intrapersonal). Modelling for random intercepts, random linear time slopes, and autocorrelation made for significantly better model fit, accounted for in specifying Level 2.

First, *Time* is found to affect *TSE* negatively and significantly, γ = -.16, SE = .04, $t(370) = -4.38$, $p < .001$, 95% CI: [-.23, -.09]. This shows support for our *H2*. Then, the direct effect of *AGS* on *TSE* is insignificant, γ = .17, SE = .14, $t(122) = 1.26$, $p = .21$, 95% CI: [-.10, .45]. Table 3.2 displays detailed information on all means and standard deviations per time point, also separated for each *AGS* condition.

The predicted interaction does not significantly impact *TSE*, γ = .08, SE = .07, $t(370) = 1.19$, $p = .24$, 95% CI: [-.06, .23]. Even though the Level 2 analysis does not indicate a significant cross-level interaction, we nonetheless tested for simple slopes in AGS_{min} and AGS_{max} conditions (Aiken & West, 1991). Concerning AGS_{min}, *Time* significantly and negatively relates to *TSE*; γ = -.21, SE = .05, $t(370) = -4.31$, $p < .001$, 95% CI: [-.30, -.11]. For AGS_{max}, *Time* also shows a negative significant effect upon *TSE*; γ = -.12, SE = .05, $t(370) = -2.59$, $p = .01$, 95% CI: [-.21, -.03]. Yet, the effect size shows an almost 2 times smaller influence upon TSE in the AGS_{max} (versus AGS_{min}) condition, indicating a less steep decline in *TSE* over *Time*. This aligns with our expectations as put forward by *H3*.

Self-set goal standards development

To test for *H4* and *H5*, the same RCM procedures – as mentioned by Bliese & Ployhart (2002) – were employed as described for *TSE*. The specification of the Level 2 model features the within individuals *Time* variable, the between individuals

AGS variable, and the *Time* × *AGS* cross-level interaction term as predictors of *average(d) SSGS.*[II]

Starting with *Time*, the analysis shows a negative influence that is significant, γ = -2.11, SE = .73, $t(365) = -2.90$, $p = .004$, 95% CI: [-3.54, -.68]. This provides support for *H4*. The main effect of *AGS* upon *average(d) SSGS* was also significant, γ = -11.07, SE = 4.00, $t(122) = -2.77$, $p = .01$, 95% CI: [-18.98, -3.16]. It indicates that across *Time*, participants set higher goals in the AGS_{min} condition compared to AGS_{max}: $M_{AGSmin} = 115.83$, $SD_{AGSmin} = 29.07$ versus $M_{AGSmax} = 108.05$, $SD_{AGSmax} = 17.99$. See Table 3.2 for linked means and standard deviations per time point.

The cross-level interaction does not yield significance, γ = 2.03, SE = 1.46, $t(365) = 1.40$, $p = .16$, 95% CI: [-.83, 4.90]. We again run simple main effect analysis (cf., Aiken et al., 1991) to better understand this (lack of) cross-level interaction effect. Within AGS_{min}, *Time* significantly and negatively relates to *average(d) SSGS*; γ = -3.13, SE = 1.05, $t(365) = -2.98$, $p = .003$, 95% CI: [-5.09, -1.06]. Within AGS_{max}, *Time* does not significantly predict *average SSGS*; γ = -1.04, SE = 1.04, $t(365) = -1.01$, $p = .31$, 95% CI: [-3.08, .99]. This provides at least some support for our *H5*.

II In line with Bliese & Ployhart (2002), we started with the specification of the Level 1 model. Modelling for random intercepts, random linear time slopes, and heteroskedasticity made for significantly better model fit, accounted for in specifying Level 2.

In addition to these analyses for *average(d) SSGS*, we also performed separate RCM analyses – with equivalent model specifications – for the two *SSGS* variables that provide input for *average(d) SSGS*, namely *minimal SSGS* and *maximal SSGS*. Level 2 modelling for *minimal SSGS*[III] showed that *Time* is found to be an insignificant predictor; γ = -.79, SE = .87, $t(365) = -.91$, $p = .36$, 95% CI: [-2.50, .91]. *AGS* does significantly and negatively predict *minimal SSGS*; γ = -9.53, SE = 4.31, $t(122) = -2.21$, $p = .03$, 95% CI: [-18.07, -.99]. The predicted cross-level interaction is not significant; γ = .89, SE = 1.74, $t(365) = .51$, $p = .61$, 95% CI: [-2.53, 4.30]. Continuing with the corresponding testing for simple slopes in AGS_{min} and AGS_{max} conditions, *Time* is not a significant predictor of *minimal SSGS* in both conditions: AGS_{min} γ = -1.24, SE = 1.22, $t(365) = -1.01$, $p = .31$, 95% CI: [-3.64, 1.16]; AGSmax γ = -.35, SE = 1.24, $t(365) = -.28$, $p = .78$, 95% CI: [-2.78, 2.08].[IV]

The RCM Level 2 procedure for *maximal SSGS*[V] shows that *Time* is a significant predictor of the *maximal SSGS* outcome variable; γ = -2.92, SE = .72, $t(368) = -4.03$, $p < .001$, 95% CI: [-4.35, -1.50]. Such a significant direct influence is also established for *AGS*; γ = -11.88, SE = 4.53, $t(122) = -2.62$, $p = .01$, 95% CI: [-20.86, -2.91]. Moreover, the cross-level interaction does not significantly impact

III Improved RCM Level 1 model fit by modelling for random intercepts, random linear time slopes, and heteroskedasticity, accounted for in specifying Level 2.

IV For information on all *minimal SSGS* means and standard deviations per time point, please check Table 3.2.

V Improved RCM Level 1 model fit by modelling for random intercepts, random linear time slopes, and heteroskedasticity, accounted for in specifying Level 2.

maximal SSGS, γ = 2.77, SE = 1.45, *t*(368) = 1.91, *p* = .06, 95% CI: [-.08, 5.62]. Simple slope analyses revealed that in AGS_{min}, a significant effect of *Time* on *maximal SSGS*, γ = -4.31, SE = 1.02, *t*(368) = -4.21, *p* < .001, 95% CI: [-6.32, -2.30]. In AGS_{max}, *Time* does not significantly predict a decrease in *maximal SSGS*, γ = 2.77, SE = 1.45, *t*(368) = -1.50, *p* = .14, 95% CI: [-3.56, .48].[VI]

Multilevel (moderated) mediation

To test *H6* and *H7*, we ran multilevel (moderated) mediation analyses with the MLMED macro for SPSS created by Rockwood & Hayes (2017). These were performed for the *average(d) SSGS*, for the *minimal SSGS*, and for the *maximal SSGS*. Table 3.3 displays an overview of the relevant statistics with regard to these multilevel (moderated) mediation analyses. The estimated mediation effect of *Time* on each of the three *SSGSs* via *TSE* were found to be significant. The indirect effect for the *average(d) SSGS* was estimated at -1.19 with 95% CI (i.e., based on Monte Carlo estimation) of [-1.77, -.69]. For *minimal SSGS*, the estimated mediation effect was -1.01 with 95% CI: [-1.58, -.53]. Lastly, for *maximal SSGS*, the estimate equals -1.38 with 95% CI: [-2.01, -.80]. This confirms our *H6*.

Insert Table 3.3 about here

VI For information on all *maximal SSGS* means and standard deviations per time point, please check Table 3.2.

For the multilevel moderated mediation, our analyses show that *AGS* significantly and positively interacts with *Time* (see Table 3.3). Yet, we also observe that the estimated indexes of moderated mediation have Monte Carlo Confidence Intervals that do include zero, which renders moderated mediation effects insignificant.

Nonetheless, zooming in on mediations for AGS_{min} and AGS_{max} conditions, for the *average(d) SSGS*, significant mediating effects were established for individuals that were presented with a minimal *AGS*; *effect* = -1.59, *SE* = .48, $p < .001$, CI 95%: [-2.58, -.75], and significant but weaker for individuals in the AGS_{max} *condition*, *effect* = -.80, *SE* = .31, $p = .01$, CI 95%: [-1.46; -.26]. For the *minimal SSGS*, a similar mediating influence was found for AGS_{min}; *effect* = -1.21, *SE* = .43, $p < .001$, CI 95%: [-2.14, -.48]. Also, for AGS_{max}, this indirect effect showed significance at lower strength; *effect* = -.78, *SE* = .34, $p < .02$, CI 95%: [-1.51, -.21]. With regard to *maximal SSGS*, both conditions showed indirect effects of *Time* upon *SSGS* via *TSE*, where the AGS_{min} condition shows a stronger indirect influence; -1.97, *SE* = .57, $p < .001$, CI 95%: [-3.20, -.97], compared to the AGS_{max} condition; *effect* = -.83, *SE* = .31, $p = .01$, CI 95%: [-1.48, -.28]. This does suggest some level of modification caused by *AGS*, yet we are unable to fully support our *H7*.

Discussion of Study 1

In this study, we were able to find evidence for many of our expectations, but not all: 4/7 hypotheses were fully confirmed. Yet, we observed that the effects of the unsupported relations were predominantly in the expected directions. Reflecting on these results, it is worth emphasising that about 45% of our sample were excluded from our main analyses (i.e., participants that were able to reach the assigned goal standard at least once), which might have contributed to the insignificance of some of our expectations. In the following study (i.e., Study 2), very similar to the current study's set-up, we hope to forego the exclusion of almost half the sample, and see whether this changes the statistical outcomes.

STUDY 2

Method

Participants

The sample consisted of 300 participants that were recruited through an online data panel (i.e., Prolific). The mean age of the participants was 33.18 years (*SD* = 11.48), with a 50-50 distribution of gender.

Procedure

On a procedural level, there are mostly parallels between the current and previous study (i.e., Study 1), yet a couple important changes need highlighting. First, in this study, we somewhat changed the *AGS* conditions: this time, the concentration score which corresponded with the assigned goal standard was increased from 120 to 140. This is to ensure we have more of our participants experience continued failure. Furthermore, participants now performed the D2 task three times instead of four times. Third, due to the nature of the online panel, we were not able to control for external influences in the way we could for Study 1. However, for this study, we explicitly requested participants to turn off their mobile devices, work on a laptop or desktop computer and ensure they could fully concentrate themselves in order to create circumstances in line with a laboratory setting.

Task

The task employed is the same as in Study 1, namely the D2 attention- and concentration-test (Brickenkamp, 1981). The task requires participants to select, in a row of eight options and an unknown number of lines, all lowercase letters d that are accompanied by two lines – resembling the lowercase letter I without a tittle – either both below the letter, above the letter, or one above and one below the letter.

Measures

TSE and *SSGS* were measured in the same way as in Study 1. For *TSE*, the Cronbach's alphas for the three-item measure for all four time points ranged between .94 to .96.

Results

Preliminary analyses

We had to exclude a total of 29 out of 300 participants, due to them experiencing problems during the experiment (e.g., slow/unstable internet connections, survey platform not responding properly). Of the remaining participants, 18 individuals were able to reach a score in (at least) one of the three rounds above the *AGS*, effectively not experiencing failure. As the current study is only interested in participants that experience constant failure, this resulted in the final sample consisting of 253 individuals, with 52% women (versus 48% men): M_{age} = 33.37, *SD* = 11.66.

Assigned and self-set goal standards

To test for *H1*, the correlation between *AGS* and *minimal SSGS* is significant, where the correlation between *AGS* and *maximal SSGS* is insignificant (see Table 3.1 for the detailed statistics). Thus, being assigned a maximal (versus minimal) goal standard makes for a lower *minimal SSGS*, which only provides partly support for our expectation.

In addition to this, comparing mean levels of each *SSGS* shows that the difference between the *AGS* conditions is significant for *minimal SSGS*, $t(250.97) = 3.22$, $p = .002$. For *maximal SSGS*, this difference is found to be marginally significant, $t(251) = 7.86$, $p = .06$. Table 3.4 displays the corresponding means (see Time 1). Once again, only partial statistical support is given for our hypothesis, albeit that the difference for the *maximal SSGS* marginally varies between *AGS* conditions. And considering the mean values, we can observe that for both *SSGS*s, AGS_{max} (compared to AGS_{min}) relates to lower levels of self-set standards. Nonetheless, since we only find partial support, we cannot fully statistically confirm *H1*.

Insert Table 3.4 about here

Task self-efficacy development

To test for *H2* and *H3*, we performed random coefficient modelling (i.e., RCM) analyses to determine the overall pattern of, and individual variances in *TSE* change.

The Level 2 model[VII] is specified with the within individuals variable *Time*, the between individuals variable grand-mean centred *AGS* (cf., Yaremych et al., 2021), and a cross-level *Time* × *AGS* interaction as predictors of *TSE*.

First, *Time* is found to affect *TSE* negatively and significantly, γ = -.54, SE = .04, $t(504)$ = -13.16, $p < .001$, 95% CI: [-.62, -.46]. This shows support for our *H2*. Next, the direct effect of *AGS* on *TSE* yields insignificance, γ = -.09, SE = .10, $t(251)$ = -.91, p = .37, 95% CI: [-.28, .10]. Table 3.4 displays detailed information on all means and standard deviations per time point, also separated for each *AGS* condition.

The predicted interaction significantly shows a positive effect upon *TSE*, γ = .21, SE = .08, $t(504)$ = 2.50, p = .01, 95% CI: [.04, .37]. To enhance our understanding of this interaction, we tested for simple slopes in AGS_{min} and AGS_{max} conditions (Aiken & West, 1991). Concerning AGS_{min}, *Time* significantly association with *TSE* in a negative way, γ = -.65, SE = .06, $t(504)$ = -11.07, $p < .001$, 95% CI: [-.76, -.53]. For AGS_{max}, *Time* also shows a negative significant effect upon *TSE*, γ = -.44, SE = .06, $t(504)$ = -7.53, $p < .001$, 95% CI: [-.55, -.32]. However, the effect size shows a 33% smaller impact upon TSE in the AGS_{max} (versus AGS_{min}) condition, displaying a slower decrease rate in *TSE* over *Time*. This aligns with our expectations as put forward by *H3*.

VII Following Bliese & Ployhart (2002), we started with specifying the Level 1 model (i.e., intrapersonal). Modelling for random intercepts and random linear time slopes resulted in significantly better model fit, accounted for in specifying Level 2.

Self-set goal standards development

To test for *H4* and *H5*, the same statistical RCM procedures were employed as described for *TSE*. The specification of the Level 2 model features the within individuals *Time* variable, the between individuals *AGS* variable, and the *Time* × *AGS* cross-level interaction term as predictors of *average(d) SSGS.*[VIII]

Starting with *Time*, the analysis shows a significant influence, γ = -8.56, SE = .85, $t(504) = -10.12$, $p < .001$, 95% CI: [-10.23, -6.90]. This provides support for *H4*. The main effect of *AGS* upon *average(d) SSGS* was also significant, γ = -8.09, SE = 2.98, $t(251) = -2.72$, $p = .01$, 95% CI: [-13.96, -2.23]. It suggests that across *Time*, participants set higher goals in the AGS_{min} condition compared to AGS_{max}: $M_{AGSmin} = 131.34$, $SD_{AGSmin} = 27.76$ versus $M_{AGSmax} = 123.70$, $SD_{AGSmax} = 26.08$. See Table 3.4 for associated means and standard deviations per time point.

The cross-level interaction does not yield significance, γ = .57, SE = 1.69, $t(504) = .34$, $p = .74$, 95% CI: [-2.75, 3.89]. We still run simple main effect analyses (cf., Aiken et al., 1991) to better understand this (lack of) cross-level interaction effect. Within AGS_{min}, *Time* significantly and negatively relates to *average(d) SSGS*; γ = -8.85, SE = 1.20, $t(504) = -7.39$, $p < .001$, 95% CI: [-11.20, -6.50]. Within AGS_{max}, *Time* also significantly predicts *average SSGS*; γ = -8.28, SE = 1.20, $t(504) = -6.92$, $p < .001$, 95% CI: [-10.63, -5.93]. Overall, we observe hardly a difference

VIII In line with Bliese & Ployhart (2002), we started with the specification of the Level 1 model. Modelling for random intercepts, random linear time slopes and heteroskedasticity made for significantly better model fit, accounted for in specifying Level 2.

between the two conditions, hence making it impossible for us to find support our *H5*.

Complementary to these analyses for *average(d) SSGS*, we also conducted separate RCM analyses – with equivalent model specifications – for the two *SSGS* variables that provide input for *average(d) SSGS*, namely *minimal SSGS* and *maximal SSGS*. Level 2 modelling for *minimal SSGS*[IX] showed that *Time* is a significant predictor; γ = -5.11, SE = .90, $t(504)$ = -5.70, $p < .001$, 95% CI: [-6.87, -3.35]. *AGS* significantly and negatively predicts *minimal SSGS* too; γ = -11.88, SE = 3.14, $t(251)$ = -3.79, $p < .001$, 95% CI: [-18.06, -5.70]. The cross-level interaction is not significant; γ = .1.60, SE = 1.79, $t(504)$ = -.89, p = .37, 95% CI: [-5.12, 1.92]. Continuing with the corresponding testing for simple slopes in AGS_{min} and AGS_{max} conditions, *Time* significantly predicts *minimal SSGS* in both conditions: AGS_{min} γ = -4.31, SE = 1.27, $t(504)$ = -3.40, $p < .001$, 95% CI: [-6.80, -1.82]; AGSmax γ = -5.91, SE = 1.27, $t(504)$ = -4.66, $p < .001$, 95% CI: [-8.40, -3.42].[X]

The RCM Level 2 procedure for *maximal SSGS*[XI] shows that *Time* is a significant predictor of the *maximal SSGS* outcome variable; γ = -12.04, SE = 1.05, $t(504)$ = -11.52, $p < .001$, 95% CI: [-14.10, -9.99]. Such a significant direct influence

IX Improved RCM Level 1 model fit by modelling for random intercepts, random linear time slopes and heteroskedasticity, accounted for in specifying Level 2.

X For information on all *minimal SSGS* means and standard deviations per time point, please check Table 3.4.

XI Improved RCM Level 1 model fit by modelling for random intercepts, random linear time slopes, autocorrelation and heteroskedasticity, accounted for in specifying Level 2.

is not established for *AGS*; γ = -3.83, SE = 3.92, *t*(251) = -.98, *p* = .33, 95% CI: [-11.56, 3.89]. Moreover, the cross-level interaction does not significantly impact *maximal SSGS* either, γ = 2.30, SE = 2.09, *t*(504) = 1.10, *p* = .27, 95% CI: [-1.81, 6.40]. Simple slope analyses revealed that in AGS_{min}, a significant effect of *Time* on *maximal SSGS*, γ = -13.19, SE = 1.48, *t*(504) = -8.92, *p* < .001, 95% CI: [-16.10, -10.29]. Similarly, in AGS_{max} *Time* also significantly predicted a decrease in *maximal SSGS*, γ = -10.89, SE = 1.48, *t*(504) = -7.37, *p* < .001, 95% CI: [-13.80, -7.99].[XII]

Multilevel (moderated) mediation

To test *H6* and *H7*, we ran multilevel (moderated) mediation analyses with the MLMED macro for SPSS created by Rockwood & Hayes (2017). These were performed for the *average(d) SSGS*, for the *minimal SSGS*, and for the *maximal SSGS*. Table 3.5 displays an overview of the relevant statistics with regard to these multilevel (moderated) mediation analyses. The estimated mediation effect of *Time* on each of the three *SSGSs* via *TSE* were found to be significant. The indirect effect for the *average(d) SSGS* was estimated at -3.54 with 95% CI (i.e., based on Monte Carlo estimation) of [-4.62, -2.55]. For *minimal SSGS*, the estimated mediation effect was -2.23 with 95% CI: [-3.33, -1.20]. Lastly, for *maximal SSGS*, the estimate equals –4.86 with 95% CI: [-6.22, -3.55]. This confirms our *H6*.

Insert Table 3.5 about here

XII For information on all *maximal SSGS* means and standard deviations per time point, please check Table 3.4.

For the multilevel moderated mediation, our analyses show that *AGS* significantly and positively interacts with *Time* (see Table 3.5). Moreover, the estimated indexes of moderated mediation have Monte Carlo Confidence Intervals that do not include zero, supporting a moderated mediation effect. Hence, we can confirm *H7*.

Zooming in on mediations for AGS_{min} and AGS_{max} conditions, for the *average(d) SSGS*, significant mediating effects were established for individuals that were presented with a minimal *AGS*, *effect* = -3.55, *SE* = .78, $p < .001$, CI 95%: [-5.19, -2.08], and significant but somewhat weaker for individuals in the AGS_{max} *condition*, *effect* = -3.43, *SE* = .71, $p < .001$ CI 95%: [-4.90, -2.14]. For the *minimal SSGS*, an insignificant mediating influence was found for AGS_{min}, *effect* = -1.52, *SE* = .81, $p = .06$, CI 95%: [-3.14, .05]. For AGS_{max}, this indirect effect was found to be significant, *effect* = -2.92, *SE* = .74, $p < .001$, CI 95%: [-4.45, -1.53]. With regard to *maximal SSGS*, both conditions showed indirect effects of *Time* upon *SSGS* via *TSE*, where the AGS_{min} condition shows a stronger indirect influence; *effect* = -5.59, *SE* = .07, $p < .001$, CI 95%: [-7.76, -3.57] compared to the AGS_{max} condition, *effect* = -3.94, *SE* = .87, $p < .001$, CI 95%: [-5.69, -2.34].

Discussion of Study 2

In the current study, compared to the previous study, we were already more successful in finding support for our expectations: 5 out of 7 confirmations. Surprisingly, our expectation about individuals setting higher self-set standards after

internalising an assigned minimal (versus maximal) goal standard (i.e., *H1*) did not amount to full confirmation, yet the pattern is in line with our prediction and aligns with the results of Study 1. In the upcoming study (i.e., Study 3), which will be conducted again in a more controlled environment (i.e., the same as in Study 1) with manipulated performance feedback, we will examine whether this leads to more statistical support.

STUDY 3

Method

Participants

In total, 223 undergraduate business students at a Dutch business school participated in this study. 51.6% percent of the sample are women (n = 115), and the mean age of the participants was 19.18 years (*SD* = 1.94).

Procedure

This study mostly resembles Study 1 on a procedural level, but there are a couple important differences that need to be highlighted. First of all, the duration of each round of the D2 attention- and concentration task is shortened: instead of 180 seconds, participants now need to complete rounds of 60 seconds. Correspondingly, we adjusted the *AGS* conditions as well: in the AGS_{min} condition, participants were told that 'the concentration score should at least be 50 points' and 'ideally 50 points' in the AGS_{max} condition.

Another noteworthy deviation from Study 1 (and Study 2) relates to the performance scores that are communicated to participants serving as performance feedback. Instead of showing the actual performance feedback scores, the current study manipulated the performance feedback to always be indicative of failure (i.e., 45/50, 48/50, 46/50, and 47/50 respectively).

Task

The task employed is the D2 attention- and concentration-test (Brickenkamp, 1981). The task requires participants to select, in a row of eight options and an unknown number of lines, all lowercase letters d that are accompanied by two lines – resembling the lowercase letter I without a tittle – either both below the letter, above the letter, or one above and one below the letter and has been used previously to study effects of minimal and maximal goal standards (Giessner et al., 2020).

Measures

TSE and *SSGS* were measured in the same way as in Study 1. For *TSE*, the Cronbach's alphas for the three-item measure for all four time points ranged between .88 and .93.

Results

Assigned and self-set goal standards

To test for *H1*, the correlation between *AGS* and both *SSGS* indicate a negative association (see Table 3.1 for the detailed statistics). Thus, an assigned maximal (versus minimal) goal standard generally leads to lower minimal and maximal self-set goal standards, supporting our hypothesis. More specifically, a comparison between the mean levels of each *SSGS* shows that the difference between the *AGS* conditions is significant for the *minimal SSGS*, $t(207.82) = 6.18$, $p < .001$, and *the maximal SSGS*, $t(221) = 7.01$, $p < .001$. The corresponding means are provided in Table 3.6 (see Time 1). Overall, the results support our *H1*. Furthermore, it is also

interesting to note that participants seemingly not just accepted the assigned goals as predicted by GST (Locke & Latham, 2002), but actually set themselves even higher goals than the assigned goal of 50.

Insert Table 3.6 about here

Task self-efficacy development

To test for *H2* and *H3*, we applied random coefficient modelling (RCM; Bliese & Ployhart, 2002) to determine the overall pattern of, and individual variances in *TSE* change. The Level 2 model is specified with the intrapersonal variable *Time*, the between individuals variable grand-mean centred *AGS* (cf., Yaremych, Preacher & Hedeker, 2021), and a *Time* × *AGS* cross-level interaction term as predictors of *TSE*.[XIII]

First, *Time* is found to affect *TSE* negatively and significantly, $\gamma = -.22$, SE = .02, $t(667) = -10.85$, $p < .001$, 95% CI: [-.26, -.18]. This shows support for our Hypothesis 2. Then, the direct effect of *AGS* on *TSE* is also significant, $\gamma = .18$, SE = .08, $t(221) = 2.21$, $p = .03$, 95% CI: [.02, .34]. This indicates that across *Time*, participants experience higher levels of TSE in the *maximal AGS* (abbrev. AGS_{max}) compared to the minimal *AGS* (abbrev. AGS_{min}) condition: $M_{AGSmax} = 3.92$, SD_{AGSmax}

XIII Following Bliese & Ployhart (2002), we started with specifying the Level 1 model (i.e., intrapersonal). Modelling for random intercepts, random linear time slopes, autocorrelation, and heteroscedasticity made for significantly better model fit, accounted for in specifying Level 2.

= .80 versus M_{AGSmin} = 3.33, SD_{AGSmin} = .93. Table 3.6 displays detailed information on all means and standard deviations per time point, separated for *AGS* too.

The predicted interaction yields a positive and significant effect too, γ = .26, SE = .04, $t(667) = 6.38$, $p < .001$, 95% CI: [.18, .34]. In order to better understand this interaction effect, we tested for simple slopes in AGS_{min} and AGS_{max} conditions (Aiken & West, 1991). Concerning AGS_{min}, *Time* significantly and negatively relates to *TSE*; γ = -.35, SE = .03, $t(667) = -12.18$, $p < .001$, 95% CI: [-.41, -.30]. For AGS_{max}, *Time* also shows a negative significant effect upon *TSE*; γ = -.09, SE = .03, $t(667) = -3.16$, $p = .002$, 95% CI: [-.15, -.03]. However, the effect size shows an almost 4 times smaller impact on TSE in the AGS_{max} conditions, indicating a much less steep decline in *TSE* over *Time*. This aligns with our expectations, and thus confirms *H3*.

Self-set goal standards development

To test for *H4* and *H5*, we again used RCM analyses similar to the ones described for *TSE*. The specification of the level 2 model features the within individuals *Time* variable, the between individuals *AGS* variable, and the *Time* × *AGS* cross-level interaction term as predictors of *average(d) SSGS.*[XIV]

XIV In line with Bliese & Ployhart (2002), we started with the specification of the level 1 model. Modelling for random intercepts, random linear time slopes and autocorrelation made for significantly better model fit, accounted for in specifying Level 2. Modelling for heteroscedasticity was not possible due to convergence problems.

Starting with *Time*, the analysis shows a negative influence that is significant, γ = -2.21, SE = .27, $t(667) = -8.34$, $p < .001$, 95% CI: [-2.73, -1.69]. This supports our *H4*. The main effect of *AGS* upon *average(d) SSGS* was also significant, γ = -13.17, SE = 1.71, $t(221) = -7.71$, $p < .001$, 95% CI: [-16.54, -9.80]. It indicates that across *Time*, participants set higher goals in the AGS_{min} condition compared to AGS_{max}: $M_{AGSmin} = 60.26$, $SD_{AGSmin} = 10.89$ versus $M_{AGSmax} = 50.84$, $SD_{AGSmax} = 10.27$. See Table 3.6 for related means and standard deviations per time point.

These main effects were qualified by our predicted (i.e., *H5*) cross-level interaction, γ = 2.25, SE = .53, $t(667) = 4.24$, $p < .001$, 95% CI: [1.21, 3.29]. We again run simple main effect analyses to better understand the cross-level interaction effect. Within AGS_{min}, *Time* significantly and negatively relates to *average(d) SSGS*; γ = -3.34, SE = .38, $t(667) = -8.89$, $p < .001$, 95% CI: [-4.07, -2.60]. Within AGS_{max}, *Time* also related significantly and negatively to *average SSGS*; γ = -1.09, SE = .38, $t(667) = -2.89$, $p = .004$, 95% CI: [-1.82, -.35]. But the effect size is around 3 times smaller in the AGS_{max} condition, indicating that the goals were not as extremely lowered as compared to the AGS_{min} condition. This supports our *H5*.

In addition to these analyses for *average(d) SSGS*, we also performed separate RCM analyses with equal model specifications centring on the two *SSGS* variables on which *average(d) SSGS* is based, namely *minimal SSGS* and *maximal SSGS*.

Level 2 modelling[XV] for *minimal SSGS* showed that *Time* is found to be an insignificant predictor; γ = -.39, SE = .28, *t*(667) = -1.44, *p* = .15, 95% CI: [-.94, .14]. *AGS* does significantly and negatively predict *minimal SSGS*; γ = -11.16, SE = 1.78, *t*(221) = -6.28, *p* < .001, 95% CI: [-14.66, -7.66]. The predicted cross-level interaction (i.e., *H5*) is significant; γ = 2.41, SE = .55, *t*(667) = 4.36, *p* < .001, 95% CI: [1.32, 3.49]. Continuing with the corresponding testing for simple slopes in AGS_{min} and AGS_{max} conditions, *Time* significantly predicts *minimal SSGS* in both conditions: AGS_{min} γ = -1.60, SE = .39, *t*(667) = -4.11, *p* < .001, 95% CI: [-2.37, -.84]; AGS_{max} γ = 0.81, SE = .39, *t*(667) = 2.06, *p* = .04, 95% CI: [.04, 1.57].[XVI] It is interesting to highlight that the *minimal SSGS* actually somewhat increases over time in the AGS_{max} condition.

The RCM Level 2 procedure for *maximal SSGS*[XVII] shows that *Time* is a significant predictor of the *maximal SSGS* outcome variable; γ = -3.67, SE = .29, *t*(667) = -12.47, *p* < .001, 95% CI: [-4.25, -3.10]. Such a significant direct influence is also established for *AGS*; γ = -14.94, SE = 2.12, *t*(221) = -7.04, *p* < .001, 95% CI: [-19.12, -10.76]. Moreover, the cross-level interaction also significantly impacts *maximal SSGS*, γ = 2.08, SE = .59, *t*(667) = 3.54, *p* < .001, 95% CI: [.93, 3.24].

XV Improved RCM Level 1 model fit by modelling for random intercepts, random linear time slopes, and autocorrelation, accounted for in specifying Level 2.

XVI For information on all *minimal SSGS* means and standard deviations per time point, please check Table 3.6.

XVII Improved RCM Level 1 model fit by modelling for random intercepts, random linear time slopes, autocorrelation and heteroskedasticity, accounted for in specifying Level 2.

Simple slope analyses revealed that in AGS_{min}, a significant effect of *Time* on *maximal SSGS*, γ = -4.72, SE = .42, $t(667)$ = -11.32, $p < .001$, 95% CI: [-5.54, -3.90]. Similarly, in AGS_{max} *Time* also significantly predicted a decrease in *maximal SSGS*, γ = -2.63, SE = .42, $t(667)$ = -6.31, $p < .001$, 95% CI: [-3.45, -1.81].[XVIII]

Multilevel (moderated) mediation

To test *H6* and *H7*, we ran multilevel (moderated) mediation analyses with the MLMED macro for SPSS created by Rockwood & Hayes (2017) for the *average(d) SSGS*, for the *minimal SSGS*, and for the *maximal SSGS*. Table 3.7 shows an overview of the corresponding statistical outcomes regarding the MLMED analyses. The estimated mediation effects of *Time* on each of the three *SSGSs* via *TSE* were found to be significant. The indirect effect for the *average(d) SSGS* was estimated at -1.03 with 95% CI (i.e., based on Monte Carlo estimation) of [-1.27, -.81]. For *minimal SSGS*, the estimated mediation effect was -.93 with 95% CI: [-1.16, -.71]. Lastly, for *maximal SSGS*, the estimate equals -1.13 with 95% CI: [-1.41, -.87]. This supports our *H6*.

Insert Table 3.7 about here

The analyses for the multilevel moderated mediation show that *AGS* significantly and positively interacts with *Time* (see Table 3.7). Moreover, the

XVIII For information on all *maximal SSGS* means and standard deviations per time point, please check Table 3.6.

estimated indexes of moderated mediation have Monte Carlo Confidence Intervals that do not include zero, supporting a moderated mediation effect. Hence, we can confirm *H7*.

Zooming in on mediations for AGS_{min} and AGS_{max} conditions, for the *average(d) SSGS*, significant mediating effects were established for individuals that were presented with a minimal *AGS*; *effect* = -1.05, *SE* = .19, $p < .001$, CI 95%: [-1.43; -.69], and significant but weaker for individuals in the AGS_{max} *condition*, *effect* = -.50, *SE* = .14, $p < .001$ CI 95%: [-.78; -.25]. For the *minimal SSGS*, a similar mediating influence was found for AGS_{min}; *effect* = -.77, *SE* = .21, $p < .001$, CI 95%: [-1.18; -.38]. Also, for AGS_{max}, this indirect effect showed significance at lower strength; *effect* = -.47, *SE* = .13, $p < .001$ CI 95%: [-.74; -.23]. With regard to *maximal SSGS*, both conditions showed indirect effects of *Time* upon *SSGS* via *TSE*, where the AGS_{min} condition shows a stronger indirect influence; *effect* = -1.32, *SE* = .26, $p < .001$, CI 95%: [-1.86; -.82] compared to the AGS_{max} condition; *effect* = -.53, *SE* = .15, $p < .001$, CI 95%: [-.83; -.26].

Discussion of Study 3

In this study, we were able to confirm all our hypotheses: not only do people start off with higher self-set standards when presented with an assigned minimal (versus maximal) standards, but when they are confronted with feedback that communicate ongoing goal failure, decreased levels of experienced task self-efficacy and self-set goals standards will occur over time. Yet, the rate of this

decrease depends on the assigned goal standard, with a stronger decline for people that were presented with a minimal (versus maximal) standard. Aligning all these elements, we found a moderated mediation effect where – over time – the interaction of negative performance feedback and assigned goal standard impacts the self-set goal standard levels via individual task self-efficacy beliefs.

DISCUSSION

With the current research, we aimed to provide insights in how managers should approach the balancing act of setting difficult goals to motivate employees to perform at top level (Locke & Latham, 2002; 2019) while at the same time increasing the risk of continuous failure (Ordóñez et al., 2009). We addressed this problem by integrating the theoretical framework of minimal and maximal goal standards (Giessner et al., 2020) with goal-setting theory and explored effects on task self-efficacy beliefs (Bandura, 1986; Locke & Latham, 1991) and self-set goal levels (Bandura & Locke, 2003).

In three experimental studies with participants engaging in a performance challenge over several rounds, we found overall support that externally assigned goals were internalised by participants. Externally assigned maximal (versus minimal) goal standards resulted in overall lower self-set goal-setting (i.e., minimal, and maximal self-set goals). Furthermore, repeated negative performance feedback reduced task self-efficacy over time. However, this effect seems to be reduced if individuals received a maximal (versus minimal) externally-set goal standard. In other words, maximal goal standards keep task self-efficacy alive despite continuous failure whereas minimal goal standards have a severe negative impact on self-efficacy when experiencing continuous failure. We found similar effects on subsequent self-goal-setting. More precisely, while repeated failure decreased the

self-set goal levels over time, maximal (versus minimal) goal standards buffered against this negative effect of goal failure. Furthermore, self-efficacy beliefs mediate the effects between externally set minimal versus maximal goal-setting on self-set goals.

While we believe that our data supports our hypotheses in general, we acknowledge that not all hypotheses have been fully confirmed in our studies. More precisely, only our last study supported all of our hypotheses. Yet, the expected pattern of results is present in all of our studies. There are several explanations for this. First, the final sample size of Study 1 was smaller in the end than anticipated. Thus, our statistical power was limited which is especially a problem for testing the more complex mediation and moderated mediation effects. In Study 2, by doubling our sample size compared to Study 1, we were already more successful in finding support for more of our hypotheses. Yet, as the online panel implies a less controlled environment in which participants engaged in the repeated task-performance and more heterogeneity of the sample, this still could have brought about lower statistical power. Compared to the previous studies, Study 3 was conducted in the same environment as Study 1 (i.e., a behavioural laboratory environment) with a more homogenous sample (compared to Study 2) and manipulated or performance feedback (compared to actual performance feedback in Study 1 and Study 2). Thus, we may assume that this study provides the highest power to test for our hypotheses.

Beyond this speculation about the quality of studies, variation in significance of studies using the same paradigm is a natural occurring phenomenon as large-scale

replication processes like the Many Labs studies have shown (Klein et al., 2014; 2018). Therefore, Kenny and Judd (2019) advised to conduct more than one study and to accept the fact that there will be some non-significant findings. It is important to consider the overall results. Taking this perspective, we believe that the data we provide here give support for our hypotheses. At the same time, we recognise, that future replication studies by other research teams will help to further establish our findings.

Theoretical and practical implications

Overall, the current research shows support for GST (Locke et al., 1984; Locke & Latham, 1990; Meyer & Gellatly, 1988). We observed a process of goal internalisation where an assigned goal standard is internalised and translated into self-set goal standards. Extending GST, our integration of the minimal and maximal goal standards framework (Giessner et al., 2020) reveals that setting maximal versus minimal goal standards at the same objective level results in overall to a lower internalised goal-setting. This is because maximal goal standards are ideals and, thus, create a perception of an upper limit (Brendl & Higgins, 1996). In contrast, minimal standards are perceived as low-level goals and participants define themselves maximal standards that go above these externally-set minimal standards.

Our main contribution is the focus on how repeated failure impacts self-efficacy beliefs and self-goal-setting. Ordóñez and colleagues (2009) argued that one danger

of goal-setting might be that setting difficult goals could actually harm self-efficacy because of a higher likelihood of failure experiences (cf., Bandura & Cervone, 1983; Carver & Schreier, 1981; Tolli & Schmidt, 2008). While we showed that repeated failure experiences indeed decrease task self-efficacy beliefs, our extension with the minimal and maximal goal standard framework (Giessner et al., 2020) reveals that this negative side-effect of goal setting is reduced when maximal (versus minimal) goal standards are used.

In addition to the role that time plays in the development of self-efficacy beliefs, it also plays such a part in the revision of self-set goal standards. In line with earlier research (Donovan & Williams, 2003; Ilies & Judge, 2005), our studies demonstrated a downward development in the average level of self-set goal standards when individuals were confronted with continuous failure feedback. Differentiating for the two specific self-set goal standards – self-set minimal or maximal goal standards – the change over time is most extreme for the maximal (versus minimal) self-set goal standard. Alike the role assigned goal standard plays in the rate of development of an individual's self-efficacy beliefs over time, our studies' results mostly displayed that a maximal (versus minimal) assigned goal standard moderates the influence of the failure feedback loop upon the average level of self-set goal standards in such a way, that the decrease weakens.

Our theoretical and empirical extension of prior research yields a clearer picture of how leaders should deal with their own goal-setting balancing acts. First of all,

leaders need to clearly know when they are tasked with setting goals for their subordinates whether they look to inspire one-off or repeated performance behaviour(s). In case it is the former, and managers are hoping to 'get the most out of individuals', our advice would be to assign goals in a minimal way, to stimulate relatively higher levels of self-set goal standards as a result of the goal internalisation process. Even though actual performance outcomes were outside the scope of the current research, we feel confident in purporting that this minimal (versus maximal) strategy will result in higher performance outcomes – following GST literature (Locke & Latham, 2002; 2019).

With regard to repeated individual performance and related feedback, leaders would benefit from a different approach, as they now should also be concerned with keeping up psychological morale within their subordinates. Here, our recommendation to leaders would be to assign goals in a maximal (versus minimal) way. Although an assigned maximal standard will not completely bring a halt to the lowering of efficacy beliefs within individuals in case they receive negative performance feedback, it surely can weaken the rate at which this occurs. Furthermore, assigning a maximal goal also instigates a similar effect in self-set goal standards. Even though constant negative feedback bring about drops in average levels of self-set goal standards, the assigned maximal goal is likely to somewhat buffer against this decline.

In short, we would recommend managers to generally set performance goals that they are assigning to their subordinates as maximal standards – particularly if it is likely to expect adversity over time (i.e., negative performance feedback): not only does it weaken the (inevitable) negative development of the experienced levels of self-efficacy, but eventually it also results in relatively smaller decreases in self-set goal standard levels.

Limitations and future research directions

Certain conditions that could be limiting the generalisability of our results need to be acknowledged, which might provide input for future research opportunities. Our research focused on the effects of goal standards on self-efficacy and self-set goal over time under repeated failure. As a consequence, we limited the time for the tasks in our design and, thus, did not allow to test for the performance persistence which self-efficacy and goal setting would predict (Wood & Bandura, 1989). As a result, our research design does not allow to reliably test for performance outcome effects. However, given the rich literature on goal-setting and self-efficacy effects on performance, we do not question that these effects can be expected.

Second, even though the experimental approach makes it possible to draw causal inferences between the key variables, it does restrict extrapolating the findings to more realistic settings beyond the laboratory and student participants sample. Using an online panel might have alleviated some of these restrictions (i.e.,

better demographical representation beyond students: employed/unemployed, different age distribution). At the same time, it introduces other restrictions (i.e., less control over the environmental conditions – even though Crump, McDonnell & Gureckis (2013) argue for high comparability between laboratory and online testing). Nevertheless, as we developed and aimed to test new theoretical insights, an experimental design to draw causal conclusions is most appropriate at this stage. Furthermore, Locke & Latham (2002) argued that "goal-setting [theory] is among the most valid and practical theories of employee motivation" (p. 714), due to its wide body of evidence found in many different contexts, employing varying tasks, over diverse periods of time. Hence, we expect our results to hold in more realistic settings as well, which points towards the added value of future research.

Conclusion

With this research, we have been able to provide a dynamic account on the effects of constant failure and how it influences individual self-setting and self-efficacy beliefs over time. We show that maximal (versus minimal) goal standards can reduce possible negative side effects of repeated failure by keeping self-efficacy and self-set goal relatively stable over time. Thus, negative side effects can be managed by using maximal goal standards. Managers should be aware of the beneficial impacts of setting their goal standards in a maximal manner, as it allows them to approach the balancing act in a well-informed way.

TABLES & FIGURES OF CHAPTER 3

Table 3.1.

Table 3.2.

Table 3.3.

Table 3.4.

Table 3.5.

Table 3.6.

Table 3.7.

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Figure 3.1.

Table 3.1.

Means, standard deviations, sample sizes and correlations between Assigned Goal Standard and Self-Set Goal Standards (Minimal SSGS and Maximal SSGS) at T1: Studies 1 – 3

Variables	*M*	*SD*	*N*	1.	2.	3.
Study 1						
1. AGS^	.00	.50	124			
2. Minimal SSGS	106.52	26.87	124	-24**		
3. Maximal SSGS	128.97	27.97	124	-.30**	.62**	
Study 2						
1. AGS^	.00	.50	253			
2. Minimal SSGS	131.25	26.03	253	-.20**		
3. Maximal SSGS	149.74	32.55	253	-.12	.48**	
Study 3						
1. AGS^	-.00	.50	223			
2. Minimal SSGS	49.17	15.51	223	-.38**		
3. Maximal SSGS	69.52	17.62	223	-.43**	.61**	

^ Grand-mean centred
**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table 3.2.

Means, standard deviations, and sample sizes of Average(d) SSGS, Minimal SSGS, Maximal SSGS, and TSE at each time point, for the entire sample (i.e., All), the minimal AGS (i.e., AGS_{min}), and the maximal AGS (i.e., AGS_{max})

		Time 1		Time 2		Time 3		Time 4	
Variable	*n*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Average(d) SSGS									
All	124	117.97	24.60	111.55	22.08	106.68	25.90	110.93	23.12
AGS_{min}	59	125.40	27.39	115.37	27.99	108.79	31.07	113.65	27.92
AGS_{max}	65	111.03	19.45	108.08	14.18	104.80	20.27	108.38	17.32
Minimal SSGS									
All	124	105.98	27.43	104.75	23.83	99.09	28.23	104.30	24.81
AGS_{min}	59	113.05	26.68	108.90	27.81	101.81	30.17	107.02	26.63
AGS_{max}	65	99.47	26.68	100.98	18.97	96.66	26.38	101.76	22.91
Maximal SSGS									
All	124	128.97	27.97	118.35	25.38	114.28	33.93	117.60	25.76
AGS_{min}	59	137.75	32.97	121.85	32.62	115.76	35.78	120.29	32.58
AGS_{max}	65	121.02	19.59	115.17	15.89	112.94	19.09	115.13	17.19
TSE									
All	124	3.95	.69	3.35	.95	3.15	1.10	3.49	1.02
AGS_{min}	59	3.94	.81	3.13	.97	2.85	1.01	3.35	.95
AGS_{max}	65	3.97	.57	3.56	.90	3.42	1.12	3.63	1.08

Table 3.3.

Multilevel Mediation and Moderated Mediation Analyses of Time (× AGS) upon Average(d) SSGS, Minimal SSGS and Maximal SSGS via TSE

Model (w/ Steps)	Within-Effects	*Estimate*	*SE*	*p*	*LL*	*UL*
Average(d) SSGS						
Multilevel Mediation						
Outcome: TSE	Time	-.16	.03	.00	-.22	-.10
Outcome: Average(d) SSGS	Time	-1.48	.59	.01	-2.63	-.33
	TSE	7.50	.97	.00	5.60	9.40
Indirect Effect	TSE	-1.19	.28	.00	-1.74	-.69
Multilevel Moderated Mediation						
Outcome: TSE	Time	-.16	.03	.00	-.22	-.10
	AGS × Time	.09	.06	.15	-.03	.21
	Between-Effects:					
	AGS	1.66	2.51	.51	-3.32	6.63
Outcome: Average(d) SSGS	Time	-1.48	.59	.01	-2.63	-.33
	TSE	7.50	.97	.00	5.61	9.40
Moderated Mediation	AGS	.65	-	-	-.26	1.60
Indirect Effect	TSE	-1.19	.28	.00	-1.77	-.69
Minimal SSGS						
Multilevel Mediation						
Outcome: TSE	Time	-.16	.03	.00	-.22	-.10
Outcome: Minimal SSGS	Time	-.29	.71	.68	-1.69	1.11
	TSE	6.39	1.17	.00	4.08	8.70
Indirect Effect	TSE	-1.01	.27	.00	-1.58	-.53
Multilevel Moderated Mediation						
Outcome: TSE	Time	-.16	.03	.00	-.22	-.10
	AGS × Time	.09	.06	.15	-.03	.21
	Between-Effects:					
	AGS	1.61	2.67	.55	-3.68	6.91
Outcome: Minimal SSG	Time	-.29	.71	.68	-1.69	1.11
	TSE	6.39	1.17	.00	4.09	8.70
Moderated Mediation	AGS	.56	-	-	-.20	1.41
Indirect Effect	TSE	-1.01	.27	.00	-1.58	-.53
Maximal SSGS						
Multilevel Mediation						
Outcome: TSE	Time	-.16	.03	.00	-.22	-.10
Outcome: Maximal SSGS	Time	-2.50	.61	.00	-3.71	-1.30
	TSE	8.69	1.02	.00	6.69	10.69
Indirect Effect	TSE	-1.38	.31	.00	-2.01	-.80
Multilevel Moderated Mediation						
Outcome: TSE	Time	-.16	.03	.00	-.22	-.10
	AGS × Time	.09	.06	.15	-.03	.21
	Between-Effects:					
	AGS	.33	.13	.01	.07	.58
Outcome: Maximal SSGS	Time	-2.50	.61	.00	-3.71	-1.30
	TSE	8.69	1.02	.00	6.69	10.69
Moderated Mediation	AGS	.76	-	-	-.30	1.82
Indirect Effect	TSE	-1.38	.31	.00	-2.01	-.80

Table 3.4.

Means, standard deviations, and sample sizes of Average(d) SSGS, Minimal SSGS, Maximal SSGS, and TSE at each time point, for the entire sample (i.e., All), the minimal AGS (i.e., AGS_{min}), and the maximal AGS (i.e., AGS_{max})

		Time 1		Time 2		Time 3	
Variable	*n*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Average(d) SSGS							
All	253	140.49	25.28	122.83	24.82	119.19	26.58
AGS_{min}	126	145.04	26.51	126.21	25.95	122.76	25.66
AGS_{max}	127	135.98	23.23	119.48	23.27	115.64	27.11
Minimal SSGS							
All	253	131.25	26.03	120.08	30.00	118.85	30.93
AGS_{min}	126	136.40	25.32	127.68	27.45	126.20	27.68
AGS_{max}	127	126.13	25.82	112.53	30.61	111.56	32.34
Maximal SSGS							
All	253	149.74	32.55	125.59	32.04	119.53	31.55
AGS_{min}	126	153.68	32.16	124.75	36.29	119.33	32.16
AGS_{max}	127	145.83	32.58	126.43	27.31	119.72	31.06
TSE							
All	253	3.92	.76	2.87	1.10	2.83	1.15
AGS_{min}	126	3.98	.72	2.78	1.13	2.69	1.13
AGS_{max}	127	3.86	.79	2.97	1.06	2.98	1.16

Table 3.5.

Multilevel Mediation and Moderated Mediation Analyses of Time (× AGS) upon Average(d) SSGS, Minimal SSGS and Maximal SSGS via TSE

Model (w/ Steps)	Within-Effects	*Estimate*	*SE*	*p*	*LL*	*UL*
Average(d) SSGS						
Multilevel Mediation						
Outcome: TSE	Time	-.54	.04	.00	-.62	-.47
Outcome: Average(d) SSGS	Time	-7.11	.87	.00	-8.82	-5.40
	TSE	6.54	.85	.00	4.86	8.21
Indirect Effect	TSE	-3.54	.53	.00	-4.62	-2.55
Multilevel Moderated Mediation						
Outcome: TSE	Time	-.54	.04	.00	-.62	-.47
	AGS × Time	.21	.08	.00	.06	.36
	Between-Effects:					
	AGS	.12	.10	.22	-.07	.31
Outcome: Average(d) SSGS	Time	-7.11	.87	.00	-.8.82	-5.40
	TSE	6.54	.85	.00	4.86	8.21
Moderated Mediation	AGS	1.35	-	-	.33	2.45
Indirect Effect	TSE	-3.54	.53	.00	-4.61	-2.55
Minimal SSGS						
Multilevel Mediation						
Outcome: TSE	Time	-.54	.04	.00	-.62	-.47
Outcome: Minimal SSGS	Time	-3.97	.97	.00	-5.88	-2.06
	TSE	4.11	.95	.00	2.24	5.98
Indirect Effect	TSE	-2.23	.54	.00	-3.33	-1.20
Multilevel Moderated Mediation						
Outcome: TSE	Time	-.54	.04	.00	-.62	-.47
	AGS × Time	.21	.08	.00	.06	.36
	Between-Effects:					
	AGS	.12	.10	.22	-.07	.31
Outcome: Minimal SSG	Time	-3.97	.97	.00	-5.88	-2.06
	TSE	4.11	.95	.00	2.24	5.98
Moderated Mediation	AGS	.42	-	-	.10	.83
Indirect Effect	TSE	-2.22	.54	.00	-3.31	-1.19
Maximal SSGS						
Multilevel Mediation						
Outcome: TSE	Time	-.54	.04	.00	-.62	-.47
Outcome: Maximal SSGS	Time	-10.25	1.12	.00	-12.45	-8.04
	TSE	8.96	1.10	.00	6.81	11.12
Indirect Effect	TSE	-4.86	.69	.00	-6.22	-3.55
Multilevel Moderated Mediation						
Outcome: TSE	Time	-.54	.04	.00	-.62	-.47
	AGS × Time	.21	.08	.00	.06	.36
	Between-Effects:					
	AGS	.12	.10	.22	-.07	.31
Outcome: Maximal SSGS	Time	-10.25	1.12	.00	-12.45	-8.04
	TSE	8.96	1.10	.00	6.81	11.12
Moderated Mediation	AGS	1.84	-	-	.48	3.39
Indirect Effect	TSE	-4.86	.69	.00	-6.25	-3.57

Table 3.6.

Means, standard deviations, and sample sizes of Average(d) SSGS, Minimal SSGS, Maximal SSGS, and TSE at each time point, for the entire sample (i.e., All), the minimal AGS (i.e., AGS_{min}), and the maximal AGS (i.e., AGS_{max})

		Time 1		Time 2		Time 3		Time 4	
Variable	*n*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Average(d) SSGS									
All	223	59.35	14.88	55.85	10.76	54.39	9.76	52.69	9.04
AGS_{min}	112	66.04	11.85	60.74	10.21	58.22	9.65	56.02	9.16
AGS_{max}	111	52.59	14.62	50.93	8.92	50.52	8.26	50.84	10.27
Minimal SSGS									
All	223	49.17	15.51	47.94	9.86	48.34	7.89	47.92	7.68
AGS_{min}	112	55.10	12.50	51.50	8.45	50.54	6.41	50.23	6.37
AGS_{max}	111	43.20	16.01	44.35	9.91	46.11	8.62	45.56	8.18
Maximal SSGS									
All	223	69.52	17.62	63.77	15.77	60.44	15.54	57.46	13.90
AGS_{min}	112	76.99	15.09	69.97	16.30	65.90	16.73	61.79	15.59
AGS_{max}	111	61.99	16.82	57.50	12.46	54.93	12.01	53.10	10.32
TSE									
All	223	4.00	.62	3.65	.84	3.56	.94	3.30	1.07
AGS_{min}	112	3.97	.63	3.36	.83	3.15	.86	2.85	.99
AGS_{max}	111	4.02	*.62*	3.94	*.75*	3.97	*.84*	3.75	*.95*

Table 3.7.

Multilevel Mediation and Moderated Mediation Analyses of Time (× AGS) upon Average(d) SSGS, Minimal SSGS and Maximal SSGS via TSE

Model (w/ Steps)	Within-Effects	*Estimate*	*SE*	*p*	*LL*	*UL*
Average(d) SSGS						
Multilevel Mediation						
Outcome: TSE	Time	-.22	.02	.00	-.25	-.19
Outcome: Average(d) SSGS	Time	-1.12	.19	.00	-1.48	-.75
	TSE	4.69	.39	.00	3.92	5.46
Indirect Effect	TSE	-1.03	.12	.00	-1.27	-.81
Multilevel Moderated Mediation						
Outcome: TSE	Time	-.22	.02	.00	-.25	-.19
	AGS × Time	.28	.03	.00	.22	.34
	Between-Effects:					
	AGS	.59	.09	.00	.41	.77
Outcome: Average(d) SSGS	Time	-1.12	.19	.00	-1.48	-.75
	TSE	4.69	.39	.00	3.92	5.46
Moderated Mediation	AGS	1.31	-	-	.97	1.68
Indirect Effect	TSE	-1.03	.11	.00	-1.26	-.81
Minimal SSGS						
Multilevel Mediation						
Outcome: TSE	Time	-.22	.02	.00	-.25	-.19
Outcome: Minimal SSGS	Time	.59	.20	.00	.19	.99
	TSE	4.22	.43	.00	3.38	5.07
Indirect Effect	TSE	-.93	.12	.00	-1.16	-.71
Multilevel Moderated Mediation						
Outcome: TSE	Time	-.22	.02	.00	-.25	-.19
	AGS × Time	.28	.03	.00	.22	.34
	Between-Effects:					
	AGS	.59	.09	.00	.41	.77
Outcome: Minimal SSG	Time	.59	.20	.00	.19	.99
	TSE	4.22	.43	.00	3.38	5.07
Moderated Mediation	AGS	1.17	-	-	.85	1.55
Indirect Effect	TSE	-.93	.11	.00	-1.16	-.71
Maximal SSGS						
Multilevel Mediation						
Outcome: TSE	Time	-.22	.02	.00	-.25	-.19
Outcome: Maximal SSGS	Time	-2.82	.24	.00	-3.29	-.2.35
	TSE	5.16	.51	.00	4.17	6.15
Indirect Effect	TSE	-1.13	.14	.00	-1.41	-.87
Multilevel Moderated Mediation						
Outcome: TSE	Time	-.22	.02	.00	-.25	-.19
	AGS × Time	.28	.03	.00	.22	.34
	Between-Effects:					
	AGS	.59	.09	.00	.41	.77
Outcome: Maximal SSGS	Time	-2.82	.24	.00	-3.29	-.2.35
	TSE	5.16	.51	.00	4.17	6.15
Moderated Mediation	AGS	1.44	-	-	1.04	1.88
Indirect Effect	TSE	-.1.13	.14	.00	-1.41	-.88

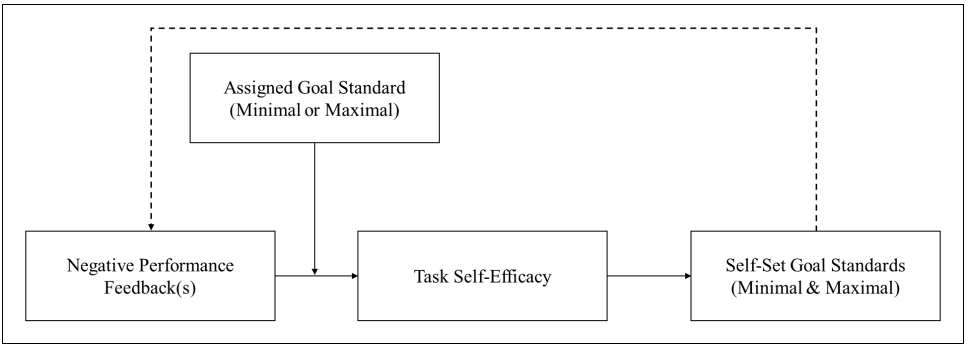

Figure 3.1. *Conceptual research model*

SUPPLEMENTARY ANALYSES STUDY 1

Even though the hypothesised expectations explicitly focus on the effect over time in light of continued failure to meet an assigned goal (performance) standard, the current study allows for comparing and contrasting between participants that were never able to reach the externally-set goal standard and participants that were able to reach the *AGS* (at least once). This is mainly due to the number of participants that were successful (n = 108). Therefore, we also checked the data for these 108 participants, where the gender distribution showed that 57.4% was female. Table S1 displays a detailed information of the means and standard deviations per time point.

Insert Table S1 about here

Results

Assigned and self-set goal standards

The correlation between *AGS* and *SSGS* shows a marginally significant, negative association for *maximal SSGS* only, $r(106) = -.18$, $p = .07$. The correlation coefficient for *minimal SSGS* is fully insignificant, $r(106) = -.10$, $p = .30$. Thus, being assigned a maximal (versus minimal) goal standard makes for (marginally) lower *maximal SSGS*.

Task Self-Efficacy development

We performed RCM analyses to determine the overall pattern of, and individual variances in *TSE* change. The Level 2 model[I] is specified with the intrapersonal variable *Time*, the between individuals variable grand-mean centred *AGS* (Yaremych, Preacher & Hedeker, 2021), and a *Time* × *AGS* cross-level interaction term as predictors of *TSE*.

First, *Time* is found to affect *TSE* positively and significantly, $\gamma = .10$, SE = .03, $t(322) = 3.55$, $p < .001$, 95% CI: [.05, .16]. Then, the direct effect of *AGS* on *TSE* is insignificant, $\gamma = .01$, SE = .13, $t(106) = .11$, $p = .92$, 95% CI: [-.25, .27]. Table S1 displays detailed information on all means and standard deviations per time point, also separated for each *AGS* condition.

The interaction does not significantly impact *TSE* either, $\gamma = .09$, SE = .06, $t(322) = 1.64$, $p = .10$, 95% CI: [-.02, .21]. Even though the Level 2 analysis does not indicate a significant cross-level interaction, we nonetheless tested for simple slopes in AGS_{min} and AGS_{max} conditions. Concerning AGS_{min} (Aiken & West, 1991), *Time* does not significantly relate to *TSE*; $\gamma = .05$, SE = .04, $t(322) = 1.34$, $p = .18$, 95% CI: [-.02, .13]. For AGS_{max}, *Time* does show a positive significant effect upon *TSE*; $\gamma = .15$, SE = .04, $t(322) = 3.68$, $p < .001$, 95% CI: [.07, .23].

I Following Bliese & Ployhart (2002), we started with specifying the Level 1 model (i.e., intrapersonal). Modelling for random intercepts, random linear time slopes, and autocorrelation made for significantly better model fit, which we also took into account for the Level 2 model specification.

Self-Set Goal Standards development

Similar RCM procedures – as mentioned by Bliese & Ployhart (2002) – were followed and performed for *SSGS* as described for *TSE*. The specification of the Level 2[II] model features the within individuals *Time* variable, the between individuals *AGS* variable, and the *Time* × *AGS* cross-level interaction term as predictors of *average(d) SSGS.*

Starting with *Time*, the analysis shows a positive impact that is significant, γ = 2.37, SE = .59, $t(319) = 4.02$, $p < .001$, 95% CI: [1.21, 3.53]. The main effect of *AGS* upon *average(d) SSGS* was insignificant, γ = -5.55, SE = 4.35, $t(106) = -1.28$, $p = .20$, 95% CI: [-14.17, 3.07]. See Table S1 for an overview of means and standard deviations per time point.

The cross-level interaction neither yields significance, γ = 1.22, SE = 1.18, $t(319) = 1.04$, $p = .30$, 95% CI: [-1.10, 3.55]. We again run simple main effect analysis (cf., Aiken et al., 1991) to better understand this (lack of) cross-level interaction effect. Within AGS_{min}, *Time* significantly and positively predicts *average(d) SSGS*; γ = 1.76, SE = .84, $t(319) = 2.10$, $p < .04$, 95% CI: [.11, 3.41].

II In line with Bliese & Ployhart (2002), we started with the specification of the Level 1 model. Modelling for random intercepts, random linear time slopes, autocorrelation and heteroskedasticity made for significantly better model fit, which we accounted for in specifying the Level 2 model.

Within AGS_{max}, *Time* also significantly predicts *average SSGS*; γ = 2.98, SE = .83, $t(319) = 3.58$, $p < .001$, 95% CI: [1.34, 4.62].

In addition to these analyses for *average(d) SSGS*, we also performed separate RCM analyses – with equivalent model specifications – for the two *SSGS* variables that provide input for *average(d) SSGS*, namely *minimal SSGS* and *maximal SSGS*. Level 2 modelling for *minimal SSGS*[III] showed that *Time* is found to be a significant predictor; γ = 3.56, SE = .83, $t(319) = 4.31$, $p < .001$, 95% CI: [1.93, 5.19]. *AGS* does not significantly predict *minimal SSGS*; γ = -6.10, SE = 4.89, $t(106) = -1.25$, $p = .21$, 95% CI: [-15.79, 3.89]. The cross-level interaction is also not significant; γ = 1.95, SE = 1.66, $t(319) = 1.18$, $p = .24$, 95% CI: [-1.31, 5.20]. Continuing with the corresponding testing for simple slopes in AGS_{min} and AGS_{max} conditions, *Time* is a significant predictor of *minimal SSGS* in both conditions: AGS_{min} γ = 2.59, SE = 1.17, $t(319) = 2.21$, $p = .03$, 95% CI: [.28, 4.89]; AGS_{max} γ = 4.53, SE = 1.17, $t(319) = 3.89$, $p < .001$, 95% CI: [2.24, 6.83].[IV]

The RCM Level 2 procedure for *maximal SSGS*[V] shows that *Time* is not a significant predictor of the *maximal SSGS* outcome variable; γ = 1.08, SE = .59, $t(322) = 1.84$, $p = .07$, 95% CI: [-.07, 2.24]. Such an insignificant direct influence

III Improved RCM Level 1 model fit by modelling for random intercepts, random linear time slopes, autocorrelation and heteroskedasticity, accounted for in specifying Level 2.

IV For information on all *minimal SSGS* means and standard deviations per time point, please check Table S1.

V Improved RCM Level 1 model fit by modelling for random intercepts, random linear time slopes, autocorrelation and heteroskedasticity, accounted for in specifying Level 2.

is also established for *AGS*; γ = -5.21, SE = 4.76, *t*(106) = -1.09, *p* = .28, 95% CI: [-14.66, 4.23]. Moreover, the cross-level interaction does not significantly impact *maximal SSGS* either, γ = 66, SE = 1.18, *t*(322) = .56, *p* = .58, 95% CI: [-1.66, 2.97]. Simple slope analyses revealed in AGS_{min} an insignificant effect of *Time* on *maximal SSGS*, γ = .75, SE = .83, *t*(322) = .90, *p* = .37, 95% CI: [-.89, 2.39]. In $AGS_{max,}$ *Time* also does not significantly predict a change in *maximal SSGS*, γ = 1.41, SE = .83, *t*(322) = 1.70, *p* = .09, 95% CI: [-.22, 3.04].[VI]

Multilevel (moderated) mediation

We ran multilevel (moderated) mediation analyses with the MLMED macro for SPSS created by Rockwood & Hayes (2017). These were performed for the *average(d) SSGS*, for the *minimal SSGS*, and for the *maximal SSGS*. Table S2 displays an overview of the relevant statistics with regard to these multilevel (moderated) mediation analyses. The estimated mediation effect of *Time* on each of the three *SSGSs* via *TSE* were found to be significant. The indirect effect for the *average(d) SSGS* was estimated at .53 with 95% CI (i.e., based on Monte Carlo estimation) of [.23, .90]. For *minimal SSGS*, the estimated mediation effect was .33 with 95% CI: [.06, .70]. Lastly, for *maximal SSGS*, the estimate equals .73 with 95% CI: [34, 1.21].

Insert Table S2 about here

VI For information on all *maximal SSGS* means and standard deviations per time point, please check Table S1.

For the multilevel moderated mediation, our analyses show that *AGS* does not significantly interact with *Time* (see Table S2). Moreover, we also observe that the estimated indexes of moderated mediation have Monte Carlo Confidence Intervals that do include zero, which renders moderated mediation effects insignificant.

Still, zooming in on mediations for AGS_{min} and AGS_{max} conditions, for the *average(d) SSGS*, no significant mediating effect was established for individuals that were presented with a minimal *AGS*; *effect* = .34, *SE* = .24, *p* = .17, CI 95%: [-.12, .86]. Nor was the indirect effect significant in the AGS_{max} *condition*, *effect* = .51, *SE* = .32, *p* = .11, CI 95%: [-.07, 1.21]. For the *minimal SSGS*, no significant mediating influence was found for AGS_{min}; *effect* = .21, *SE* = .18, *p* = .25, CI 95%: [-.07, .64]. Also, for AGS_{max}, this indirect effect showed no significance, *effect* = .30, *SE* = .38, *p* = .43, CI 95%: [-.43, 1.10]. With regard to *maximal SSGS*, the AGS_{min} condition shows no indirect influence; *effect* = .47, *SE* = .33, *p* = .16, CI 95%: [-.14, 1.16], however the AGS_{max} condition does yield significance, *effect* = .72, *SE* = .35, *p* = .04, CI 95%: [.10, 1.48].

TABLES OF SUPPLEMENTARY ANALYSES STUDY 1

Table S1.

Means, standard deviations, and sample sizes of Average(d) SSGS, Minimal SSGS, Maximal SSGS, and TSE at each time point, for the entire sample (i.e., All), the minimal AGS (i.e., AGS_{min}), and the maximal AGS (i.e., AGS_{max})

		Time 1		Time 2		Time 3		Time 4	
Variable	*n*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Average(d) SSGS									
All	108	117.64	25.94	120.71	21.08	122.46	21.04	124.86	21.55
AGS_{min}	57	121.45	27.01	122.67	21.19	123.62	20.12	125.69	21.87
AGS_{max}	51	113.38	24.24	118.59	20.96	121.21	22.12	123.93	21.37
Minimal SSGS									
All	108	105.09	30.31	114.04	20.71	117.33	20.11	119.50	22.05
AGS_{min}	57	107.95	31.74	115.96	20.72	118.91	18.59	119.54	22.18
AGS_{max}	51	101.90	28.59	111.92	20.71	115.63	21.69	119.45	22.13
Maximal SSGS									
All	108	130.19	28.59	127.50	23.63	127.65	23.70	130.22	23.50
AGS_{min}	57	134.95	30.66	129.56	24.35	128.42	24.14	131.84	24.78
AGS_{max}	51	124.86	25.34	125.20	22.81	126.78	23.42	128.41	22.08
TSE									
All	108	4.08	.64	4.03	.90	4.14	.86	4.38	.81
AGS_{min}	57	4.15	.58	3.87	.91	3.99	.88	4.30	.82
AGS_{max}	51	4.01	.70	4.22	.87	4.31	.82	4.47	.79

Table S2.

Multilevel Mediation and Moderated Mediation Analyses of Time (× AGS) upon Average(d) SSGS, Minimal SSGS and Maximal SSGS via TSE

Model (w/ Steps)	Within-Effects	*Estimate*	*SE*	*p*	*LL*	*UL*
Average(d) SSGS						
Multilevel Mediation						
Outcome: TSE	Time	.10	.03	.00	.05	.15
Outcome: Average(d) SSGS	Time	1.79	.49	.00	.81	2.76
	TSE	5.23	1.06	.00	3.15	7.32
Indirect Effect	TSE	.53	.17	.00	.23	.90
Multilevel Moderated Mediation						
Outcome: TSE	Time	.10	.03	.00	.05	.15
	AGS × Time	.09	.05	.08	-.01	.19
	Between-Effects:					
	AGS	.17	.12	.16	-.07	.42
Outcome: Average(d) SSGS	Time	1.79	.49	.00	.81	2.76
	TSE	5.23	1.06	.00	3.15	7.32
Moderated Mediation	AGS	.47	-	-	-.05	1.07
Indirect Effect	TSE	.53	.17	.00	.23	.89
Minimal SSGS						
Multilevel Mediation						
Outcome: TSE	Time	.10	.03	.00	.05	.15
Outcome: Minimal SSGS	Time	4.27	.63	.00	3.04	5.50
	TSE	3.30	1.35	.01	.65	5.95
Indirect Effect	TSE	.33	.16	.04	.06	.70
Multilevel Moderated Mediation						
Outcome: TSE	Time	.10	.03	.00	.05	.15
	AGS × Time	.09	.05	.08	-.01	.19
	Between-Effects:					
	AGS	.17	.12	.16	-.07	.42
Outcome: Minimal SSG	Time	4.27	.63	.00	3.04	5.50
	TSE	3.30	1.34	.01	.65	5.95
Moderated Mediation	AGS	.30	-	-	-.03	.79
Indirect Effect	TSE	.33	.16	.04	.05	.69
Maximal SSGS						
Multilevel Mediation						
Outcome: TSE	Time	.10	.03	.00	.05	.15
Outcome: Maximal SSGS	Time	-.70	.55	.20	-1.78	.38
	TSE	7.17	1.18	.00	4.84	9.49
Indirect Effect	TSE	.73	.22	.00	.34	1.20
Multilevel Moderated Mediation						
Outcome: TSE	Time	.10	.03	.00	.05	.15
	AGS × Time	.09	.05	.08	-.01	.19
	Between-Effects:					
	AGS	.17	.12	.16	-.07	.42
Outcome: Maximal SSGS	Time	-.70	.55	.20	-1.78	.38
	TSE	7.17	1.18	.00	4.84	9.49
Moderated Mediation	AGS	.64	-	-	-.06	1.44
Indirect Effect	TSE	.73	.22	.00	.34	1.21

CHAPTER 4:

BEYOND SIMPLE GOAL-SETTING: HOW STRETCH GOALS AND MEANINGFULNESS INFLUENCE INDIVIDUAL PERFORMANCE

Goals are known to have a pervasive effect upon employee behaviour and performance (Lunenburg, 2011). Many practitioners and academics recognise the worth of goal-setting in enhancing performance outcomes by setting difficult and specific goals and demonstrate this value on multiple analytical levels (e.g., Locke & Latham, 1990; 2002; 2019; Kleingeld, van Mierlo, & Arends, 2011). Recent goal-setting research extended this view by focusing on beneficial moderating and mediating influences on the goal-performance linkage (e.g., Bipp & Kleingeld, 2011; Erez & Judge, 2001; Nahrgang, DeRue, Hollenbeck, Spitzmuller, Jundt, & Ilgen, 2013). Moreover, some researchers started questioning whether goals can be set in ways not just seen as 'challenging but attainable' (Locke & Latham, 2002), but stretched to levels making them appear as rather impossible to attain (Ahmadi, Jansen, & Eggers, 2021; Gary, Yang, Yetton, & Sterman, 2017; Kerr & Landauer, 2004; Sitkin, See, Miller, Lawless, Carton, 2011).

Through such stretch goals – which are envisioned aspirations that are practically (almost) unattainable – organisations are moved to change their current strategies and practices, leading to improvements in current levels of organisational effectiveness and facilitating additional organisational growth that would otherwise

not be reached (Kerr & Landauer, 2004). This explains (part of) the desirability for organisations to partake in stretch goal-setting, which is projected to positively affect the organisation's bottom-line results.

Although stretch goals have been contested to only work in specific instances (Ahmadi et al., 2021; Sitkin et al., 2011) and its rationale contradicts with standard goal(-setting) theory (Pina e Cunha, Giustiniano, Rego, & Clegg, 2017), the success and popularity of stretch goals is fortified by renowned case examples from Southwest Airlines, Toyota, and Apple (Freiberg & Freiberg, 1996; Takeuchi, Osono, & Shimizu, 2008). Yet, empirical research on stretch goals demonstrated rather heterogeneous productivity effects for individuals and teams, with some increasing and some decreasing performance outcomes (Ahmadi et al., 2021; Gary et al., 2017). Sitkin and colleagues (2011) argued that stretch goals can positively influence performance if task-related resources are available. While their focus has been primarily on tangible resources, we argue that psychological resources may also contribute towards the effectiveness of stretch goals. In the current research, we focus on the meaningfulness of the task at hand as such a psychological resource which might increase one's commitment towards a stretch goal and performance to actually achieve this goal (cf., Barrick, Mount, & Li, 2013). Meaningfulness provides a motivational resource that may enable individuals to pursue stretch goals despite being potentially non-attainable.

In summary, our research extends previous theorising in three important ways. First, although goal-setting literature predominantly suggests the futility of setting impossible goals for individuals to pursue (e.g., Locke, 1982; Erez & Zidon, 1984), we attempt to elucidate those specific instances – or boundary conditions – that actually *could* allow for a successful application at the individual level. Explicitly, we contend that the way in which meaningfulness (reflected in task significance) is perceived by individuals not only makes it more likely for them to decide to continue with a certain task at hand, but also creates a motivating context that should – at least – buffer against any potential non-positive (i.e., no, or negative) performance effects as a result of stretch goal-setting. Second, by combining relevant theoretical concepts on individual decision-making and motivation – e.g., goal-setting (Locke & Latham, 1990), task significance (Hackman & Oldham, 1980) – and testing these combinations by running three experimental studies, we intend to offer an updated, extended perspective on stretch goal-setting at the individual level. Finally, our research also helps to understand the incremental contribution of stretch goal-setting and meaningfulness to actual performance.

Goals, goal difficulty stretching, and goal commitment

Arguably the most influential motivational technique and well-supported body of research is put forward in Locke and Latham's (1990; 2002; 2019) Goal-Setting Theory (abbrev. GST), which allows for the best understanding of goals and their impacts upon cognitions and behaviours at the individual level. GST contends that

goals should be both specific and difficult – as opposed to ambiguous, easy goals or so-called 'do-you-best' goals – in order to motivate people towards higher levels of job or task performance.

One vital condition for this positive performance effect, though, is that specific, difficult goals need to be considered as 'within reach' by individuals working towards achieving them. If this is the case, and the goal is perceived as challenging with a non-zero – i.e., up to approximately 10 percent – probability of attainment (Locke & Latham, 1990; Sitkin et al., 2011), goals are likely to be taken more seriously, and people commit to or accept goals more willingly. All in all, this translates into being moved to perform (more) effectively, thus exhibiting more positive job performance. This effect is well established for individuals, and to a degree, holds up for teams as well (e.g., Kleingeld et al., 2011; Locke & Latham, 1990; 2002; 2019, O'Leary-Kelley, Martocchio, & Frink, 1994).

Conversely, if individual goals are perceived as unachievable, both acceptance and motivation levels are expected to deteriorate, whereby goals may even be perceived of as ludicrous (Locke & Latham, 1990). However, there is surprisingly little evidence for this central assumption of GST. Even more, Locke (1982) tested whether goals going from easy to difficult to impossible would impact performance. His experimental study indicated a curvilinear relationship between goal difficulty and task performance outcomes, with a positive linear association for goals ranging from 'easy' to 'difficult', and a non-significant (but still positive) association for

goals that range from difficult but possible to difficult but impossible. Thus, even this early empirical evidence suggests that impossible goals can still exert a strong motivational force on performance.

Another study by Erez and Zidon (1984) further explored the effect of impossible goals. The researchers argued that if individuals accept the goal, even impossible goals will predict increased performance. Only in case of goal rejection, impossible goals will reduce motivation and performance as originally proposed by GST (Locke & Latham, 1990). This is precisely what the research found. However, one should note that the low goal acceptance manipulation of this study had some very strong demand characteristics, explicitly telling participants that a non-biased response to impossible goals would be to reject the goal. A follow-up study by Vance and Colella (1990) displayed that assigned goals were ultimately rejected by most people when the goal difficulty was of an extremely high level (i.e., impossible goals). Yet, they showed that performance remained high even in light of assigned goal rejection, something that also holds partly for Erez and Zidon's (1984) study: Some individuals' performance continued to be high even when impossible goals were set externally (cf., Wegge, Haslam, & Postmes, 2009).

Those impossible goals "that are considered virtually unattainable" (Thompson, Hochwater, & Mathys, 1997, p. 48) are defined as stretch goals. And recently there has been a growing interest in such stretch goals (Sitkin et al., 2011; Pina e Cunha et al., 2017) and its effect on performance in organisations (Gary et al., 2017) or on

employee idea generation (Ahmadi, Jansen, & Eggers, 2021). These studies show that stretch goals can produce higher performances but also much lower performances. In other words, overall, stretch goals seem to produce much more variation in outcome variables compared to achievable difficult goals. Interestingly, even the early study by Locke (1982) seems to indicate this increase in variation of performance, although this has not been tested.

Acknowledging this potential of setting stretch goals for performance, it seems worthwhile to explore when these goals might have positive effects and how these influence outcome variables. We are not the first to raise this question. On an organisational level, Sitkin and colleagues (2011) argued that slack resources and past high performance increase the effectiveness of stretch goals. Likewise, Kerr and Landauer (2004) refer to the relevance of a functional support structure that fully underwrites one of two main purposes for setting stretch goals: either the improvement of organisational effectiveness, or the enhancement of personal and professional development. More recently, Ahmadi and colleagues (2021) showed that interindividual differences also matter for individual idea generation. In a study analysing idea generation data from a Fortune 500 firm, they predicted and found that stretch goals motivate more capable employees (i.e., in terms of prior success and tenure) and hurt more uncapable employees.

However, while these insights are already very helpful to understand when and how stretch goals might work, previous research has not considered a more

motivational underpinning. Would it be possible to motivate those employees who do not have those resources? This brings us to the question why prior success/performance and slack resources would be so important for the motivational effects of stretch goals? A basic assumption is that these provide some form of motivational stimulation and boost intrinsic motivation (Ahmadi et al., 2021). In other words, the effectiveness of stretch goals can be increased by addressing some basic motivational resources of employees or how employees might perceive the goals they follow.

Here, we focus on the perceived meaningfulness of a task as a motivational resource that may enable stretch goals to be effective, for the following three reasons. First, it is a well-established concept in research on work motivation (Hackman & Oldham, 1975; 1976; Humphrey, Nahrgang, & Morgeson, 2007) where it is defined as "the degree to which the employee experiences the job as one which is generally meaningful, valuable, and worthwhile" (Hackman & Oldham, 1975, p. 162). Second, it has been shown to fulfil employees' psychological needs (Martela & Pessi, 2018; Kubiak, 2020) which affect work motivation (Ryan & Deci, 2000). Finally, meaningfulness relates to goal-setting itself (Kubiak, 2020; Locke & Latham, 2002), because meaningfulness represents broader or higher-order goals that provide significance to a lower-order goal or task (Barrick, Mount, & Li, 2013; Brendl & Higgins, 1996). More precisely, low-level goals (e.g., writing a scientific article) serve some higher-level goals (e.g., advancing theory and improving

practice). These high-level goals therefore provide meaning towards the task at hand. Given these reasons, we consider the meaningfulness of a task as a strong psychological motivating mechanism that may increase the effectiveness of low-level goals and, as we will argue, especially for low-level stretch goals.

Beyond difficulty stretching: significant tasks

As mentioned before, the idea that meaningfulness of a task can contribute to the actual performance has been already established in the Job Characteristics theory (Hackman & Oldham, 1976) and the research based on it (Humphrey et al., 2007). A central element providing meaningfulness is task significance – reflecting the level to which work has "substantial impact on the lives of people, whether those people are in the immediate organisation or in the world at large" (Hackman & Oldham, 1980, p.79). And this element of (experienced) task meaningfulness is "thought to be particularly critical in today's economy, as employees are increasingly concerned with doing work that benefits other people and contributes to society […] and as organisations are increasingly concerned with providing employees with these opportunities" (Grant, 2008, p. 108).

Perceptions of task significance may be controlled or swayed by managers via structural task or job redesign (Hackman & Oldham, 1976). In addition, however, managers have the power to (re)frame individuals' task significance judgments through social or informational cues – e.g., explaining the significance of a task

(Griffin, 1983 – see Grant, 2008). Thus, task significance can be relatively easily construed through communication of managers.

In addition to this ease of applicability, task significance influences job or task performance both directly and indirectly. For instance, Grant (2008) argued for and showed a direct, causal, positive effect of task significance upon job performance. Indirectly, research in the GST realm mainly considers task significance as a contributing factor to goal commitment (Locke & Latham, 2002). As such, it appears to indirectly impact the goal pursuit process (i.e., goal – [task] performance link). Outside of the GST context, associated with an individual's pursuit to find meaning in his or her work, task significance reliably predicts an individual's experienced job meaningfulness (Morgeson & Campion, 2003; Pratt & Ashforth, 2003). This eventually (i.e., indirectly) leads to beneficial work-related outcomes – including improved individual performance.

Recognising the relevance of task significance in augmenting individual effectiveness via increased motivation (Kubiak, 2021), we argue that task significance provides an individual resource enabling a successful application of individual-level stretch goal-setting. Consequently, stretch goals might be most effective if task significance is high (versus low) as it provides the motivational stimulation needed for a stretch goal to impact individual commitment towards the goal and performing to attempt to reach the goal (Ahmadi et al., 2021; Sitkin et al., 2011).

The impact of task significance and stretch goal-setting on commitment and performance

When theorising about the impact of stretch goals on individual motivation, it is important to differentiate two sequential aspects. First, an individual might accept or reject a stretch goal (Erez & Zidon, 1984; Vance & Colella, 1990). Then, an individual acts on a stretch goal. It is important to consider these two aspects, as it might already explain why previous research has shown that stretch goals produce high variance in organisational performance (Gary et al. 2017) or individual idea generation (Ahmadi et al., 2021). If there is variation in goal commitment to stretch goals, it may be no surprise to see rather strong variance in performance (Locke & Latham, 2002).

We argue that task significance is an important condition for the individual acceptance of the stretch goal. This is because in order to accept an impossible stretch goal, individuals would need some form of motivational resource (Ahmadi et al., 2021; Sitkin et al., 2011). Task significance provides this motivational resource and should, therefore, increase the acceptance of goals in general (Grant, 2008) and specifically of an impossible compared to a possible (stretch) goal (cf., Grant, 2008).

H1: Individuals are more likely to accept a goal if they are exposed (versus unexposed) to task significance for this goal

(i.e., main effect hypothesis of task significance).

H2: Individuals presented with an impossible (versus possible) stretch goal are more likely to accept this goal if they are exposed (versus unexposed) to task significance for this goal

(i.e, interaction effect between goal type and task significance).

Subsequently, once individuals accept a stretch goal, we predict that task significance provides a further motivational boost for actual performance (cf., Grant, 2008). Again, we predict a main effect of task significance on performance. Furthermore, as we assume that with goal acceptance stretch (versus non-stretch) goals will have a positive impact on actual performance (Erez & Zidon, 1984), because these set a more difficult level to be achieved (Locke & Latham, 2002). Finally, we also expect an interaction effect indicating the motivational resource of task significance should be especially strong for those following a stretch goal if that goal is accepted (cf., Ahmadi et al., 2021).

H3: Task performance levels will increase more for individuals who were exposed (versus unexposed) to task significance.

H4: Task performance levels will increase more for individuals who were presented impossible (versus possible) stretch goals.

H5: Individuals presented with an impossible (versus possible) stretch goal will show higher task performance levels when they were exposed (versus unexposed) to task significance for an accepted goal

(i.e, interaction effect between goal type and task significance).

To check for all these assumptions, three large studies and two small pilot studies have been conducted, of which the methodologies and results are discussed below.

PILOT STUDY 1

Method

Participants

The sample consisted of 24 participants that were recruited via an online data panel (i.e., Prolific). On average, the people making up the sample are 30.00 years old (SD = 6.65), with 62.50% males and 37.50% females.

Procedure

In this pilot study, all participants read an introductory text that told them they were going to partake in so-called *Brainnovation (Brainstorming Innovation) Challenges.* Next, they all received specific instructions about the task or challenge at hand, such as that they would be given 100 seconds to come up with as many ways as possible to use a certain item. To illustrate what is expected of them, an example of alternative uses for a paperclip is presented to them (e.g., as an earring, as a toothpick). Then, the challenge commenced. They were shown an image of a black notebook (A4-size) with the dimensions in centimetres/inches. After the duration of 100 seconds, the participants were automatically redirected to a page where they were instructed to check the alternative uses that they were able to come up with one more time, and fill out the number of uniquely given answers (i.e., performance score) in the designated area. This concluded the first part of the procedure.

Then, they were told to prepare for another round of a *Brainnovation Challenge.* But before, they were first asked to reflect upon a performance goal that was stretched with factor 1.2, and answer the question 'How achievable is this goal?' Then, they were instructed to answer the same question again, this time reflecting upon a goal that was stretched with factor 2.5. Upon completion, they were redirected to the next and also final page where they were debriefed about the purpose of the study.

Task

The task employed in the study, referred to as the *Brainnovation Challenge*, is the Brainstorming (or 'Alternative Uses') Task (Guilford, 1971). The task specifically instructs participants to come up with as many as possible ways to use a specific object. The object that was employed in the study – an A4 notebook – was carefully selected. It is a common, frequently used item participants have knowledge about and to inform them about what the item exactly looks like, they were presented with an image.

Measures

Goal achievability – The answer to the question 'how achievable is this goal?' was obtained by asking participants, on a seven-point Likert scale (ranging from extremely difficult to achieve to extremely easy to achieve), to indicate the degree that reflects their perspective.

Results

To check for the participants' perception on goal achievability of the stretched performance goals, average scores were calculated. The mean score of the goal for which the difficulty was stretched with factor 1.2 is indicative of a (somewhat) neutral perception with regard to the attainability level (M = 3.58; SD = 1.35). For the goal stretched with factor 2.5, the mean value demonstrates that individuals perceive this particular goal as difficult to achieve (M = 1.83; SD = 1.13). These findings provided valuable inputs for designing and conducting Study 1.

STUDY 1

Method

Participants

The sample consisted of 405 participants that were recruited via an online data panel (i.e., Prolific). On average, the people making up the sample are 28.14 years old (SD = 8.24), with 54.10% males, 45.20% females, and 0.70% other.

Procedure

This is a two-by-two experimental study, with No Frame versus Frame, and Low Goal Difficulty Stretching Factor (abbrev. GDSF) versus High GDSF. After receiving some general instructions and answering some demographical questions, participants were randomly assigned to one of the four conditions: Condition 1 (No Frame + Low GDSF) consists of 103 participants, condition 2 (Frame + Low GDSF) consists of 101 participants, condition 3 (No Frame + High GDSF) consists of 101 participants, and condition 4 (Frame + High GDSF) consists of 100 participants. See Table 4.1 for an overview of the four conditions.

Insert Table 4.1 about here

All participants were asked to take part in two sequential tasks, with the first task being the same for all. Before performing this first task, individuals assigned to Conditions 2 and 4 (i.e., Frame) were asked to read a short background story about

a consultancy company specialised in the creation and execution of promotional marketing campaigns for (Fast Moving) Consumer Goods organisations. In this description (see Figure A1 in the Appendix), which creates a motivating context in which task significance is going to play a pivotal part, participants were informed about the company's way-of-working. This includes asking panels of individuals – of which the participants were told that they are part of – to participate in so-called *Brainnovation (Brainstorming Innovation) Challenges*. In the other two conditions (i.e., No Frame; 1 and 3), participants were only being informed that were going to partake in a so-called *Brainnovation Challenge*.

Next, all participants received the same specific instructions about the task or challenge at hand, such as that they would be given 100 seconds to come up with as many ways as possible to use a certain item. To illustrate what is expected of them, an example of alternative uses for a paperclip is presented to them (e.g., as an earring, as a toothpick). Then, the challenge commenced. They were shown an image of a black notebook (A4-size) with the dimensions in centimetres/inches. After the duration of 100 seconds, the participants were automatically redirected to a page where they were instructed to check the alternative uses that they were able to come up with one more time, and fill out the number of uniquely given answers (i.e., performance score) in the designated area. This concluded the first part of the procedure.

Then, only the Frame conditions were presented with additional, detailed information about the significance of their involvement in the Brainnovation

Challenge (e.g., that the outputs of these challenges formed the basis of highly original and successful promotional campaigns for the consultancy company) and about the client for which an upcoming promotional campaign is to be designed (the client is a social enterprise, which produces highly durable products and reinvests its profits sustainably). So, for clarification and summation purposes, in conditions 2 and 4 individuals were manipulated on task significance, in conditions 1 and 3 they were not.

In addition to differences between the exposure to task significance, conditions 1 and 2 were presented with an externally-set performance goal for which the goal difficulty stretching was based on the performance in the first task, multiplied by factor 1.2, resulting in a *possible* performance goal. For conditions 3 and 4, the assigned performance goal's difficulty was stretched by a factor 2.5 (i.e., an *impossible* performance goal).

Subsequently, after the stretch goal-setting and task significance manipulation, all participants were required to decide between either performing another challenge for which a performance goal is assigned or writing a product review. This was our operationalisation of goal acceptance, where individuals chose to accept the goal and perform a similar performance task again or rejected the goal and performed another task. In case participants were able to reach the set performance goal (i.e., a prespecified amount of uses), they would earn GBP 1.00. For the product review, a fixed reward of GBP 0.33 (33 pence) is granted.

Participants that chose to opt-in for another brainstorming were presented an image of the second product for which they are asked to come up with various uses for: a bamboo drink bottle (500 ml or approximately 16 ounces). Once again, they were given 100 seconds to perform the task. Upon completion, they were instructed to – once again – fill out the number of uniquely given answers in the designated area. Subsequently, participants were asked to answer questions about their perceived task self-efficacy, meaningfulness, satisfaction, and goal commitment with. Finally, they were redirected to the final page where they were debriefed about the purpose of the study and the cover story that they were presented with. Only these participants were considered to test for the hypotheses on task performance levels (i.e., H3, H4, and H5).

Participants that choose to write a product review were shown the same bamboo drink bottle with additional product specifications and a recommended retail price. Upon completion of the review, they were asked to answer some questions about their perceived task meaningfulness. Finally, they were redirected to the final page where they were debriefed about the purpose of the study and the cover story that they were presented with.

Task

The task employed in the study, referred to as the *Brainnovation Challenge*, is the Brainstorming (or 'Alternative Uses') Task (Guilford, 1971). The task

specifically instructs participants to come up with as many as possible ways to use a specific object. The objects that were employed in the study – an A4 notebook and a bamboo water bottle – were carefully selected. Both are common, frequently used items participants have knowledge about and to inform them about what the items exactly look like, they were presented with images. The bamboo water bottle was cautiously chosen to align with the cover story of the social enterprise client that was presented to some of the participants.

Measures

Goal Acceptance – The decision that is made with regard to opting-in or opting-out for another *Brainnovation Challenge*, where opting-in corresponds with accepting the performance goal and opting-out equals goal rejection.

Task Performance – Performance on the *Brainnovation Challenge* was obtained by asking participants to count the number of uniquely alternative uses they were able to come up with within the fixed time period.

Perceived Task Significance – Perceived Task Significance of partaking in the brainstorm task was measured by five items (α = .91) adapted from existing measures of task significance or meaningfulness (Hackman & Oldham, 1976; Morgeson & Humphrey, 2006). On a seven-point scale, participants answered items like 'My participation in this task is of great importance and highly meaningful' and 'my performance in this task provides opportunities to substantially improve the welfare of many people'. This measure served as a manipulation check.

Results

Preliminary analyses

To check whether participants were correctly reporting their self-rated performance scores, a random check was performed on 100 participants of the sample (i.e., for each condition, 25 participants were selected) comparing the number of uniquely alternative uses that they self-reported with a count that was made by the experimenter. This check showed that all of the 100 selected participants were able to report their performance scores honestly and properly, which supports our supposition that the entire sample has been able to do so. Means, standard deviations and correlations of the variables included in the research model are presented in Table 4.2.

Insert Table 4.2 about here

Manipulation check task performance: In order to find out whether our task significance framing was successful, a one-way between subjects analysis of variance was conducted to compare the effect of task significance framing on perceived task significance in Frame and No Frame conditions. A significant effect was found, F (1, 403) = 13.92, $p < .001$, where Frame conditions (i.e., Conditions 2 and 4) report higher perceptions of task significance (M_{Frame} = 4.07; SD = 1.26) than No Frame conditions (i.e., Conditions 1 and 3; $M_{NoFrame}$ = 3.59; SD = 1.35). In other words, participants that were presented with the task significance storyline generally

report higher significance perceptions than those that were not presented with such a storyline, indicative of successful task significance framing.

Differences in decision-making across conditions

To ascertain if and how Frame and GDSF predict Goal Acceptance, logistic regression analyses were performed. First, a logistic model is considered where Frame and GDSF are simultaneously included as explanatory variables. The regression coefficient of Frame shows significance; $B = .56$, $SE = .28$, $\chi^2(1) = 4.0$, $p = .05$. This points towards the Frame variable being significantly related to the Goal Acceptance variable, where an increase in one unit in the Frame increases the log-odds in favour of a Goal Acceptance value of 1 (= opting in for another brainstorm performance task) by an estimated .56 with 96% confidence interval (95% CI: -.50; 1.64). In other words, being exposed to the task significance frame will make it about 70% more likely top opt-in for another *Brainnovation Challenge* (OR = 1.70, 95% CI: .61; 5.18).

The regression coefficient for GDSF is also significant; $B = -1.40$, SE = .31, $\chi^2(1) = 20.60$, $p < .001$, indicating a significant association between this variable and the Goal Acceptance variable as well. An increase of one unit in the goal difficulty factor decreases the log-odds in favour of a Goal Acceptance value of 1 (= opting in for another brainstorm round) by an estimated -1.40 with 95% confidence interval (95% CI: -2.03; -.82). Put differently, higher GDSF will make

it about 75% less likely to opt-in for another *Brainnovation Challenge* (OR = .25, 95% CI: .13; .44).

Also, a model is built where a Frame × GDSF interaction is added to Frame and GDSF as explanatory variables. The interaction does not yield significance; $B = .04$, $SE = .63$, $\chi^2(1) = .98$, $p = .32$.

Insert Table 4.3 about here

To complement the insights into the decision-making differences, an overview of all opt-out percentages is provided in Table 4.3. Summarising, the results suggest that it seems less likely for individuals to opt-out when they are part of the Frame conditions compared to the No Frame conditions, which supports Hypothesis 1. As no significant interaction between Frame × GDSF was established, Hypothesis 2 cannot be confirmed, even though the opt-out percentages seem to suggest a weakening of the negative relation between the level of goal difficulty stretching and the choice to opt-in for people who were presented with a task significance frame.

Differences between task significance frame and performance effects

In order to see whether task significance affects the brainstorming performance over time, a repeated-measures analysis of variance is performed. In this ANOVA, Time is included as a within-subjects factor and Frame as a between-subjects factor.

For Time, a significant main effect is established; F (1, 335) = 26.37, p < .001, η_p^2 = .07. Brainstorm task performance generally is larger in the second round (M_{Round2} = 7.30; SD = 4.15) in comparison to the first round (M_{Round1} = 6.30; SD = 2.72).

The interaction effect of Frame and Time is found to only be marginally significant, F (1, 335) = 2.88, p = .09, η_p^2 = .01. Differentiating for the performance increases in the Frame and No Frame conditions, we observe a stronger impact over time for the No Frame (versus Frame) conditions: $F_{NoFrame}$ (1, 162) = 21.47, p < .001, η_p^2 = .12; F_{Frame} (1, 173) = 6.43, p = .01, η_p^2 = .04. This is also visible in the corresponding increases over time in mean performance scores (i.e., differentials; Δ), where the growth is heavier for the No Frame conditions ($M\Delta_{NoFrame}$ = 1.33; SD = 3.65) compared to the No Frame conditions ($M\Delta_{Frame}$ = 0.67; SD = 3.47).

Complementary, there is no significant difference between the two groups of conditions with regard to the performance scores in the first round; t(403) = 1.404, p = 0.16. All in all, the results point towards an opposite effect for task significance framing than anticipated, effectively not allowing us confirm Hypothesis 3. For a visual depiction of the results, see Figure 4.1.

Insert Figure 4.1 about here

Differences in goal difficulty stretching and performance effects

A repeated-measures ANOVA with Time as within-subjects factor and GDSF (i.e., 0 = Factor 1.2x; 1 = Factor 2.5x) as between-subjects factor shows a significant main effect for Time, F (1, 335) = 29.77, p < .001, η_p^2 = .08. Generally, the

brainstorm task performance is lower in the first round compared to the second round: M_{Round1} = 6.29; SD = 2.75 | M_{Round2} = 7.34; SD = 4.17.

The predicted interaction effect of GDSF and Time is found to be significant, F (1, 335) = 9.54, p = .002, η_p^2 = .03. Separating for the specific stretching factors, we observe a stronger impact over time for the higher GDSF (versus lower GDSF) conditions: $F_{Factor2.5x}$ (1, 148) = 20.28, p < .001, η_p^2 = .12; $F_{Factor1.2x}$ (1, 187) = 19.67, p = .01, η_p^2 = .03. Differentials also demonstrate a larger growth in performance mean scores for the highest difficulty stretching factor: $M\Delta_{Factor1.2x}$ = 0.46; SD = 2.52 | $M\Delta_{Factor2.5x}$ = 1.65; SD = 4.48.

Furthermore, checking for the average performance scores in the first round between the two factors (i.e., $M_{Factor1.2x}$ = 6.59, SD = 3.03 | $M_{Factor2.5x}$ = 7.04; SD = 3.03) shows the difference is not significant; t(403) = 0.25, p = .81. Summarising, enough evidence – including the corresponding visual representation in Figure 4.2 – is provided in favour of our expectations, thus Hypothesis 4 can be confirmed.

Insert Figure 4.2 about here

Differences in task significance framing, goal difficulty stretching and performance effects

To find out if our expectation holds that task significance frame moderates the association between goal difficulty stretching and the increase in performance, a repeated-measures ANOVA with Time as within-subjects factor and Frame and

GDSF as between-subjects factors is conducted. First of all, a significant main effect for Time is once again found, $F(1, 335) = 31.62$, $p < .001$, $\eta_p^2 = .09$, which translates into a higher performance score in the second round ($M_{Round2} = 7.37$; SD = 4.13) compared to the first-round score ($M_{Round1} = 6.29$; SD = 2.75).

Both interactions (i.e., between Time × Frame and Time × GDSF) are both found to be significant: $F(1, 335) = 4.18$, $p = .04$, $\eta_p^2 = .01$; $F(1, 335) = 63.99$, $p < .001$, $\eta_p^2 = .03$. This resembles the results that were found in the separate analyses of variance. The corresponding means, standard deviations, and mean differentials can be found in Table 4.4.

Insert Table 4.4 about here

The three-way interaction of Frame and GDSF with Time is statistically significant, $F(1, 335) = 4.54$, $p = .03$, $\eta_p^2 = .01$. Based on the corresponding mean scores, denoted in Table 4.4, the combination of providing participants with a highest goal difficulty stretching without framing the task significance leads to the largest increase in task performance (See Figure 4.3 for the plotted performance increases). This does not agree with our expectations, and thus no support for our Hypothesis 5 is found.

Insert Figure 4.3 about here

Summarising, the current study signals that presenting individuals who were exposed to specific information highlighting the significance of the task at hand might somewhat convince participants to perform another *Brainnovation Challenge*, yet it does not make them perform this task more effectively. Rather, people that were not exposed to task significance (i.e., no added information) seem to outperform people that were. With regard to the level of difficulty stretching, individuals presented with impossible (versus possible) stretch goals displayed the stronger performance growths. In order to paint a better picture of these effects, the following study (i.e., Study 2) will predominantly replicate the current study and test for some differences in incentivisation.

STUDY 2

Methods

Participants

The sample consisted of 553 International Business Administration students that were asked to partake in a series of online (survey) studies in exchange for some course credit. The mean age of the students that make up the sample is 18.38 years (SD = 1.09), with 54.4% males and 45.6% females.

Procedure

Alike Study 1, this is a two-by-two experimental study, where participants were randomly assigned to one of the four conditions: Condition 1 (No Frame + Low GDSF) consists of 139 participants, condition 2 (Frame + Low GDSF) consists of 138 participants, condition 3 (No Frame + High GDSF) consists of 140 participants, and condition 4 (Frame + High GDSF) consists of 136 participants.

Beyond another sample source and somewhat more participants per condition, procedurally there are hardly any differences between the current study and the Study 1, apart from a change in the incentivisation terms related to the choice. In line with research that demonstrates no difference in decision-making behaviours for monetary and non-monetary incentives (cf., Latham, Mitchell, & Dossett, 1978; Bareket-Bojmel, Hochmann, & Ariely, 2017), we opted for exchanging monetary into non-monetary rewards. This time, participants were promised that if they decided to partake in another round of the *Brainnovation Challenge*, they had the

chance to win one of three limited edition glass or metal water bottles of a well-known design brand (retail value: €37.50) in case they reached their goal. In case they opted for writing a product review, they had the chance to win one of three normal/basic water bottles of the same brand (retail value: €12.50) upon completing the review.

Task

The task employed in this study is the same task employed in Study 1, namely the Brainstorming (or 'Alternative Uses') Task (Guilford, 1971).

Measures

The measures in the current study are the same as in the previous study:

Goal Acceptance – The decision that is made with regard to opting-in (i.e., goal acceptance) or opting-out (i.e., goal rejection) for another *Brainnovation Challenge*.

Task Performance – Performance on the *Brainnovation Challenge* was obtained by asking participants to count the number of uniquely alternative uses they were able to come up with within the fixed time period.

Perceived Task Significance – Perceived Task Significance of partaking in the brainstorm task was measured by five items (α = .88) adapted from existing measures of task significance or meaningfulness (Hackman & Oldham, 1976; Morgeson & Humphrey, 2006).

Results

Preliminary analyses

To check whether participants were correctly reporting their self-rated performance scores, a random check was performed on 160 participants of the sample (i.e, for each condition, 40 participants were selected) comparing the amount of self-reported, unique alternative uses that were self-reported and a count that was made by the experimenter. This check showed that each of these 160 participants were able to report their performance scores justly and properly, which supports our assumption that the entire sample was able to do so. Means, standard deviations and correlations of the variables included in the research model are presented in Table 4.5.

Insert Table 4.5 about here

Manipulation check task significance: In order to find out whether our framing of task significance was successful, a one-way between subjects ANOVA was performed. This ANOVA compares the effect of task significance framing on perceived task significance in Frame and No Frame conditions. A significance difference was established, F (1, 551) = 16.18, $p < .001$, with higher task significance perceptions for the Frame conditions (i.e., Conditions 2 and 4; M_{Frame} = 3.91, SD = 1.27) than the perceptions for the No Frame conditions (i.e., Conditions 1 and 3; $M_{NoFrame}$ = 3.46; SD = 1.33). Put differently, people that were not shown

any stimuli on task significance report relatively lower task significance ratings, which hints at an efficacious framing.

Differences in decision-making across conditions

To find out whether Frame and GDSF relate to Goal Acceptance, a logistic model is created where Frame and GDSF are simultaneously appraised as explanatory variables. Both of the explanatory variables in this are found to be insignificant: B_{Frame} = .06, *SE* = .21, $\chi^2(1)$ = .08, *p* = .78; B_{Frame} = -.04, *SE* = .21, $\chi^2(1)$ = .05, *p* = .83. Moreover, a model in which a Frame × GDSF interaction is added as a predictor also yields insignificance for the interaction term; *B* = .04, *SE* = .63, $\chi^2(1)$ = .98, p = .32. These logistic regression analyses lead to insignificant regression coefficients, which suggests that no associations exist between any of the explanatory variables and deciding to opt-in or opt-out for another *Brainnovation Challenge.*

Insert Table 4.6 about here

In order to aid the interpretation of the (lack of) differences in decision-making, an overview of the opt-out percentages is provided above in Table 4.6. Summarising, the results show that there are no significant associations between any of the three dummy variables, which is also supported by the opt-out percentages that hardly differ from one another. This makes it impossible to confirm any of the corresponding hypotheses; Hypotheses 1 and 2 are not supported.

Differences between task significance frame and performance effects

To test for the anticipated stronger increase in performance effects over time for the task significance conditions compared to the control conditions, a repeated-measures analysis of variance is conducted with Time as a within-subjects factor and Frame as a between-subjects factor. A main effect for Time is significant; F (1, 431) = 12.93, $p < .001$, $\eta_p^2 = .03$. Generally, the second round's performance is higher compared to the first round's: $M_{Round1} = 6.23$; SD = 2.76 | $M_{Round2} = 6.71$; SD = 3.10.

The anticipated interacting effect of Frame and Time is not present; F (1, 431) = .16, $p = .68$, $\eta_p^2 = .00$. Differentiating the Frame and No Frame conditions, a slightly larger impact is detected in the Frame (versus No Frame) conditions: F_{Frame} (1, 216) = 7.51, $p = .01$, $\eta_p^2 = .03$; $F_{NoFrame}$ (1, 214) = 5.45, $p = .02$, $\eta_p^2 = .03$. This is also reflected by the performance mean score differentials for the Frame conditions ($M\Delta_{Frame} = 0.53$; SD = 2.84) compared to the No Frame conditions ($M\Delta_{NoFrame} = 0.42$; SD = 2.65).

Moreover, no significant difference is established in mean performance scores of the two groups (i.e., Frame versus No Frame) in the first brainstorm, $t(551) = 1.10$, p = .27. All in all, we simply are unable to confirm Hypothesis 3. For a graphical representation of the increase in performance between the two groups, please consider Figure 4.4.

Insert Figure 4.4 about here

Differences in goal difficulty stretching and performance effects

To find out if our expectation with regard to performance enhancements over time as a result of stretching goals with different factors, a repeated-measures ANOVA with Time as within-subjects factor and GDSF as between-subjects factor shows a significant main effect for Time, F (1, 431) = 13.92, $p < .001$, $\eta_p^2 = .03$. The performance level in the second round of brainstorming is higher (M_{Round2} = 6.72; SD = 3.08) than the performance level in the first round (M_{Round1} = 6.23; SD = 2.76).

Insert Figure 4.5 about here

The predicted GDSF × Time interaction is significant, F (1, 431) = 15.26, $p < .001$, $\eta_p^2 = .03$, and is plotted in Figure 4.5. Distinguishing between the two specific stretching factors, we observe a stronger impact for the higher GDSF (versus lower GDSF) conditions: $F_{Factor2.5x}$ (1, 211) = 22.46, $p < .001$, $\eta_p^2 = .10$; $F_{Factor1.2x}$ (1, 219) = .02, $p = .89$, $\eta_p^2 = .00$. Differentials also show a more positive increase in performance scores for the highest GDSF conditions ($M\Delta_{Factor2.5x}$ = 1.00; SD = 3.06) compared to the lowest GDSF ones ($M\Delta_{Factor1.2x}$ = -0.023; SD = 2.33), which actually somewhat decreases over time.

Moreover, the difference in the mean performance scores ($M_{Factor1.2x}$ = 6.4; SD = 2.76 | $M_{Factor2.5x}$ = 6.12; SD = 2.75) of the first round is insignificant; t(551) = 0.26,

p = .79. Taken altogether, there is enough evidence that confirms our Hypothesis 4.

Differences in task significance framing, goal difficulty stretching and performance effects

To test for the expected moderation of the task significance frame upon the difficulty level of goal stretching and subsequent performance, a repeated-measures analysis of variance – with Time as within-subjects factor and Frame and GDSF as between-subjects factors – still finds a significant main effect for Time is present, F (1, 431) = 13.84, p < .001, η_p^2 = .03, which shows an increase in individual performance scores between the first and the second round; M_{Round1} = 6.23; SD = 2.76 | M_{Round2} = 6.72; SD = 3.08.

Alike the separate analyses, only the Time × GDSF interaction is found to be significant; F (1, 431) = 15.16, p < .001, η_p^2 = .03. The interaction of Time with Frame yields insignificance; F (1, 431) = .16, p = .69, η_p^2 = .00. The corresponding means, standard deviations, and mean differentials can be found in Table 4.7.

Insert Table 4.7 & Figure 4.6 about here

The three-way interaction of Frame and GDSF with Time is also insignificant; F (1, 431) = .33, p = .57, η_p^2 = .00. Based on the mean scores (denoted in Table 4.7 and depicted in Figure 4.6), the growth is largest for the condition in which people are presented with the task significance frame and the highest level of goal difficulty

stretching, which aligns with our expectations. Nonetheless, the insignificance does not qualify us to conclude this, and thus, we cannot fully and confidently confirm Hypothesis 5.

In summary, the current study's outcomes somewhat deviate from the results of Study 1. Only difficulty stretching of performance goals seems to have a similar influence, where the higher stretching factor resulting in an impossible stretch goal displays a relatively larger increase in task performance compared to the lower factor. With regard to task significance, participants are no more likely to opt-in for another *Brainnovation Challenge* when shown specific task significance prompts than when not shown such stimuli, nor does it increase performance: Rather, the difference between exposure and no exposure is insignificant.

Being mindful of the procedural modification between the current and previous study, this observed indifference might be due to the change in incentivisation. In other words, changing monetary rewards for non-monetary rewards does bring about a change in decision-making, which, in this case, does not align with our theorisation. An alternative explanation, however, might be that the effects of task significance are rather weak and variation in significance of studies using a similar design is a natural occurring phenomenon (Klein et al., 2014; 2018). Therefore, we conducted one more study to test our predictions (Kenny & Judd, 2019). In Study 3, we will switch back to monetary incentivisation. Moreover, in order to further supplement and improve our insights, we based our manipulation of stretch goal levels on a pilot study to introduce a more objective level of an impossible goal.

PILOT STUDY 2

Method

Participants

The sample consisted of 21 participants that were recruited via an online data panel (i.e., Prolific). On average, the people making up the sample are 26.05 years old (SD = 9.24), with 76.2% males and 23.8% females.

Procedure

This second pilot study mostly resembles the procedure of the first pilot study, with one major difference. Instead of asking participants to answer the question 'How achievable is this goal?' for two particular stretching factors (i.e., factor 1.2x and factor 2.5x), we asked the participants in this pilot to reflect upon their performance in the first round of the performance task and answer the questions of what they would consider a 'difficult, but attainable performance goal for the *Brainnovation Challenge*' and what they would consider an 'impossible, unattainable performance goal'.

Task

The task employed in the study, referred to as the *Brainnovation Challenge*, is the Brainstorming (or 'Alternative Uses') Task (Guilford, 1971).

Measures

Goal difficulty stretching factor – The level of stretching was measured by considering the answers to the questions 'what do you consider a difficult, but attainable performance goal?' and 'what do you consider an impossible, unattainable performance goal?', which were obtained by asking participants to specify numbers (in digits) that correspond to these goal levels, and divide those by the performance scores that were achieved in the first performance round.

Results

Based on the answers given in this pilot study, we were able to calculate the amount of goal stretching that is considered difficult, but attainable. This results in a goal difficulty stretching factor of 1.8x. For the impossible, unattainable goal, the amount of stretching goal difficulty equals factor 3.8x. These findings provided valuable inputs for designing and conducting Study 3.

STUDY 3

Methods

Participants

The sample consisted of 423 participants that were recruited via an online data panel (i.e., Prolific). On average, the people making up the sample are 25.41 years old (SD = 7.55), with 62.90% males and 37.10% females.

Procedure

This is a two-by-three experimental study, with No Frame versus Frame, and Low GDSF versus Medium GDSF versus High GDSF. Participants are randomly distributed in one of six conditions: Condition 1 (No Frame + Low GDSF) consists of 69 participants, condition 2 (No Frame + Medium GDSF) consists of 72 participants, condition 3 (No Frame + High GDSF) consists of 70 participants, condition 4 (Frame + Low GDSF) consists of 72 participants, condition 5 (Frame + Medium GDSF) consists of 70 participants, and condition 6 (Frame + High GDSF) consists of 70 participants. For an overview of these conditions, see Table 4.8.

As evident from this design, the current study deviates from the previous studies with regard to the difficulty stretching factors for the *Brainnovation Challenge* performance goal. Although the lowest GDSF is kept the same as in Study 1 and 2 (i.e., factor 1.2x), the highest GDSF has been further increased (i.e., factor 4.0x) and a medium GDSF (i.e., factor 2.0x) has been introduced. These modifications are based on the outcomes of the second pilot study. For ease of application purposes,

the medium and highest GDSFs were round from 1.8 and 3.8 to 2.0 and 4.0. Beyond this change in GDSF, procedurally this study replicates Study 1.

Insert Table 4.8 about here

Task

The task employed in this study is the same task employed in Study 1, namely the Brainstorming (or 'Alternative Uses') Task (Guilford, 1971).

Measures

The measures in the current study are the same as in the previous studies:

Goal Acceptance – The decision that is made with regard to opting-in (i.e., goal acceptance) or opting-out (i.e., goal rejection) for another *Brainnovation Challenge*.

Task Performance – Performance on the *Brainnovation Challenge* was obtained by asking participants to count the number of uniquely alternative uses they were able to come up with within the fixed time period.

Perceived Task Significance – Perceived Task Significance of partaking in the brainstorm task was measured by five items (α = .88) adapted from existing measures of task significance or meaningfulness (Hackman & Oldham, 1976; Morgeson & Humphrey, 2006).

Results

Preliminary analyses

To examine if participants correctly stated their self-rated task performance scores, from each condition 20 respondents' self-reported number of alternative uses were compared to the experimenter's observed amount of alternative uses for those respondents; all of the 120 checked participants were able to report their performance scores correctly. Hence, we assume that this holds for the entire sample. Means, standard deviations and correlations of the variables included in the research model are presented in Table 4.9.

Insert Table 4.9 about here

Manipulation check task significance: In order to find out whether participants of the Frame conditions had higher perceptions of task significance than No Frame participants, a one-way between subjects ANOVA was conducted. This analysis establishes a significant difference, F (1, 324) = 20.19, $p < .001$, with higher task significance perceptions for the Frame conditions (i.e., Conditions 4 - 6; M_{Frame} = 3.98, SD = 1.16) than the perceptions for the No Frame conditions (i.e., Conditions 1 - 3; $M_{NoFrame}$ = 3.48; SD = 1.28). Put differently, people that were not shown any stimuli on task significance report relatively lower task significance ratings, which hints at an effective framing.

Differences in decision-making across conditions

In order to establish if and how Frame and GDSF forecast the Goal Acceptance related to opting-in or opting-out of the *Brainnovation Challenge*, multiple logistic regression analyses were performed. First, Frame and GDSF are simultaneously considered as independent variables upon Goal Acceptance. For Frame, no significant impact was established; $B = .20$, SE = .24, $\chi^2(1) = .68$, $p = .41$. For GDSF, it was found to significantly predict Goal Acceptance; $B = -.82$, SE = .16, $\chi^2(1) = 27.4$, $p < .001$. What this shows, is that an increase in GDSF will make it about 56% less likely for participants to accept the goal and opt-in to perform another *Brainnovation Challenge* (OR = .44, 95% CI: .32; .59).

Second, a logistic model is built where a Frame × GDSF interaction is included as a separate explanatory variable. This interaction term does not yield significance; $B = .19$, $SE = .31$, $\chi^2(1) = .35$, $p = .56$.

Insert Table 4.10 about here

Complementing and augmenting our insights into the differences in Goal Acceptance decision-making, Table 4.10 provides an overview of all opt-out percentages. In summary, deploying a frame that emphasises the significance of the task at hand in itself does not lead to a particular choice, even though the opt-out percentages suggest that the people that were shown stimuli on task significance

are, on average, somewhat more inclined to go for another round of the brainstorm task. Nonetheless, we cannot confirm Hypothesis 1. Moreover, Frame is also not significantly mitigating the association between GDSF and Goal Acceptance, rendering it also impossible to confirm Hypothesis 2.

Differences between task significance frame and performance effects

To find out whether the Frame conditions show steeper performance enhancements over time compared to the No Frame conditions, a repeated-measures ANOVA is conducted: Time is included as a within-subjects factor and Frame as a between-subjects factor. The results indicate a significant main effect for Time, F (1, 324) = 53.17, $p < .001$, $\eta_p^2 = .14$. On average, the second-round *Brainnovation Challenge*'s task performance was higher than the performance in the first round, as shown by the corresponding mean scores: $M_{Round1} = 5.41$; SD = 2.82 | $M_{Round2} = 6.78$; SD= 4.19.

The predicted Frame × Time interaction is marginally significant, F (1, 324) = 3.31, p = .07, $\eta_p^2 = .01$. Separating the Frame from the No Frame conditions, the impact is detected to be stronger in the No Frame (versus Frame) conditions: $F_{NoFrame}$ (1, 158) = 34.41, $p < .001$, $\eta_p^2 = .18$; F_{Frame} (1, 166) = 18.47, $p < .001$, $\eta_p^2 = .10$. This is also reflected by the performance mean score differentials for the No Frame conditions ($M\Delta_{NoFrame} = 1.71$; SD = 3.67) compared to the Frame conditions ($M\Delta_{Frame} = 1.02$; SD = 3.08).

In addition, there is no significant difference in the mean performance scores ($M_{NoFrame}$ = 5.77; SD = 4.43 | M_{Frame} = 5.50; SD = 2.81) between the two groups in the first performance round; $t(421) = 0.74$, $p = .46$. In short, this evidence does not enable us to confirm our expectations as expressed in Hypothesis 3. For a graphical representation of the increase in performance between the two groups, please consider Figure 4.7.

Insert Figure 4.7 about here

Differences in goal difficulty stretching and performance effects

To check for the expected disparities in the performance increases over time caused by amount of goal difficulty stretching is applied, a repeated-measures ANOVA with Time as within-subjects factor and GDSF as between-subjects factor shows a significant main effect for Time, F (1, 324) = 56.61, $p < .001$, $\eta_p^2 = .15$. Generally, task performance was higher in the second round (M_{Round2} = 6.78; SD = 4.26) in comparison to the first round (M_{Round1} = 5.36; SD = 2.83).

Insert Figure 4.8 about here

Moreover, the anticipated interaction effect of GDSF × Time is significant, F (2, 223) = 3.24, $p = .04$, $\eta_p^2 = .02$. Differentiating for the three specific stretching factors, we observe the strongest effect for the highest GDSF (compared to the

middle and lowest GDSF) conditions: $F_{Factor4.0x}$ (1, 85) = 26.15, $p < .001$, $\eta_p^2 = .24$; $F_{Factor2.0x}$ (1, 114) = 16.83, $p < .001$, $\eta_p^2 = .13$; $F_{Factor1.2x}$ (1, 124) = 12.68, $p < .001$, $\eta_p^2 = .09$. Differentials also show the largest positive increase in performance scores for the highest GDSF conditions ($M\Delta_{Factor4.0x}$ = 1.93; SD = 3.50) compared to the middle GDSF conditions ($M\Delta_{Factor2.0x}$ = 1.55; SD = 4.04) and the lowest ones ($M\Delta_{Factor1.2x}$ =.78; SD = 2.46). To illustrate, please look at Figure 4.8 for a visual depiction of the increase in performance for the varying stretching factors.

Moreover, examining the average task performance scores in the first round between the three GDSF groups ($M_{LowGDSF}$ = 5.74; SD = 2.81 | $M_{MediumGDSF}$ = 5.44; SD = 2.99 | $M_{HighGDSF}$ = 4.88; SD = 2.52), no significant difference is observed; F (2, 420) = 0.54, p = .59. All in all, there is enough support to confirm Hypothesis 4.

Differences in task significance framing, goal difficulty stretching and performance effects

To test for our hypothesised effect of Frame moderating the association between GDSF and task performance over time, a repeated-measures ANOVA is performed. In this analysis, Time is the within-subjects factor and both Frame and GDSF are included as between-subjects factors. First, a significant main effect for Time is established, F (1, 320) = 56.48, $p < .001$, $\eta_p^2 = .15$, which shows higher mean task performance scores in the second compared to the first round: M_{Round1} = 5.36; SD = 2.85 | M_{Round2} = 6.78; SD = 4.26.

Then, the two-way interactions of Time × Frame and Time × GDSF show similar outcomes as in their separate analyses: Marginal significance is established for the former interaction term, F (1, 320) = 2.87, p = .09, η_p^2 = .01, and the latter interaction is significant, F (2, 320) = 3.14, p = .05, η_p^2 = .02.

Insert Table 4.11 & Figure 4.9 about here

The three-way interaction of Frame and GDSF with Time is insignificant, F (2, 320) = 0.53, p = 0.59, η_p^2 = .00. This makes that we cannot confirm Hypothesis 5. For sake of completeness, the mean scores, standard deviations, and mean differentials for each of the six conditions are denoted in Table 4.11 and the increase in task performance over time is depicted in Figure 4.9.

DISCUSSION

With the current research, we aimed to offer a motivational account on the effects that stretch goal-setting has on individual performance outcomes. By envisaging an important role for the psychological resource of a performance tasks' meaningfulness, both represented and operationalised by the notion of task significance, we expected that exposing individuals to specific stimuli regarding task significance would increase the likelihood of goal acceptance generally, and for impossible (stretch) goals particularly. The outcomes of the three experimental studies featured in this research indicate statistical inconclusiveness, with both full and no support for the positive impact of individual task significance exposure in making it more likely to accept a goal in general, and no support at all for the hypothesised interaction effect between task significance and an impossible (versus possible) stretch goal.

Beyond the choice selection associated with goal acceptance or rejection, all three studies display that, over time, task performance is enhanced through the usage of individual stretch goals after goal acceptance. This increase in productivity levels is revealed to be largest for impossible (versus possible) stretch goals (i.e., goals where difficulty was stretched with the highest factor). For both the direct and indirect influences of task significance and how this is supposed to positively impact performance, no consistent evidence was found.

Theoretical and practical implications

Overall, this research project mainly provides additional insights on the effectiveness of stretch goals. In this way, we also extend classical assumptions from the GST literature, which suggest that such impossible goals might have a negative effect on motivation and, hence, task performance (Locke & Latham, 1990; 2002). Prior research in the goal-setting literature already suggested that stretching goals towards the impossible does not decrease performance, but may even slightly improve performance effects (Locke, 1982). More recently, research on stretch goals indicates variation in behavioural outcomes, with both higher as well as lower performances when stretch goals are applied (e.g., Ahmadi et al., 2021; Gary et al, 2017). In the current research, we differentiated two stages to judge the effectiveness of stretch goals. First individuals need to accept the goal. This is because early research in the goal-setting tradition indicated that very difficult goals would only decrease motivation if such goals were rejected (Erez & Zidon, 1984). Our research confirms that accepted stretch goals have positive impact upon performance. Beyond acceptance, we show that such stretch goals even increase performance compared to difficult but possible goals. Therefore, adding to the recent applications and theorising on stretch goals (Ahmadi et al., 2021; Gary et al, 2017), the performance effects of stretch goals seem to be consistently positive if individuals accept those goals.

For practitioners, being aware of the efficacy of stretch goal-setting at the individual level offers an alternative avenue to get the most out of your employees. Alike the facilitative behavioural effects of organisational-level performance, such as the presence of more focused effort and persistence (Sitkin et al., 2011), setting individual-level stretch goals positively affects an employee's determination to work towards an overtly very difficult, impossible goal, seemingly without limitations in light of individuals accepting this goal. This could be of valuable importance to managers, knowing that it pays off to expect and communicate impossible performance standards from/to subordinates.

Such productivity improvements apparently do not hold for our task significance beliefs. Putting it bluntly, we are unable to unequivocally prove the assumed beneficial impact of positively presenting and influencing experienced task significance upon performance. Even though the importance of the task at hand is clearly emphasised to individuals, and specific attention is directed to the meaning of the task and its outcomes beyond the self (cf., Pratt & Ashforth, 2003) – which leads to the sought-after higher task significance perceptions across all three studies – it does not further beneficially enhance individual performance levels. Rather, there is either no variance between individuals that were exposed (versus unexposed) to task significance (i.e., Study 2), or the hypothesised effect is reversed (Study 1; marginally for Study 3): the individuals that were not exposed to specific information on task significance showed larger growths in individual performance.

This lack of success in showing more growth in individual productivity is unexpected, particularly in light of prior research on task significance displaying substantial positive associations with job or task performance, both directly and indirectly (cf., Allan, Duffy, & Collison, 2018; Grant, 2008; 2007; Hackman & Oldham, 1976).

However, research by Anderson and Stritch (2016) shows that when someone's perception on task significance is positively primed, it leads to lower performance levels when there is a high amount of goal clarity. They mainly attribute this undermining to the manifestation of performance anxiety within individuals when they perceive more task significance, which hinders task performance (Baumeister, 1984; Derakshan & Eysenck, 2009; Eysenck, 2013 – see Anderson & Stritch, 2016). Beyond increased anxiety, an alternative account might be that people become increasingly more conscientious when they experience and/or perceive tasks to be more significant. This could make individuals want to perform their goal-directed tasks at hand more meticulously, lowering (quantitative) productivity levels – yet potentially raising (qualitative) performance outcomes. Either explanation appears to align with most of our findings, where people not being primed on task significance show higher productivity levels on the stretch-goal-directed task than people that were presented with the task significance information.

Prior to these potential impacts of task significance upon stretch-goal-directed task performance, we further theorised that exposed (versus unexposed) task

significance would influence individual decision-making and make it more likely for individuals to accept – in a binary choice – a stretch-goal-directed performance task over an alternative task. Unfortunately, a unified conclusion on this cannot be formed due to incongruent statistical outcomes: Study 1 finds support that individuals are more likely to accept a goal when they are exposed to high task significance for this goal. The other two studies do not show this, either with hardly a difference between individuals that were exposed to task significance prompts or not (i.e., Study 2) or a difference that is only indicative of our expectations (i.e., Study 3). Once again, it is somewhat unforeseen that there is no consistent impact of the task significance priming on the choice selection, considering how relatively easy it is to prime task significance in a positive way via social or informational cues (Armel, Beaumel & Rangel, 2008; Grant, 2008).

Overall, this mixed finding on task significance questions the recent increased interest in making jobs more meaningful or providing more purpose as a tool to increase motivation and performance (e.g., Grant, 2008). While our operationalisation and experimental context might certainly be criticised and could partly explain the inconsistent support for our assumptions, our research at least might make us aware that goal-setting and especially stretch goal-setting might be a much stronger and effective tool in increasing individual performance than just focusing on making work meaningful. In a way, goals itself provide already meaning and motivation (Locke & Latham, 2002), and accepted stretch goals seem

to be a more applicable and effective tool to manage work motivation than focusing on other factors of meaningfulness.

In other words, for managers it would seem worthwhile to (re)consider how much time and attention they want to direct to providing purpose and meaning(fulness) with regard to the subordinates' tasks. Although individual productivity is known to be enhanced through higher (perceptions of) task significance, our research shows that this is far from guaranteed. Specifically, it seems that emphasising the substantial influence the brainstorming task has upon (other) people's lives does not synergise with setting clear, specific, and impossible stretch goals in driving individual task performance levels. Practitioners might need to be aware of the possibility of higher anxiety or conscientiousness levels experienced by individuals as a result of setting goals in accordance with primed task significance. Then they could sensibly decide whether it makes sense to stress the importance of the task at hand at all beyond setting individual impossible performance goals. Based on our findings, we offer the following rule of thumb: When in doubt, it is better to focus on stretch goal-setting first before considering exposing your employees to positive task significance prompts.

Limitations and future research directions

As successful an approach setting individual stretch goals might (seem to) be to inspire individual productivity behaviours, there are some aspects to our research

that warrant attentive consideration in light of generalisability. To start off with, the task used in all three studies (i.e., alternative uses brainstorming task) was selected because it has been successfully used in previous studies related to goal-setting (e.g., Latham, Erez, & Locke, 1988). Therefore, it offers an ideal vehicle for goal-setting research related to task performance (Litchfield, 2008). Nonetheless, future research opportunities into other types of goal-directed performance tasks should contribute to both solidifying our findings and making them more valuable for managerial professionals. Moreover, other threats to external validity, such as the studies' sample profiles (i.e., student sampling in Study 2; online data panel sampling in Studies 1 and 3) and the unnatural setting, provide additional avenues for potential future research projects.

Reflecting upon the set-up of the binary choice – aimed at making individuals select one particular task over another – something naively considered an implicit element of the experimental design might demand explicit consideration: the (bonus) incentivisation method. At the moment of deciding to accept or reject a task for which a certain stretch goal was assigned, after having been stimulated (versus not stimulated) on task significance and having been familiarised with the *Brainnovation Challenge*, bonus incentives accompanied the accept/reject decision. In line with common experimental research paradigms in behavioural decision-making, and accounting for the notion that variable (bonus) pay or reward is a preferred method of incentivisation for individual performance-contingent tasks

(Kuhn & Yockey, 2003), a smaller yet fixed bonus incentive was offered for selecting the alternative task, whilst a substantially higher yet variable bonus reward – contingent upon reaching the stretch-goal-directed performance standard – was offered for the brainstorming task.

As no differential impacts upon decision-making behaviours were expected to transpire for either (short-term) monetary and nonmonetary incentives (cf., Latham, Mitchell, & Dossett, 1978; Bareket-Bojmel, Hochmann, & Ariely, 2017), in our replication efforts we opted for exchanging the monetary bonus incentives (Study 1) into nonmonetary incentives (Study 2). Based on the statistical analyses of Study 2, we detect no distinction anymore between individuals that exposed versus unexposed to task significance stimuli before the choice selection. This conceivably hints at monetary incentivisation being a positive contributor beyond task significance in making it more likely for people to opt-in to perform a stretch-goal-directed task. Yet, the outcomes of Study 3 – which uses monetary bonus incentives again – also displays no statistically significant difference for choice selection between Frame and No Frame conditions. In short, we are unable to explicitly acknowledge whether bonus incentivisation method plays a mitigating part in the binary choice selection process, which future research could more directly address.

In a similar vein, it is justified to further reassess the role of task significance. Even though our manipulation checks in all three studies show relatively higher individual perceptions of task significance for the treatment or exposed groups

(versus the control groups), it does not seem to reliably affect goal acceptance and the associated task choice selection nor individual performance levels more positively. This might be due to higher levels of experienced anxiety or conscientiousness within individuals (cf., Anderson & Stritch, 2016), which was not considered in the current research and thus automatically provides valuable inputs for imaginable future examinations.

Conclusion

Even though we were not as successful in predicting our hypothesised effects as hoped for, the current research paradigm still allows us enough findings to build upon the existing goal-setting literature by demonstrating that individual stretch goal-setting can be a useful method to further drive individual task performance behaviours. Contrary to our expectations, purposefully exposing individuals to task significance informational prompts does not reliably and significantly alter individual decision-making or performance behaviours in a positive way. Rather, it seems that explicit task significance exposure brings about an undermining effect upon individual performance together with stretch goal-setting, which allows for specific suggestions to practitioners which make it more likely for them to motivate their employees' performance in an efficacious manner.

TABLES & FIGURES OF CHAPTER 4

Table 4.1.

Table 4.2.

Table 4.3.

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Figure 3.1.

Figure 3.2.

Figure 3.3.

Figure 3.4.

Figure 3.5.

Figure 3.6.

Figure 3.7.

Figure 3.8.

Figure 3.9.

Table 4.1.
Overview of Four Conditions

	Low GDSF^	**High GDSF^**
No Frame	Condition 1	Condition 2
Frame	Condition 3	Condition 4

^GDSF = Goal Difficulty Stretching Factor (Low = Factor 1.2; High = Factor 2.5)

Table 4.2.

Means, standard deviations, sample size and correlations amongst model's variables (Study 1)

Variables	M	SD	N	1	2	3	4	5	6
1) Brainstorming task performance (round 1)	6.310	2.836	405	1					
2) GDSF (*Dummy:* High GDSF (2.5x) = 1)	0.500	0.501	405	-.012	1				
3) Frame (*Dummy:* Frame = 1)	0.500	0.501	405	-.070	.002	1			
4) Goal Acceptance (*Dummy:* Opt-in = 1)	0.830	0.372	405	-.022	-.236**	.096	1		
5) Brainstorming task performance (round 2)	7.280	4.163	337	.530**	.125*	-.120*	NA^	1	
6) Perceived task significance	3.777	1.323	338	-.088	-.054	.274**	NA^	.004	1

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
^. Cannot be computed because at least one of the variables is constant.

Table 4.3.

Overview opt-out percentage per condition (N = 405)

Condition/Group	Choice	Count	n	Opt-out percentage (Within condition)
1 (No Frame + Low GDSF (1.2x))	Opt-in: Brainstorm	93	103	9.71%
	Opt-out: Review	10		
2 (No Frame + High GDSF (2.5x))	Opt-in: Brainstorm	70	101	30.69%
	Opt-out: Review	31		
3 (Frame + Low GDSF (1.2x))	Opt-in: Brainstorm	95	101	5.94%
	Opt-out: Review	6		
4 (Frame + High GDSF (2.5x))	Opt-in: Brainstorm	80	100	20.00%
	Opt-out: Review	20		
Total No Frame (Conditions 1+2)	Opt-in: Brainstorm	163	204	20.10%
	Opt-out: Review	41		
Total Frame (Conditions 3+4)	Opt-in: Brainstorm	175	201	12.94%
	Opt-out: Review	26		
Total Low GDSF (1.2x) (Conditions 1+3)	Opt-in: Brainstorm	188	204	7.84%
	Opt-out: Review	16		
Total High GDSF (2.5x) (Conditions 2+4)	Opt-in: Brainstorm	150	201	25.37%
	Opt-out: Review	51		

Table 4.4.

Overview of means, standard deviations, and mean differentials repeated measures ANOVA (Time as within-subjects factor + Frame & GDSF as between-subjects factors)

Condition/Group	Time	M	SD	MΔ
1 (No Frame + Low GDSF (1.2x))	Performance Round 1	6.559	2.729	0.441
	Performance Round 2	7.000	4.099	
2 (No Frame + High GDSF (2.5x))	Performance Round 1	6.357	2.728	2.500
	Performance Round 2	8.857	4.100	
3 (Frame + Low GDSF (1.2x))	Performance Round 1	6.168	2.730	0.474
	Performance Round 2	6.642	4.103	
4 (Frame + High GDSF (2.5x))	Performance Round 1	6.089	2.729	0.898
	Performance Round 2	6.987	4.097	
Total No Frame (Conditions 1 + 2)	Performance Round 1	6.458	2.756	1.381
	Performance Round 2	7.929	4.137	
Total Frame (Conditions 3 + 4)	Performance Round 1	6.129	2.744	0.686
	Performance Round 2	6.815	4.116	
Total Low GDSF (1.2x) (Conditions 1 + 3)	Performance Round 1	6.364	2.726	0.457
	Performance Round 2	6.821	4.100	
Total High GDSF (2.5x) (Conditions 2 + 4)	Performance Round 1	6.223	2.734	1.699
	Performance Round 2	7.922	4.101	

Table 4.5.

Means, standard deviations, sample size and correlations amongst model's variables (Study 2)

Variables	M	SD	N	1	2	3	4	5	6
1) Brainstorming task performance (round 1)	6.310	2.836	405	1					
2) GDSF (*Dummy:* High GDSF (2.5x) = 1)	0.500	0.501	405	-.011	1				
3) Frame (*Dummy:* Frame = 1)	0.500	0.501	405	-.047	-.005	1			
4) Goal Acceptance (*Dummy:* Opt-in = 1)	0.830	0.372	405	-.060	-.009	.012	1		
5) Brainstorming task performance (round 2)	7.280	4.163	337	.563**	.129**	-.040	NA^	1	
6) Perceived task significance	3.777	1.323	338	-.064	-.020	.219**	NA^	.006	1

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
^. Cannot be computed because at least one of the variables is constant.

Table 4.6.

Overview opt-out percentage per condition (N = 553)

Condition/Group	Choice	Count	n	Opt-out percentage (Within condition)
1 (No Frame + Low GDSF (1.2x))	Opt-in: Brainstorm	110	139	20.86%
	Opt-out: Review	29		
2 (No Frame + High GDSF (2.5x))	Opt-in: Brainstorm	106	138	23.19%
	Opt-out: Review	32		
3 (Frame + Low GDSF (1.2x))	Opt-in: Brainstorm	110	140	21.43%
	Opt-out: Review	30		
4 (Frame + High GDSF (2.5x))	Opt-in: Brainstorm	108	136	20.59%
	Opt-out: Review	28		
Total No Frame (Conditions 1+2)	Opt-in: Brainstorm	216	277	22.02%
	Opt-out: Review	61		
Total Frame (Conditions 3+4)	Opt-in: Brainstorm	218	276	21.01%
	Opt-out: Review	58		
Total Low GDSF (1.2x) (Conditions 1+3)	Opt-in: Brainstorm	220	279	21.15%
	Opt-out: Review	59		
Total High GDSF (2.5x) (Conditions 2+4)	Opt-in: Brainstorm	214	274	21.90%
	Opt-out: Review	60		

Table 4.7.

Overview of means, standard deviations, and mean differentials repeated measures ANOVA (Time as within-subjects factor + Frame & GDSF as between-subjects factors)

Condition/Group	Time	M	SD	MΔ
1 (No Frame + Low GDSF (1.2x))	Performance Round 1	6.673	2.758	0.000
	Performance Round 2	6.673	3.073	
2 (No Frame + High GDSF (2.5x))	Performance Round 1	6.133	2.756	0.867
	Performance Round 2	7.000	3.064	
3 (Frame + Low GDSF (1.2x))	Performance Round 1	6.009	2.758	-0.045
	Performance Round 2	5.964	3.073	
4 (Frame + High GDSF (2.5x))	Performance Round 1	6.103	2.752	1.121
	Performance Round 2	7.224	3.072	
Total No Frame (Conditions 1 + 2)	Performance Round 1	6.403	2.757	0.433
	Performance Round 2	6.836	3.065	
Total Frame (Conditions 3 + 4)	Performance Round 1	6.056	2.755	0.538
	Performance Round 2	6.594	3.064	
Total Low GDSF (1.2x) (Conditions 1 + 3)	Performance Round 1	6.341	2.759	-0.023
	Performance Round 2	6.318	3.070	
Total High GDSF (2.5x) (Conditions 2 + 4)	Performance Round 1	6.118	2.752	0.994
	Performance Round 2	7.112	3.072	

Table 4.8.

Overview of Six Conditions

	Low GDSF^	Medium GDSF^	High GDSF^
No Frame	Condition 1	Condition 2	Condition 3
Frame	Condition 4	Condition 5	Condition 6

^GDSF = Goal Difficulty Stretching Factor (Low = Factor 1.2; Medium = Factor 2.0; High = Factor 4.0)

Table 4.9.

Means, standard deviations, sample size and correlations amongst model's variables (Study 3)

Variables	M	SD	N	1	2	3	4	5	6	7
1) Brainstorming task performance (round 1)	5.640	3.705	423	1						
2) GDSF (*Dummy:* Medium GDSF (2.0x) = 1)	0.018	0.501	283	.041	1					
3) GDSF (*Dummy:* High GDSF (4.0x) = 1)	0.498	0.501	281	-.019	NA^	1				
4) Frame (*Dummy:* Frame = 1)	0.500	0.501	423	-.036	-.018	-.011	1			
5) Goal Acceptance (*Dummy:* Opt-in = 1)	0.770	0.421	423	-.113*	-.107	-.315**	.041	1		
6) Brainstorming task performance (round 2)	6.770	4.203	326	.596**	.054	.039	-.102	NA^	1	
7) Perceived task significance	3.740	1.245	326	-.160**	-.024	-.018	.200**	NA^	-.051	1

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
^. Cannot be computed because at least one of the variables is constant.

Table 4.10.

Overview opt-out percentages per condition (N = 423)

Condition	Choice	Count	n	Opt-out percentage (Within condition)
1 (No Frame + Low GDSF (1.2x))	Opt-in: Brainstorm	60	69	13.04%
	Opt-out: Review	9		
2 (No Frame + Medium GDSF (2.0x))	Opt-in: Brainstorm	60	72	16.67%
	Opt-out: Review	12		
3 (No Frame + High GDSF (4.0x))	Opt-in: Brainstorm	39	70	44.29%
	Opt-out: Review	31		
4 (Frame + Low GDSF (1.2x))	Opt-in: Brainstorm	65	72	9.70%
	Opt-out: Review	7		
5 (Frame + Medium GDSF (2.0x))	Opt-in: Brainstorm	55	70	21.4%
	Opt-out: Review	15		
6 (Frame + High GDSF (4.0x))	Opt-in: Brainstorm	47	70	32.90%
	Opt-out: Review	23		
Total No Frame (Conditions 1-3)	Opt-in: Brainstorm	159	211	24.64%
	Opt-out: Review	52		
Total Frame (Conditions 4-6)	Opt-in: Brainstorm	167	212	21.23%
	Opt-out: Review	45		
Total Low GDSF (1.2x) (Conditions 1+4)	Opt-in: Brainstorm	125	141	11.35%
	Opt-out: Review	16		
Total Medium GDSF (2.0x) (Conditions 2+5)	Opt-in: Brainstorm	115	142	19.01%
	Opt-out: Review	27		
Total High GDSF (4.0x) (Conditions 3+6)	Opt-in: Brainstorm	86	140	38.57%
	Opt-out: Review	54		

Table 4.11.

Overview of means, standard deviations, and mean differentials repeated measures ANOVA (Time as within-subjects factor + Frame & GDSF as between-subjects factors)

Condition/Group	*Time*	M	SD	MΔ
1 (No Frame + Low GDSF (1.2x))	Performance Round 1	6.200	2.804	1.133
	Performance Round 2	7.333	4.198	
2 (No Frame + Medium GDSF (2.0x))	Performance Round 1	5.283	2.804	2.084
	Performance Round 2	7.367	4.198	
3 (No Frame + High GDSF (4.0x))	Performance Round 1	4.769	2.804	2.000
	Performance Round 2	6.769	4.197	
4 (Frame + Low GDSF (1.2x))	Performance Round 1	5.323	2.806	0.462
	Performance Round 2	5.785	4.200	
5 (Frame + Medium GDSF (2.0x))	Performance Round 1	5.618	2.803	0.964
	Performance Round 2	6.582	4.198	
6 (Frame + High GDSF (4.0x))	Performance Round 1	4.979	2.804	1.872
	Performance Round 2	6.851	4.196	
Total No Frame (Conditions 1-3)	Performance Round 1	5.418	2.862	1.738
	Performance Round 2	7.156	4.287	
Total Frame (Conditions 4-6)	Performance Round 1	5.307	2.830	1.099
	Performance Round 2	6.406	4.239	
Total Low GDSF (1.2x) (Conditions 1+4)	Performance Round 1	5.762	2.806	0.797
	Performance Round 2	6.559	4.204	
Total Medium GDSF (2.0x) (Conditions 2+5)	Performance Round 1	5.451	2.810	1.523
	Performance Round 2	6.974	4.204	
Total High GDSF (4.0x) (Conditions 3+6)	Performance Round 1	4.874	2.810	1.936
	Performance Round 2	6.810	4.219	

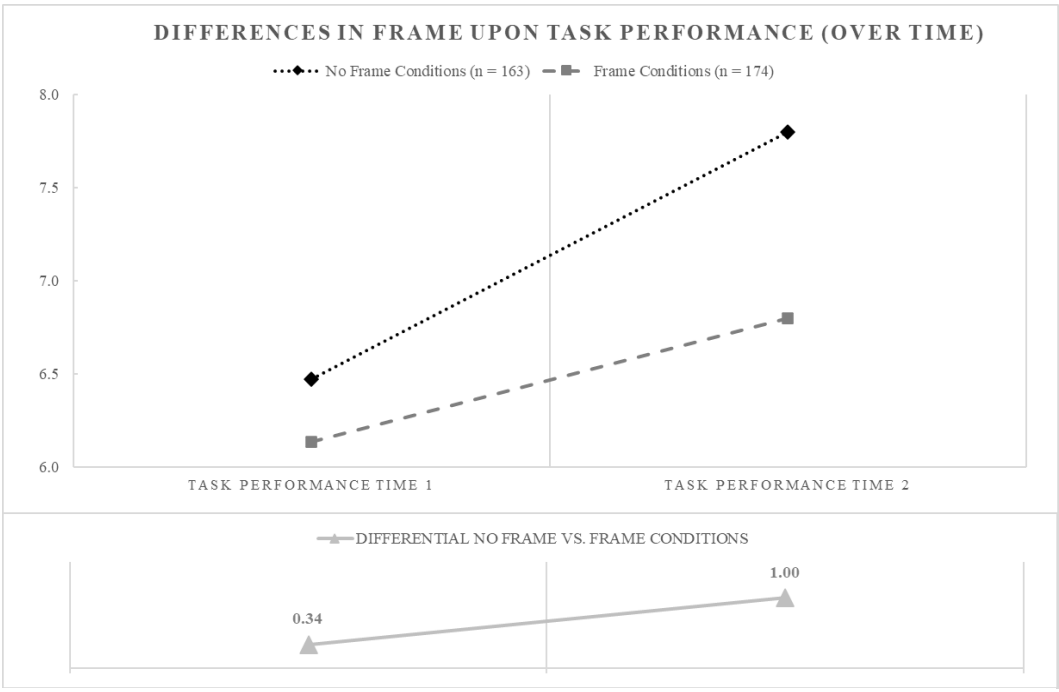


Figure 4.1. *Plot of increase in Task Performance over Time between No Frame and Frame conditions*

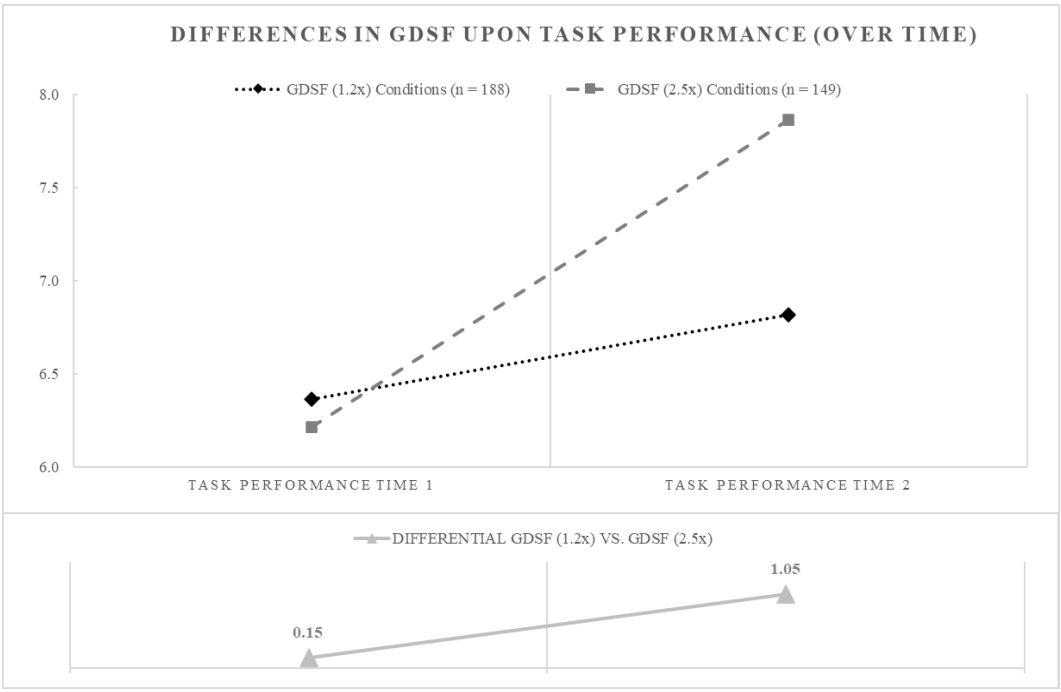


Figure 4.2. *Plot of increase in Task Performance over Time between Goal Difficulty Stretching Factor (GDSF) conditions*

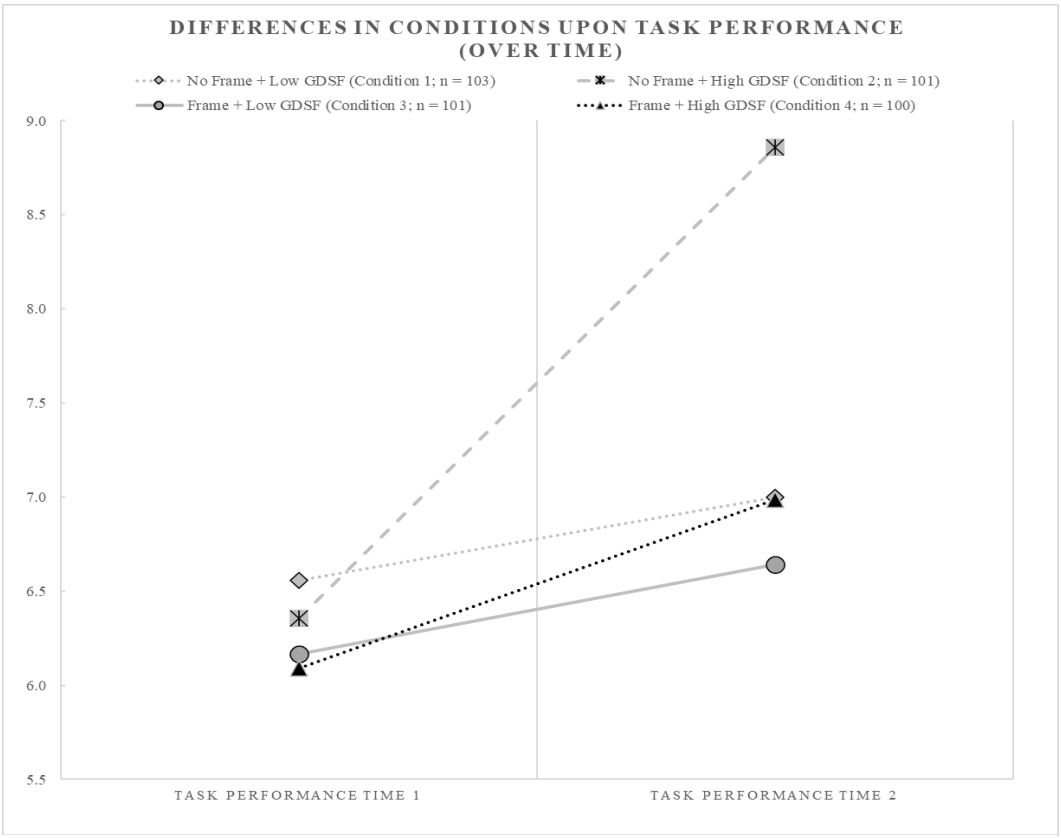


Figure 4.3. *Plot of increase in Task Performance over Time for each of the four conditions*

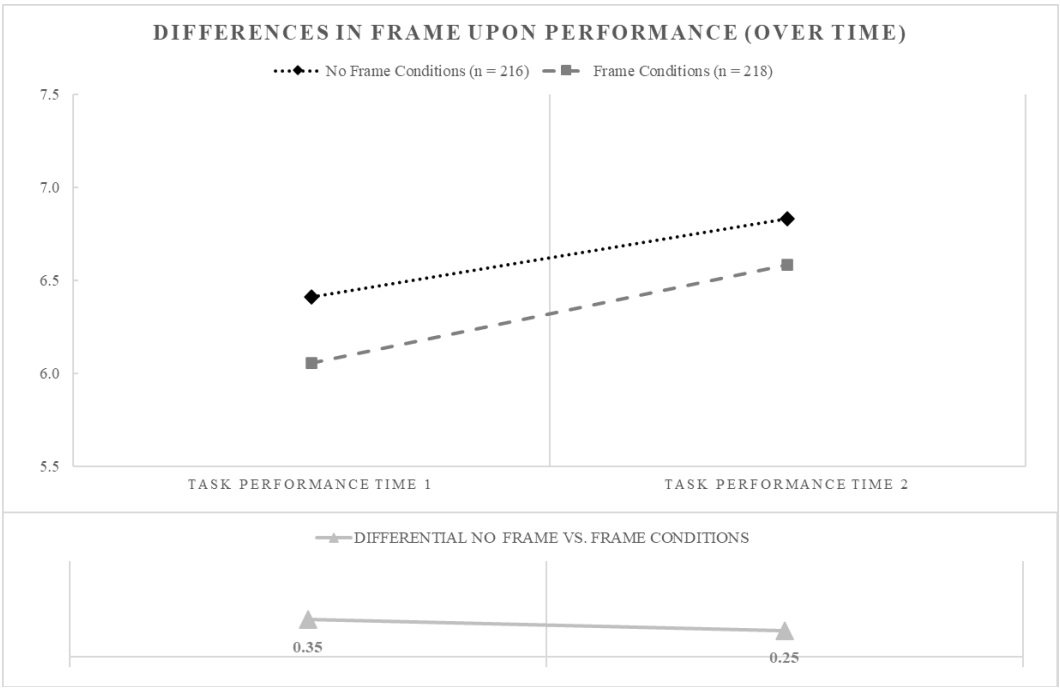


Figure 4.4. *Plot of increase in Task Performance over Time between No Frame and Frame conditions*

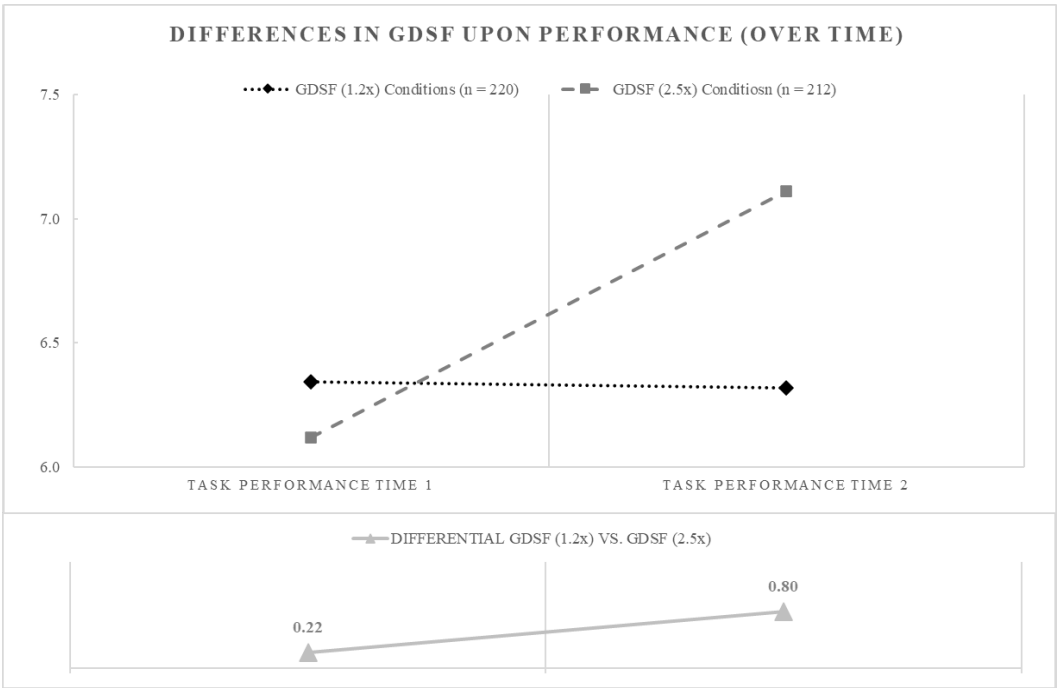


Figure 4.5. *Plot of increase in Task Performance over Time between Goal Difficulty Stretching Factor (GDSF) conditions*

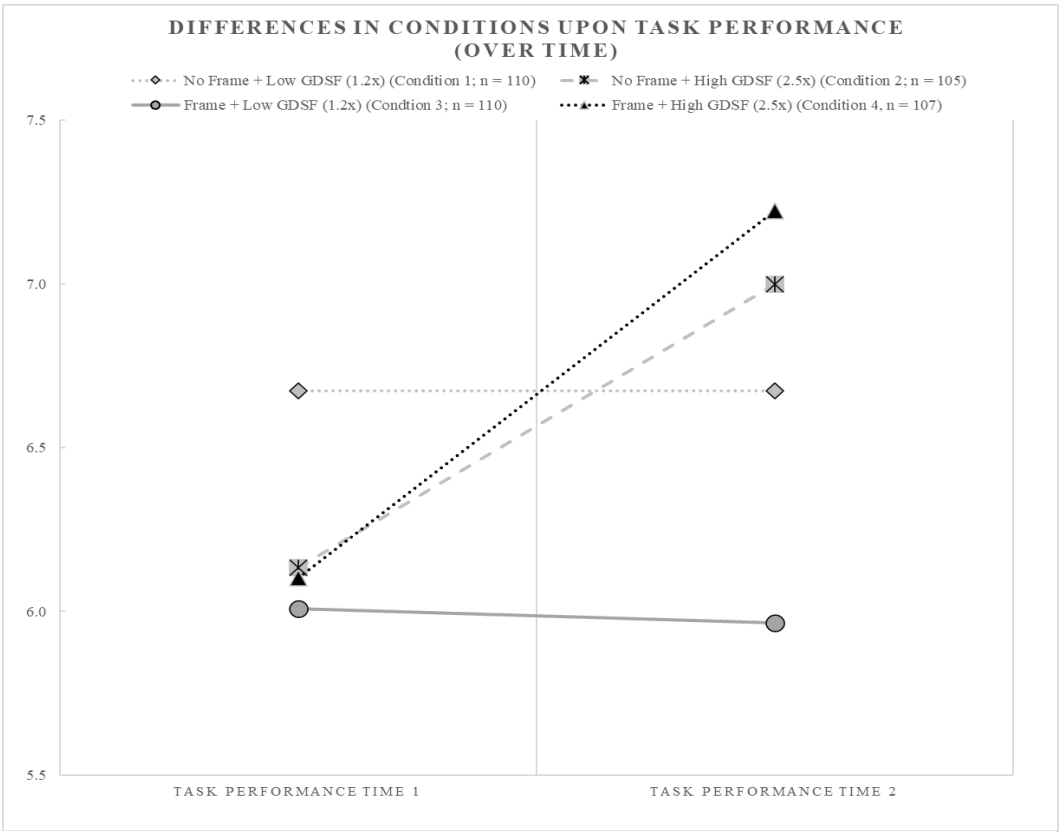


Figure 4.6. *Plot of increase in Task Performance over Time for each of the four conditions*

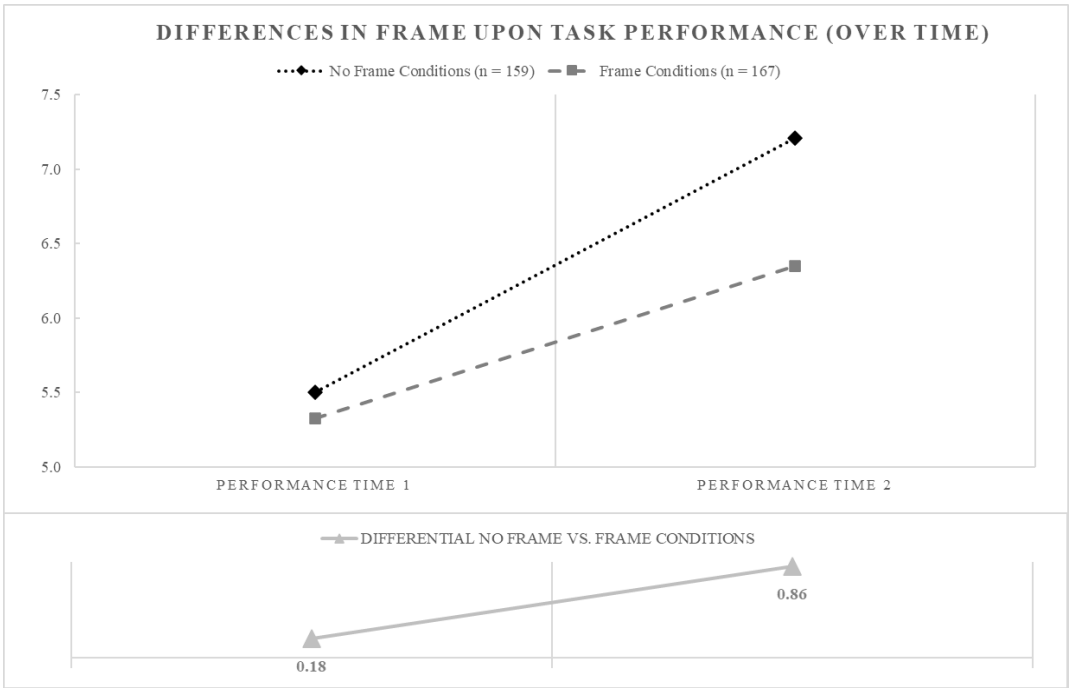


Figure 4.7. *Plot of increase in Task Performance over Time between No Frame and Frame conditions*

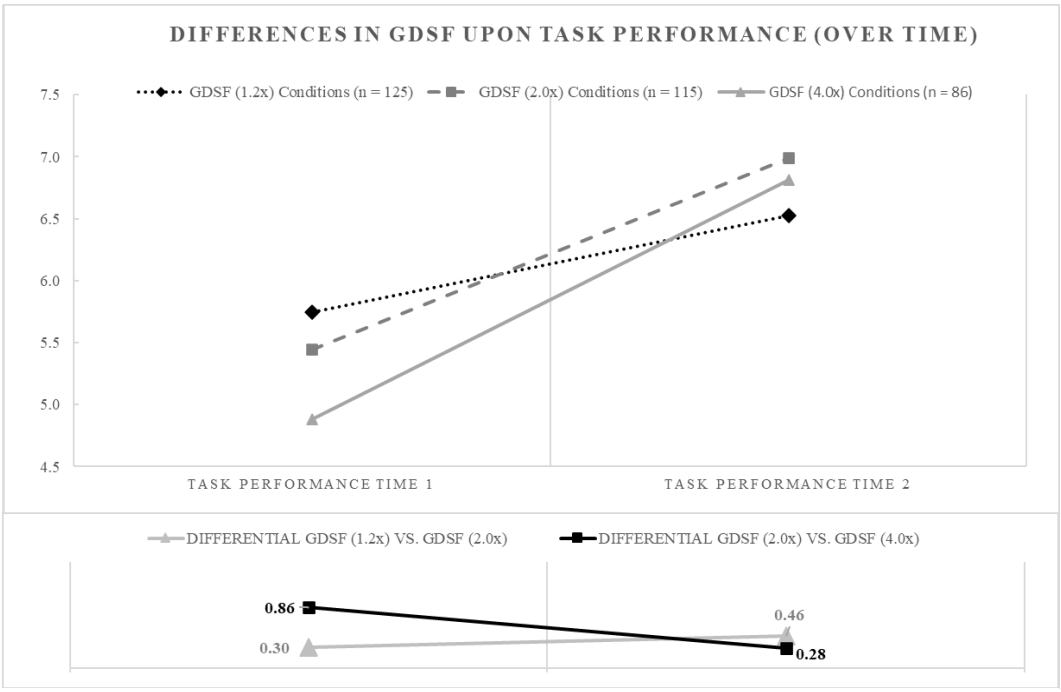


Figure 4.8. *Plot of increase in Task Performance over Time between Goal Difficulty Stretching Factor (GDSF) conditions*

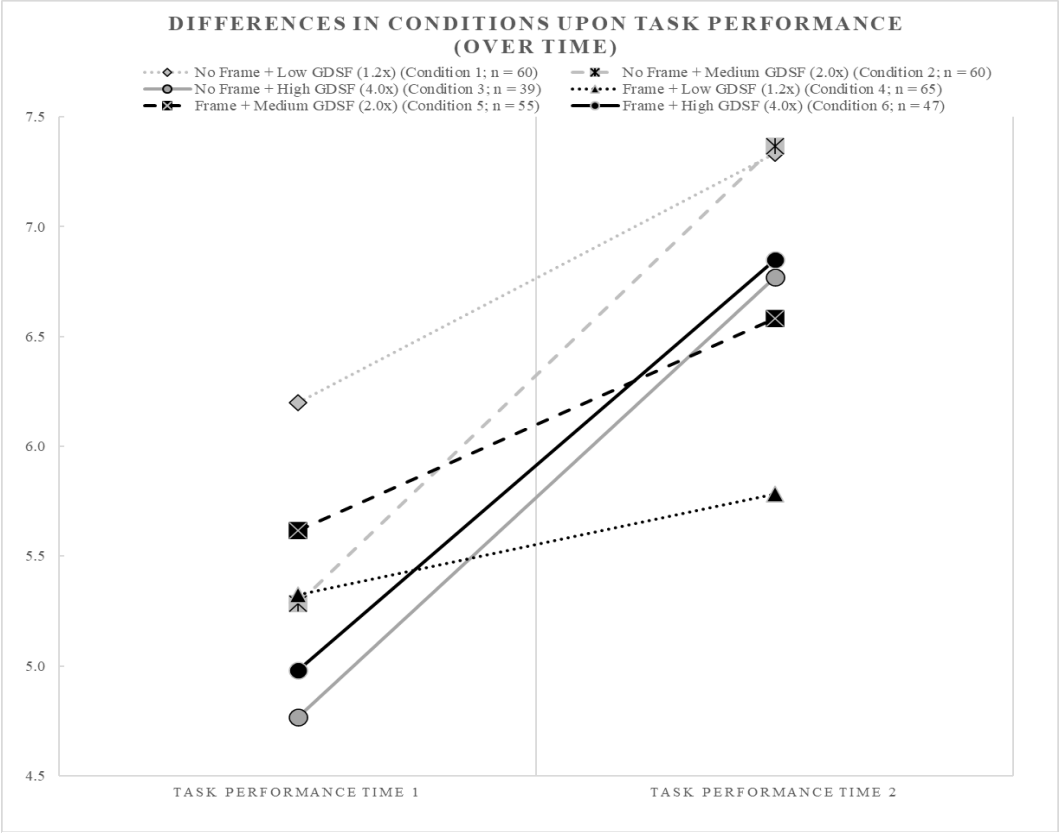


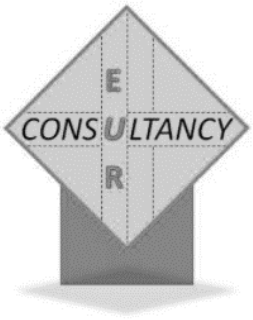
Figure 4.9. *Plot of increase in Task Performance over Time for each of the six conditions*

APPENDIX CHAPTER 4

Please take some time to read the following information:

Who we are, and what we do?

We are **EUR Consultancy**, a consultancy firm based in Rotterdam, South-Holland, the Netherlands.



We are a group of young professionals specialized in (the process of) creating and executing promotional marketing campaigns for organisations operational in the (Fast Moving) Consumer Goods industry.

As part of the way we work at EUR Consultancy, we ask a panel of individuals - which you will be part of - to take part in so-called 'Brainnovation Challenges'.

These challenges involve coming up with (new) ways to use products or objects, and see products in different lights.

If you are done with reading, please press the [-->] button.

Figure A1. Set-up for the Task Significance Frame conditions

In a moment, you have the opportunity to decide whether you want to perform another Brainnovation Challenge or perform an alternative task.

But first, please take some time to consider the following additional info:

About the Brainnovation Challenge:

The main focus of the new Brainnovation Challenge is a product for which EUR Consultancy is asked to set up a marketing campaign.
Our client is looking to launch a new product line in Summer 2020.

As already briefly mentioned, a central role is played by individuals in our way of working: This has previously resulted in **highly original and successful** promotional campaigns, based on the associations and uses that individuals were able to come up with, and thus makes for **an elementary part of our company's work process.**

About our client:

Our client is an organization that can be considered a **social enterprise**, with its main objective to have a social impact - reflected in its vision of Impact First.

Moreover, this organization uses **all of its profits** to (re-)invest in the development of **new highly sustainable and durable consumer products** (BPA and toxin-free) that are **fair trade**, for which fair compensation is provided to the workers involved in creating the products.

Please press [-->] to continue.

Figure A2. Additional, detailed, significance information for the Frame conditions

CHAPTER 5:

GENERAL DISCUSSION

It is commonly understood that goals are an effective means to guide people's behaviours and motivate them to keep going when encountering resistance along the way. Extant research has successfully demonstrated the direct impact of setting a goal upon behavioural and psychological outcomes at individual, team, and organisational levels. Not surprising is that as a result, goal-setting in one form or another has been embraced by management professionals and organisations as a highly effective means to focus employee effort and boost their motivation. The popularity of goal-setting practices in the corporate world has brought about a unique back-and-forth between academia and industry that furthered theoretical developments in goal-setting research inspired by business practitioners' needs. This interplay keeps GST incessantly relevant, and provides an essential backdrop of the empirical chapters of this dissertation. Via eight experiments taking three different focal points, the goal was to come up with theoretically profound and practically sound additions to contemporary GST discussions. These contributions, focused on distinct elemental configurations of the goal-setting phenomenon at different analytical levels, all share the same underlying question: In what way(s)

can (the process of) setting goals be improved, to inspire sought-after behavioural and/or psychological consequences?

Summaries of the main findings and contributions

Chapter 2 centred on goal-setting in teams. Mostly inspired by the popularity of the team concept in organisations as the main way to configure their workforces (LePine, 2003; Mathieu et al., 2019), we proposed a reasoning on how individual team members' ideas on team goals inspire team-set team goals and performance. Specifically, by considering the group decision-making bias known as group or team polarisation, we predicted that team discussions will shift the average team members' position on the aspirational levels of team goals in such a way, that the actual team-set team goals will be more aspirational (i.e., higher). In addition, by incorporating the theory of minimal and maximal goal standards into this team-level goal-setting process, we argued that maximal (versus minimal) goal standards will result in heftier *aspirational shifts*, which ultimately shall drive team task performance. The results from the two large scale team studies supported our predictions.

With this research, we advance GST literature in two important ways. First, we provide a fresh perspective on the team-level goal-setting process itself, which broadens prior explanations of goal-setting in team contexts

and team outcomes (e.g., DeShon et al., 2004; Kleingeld et al., 2011; Wegge & Haslam, 2005). By integrating the group polarisation phenomenon (Myers & Lamm, 1976; Isenberg, 1986) into goal-setting research, we successfully demonstrate that this decision-making bias works beyond team attitude formation and attitudinal shifts within individuals. By shifting the team's idea on team goals in an upward (i.e., aspirational) direction, the higher-set performance goals bring about higher team performance (Locke & Latham, 2019). This is fully in line with GST. Second, by building on recent research on minimal and maximal goal standards (Giessner et al., 2020) and applying these standards in goal-setting at the team level, we show how the self-regulatory nature of goals extends to the team level and reinforce the theoretical relevance of encompassing the notion of goal standards in GST.

In Chapter 3, we focused on the effects of goal-setting at the individual level. Primarily, we were interested in examining how goals effectuate self-regulatory and psychological responses within individuals. Via our application of minimal and maximal goal standards, we argued that assigning individuals one of these two specific goal standards will result in differential goal internalisation (i.e., from assigned to self-set goal standards) and self-efficacy experiences. Subsequently, we pondered the

potential implications over time – particularly when individuals continuously fail to meet assigned standards – and predicted that such constant negative performance feedback will lower levels of self-efficacy beliefs and self-set goal standards. However, the way in which assigned goal standards were 'set' plays an important role in the rate of decrease: maximal (versus minimal) standards should be more successful in buffering against declining self-efficacy and self-set goal levels. In general, the results of the three studies were principally consistent with our expectations.

With this research, we offer a dynamic and timely account that not only reemphasises previous theoretical notions on the function of self-efficacy in the realm of goal-setting research (Bandura & Locke, 2003; Locke, 1991; Locke & Latham, 2019; Tolli & Schmidt, 2008), but also further extends and updates recent discussions on the role of minimal and maximal goal standards in GST (Giessner et al, 2020). Raising awareness about the power of assigning a performance goal standard in a certain way (i.e., minimal or 'at least' versus maximal or 'ideally') provides management practitioners already with valuable inputs for enhancing employee motivation, inspiring explicit goal-setting practices that respond to managerial or organisational needs.

In Chapter 4, we continued being centred on individual goal-setting (effects). Responding to the contemporary upsurge of interest in the stretch goal notion (e.g., Ahmadi et al., 2021; Gary et al., 2017; Pina e Cunha et al., 2017; Sitkin et al., 2011), we examined the impact of individual stretch goals upon individual performance, for which we expected a positive association. In addition, we particularly explored for the potential valuable role of task significance as a motivational resource that, alongside individual stretch goals, should bring about rather positive behavioural outcomes. Thus, we argued that individuals primed on the significance of a certain task at hand are more likely to accept an impossible stretch goal than individuals that were not. Moreover, exposing individuals to task significance stimuli alone should positively impact task performance. Ultimately, we contended a mitigating role of task significance in safeguarding that individual stretch goal-setting will produce higher individual performance outcomes. The results of the three studies featured in this chapter provided supplementary support for the positive impact of individual stretch goals on task performance.

Given earlier findings that advocate for the futility of setting individual goals at way too difficult (i.e., impossible) levels (Locke, 1982; Erez & Zidon, 1984), the main contribution we make to goal-setting research is that setting individual stretch goals can be a useful approach to

enhance individual performance effects. Acknowledging that our findings hold for a specific performance task, we demonstrate that stretching goals to levels that are (objectively) considered impossible and unattainable leads to higher individual productivity levels if a goal is accepted. This seems to work irrespective of conscious effort to enhance an individual's perception of task significance. Rather, task significance might potentially even weaken the effectiveness of the stretch goal – performance link, even though task significance does make it more likely for an individual to continue with a stretch-goal driven performance task.

Based on all the combined insights of our findings, we provide practical recommendations on goal-setting approaches that could be considered by leaders and management practitioners looking to benefit from the powers of goal-setting. An overview of, and an explanation for each of these suggestions is presented in Table 5.1.

Insert Table 5.1 about here

Implications for future research

Reviewing and reflecting upon the discoveries reported in the previous three chapters, these findings do not only offer recommendations for the expansion of goal-setting literature specifically, but also suggest new

directions for research on teams and leadership more generally. In the following section, these suggestions will be refined by discussing certain implications of potential interest for future goal-setting research endeavours.

One of the foremost contributions of this doctoral thesis is that it allows for causal inferences on various features related to the goal-setting phenomenon. Our inferences reveal the workings of (specific steps in) a team goal-setting/decision-making procedure and how this brings about subsequent team performance (Chapter 2), how within-individuals' goal internalisation, goal revisions and self-efficacy beliefs develop over time when encountering continuous failure (Chapter 3), and to what extent the 'traditional' goal – performance link functions when assigning stretch goals to individuals (Chapter 4). Understanding such causal pathways provides valuable information for practitioners looking to benefit from goal-setting practices. Yet, although our usage of experimental studies allows for insight into potential causality, it comes at the price of lowered external validity. As such, for a fuller recommendation on enhancing goal-setting tactics to business professionals, it brings about certain difficulties in making judgements on our findings' practical merit. Hence, we want to encourage the value of extrapolating the uncovered mechanisms to other contexts and other task types. It will be very valuable if future studies

accommodate for this by reproducing and integrating our findings in more natural, realistic settings.

In addition to goal-setting literature, Chapter 2 also links up with the team literature. By exploring the procedural workings of team goal-setting and how it effectuates team performance, we connected GST with team research on decision-making. Specifically, our account of how the polarisation effect influences team goal decision-making speaks to this. In the context of our studies, we utilised teams that scored low on team structural dimensions of temporal stability, authority differentiation, and skill differentiation (Hollenbeck et al., 2012). To put it differently, the teams that we employed could be categorised as self-managing. It implies no formal leadership role was assigned to any of the team members, who were previously unacquainted with one another and were equally skilled. Such a team noticeably displayed aspirational shifts in their team goal decision-making driving subsequent team productivity outputs. Future research could more explicitly consider alternative team structural configurations to examine whether our 'team effectiveness as a result of aspirational shifts' findings remain efficacious.

The team-level application of maximal and minimal goal standards in Chapter 2 might instigate a viable extension to the individual-level findings on the role of goal standards as featured in the studies of Chapter

3. Not unlike its individual members, teams are also vulnerable to failure because of regulatory and psychological responses within teams (Houghton, Neck & Manz, 2003). For example, team efficacy is known to be an important positive determining factor of team performance (Gully, Incalcaterra, Joshi & Beaubien, 2002; Stajkovic, Lee & Nyberg, 2009). It contributes to setting challenging and difficult team goals (DeRue, Hollenbeck, Ilgen & Feltz, 2010). Hence, it may be appropriate for follow-up research to explore how the dynamic individual-level mechanism translates to the team level. That is, how the within-*teams*' goal internalisation, goal revisions, and *team* efficacy beliefs develop over time in light of ongoing failure. This may also generate insights in the temporal effects of team-level goal-setting.

The studies performed in Chapter 4, in which the concept of stretch goal-setting is further examined and applied at the individual level, could contribute to connecting goal-setting to the leadership literature. Especially the notion of visionary leadership, which describes how leaders are concerned with communicating an idealised image of a collective future (i.e., a vision) with the intent to convince others to partake in its realisation (Griffin, Parker & Mason, 2010; Van Knippenberg & Stam, 2014), seems to resonate with our aim of expanding GST literature with individual stretch goal-setting. Visions are less quantifiable targets

compared to 'traditional' effective (i.e, specific and challenging) goals, which makes visionary leadership (versus GST) better suited to inspire more uncertain and unrestricted endeavours (Van Knippenberg & Stam, 2014). The idea of stretch goals, which are seemingly impossible goals to achieve given current capabilities, could be thought to fall in between a traditional GST goal and a vision. And since people might accept unrealistic or extraordinary goals when they are offered a powerful and captivating vision (Pina e Cunha et al., 2017), future research may examine if visionary leadership could further drive the positive performance outcomes associated with individual stretch goal-setting.

Conclusion

Goal-setting is an effective way to inspire human conduct. On a daily basis, we set goals for ourselves or are challenged with assigned standards in all aspects of our everyday lives. In this dissertation, we were principally focused on the role of goals with regard to the work life aspect, where goals move us to perform our jobs. In order to effectuate positive performance outcomes, it is important to have goals in place that have the right levels of goal specificity and difficulty, as declared by GST. Yet goals impact so much more than just performance, as became clear in the extensive research stream centring on the goal-setting practice, which – to this day – is still ongoing and highly relevant. Goals and goal-setting

influence psychological concepts and mechanisms that occur at the individual, team, and organisational levels. This doctoral thesis attempts to uncover (some of) the workings of these processes, which should result in further understanding and advancements of current discussions on setting goals. Moreover, these advances allow managerial practitioners to benefit more from goal-setting, as they emphasise certain circumstances in which explicit goal-setting related practices and processes are more ideal (i.e., effective). Overall, it is our hope that our findings strengthen current and stimulate future discussions on goal-setting and other related relevant literatures, and make it unequivocally clear that goals matter.

TABLE OF CHAPTER 5

Table 5.1.

Overview of practical recommendations (based on the findings featured in our empirical chapters)

What? (Recommendation)	Why? (Explanation of recommendation)	Level of analysis	What chapter?
For self-managed teams: Create guidelines that enable a team goal-setting process.	Team task performance outcomes can be positively impacted when teams together set team-level goals beyond individual ideas on team-level goals.	Team	2
For externally-managed teams: Assign minimal (versus maximal) team goal standards.	When a leader wants to contribute his/her goal expectations to the team goal-setting process, but also looks to benefit from the occurrence of an aspirational shift that follows from having a team sit together and decide upon common team goal standards, a leader could focus on assigning the minimal team goal standard. Specifically, he/she could communicate his/her idea on what the team could *at least* accomplish to the individual team members. This could, in turn, provide guiding inputs for the pending team discussion which leads to team-set goal standards, ultimately influencing team task performance.	Team	2
Assign maximal (versus minimal) team goal standards.	When leaders are *fully* in charge of setting team goals (i.e., no occurrence of any team discussion), they could concentrate on setting maximal (v. minimal) goals. These reflect the more challenging standards, which could more positively impact team task performance.	Team	2
For inspiring one-off performance behaviours: Assign minimal (versus maximal) individual goal standards.	When leaders are looking to set a goal for a onetime task, they could assign goals in a minimal way, which leads to higher outcomes after the goal internalisation process (i.e., higher self-set standards). This could lead to higher performance outcomes.	Individual	3

Table 5.1. (continued)

What? (Recommendation)	Why? (Explanation of recommendation)	Level of analysis	What chapter?
For inspiring one-off performance behaviours: Assign goals that are both stretched and accepted.	When leaders are looking to assign a performance goal for a previously-performed task, they could set a goal of which its difficulty is stretched to impossible levels (i.e., highly improbable that an individual can reach this goal). Upon acceptance of this goal, it would likely effectuate higher levels of task performance.	Individual	4
When combined with individual stretch goal-setting, do not explicitly highlight the significance of the task at hand.	When leaders want to emphasise the significance of performing a certain task, it would be better to not do this when they also set impossible performance goals for that same task.	Individual	4
For inspiring ongoing performance behaviours: Assign maximal (versus minimal) individual goal standards.	When leaders are looking to set a goal for an ongoing task, they could assign goals in a maximal way. This still focuses individuals' efforts, but also protects against negative psychological responses as a result of failure, especially when these are likely to be experienced on a continual basis.	Individual	3

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SUMMARY

Goals are an effective way to motivate and guide people's behaviours. Extant research has shown the (direct) impact of goal-setting upon behavioural and psychological outcomes at individual, team, and organisational levels. As a result, goal-setting practices have been embraced by the corporate world, which enabled a unique back-and-forth between academia and industry that furthered theoretical developments in goal-setting research inspired by practitioners' needs. This interchange keeps goal-setting theory (abbrev. GST) continually relevant. Moreover, it underscores the objective of the empirical chapters (i.e., chapters 2 – 4) in this PhD dissertation, which is – through experiments with different focal points – to provide theoretically profound and practically sound additions to contemporary GST discussions.

Chapter 2 centres on goal-setting in teams. Specifically, a reasoning is proposed on how individual team members' ideas on team goals inspire team-set team goals and subsequent performance. Two studies reveal that teams polarise when they are asked to set team goals. This shift is rather aspirational and is more pronounced for maximal compared to minimal goals. Moreover, it shows positive implications for team task performance.

Chapter 3 examines how goals effectuate self-regulatory and psychological responses within individuals. Three studies demonstrate that assigning individuals a minimal or maximal goal results in differential goal internalisation and self-efficacy experiences. Moreover, over time, facing constant negative performance feedback, self-set goal standards and self-efficacy beliefs will lower, where the rate of decline can be lessened in case maximal (versus minimal) goals are assigned.

Chapter 4 studies the impact and effectiveness of individual stretch goals upon individual performance. Furthermore, the potential valuable role of task significance as a motivational resource is investigated. Three studies mostly reveal that setting individual stretch goals to levels that are (objectively) considered impossible and unattainable leads to higher individual productivity levels if a goal is accepted. This works irrespectively of efforts to enhance an individual's perception of task significance.

SAMENVATTING

Doelen zijn een effectieve manier om mensen te motiveren en hun gedrag te sturen. Onderzoek heeft de (directe) invloed aangetoond van het stellen van doelen op gedragsmatige en psychologische uitkomsten op individueel, team- en organisatieniveau. Als gevolg hiervan is het zetten van doelen omarmd door de bedrijfswereld. Dit heeft tot een unieke wisselwerking tussen de academische wereld en de industrie heeft geleid, waar de behoeften van de bedrijfswereld theoretische ontwikkelingen in het onderzoek naar doelstellingen zetten hebben bevorderd. Deze uitwisseling houdt de theorie over het zetten van doelen (d.w.z., goal-setting theorie – afkorting GST) voortdurend relevant. Bovendien benadrukt het de intentie van de empirische hoofdstukken in dit proefschrift, namelijk – door middel van experimenten met verschillende aandachtsgebieden – zowel degelijke theoretische als praktische aanvullingen te geven op de hedendaagse GST-discussies.

Hoofdstuk 2 richt zich op het zetten van doelen in teams. Er wordt een redenering voorgesteld over hoe de ideeën van individuele teamleden over teamdoelen de door teams gezette teamdoelen en de daaropvolgende prestaties inspireren. Twee studies tonen aan dat teams polariseren wanneer hen gevraagd wordt om teamdoelen te stellen. Deze verschuiving

is enigszins ambitieus en is meer uitgesproken voor maximale dan voor minimale doelstellingen. Bovendien blijkt deze verschuiving positieve gevolgen te hebben voor de taakprestatie van het team.

Hoofdstuk 3 onderzoekt hoe doelen zelfregulerende en psychologische reacties bij individuen bewerkstelligen. Drie studies tonen aan dat het toekennen van een minimaal of maximaal doel aan individuen resulteert in verschillende ervaringen omtrent het internaliseren van het doel en zelfeffectiviteit. Bovendien zullen, na verloop van tijd en geconfronteerd met constante negatieve prestatie feedback, zelf gezette doelstellingen en zelfeffectiviteit overtuigingen verminderen, waarbij de mate van deze daling kan worden beperkt in het geval maximale (versus minimale) doelen worden toegekend.

Hoofdstuk 4 onderzoekt de invloed en doeltreffendheid van individuele stretch-doelen op individuele prestaties. Verder wordt de mogelijk waardevolle rol van taakbelangrijkheid als motiverend hulpmiddel onderzocht. Drie studies tonen aan dat het zetten van individuele stretch-doelen, op niveaus die (objectief) als onmogelijk en onbereikbaar worden beschouwd, leidt tot hogere individuele productiviteitsniveaus als een doel wordt geaccepteerd. Dit werkt onafhankelijk van inspanningen om de perceptie van taakbelangrijkheid van een individu te verbeteren.

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Jorrit Alkema was born in ‘s-Gravenhage on September 4, 1988. He received his BSc in International Business Administration and his MScBA in Human Resource Management and Marketing Management from the Rotterdam School of Management, Erasmus University. After exploring the corporate world, in 2015 he started his PhD under the supervision of Steffen Giessner and Dirk van Dierendonck. Since September 2022, he has been working as a Lecturer in Organisational Behaviour and Leadership at Rotterdam School of Management, Erasmus University.

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Jorrit Alkema was born in 's-Gravenhage on September 4, 1988. He received his BSc in International Business Administration and his MScBA in Human Resource Management and Marketing Management from Rotterdam School of Management, Erasmus University. After exploring the corporate world for a couple of years, he started his PhD in Organisational Behaviour at the Erasmus Research Institute of Management in 2015. Since September 2022, he has been working as a Lecturer in Organisational Behaviour and Leadership at Rotterdam School of Management, Erasmus University.

In this book, he centres on the notion of (setting) goals. Goals are known to be an effective way to motivate and guide people's behaviours. Extant research has shown the (direct) impact of goal-setting upon behavioural and psychological outcomes at individual, team, and organisational levels. As a result, goal-setting practices have been embraced by the corporate world, which enabled a unique back-and-forth between academia and industry that furthered theoretical developments in goal-setting research inspired by practitioners' needs. This interchange keeps goal-setting theory continually relevant. With this PhD dissertation, he aims to make theoretically profound and practically sound additions to contemporary goal-setting theory discussions.

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