

## MASTER

### Engaged teams through goal setting

van de Kerkhof, R.M.

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# **Engaged Teams through Goal Setting**

by  
Roland M. van de Kerkhof

Student identity number 0665051

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Supervisors:

Prof.dr. E. Demerouti, TU/e, HPM

dr.ir. A. Kleingeld, TU/e, HPM

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# Management Summary

A variety of global forces has pushed organizations all over the world to restructure their work increasingly around teams, in order to enable more rapid and flexible responses to dynamic environments (Kozlowski & Ilgen, 2006). This increasing dependency on teams has made the understanding of the dynamics that drive team effectiveness more important for both organizations and science. Since the use of goals has become widely accepted, many teams within an organizational context operate with a portfolio of long- and short-term team and individual goals (Locke & Latham, 2013<sup>a</sup>). The goal of this study was to explore the relation between team work engagement and goal setting within an organizational context. Although some overlap exists between the mechanisms described within the research fields of work engagement and goal setting theory, the research areas have not yet been formally connected. The use of goals can offer the team a challenge, direction and a sense of urgency, while the team's work engagement provides the team and its members sustainable energy to pursue their goals.

Team work engagement is defined as *a shared, positive, fulfilling affective-motivational emergent state of work related well-being* (Costa, Passos & Bakker, 2012), that is characterized by the aspects team vigour, team dedication and team absorption. The aspect *team vigour* is characterized by shared high levels of energy within the team and mental resilience while working, expression of the team members' willingness to invest effort and the persistence even in the face of difficulties. The *team's dedication* is characterized by a shared strong involvement in the team's work and expression of a sense of significance, enthusiasm, inspiration, pride, and challenge. *Team absorption* is characterized by a shared focused attention on work, whereby the time passes quickly and the team members experience and express difficulties detaching themselves from work. In contrast to individual work engagement describes team work engagement characteristics common to the members of the collective and is it based on the convergence of moods of the people that work together. The existence of team work engagement has recently been validated (Costa, Passos & Bakker, 2013), so future research on the area of team work engagement should aim at further understanding the conditions under which team work engagement develops and at understanding the relation between team work engagement and team effectiveness (Costa et al., 2012; Costa et al., 2013)

Therefore the main research question of this study was:

*How can the setting of goals contribute to the emergence of Team Work Engagement and what is the impact of Team Work Engagement on Team Performance?*

To answer this question a longitudinal quasi-experimental study had been designed, including 43 teams from several organizations. Within the study was specifically focused on teams that operate within an organizational context, rather than student teams, sport teams or social groups. The longitudinal data has been collected at two moments in time with electronic questionnaires. All teams received a goal-setting intervention and were assigned to a control or experimental condition through matching. The intervention ensured that all teams selected a performance-oriented short-term team goal, which facilitated comparison across teams. Specifically, the teams in the experimental condition were instructed to set a performance-oriented, relevant and challenging short-term goal, that requires the joint effort of all team members to be attained, and do so with the team's purpose and long-term goals in mind. The teams in the control condition on the other hand were merely instructed to set a performance-oriented short-term team goal.

Based on the existing literature multiple hypothesis have been created. First of all, it was hypothesized that challenging and important short-term goals yield higher team work engagement and goal

performance than unimportant and easy goals, particularly when the short-term goal is connected to the team's previously set long-term goals. Additionally it was expected that the team's skills and the team's climate predict the team's current work engagement. Then two functions of team work engagement in the improvement of team performance were hypothesized: (1) team work engagement (and team goal commitment) are expected to independently moderate the relation between a difficult team goal and goal performance, and; (2) team work engagement mediates the effect of the team's skills and the team's climate on the team's performance. Overall team work engagement is expected to improve the performance of any team through several general and situational mechanisms. In general an engaged team is willing to go the extra mile, even in the face of difficulties (team vigour), wastes less time (team absorption), and works in a sustainable state of well-being, which enables the team to continue delivering high task and contextual performance over time. Situational mechanisms that are affected by team work engagement are for example proactive behaviour, vital business meetings and fluent information sharing, processes that can both enhance and impede the team's performance dependent on the timing within the team process.

According to the longitudinal data the intervention did not significantly improve the experimental group's team work engagement, goal commitment or performance. On average the teams within the experimental group set more important and more difficult goals, although these differences were not significant. Nevertheless, the study's results showed the trends that challenging (i.e., moderately difficult or difficult) and important short-term goals yield higher team work engagement than (1) goals that are less important, and (2) easy team goals, and that short-term goals that are derived from the team's previously set long-term goals yield higher team work engagement and goal commitment than goals that are not. As expected, both the team's skills and the commitment to each other (aspect of team climate) have been found to predict the current team work engagement (cross-sectional). Both the moderating and mediating function of team work engagement have not been found in the data, potentially due to the operationalization of the team's skills and the small sample size. It has however been found that team work engagement – and team vigour in particular – are strong predictors of the team's current task and contextual performance and decent predictors of future team task and contextual performance. The results additionally showed that (from the goal's characteristics) the goal's difficulty primarily predicts goal performance, while the goal's importance primarily predicts team work engagement. Moreover, the team's skills moderate the relation between team work engagement and goal performance, such that higher levels of team work engagement only yield higher goal performance when the team has sufficient skills to attain the goal.

The study makes three important contributions. First, this study evaluates the possible connections and synergies between (team) work engagement and goal setting, thereby potentially opening a new research area. Second, multiple cross-sectional predictors for team work engagement are identified – including team skills, team climate and a specific use of team goals – and the relation between team work engagement (and team vigour in particular) and the team's current task and contextual performance has been confirmed. This is in line with the expectation of Schaufeli, Taris and Bakker (2006), who reasoned that enthusiasm about the task is also likely to predict in- and extra-role performance on the team level. Third, the study uses an innovative composite measure of goal performance, that enables the comparison of a performance outcome over a diversity of teams.

The findings of the study entail several practical implications. First, they reveal that teams are capable of increasing their engagement by using a combination of long-term and specific challenging short-term goals. The use of short-term goals affects the team's motivation and goal commitment (through increase of urgency, tangibility and self-efficacy) and facilitates the development of effective task strategies (through feedback, better detection and management of errors and learning). Then the goal's difficulty should result as a function of the desired team performance, the goal's importance and

position within the goal portfolio, and the current collective efficacy of the team. If the team's collective efficacy is high and the team has previously set important long-term goals, the team benefits most by setting a challenging short-term goal that contributes to the attainment of the long-term goal. On the other hand, if the team's collective efficacy is low or the team has just been initiated, it is wise to use attainable short-term goals that allow the team to achieve small wins and thereby improve the team's spirit and work engagement.

The first and foremost recommendation for future research is to continue the exploration of team and individual work engagement dynamics in organizational goal setting contexts. If this new research area is embraced, future work should aim at further building an explicit theoretical framework and at assessing: (1) the effect of the entire goal portfolio on work engagement; (2) the relation between team goal commitment and team vigour and dedication; (3) the effect of goal types (e.g., performance goal, learning goal) on team work engagement for complex and easy tasks, and; (4) the effect of goal attainment (or failure) on future work engagement. Future team work engagement studies can also explore the outcome indicator *team effectiveness*, instead of focusing exclusively on team performance dimensions. Team work engagement is a positive state of work-related well-being and is therefore likely to be related with both the meeting of team-member needs and the team's viability, two important aspects of team effectiveness (team performance is the third aspect; Hackman, 1987). Finally, because the idea of a outcome variable that facilitates comparison across teams is promising, future studies could validate the composition formula of *goal performance* and develop alternative methods for assessing the goal's difficulty and the team's goal-related performance. Teams (and supervisors) might have troubles in evaluating the difficulty of a goal, particularly when the task is new and complex.

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# Abstract

**Purpose** – This study aims to explore the relation between team work engagement and goal setting within an organizational context.

**Design/methodology/approach** – 43 Teams from 16 different companies participated in a longitudinal quasi-experimental study. Data has been collected at two moments in time with electronic questionnaires and all teams received a goal setting intervention in which they were instructed to set a performance-oriented short-term team goal.

**Findings** – Although the teams in the experimental condition did not attain significantly higher team work engagement or performance than the control condition, the findings indicate that challenging and important short-term goals yield higher team work engagement than less important or easy teams goals, in particular when the goal is connected to the team's long-term goals. Additionally, team work engagement has been found to predict both the team's task and contextual performance and the team's skills and commitment to each other are identified as predictors of team work engagement (cross-sectional).

**Originality/value** – This study is the first to indicate connections between the fields of goal setting theory and engagement and explores the functioning of the new construct team work engagement

**Keywords** – teams, team work engagement, goal setting, team performance, longitudinal study design.



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# 1. Introduction

A variety of global forces has pushed organizations all over the world to restructure their work increasingly around teams, in order to enable more rapid and flexible responses to dynamic environments (Kozlowski & Ilgen, 2006). This increasing dependency on teams has made the understanding of the dynamics that drive team effectiveness more important for both organizations and science. Since the use of goals has become widely accepted, many teams within an organizational context operate with a portfolio of long- and short-term team and individual goals (Locke & Latham, 2013<sup>a</sup>). This study focused on a combination of team work engagement and goal setting as prior determinants of current and future team effectiveness, and thereby contributes to the knowledge about team effectiveness dynamics.

The core finding from Goal Setting Theory (GST) is that specific, difficult goals lead to higher performance than no goals, easy goals or vague goals, both on the individual as well as the team level (Locke & Latham, 2013<sup>a</sup>). Work engagement on the other hand is a positive, fulfilling, affective-motivational state of work related well-being, and has been shown to be connected to short- and long-term performance (and other relevant organizational outcomes) on the individual level (Schaufeli, Taris & Bakker, 2006; Schaufeli, Martinez, Marques Pinto Salanova & Bakker, 2002). Although most engagement studies have exclusively focused on individual work engagement, studying work engagement on the team level is a promising concept; it has been found that team work engagement is stronger related to team-level variables than individual work engagement (Costa, Passos & Bakker, 2013). Recently Costa, Passos and Bakker (2012) provided a solid theoretical conceptualization of team work engagement and validated the existence of the construct (Costa et al., 2013). Future research on the area of team work engagement should therefore aim at further understanding the conditions under which team work engagement develops and at understanding the relation between team work engagement and team effectiveness (Costa et al., 2012; Costa et al., 2013).

The goal of this study was to explore team work engagement conditions and dynamics within an organizational goal setting context. Although some overlap exists between the mechanisms described within the research fields of work engagement and GST, the research areas have not yet been formally connected. The use of goals can offer the team a challenge, direction and a sense of urgency, while the team's work engagement provides the team and its members sustainable energy to pursuit their goals. Thus, the basic question in this study was:

*What predictors contribute to the emergence of Team Work Engagement and what is the impact of Team Work Engagement on Team Performance?*

To answer this question a longitudinal quasi-experimental study had been designed, including teams from several organizations. All teams received a goal-setting intervention and were assigned to a control or experimental condition through matching. The intervention ensured that all teams selected a performance-oriented short-term team goal and facilitated comparison across teams. With the aid of the longitudinal data multiple predictors of team work engagement were evaluated, such as the team's goals, team competencies (team skills) and shared psychological states within the team (team climate). In addition the effect of a difficult team goal and the presence of team work engagement on several aspect of the team's performance were assessed. Together these relationships describe the research model, which is graphically presented in Figure 1.

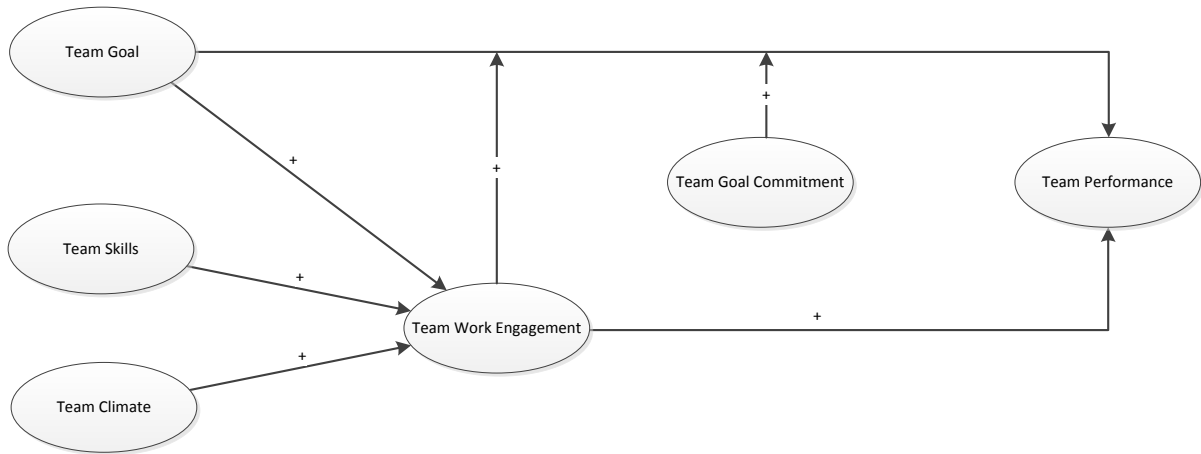


FIGURE 1: RESEARCH MODEL

Within the study was specifically focused on teams that operate within an organizational context, rather than student teams, sport teams or social groups. Therefore the definition of a team was adopted from Kozlowski and Ilgen (2006, pp. 79), who defined a team as “(a) two or more individuals who (b) socially interact (face-to-face or, increasingly, virtually); (c) possess one or more common goals; (d) are brought together to perform organizationally relevant tasks; (e) exhibit interdependencies with respect to workflow, goals, and outcomes; (f) have different roles and responsibilities; and (g) are together embedded in an encompassing organizational system, with boundaries and linkages to the broader system context and task environment.” Many different types of teams fall within this definition, such as management teams, sales teams and project teams, each characterized by their own tasks and work processes. In particular the team members’ task interdependence has been identified as a defining characteristic of group work (Kozlowski & Bell, 2003), and is expected to affect the mechanisms through which engaged teams attain higher team performance.

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## 2. Theoretical Introduction

### 2.1. TEAM WORK ENGAGEMENT

Individual work engagement (IWE) has been previously defined as *a positive, fulfilling, work-related state of mind that is characterized by vigour, dedication, and absorption* (Schaufeli, Salanova, González-Romá and Bakker, 2002) and has been found to function as a mediator in the relation between job resources and individual performance (Bakker, Schaufeli, Leiter & Taris, 2008). The first aspect, vigour, is characterized by high levels of energy and mental resilience while working, the willingness to invest effort into one's work, and persistence even in the face of difficulties. Dedication refers to being strongly involved in one's work, and experiencing a sense of significance, enthusiasm, inspiration, pride, and challenge. Absorption is characterized by being fully concentrated and happily engrossed in one's work, whereby time passes quickly and one has difficulties detaching oneself from work. Employees are considered engaged if they score high on each of the three work engagement sub dimensions (Westman, Bakker, Roziner & Sonnentag, 2011).

The first theoretically grounded conceptualization of team-level work engagement is created by Costa, Passos & Bakker (2012), who have conceptualized team work engagement (TWE) as a collective construct on the team level, functionally equivalent to individual work engagement. Specifically, team work engagement is defined as *"a shared, positive, fulfilling affective-motivational emergent state of work related well-being"* (Costa et al., 2012, pp. 5). Also the team's work engagement is characterized by the team-level aspects vigour, dedication and absorption (Table 1), and mediates the relation between the team's resources and team performance. The team's vigour shows itself for example through explicit (verbal and visual) expressions of the team members' desire to continue working and the encouragement of demoralized colleagues. The team's dedication becomes apparent when team members start to express to each other and to others external to the team about the importance of their work and about the thrill they feel concerning their work. When the team is absorbed, the team members continue talking about their work during breaks and when working they are not engaging in non-work related interactions (Costa et al., 2012).

TABLE 1: OPERATIONALIZATION OF TEAM WORK ENGAGEMENT (GREY: DIFFERENCES WITH IWE)

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Team vigour	<ul style="list-style-type: none"><li>- shared high levels of energy and mental resilience while working</li><li>- expression of willingness to invest effort into the team's work</li><li>- persistence even in the face of difficulties (e.g., conflict, bad performance, obstacles)</li></ul>
Team dedication	<ul style="list-style-type: none"><li>- shared strong involvement in the team's work</li><li>- expression of a sense of significance, enthusiasm, inspiration, pride and challenge</li></ul>
Team absorption	<ul style="list-style-type: none"><li>- shared focused attention on work</li><li>- time passes quickly</li><li>- team members together experience difficulties detaching themselves from work</li></ul>

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In contrast to individual work engagement, describes team work engagement characteristics common to the members of the collective (i.e., shared construct; Kozlowski & Klein, 2000). This is based on mood convergence between people who work together (e.g., group affective tone, emotional contagion). Consequently, team work engagement emerges through different mechanisms than team

work engagement. While individual work engagement results as a function of a demanding work environment (job demands) and sufficient job and personal resources (Bakker & Demerouti, 2007), team work engagement emerges through *sharing* the same resources and the same climate, experiencing the same events, and emotional interactions between team members (Costa et al., 2012). Finally, because team work engagement is defined as a shared construct, it can only exist when the team members have to a large extent similar perceptions of the state (Costa, Passos & Bakker, 2013). An overview of the similarities and distinctions between individual and team work engagement is presented in Figure 5 (Appendix A).

So what are concrete conditions that facilitate team work engagement? The use of (a combination of) goals is expected to provide the team with a demanding work environment, particularly when the team has access to sufficient skills to attain the goal. Also the team's climate is expected to affect the emergence of team work engagement, as emotional interactions only take place in a psychological safe climate. First goal setting is discussed.

## 2.2. GOAL SETTING

Goal setting theory is a theory of motivation that was formulated inductively on the basis of a large body of empirical research and is based on the premise that conscious goals affect action (Locke & Latham, 2002). It explains what causes some people to perform better on work-related tasks than others (Locke & Latham, 2013<sup>a</sup>). The term goal is defined as an explicit intention to obtain a certain performance level or outcome, usually within a specified time limit (Locke & Latham, 2013<sup>a</sup>). In an organizational setting this might for example be the level of performance to be attained. Goal setting theory has generally focused on the relationship between consciously set goals and level of task performance, rather than on intentions to take specific actions or general intentions (Locke & Latham, 2002). Over 400 empirical studies led to two core findings (Locke & Latham, 2013<sup>a</sup>): (1) there is a linear relationship between the degree of goal difficulty and performance, and; (2) specific, difficult goals lead to higher performance than no goals, as well as vague and abstract goals such as "do your best". These findings also hold on the team-level (Kleingeld, Van Mierlo & Arends, 2011).

The *specificity* of a goal reflects the extent to which a goal suggests a precise target (Kleingeld et al., 2011) and typically varies from vague (e.g., "do-your-best"), via moderately specific (i.e., indicating a range of acceptable performance levels) to specific (e.g., attain performance level *x*). The *difficulty* of a goal on the other hand is often assessed by the (objective) probability of success (Locke & Latham, 2002) and can be characterized as easy, moderate or difficult (e.g., Klein, Wesson, Hollenbeck & Alge, 1999). Similarly to Kleingeld et al. (2011) they coded a goal as 'difficult' when the goal had a success probability of less than 15%; this entails that although most of the people increase their effort, the majority does not attain the goal. The goal property challenge is directly related to the goal's difficulty (i.e., a difficult goal is a challenging goal) and has become firmly established as the key determinant of the effect of goals (Wood, Whelan, Sojo & Wong, 2013).

An additional relevant characteristic of goals is the perceived *importance*, which reflects the attractiveness of goal attainment; that is, the value people perceive towards attainment of the goal (Klein, Cooper & Monahan, 2013). Eventually, when the deadline of goal is due, the team has attained a certain performance. With respect to the goal (e.g., sell 10 books) the actual performance the team has achieved is specified by the outcome variable *goal performance* (e.g., 12 books sold).

### 2.2.1. THE GOAL-PERFORMANCE RELATIONSHIP

Goal-setting theory has traditionally emphasized three action-oriented mechanisms (or mediators) through which goals positively affect an individual's performance: focus (i.e., direction), effort (i.e., intensity), and persistence (i.e., commitment; Locke, Saari, Shaw & Latham, 1981).

The first mechanism, *direction*, works through two directional effects. A specific and difficult goal focuses an individual's attention and effort toward goal-relevant activities and away from less relevant activities, and activates the knowledge and skills a person possesses that are necessary to attain the goal (Locke & Latham, 2013<sup>a</sup>). The second mechanism, *effort*, reflects the phenomenon that (in particular challenging) goals energize and generate effort toward goal accomplishment (Eberly, Liu, Mitchell & Lee, 2013). Effort is mobilized and expended in proportion to the difficulty and importance of the goal (Locke & Latham, 2013<sup>a</sup>), as well as the expected level of satisfaction the result generates. The strength of this mechanism is moderated by the individual's ability and self-efficacy, such that specific, difficult goals lead to higher performance only if people possess the ability (i.e., skills) to perform the task and believe they can use their skills when required (Borgogni & Dello Russo, 2013). The third mechanism, *persistence*, reflects the time spent to attain a goal. Multiple studies have found that specific and difficult goals lead people to work longer at a task than vague or easy goals (e.g., Bavelas & Lee, 1978; Huber, 1985).

### 2.2.2. A CHALLENGING AND IMPORTANT GOAL ENERGIZES

When sufficient skills (personal resources) and job resources are available, a challenging (difficult) and important team goal provides the team with a basis for engagement to emerge. According to Katzenbach and Smith (1993) teams require an important performance challenge to stay energized and relevant. The goal property challenge has been identified as the main determinant of the effect of goals (Wood, Whelan, Sojo & Wong, 2013). This is also in line with the predictions from the JD-R model (on the individual level), in which a combination of high job demands with high job resources leads to high employee motivation (Bakker & Demerouti, 2007), support this line of reasoning. Therefore it can be argued that a challenging and important team goal does not only give rise to effort (claim from GST), but also to a (shared) level of vigour and dedication in the team. Initially the importance of the team's long-term goals help to develop a sense of ownership and dedication among the team members. Then, as the team obtains a focus on specific and challenging goals (and is aware of why they are important), the team becomes energized and absorbed in the pursuit of these goals. Therefore it is hypothesized:

*Hypothesis 1.a:* Challenging and important short-term team goals yield higher Team Work Engagement and Goal Performance than (1) irrelevant team goals, and (2) relevant easy team goals.

### 2.2.3. GOAL POSITION

Ideally the team's performance challenge is provided by the combination of a long-term team purpose and related long- and short term performance goals (Katzenbach & Smith, 1993). Using a combination of a long-term (distal) goal and several short-term (proximal) subgoals has been shown to increase motivation and lead to higher self-efficacy, better detection and management of errors, learning, and higher quality strategies (Sun & Frese, 2013). The dominant finding is that a long-term distal goal (in particular when it is far removed and complex) is more effectively pursued if it includes attainable proximal goals, and that a distal goal alone is too far removed to create a strong commitment towards the goal (Steel & König, 2006). Specific short-term goals increase the urgency of distal goals and allow the team to achieve small wins in the pursuit of its purpose, which are beneficial for building members' commitment and overcoming obstacles that get in the way of achieving a meaningful long-term purpose (Katzenbach & Smith, 1993). Therefore it is hypothesized:

*Hypothesis 1.b:* Short-term team goals that are connected to or derived from the team's purpose and prior long-term goals yield higher TWE and Goal Performance than short-term goals that are not.

#### 2.2.4. TEAM GOAL COMMITMENT

Since the inception of goal theory (Locke, 1968) it is recognized that without commitment goals will not operate as intended. The team's commitment to a team goal moderates the goal-performance relationship, such that difficult goals only yield a higher performance than easy goals when the team is committed to attain the goal (Klein et al., 1999). Several studies have shown that goal commitment relates to effort (e.g., Erez & Judge, 2001), persistence (e.g., Chang, Johnson & Lord, 2010), and motivation to learn in educational contexts (Colquitt & Simmering, 1998).

Though the importance of commitment is widely accepted, multiple different definitions for the construct have emerged over the years. Often commitment is defined in terms of determination (motivation) and persistence (continuation; Klein et al., 2013), which are rather outcomes of commitment than commitment itself. Klein et al. (2013) argue that goal commitment can best be viewed as an attachment to or bond with a certain goal, which is not confounded by antecedents or outcomes. Consistent with Klein, Molloy and Cooper (2009) they defined (individual) goal commitment as a volitional psychological bond reflecting dedication to, and responsibility for, a particular target. Team goal commitment is therefore defined as *a shared volitional psychological bond reflecting dedication to, and responsibility for, a particular team goal.*

#### 2.2.5. TWE AS MODERATOR OF THE GOAL-PERFORMANCE RELATION

The mechanisms (i.e., mediators) effort and persistence, as described by Locke and Latham (2002), reflect the phenomena that goals generate effort toward goal accomplishment (effort) and that goals prolong this effort over time (persistence). Team work engagement is expected to synergize well with both mechanisms. Team vigour and team absorption describe the level of energy and focus within the team, and thereby the potential effort the team can expend towards the team's goals. An engaged team is per definition more persistent (vigour) and will spend more effective time working on attaining their goals (absorption). In this manner work engagement synergizes well with the goal-striving process and is it expected to moderate the relation between a difficult team goal and goal performance, such that a difficult team goal is more effectively pursued if the team has a high level of team work engagement.

Therefore it is hypothesized that the team goal-team performance relation is not only moderated by team goal commitment, but also by team work engagement:

*Hypothesis 2:* The relation between a clear and difficult Team Goal and Goal Performance is moderated independently by (1) Team Goal Commitment, and (2) Team Work Engagement, such that the effect becomes stronger for high levels of TGC and TWE.

### 2.3. OTHER PREDICTORS OF TWE

In the identification of predictors of team work engagement inspiration is drawn from Katzenbach and Smith (1993), who tried to understand the mechanics underlying high-performing teams by studying very well – and not so well – performing teams all over the world. Interestingly, the teams they characterize as high-performing teams were often working incredibly focused and were described as vigorous and extremely dedicated.

### 2.3.1. TEAM SKILLS

It can be argued that the availability of sufficient *skills* within the team is not just essential for obtaining team performance, but also for team work engagement to emerge. Without the proper set of skills, the team lacks the resources to meet the demands of their assigned task, which is likely to result in reduced self-efficacy and a loss of motivation (Katzenbach & Smith, 1993). This is in line with the findings of the Job Demands-Resources model (Demerouti, Bakker, Nachreiner & Schaufeli, 2001) on the individual level, in which a combination of high job demands and low job and personal resources will result in high strain and low motivation (Bakker & Demerouti, 2007).

In order to succeed teams either need to start with the right mix of skills or develop them along the way. Katzenbach and Smith (1993) identify three important skill categories: (1) technical or functional expertise; (2) problem-solving and decision-making skills, and; (3) interpersonal skills. Because the main unit of performance lies at the team level (team task), these categories are operationalized at the group level. Note that many skills within these categories are complementary in nature; not all members of the team require the same set of skills. Interestingly though, none of the successful teams in the study of Katzenbach and Smith (1993) had all the required skills at the start. During the team's life span the members of these teams were able (and willing) to develop and introduce new or supplemental skills when needed. Therefore it is argued that the availability of sufficient team skills to meet the team's demands *over time* is essential for team work engagement to emerge and *be sustained*.

### 2.3.2. TEAM CLIMATE

As described previously, team work engagement is based on a shared perception among the team members and emerges through: (1) sharing the same resources and (team) climate; (2) experiencing the same affective events, and; (3) emotional interactions between team members. Based on Reichers and Schneider (1990) a team climate is defined as *shared perceptions of policies, practices and procedures within the team*. A shared team climate emerges through multiple means (Anderson & West, 1998): (1) individuals who identify with their proximal work group and who interact with colleagues are likely to develop shared patterns of understanding and norms of behaviour (Campion et al., 1993); (2) individuals may progress through similar socialization processes and their common experiences lead to shared perceptions, and; (3) top-down messages about the organization's vision, culture and strategies.

A climate for engagement has also received recently more attention in the engagement literature (Bakker, Albrecht & Leiter, 2011). It is argued that "when employees perceive that their organization provides a supportive, involving, and challenging climate, they are more likely to be engaged: to respond by investing time and energy and by being psychologically involved in the work of their organization" (Bakker et al., 2011; pp. 79). In their argument a climate for engagement entails a shared perception of the work environment and refers to the organizational level. They hypothesize that a climate for engagement influences the (individual) employee's perception of job demands and resources, which have been shown to influence work engagement and performance (Dollard & Bakker, 2010). Because of this hypothesized impact on team work engagement, two particular aspects of team climate will be discussed: psychological safety and a commitment to each other.

#### 2.3.2.1. PSYCHOLOGICAL SAFETY

Although Kahn (1990) defined engagement slightly different, he was the first to report the importance of *psychological safety* in the emergence of (individual) engagement. In this psychological safety was defined as "*feeling able to show and employ one's self without fear of negative consequences to self-image, status, or career*" (Kahn, 1990; pp. 708). This finding was supported by May, Gilson and Harter (2004), who found that psychological safety exhibited significant positive relations with engagement in a field study in a U.S. insurance company.

In a team context psychological safety is expected to function as the building block for energetic and open discussions and emotional interactions, and thereby enables team vigour and team dedication to emerge. Also team absorption will not last if members feel hindered to address their team members to continue working. Therefore psychological safety enables the team to develop a high degree of (emotional) interaction and groupness, two important aspects that are expected to predict the emergence of team work engagement (Costa et al., 2012).

#### 2.3.2.2. COMMITMENT TO EACH OTHER

In their study Katzenbach and Smith (1993) found that (engaged) high-performing teams distinguished themselves from less highly performing teams by their degree of commitment, and in particular the degree of commitment to each other. This construct is closely related to social support from the co-workers within the team; each member of the team helps the others to achieve both personal and professional goals and genuinely cares about the others, often fuelled by the mindset “if one of us fails, we all fail”. Based on Katzenbach & Smith (1993) the construct commitment to each other is therefore defined as *a mutual concern for each other's welfare and personal growth*.

The commitment to each other provides the team members with a deeper meaning (Katzenbach & Smith, 1993). Therefore it is argued that these interpersonal commitments enhance the team's sense of dedication and, consequently, the team's vigour and absorption. The construct also functions as a strong job resource, as it helps the team members to cope with difficult and stressful situations, provides a strong sense of security and social support (within the team) and helps them to achieve personal and professional growth (future personal resources). Moreover, a team in which the members are highly committed to each other is very likely to be a team with a high degree of groupness (Costa et al., 2012).

So, both the availability of sufficient skills within the team and a safe and caring team climate have been argued to enable the emergence of team work engagement. Both effects are likely cross-sectional; the skills of the team have to match the *current* task the team faces and a lack of psychological safety inhibits the current energy and dedication within the team. Therefore it is hypothesized:

*Hypothesis 3:* The level of TWE is predicted cross-sectional by (1) the availability of sufficient Team Skills to meet the team's demands, and (2) the Team's Climate.

## 2.4. TOWARDS TEAM PERFORMANCE

Due to the novelty of the team work engagement construct no study has yet examined potential mechanisms through which an engaged team performs better on multiple team effectiveness indices, including team performance. It is however possible to derive certain general and situational mechanisms through which team work engagement enhances the team's performance. In general an engaged team is willing to go the extra mile, even in the face of difficulties (team vigour), wastes less time (team absorption), and works in a sustainable state of well-being, which enables the team to continue delivering high performance over time. These mechanisms are expected to improve the performance of all teams, even though the last aspect is particularly relevant for on-going teams. Other aspects that are affected by team work engagement (e.g., proactive behaviour, vital business meetings, information sharing) can both enhance and impede the team's performance, dependent on the timing within the team process. This line of reasoning can also be applied to identify general and situational mechanisms that lead specifically to team task performance and contextual performance.



### 2.4.1. TEAM TASK PERFORMANCE

Because almost every team has an unique, specifically designed task, a general indicator for the team's task performance is required. The definition for team task performance is therefore based on Mathieu et al. (2008), who described task performance as *all actions that directly contribute to the team's formal task* (i.e., performance behaviour; Beal, Cohen, Burke & McLendon, 2003).

In general team vigour and team absorption can be argued to enhance the team's task performance in any given team, through a high level of energy within the team (vigour) directed towards the task (absorption). This argument is in particular valid for tasks that require the input of all team members (i.e., complementary tasks) and have a high level of task interdependency (i.e., reciprocal, intensive), as these teams benefit more by *shared* levels of energy and dedication. Situational factors are dependent of the team type and the specific task the team has to perform. While smooth exchange of information is crucial in certain management and project teams, most sales teams benefit more by proactive behaviour (often part of a sales employee's task description). Teams that face a complex task (Wood, 1986) also benefit more (during the initial phases) from proactive information searching behaviour (Parker & Griffin, 2011).

In general team work engagement provides the team with the motivation to perform well (in a sustainable matter), and can improve the execution of (appropriate) task strategies by fulfilling them with more energy and enthusiasm. It is expected that, similar to the individual level, the aspect team vigour is most important for team task performance (Demerouti & Cropanzano, 2010).

### 2.4.2. TEAM CONTEXTUAL PERFORMANCE

In contrast to team task performance, team contextual performance is defined as *all actions that go beyond what is stated in the formal [team's] task description and that increase organizational effectiveness*, based on MacKenzie, Podsakoff and Fetter (1991). A team with a high contextual performance is contributing to the organization's functioning by for example proactively taking on (additional) tasks, such as spreading relevant information throughout the company, educating other employees. Also the team's contribution to the organizational climate is considered a part of the team's contextual performance.

Engaged teams are full of energy and (by definition) talk to others about the importance of their work and the thrill they feel concerning their work (Costa et al., 2012). Therefore these teams are likely to transfer their engagement to individuals or groups outside the team (Bakker, Schaufeli, Leiter & Taris, 2008) and will correspondingly contribute to the organizational climate (and organizational functioning). Additionally, these engaged teams are more capable of coping with their own job demands and are therefore more likely to take on additional tasks, expending their influence throughout the organization. Gierveld and Bakker (2005) support this line of reasoning, as their results showed that engaged employees are more often asked to carry out additional tasks. Additionally, because engaged employees (and teams) have a higher organizational commitment (based on Schaufeli & Bakker, 2004), they are more likely to invest their efforts to enhance the organization's functioning.

It can be concluded that team work engagement enables the team through multiple mechanisms to attain higher team performance (task, contextual and goal), both on the short- and long-term (sustainable well-being). The relation between the team's skills, aspects of the team's climate and team performance has been recognised as well (Mathieu et al., 2008). Therefore it is hypothesized:

*Hypothesis 4: TWE mediates the long-term effect of Team Skills and Team Climate on Team Performance.*

## 2.5. FULL RESEARCH MODEL

Together the hypotheses can be graphically represented in the complete research model in Figure 2 (see Appendix B for an enlarged version).

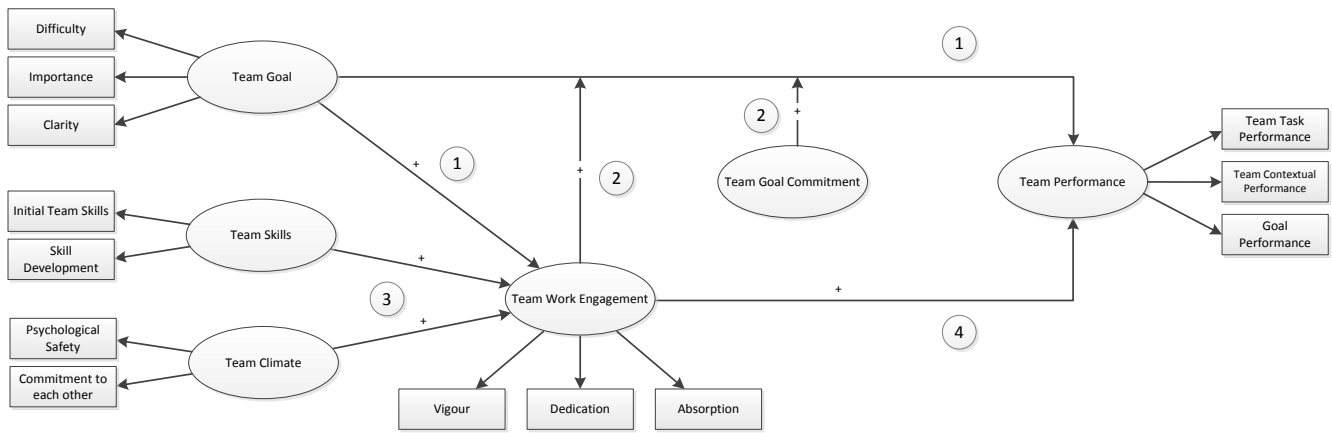


FIGURE 2: FULL RESEARCH MODEL

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## 3. Method

### 3.1. PARTICIPANTS

Teams from 16 different Dutch companies participated in the study, most of them gathered through personal contacts. In this sample many industries were represented, such as chemistry, construction, logistics, telecommunications, marketing, consultancy, and finance. During a meeting with a manager or director of each company the participating teams were selected, based on the criteria: (1) the team possesses one or more common goals; (2) the team members exhibit interdependencies with respect to workflow, goal and outcomes (Kozłowski & Ilgen, 2006), and; (3) the team contains no more than 15 team members. Note that multiple types of teams match these criteria, such as management teams, production and sales teams, and project teams. With this method 49 teams (from 19 companies) agreed to participate in the study, of which 43 completed the study entirely (from 16 companies).

On average each company participated with 2.7 teams, with a minimum of 1 and a maximum of 10, and the average team size was 6.9 ( $SD = 3.6$ ). Of these teams 23.3% had started in the past 6 months and 16.3% has been active in the current composition for more than a year already. The team types are categorized into three main categories: 7 management teams, 14 project teams (e.g., IT development, consultancy; characterized by high task interdependence) and 22 department 'teams' (e.g., sales, customer service, finance; characterized by low task interdependence). A variety of goal setting strategies was used by the teams, including tell (no explanation is given), tell-and-sell (providing explanation of why this goal is set), consultation (team members are asked for their opinion, leader decides), and participation (team members and leader decide together; Locke, Chah, Harrison & Lustgarten, 1989). Specifically, for the setting of long-term goals none of the teams *generally* used the tell strategy, 31.0% of the teams tell-and-sell, 40.5% consultation and 23.8% participation (4.8% unknown). For the setting of short term goals 2.4% of the teams generally used the tell strategy, 16.7% tell-and-sell, 33.3% consultation and 40.5% participation (7.1% unknown).

### 3.2. PROCEDURE

Longitudinal data has been collected at two moments in time with electronic questionnaires. The study setup represents a quasi-experimental design with an independent-group pretest-posttest. The pretest served to form a baseline of several dependent and independent variables (e.g., team work engagement, team performance). After the first electronic questionnaire (pretest) all teams received a goal-setting intervention, in which the teams were instructed to set or select a short-term team goal that can be achieved within 4 weeks. The second electronic questionnaire (posttest) was received 4 weeks after receiving the instruction. The timeline of the study is presented in Figure 7 (Appendix C).

As a consequence of the data collecting method, the teams could not be distributed randomly across the control and experimental condition. Therefore the teams were matched according to three criteria in descending priority: (1) team type; (2) the generally used strategy for setting short-term goals, and; (3) degree of task interdependence (based on Pearce & Gregersen, 1991). To obtain higher statistical power for finding an intervention effect, more teams were distributed to the experimental condition, in a 2:3 ratio (control:experimental). Where possible all teams within an organisation were allocated to the same condition, to reduce the risk that teams become aware of their appointed condition. Furthermore, none of the teams received any information about the study's hypotheses in advance.

### 3.2.1. INTERVENTION

Because the intervention has been used to test the Hypotheses 1.a and 1.b, the design of the intervention had two objectives: (1) to ensure that all teams set or select a short-term goal, and; (2) to highlight the effect of the intervention (i.e., the difference between experimental and control condition). The effect of the intervention is a combination of both hypotheses; challenging and relevant (important) short-term team goals, that are connected to or derived from the team's purpose and prior long-term goals, yield higher team work engagement and goal performance than easy goals, unimportant goals, or goals that are not connected to the team's long-term goals.

Therefore, *all* teams (from the experimental as well as the control condition) received an instruction – after the first questionnaire had been completed – to set or select a short-term team goal (Appendix D). This instruction was mailed to the team leader or the team's supervisor, who was requested to set the goal during the upcoming team meeting. The teams in the experimental condition were instructed to set a performance-oriented, relevant and challenging short-term goal, that requires the joint effort of all team members to be attained, and do so with the team's purpose and long-term goals in mind. The teams in the control condition on the other hand were merely instructed to set a performance-oriented short-term team goal (see Table 2). An English explanation of these goal characteristics can be found in Table 9 (Appendix E).

TABLE 2: GOAL CHARACTERISTICS

<i>Goal Characteristics</i>	<i>Experimental Condition</i>	<i>Control Condition</i>
Performance-oriented	X	X
Relevant	X	
Challenging	X	
Joint effort	X	
Short-term	X	X

### 3.3. MEASURES

As a consequence of the data collecting method all constructs were constructed of individual-level survey data. Therefore it is important to decide on the appropriate composition method for each variable independently; that is, how the team-level construct is composed from the individual-level data (Van Mierlo, Vermunt & Rutte, 2009). Two methods for this composition are *referent-shift consensus composition* (all items refer to the group state) and *direct consensus composition* (all items refer to the individual; Van Mierlo et al., 2009). See Appendix F for a summary of the advantages and appropriate uses of both methods (based on Van Mierlo et al., 2009). In both questionnaires most constructs (such as work engagement and team climate) were retrospectively assessed over a specific time period (past 4 weeks). The short-term goal of the intervention is evaluated in the second questionnaire.

#### 3.3.1. WORK ENGAGEMENT

Work engagement was assessed both at the individual and the team level. Trait *individual work engagement* is measured with the UWES-9 (Schaufeli, Bakker & Salanova, 2006) and the validated corresponding UBES-9 (with Dutch items; Schaufeli & Bakker, 2003), which both assess the three characteristics of individual work engagement with three scale items per characteristic. The seven-point scale of the UWES-9 is rated as a fraction of the time an individual perceived to be in a certain state

over the past 4 weeks ([0] Never, [6] Always). The extent of individual work engagement was only assessed for the time the individual was working on team-related tasks.

Trait *team work engagement* was also retrospectively measured over the past four weeks with the TWES-9, an extension of the UWES-9 (Costa et al., 2013). The item “When I get up in the morning, I feel like going to work” (UWES-9) is altered to “When we arrive at work in the morning, we feel like starting to work” for visibility reasons. Example items of the TWES-9 are “At our work, we feel bursting with energy” (team vigour) ([0] Never, [6] Always), “We are enthusiastic about our job” (team dedication) and “We feel happy when we are working intensely” (team absorption).

Because team work engagement has been defined as a shared property of the team and it is essential that the team members have a similar perception of this state (Costa et al., 2013). Although Costa et al. (2012) advocated an interrater agreement ( $r_{wg}$ ; James, Demaree & Wolf, 1984) cut-off point of .70, particularly in larger teams often interrater agreements of .50 and .60 were found. Indeed LeBreton, Burgess, Kaiser, Atchley and James (2003) argue that interrater agreement is affected by team size. Therefore a cut-off point of .55 was chosen in this study. The teams with an insufficient interrater agreement were excluded from the analyses that involve team work engagement.

### 3.3.2. TEAM SKILLS

Based on Katzenbach and Smith (1993) the *initial team's skills* were divided into technical expertise, problem-solving and decision-making skills, and interpersonal skills. The availability of these skills was measured against the skills required for timely attainment of the team goal and was measured with a self-constructed four-item five-point scale. An example item is “The team has sufficient technical and functional expertise to achieve the team goal(s) in time” ([1] totally disagree, [5] totally agree). Additionally the item “There are no skill areas that are critical to team performance missing or underrepresented” controls for any missing skills. The Cronbach's alpha for this scale was respectively .77 and .85 at the first and second measurement.

The opportunities for *skill development* were assessed with a three-item five-point scale based on Katzenbach and Smith (1993). Example items are “The organisation provides me opportunities for learning or developing skills when needed” ([1] totally disagree, [5] totally agree) and “The team leader and the team members allow me to invest time in developing skills when required”. Because the opportunities for the team (team-level) can be grasped as the sum of the opportunities for the individuals within the team (individual-level), the construct is assessed using the direct consensus composition. This scale had a Cronbach alpha of .81 and .86.

### 3.3.3. TEAM CLIMATE

The constructs psychological safety and commitment to each other were assessed as aspects of the team's climate. The measurement of the perceived *psychological safety* was based on May, Gilson and Harter (2004) and averages three items on a five-point scale, extended from Kahn's (1990) measurement scale. Because an individual's perception of psychological safety is best perceived by the individual himself, the group construct was composed using the direct consensus composition. The items are “I am not afraid to be myself in the team” ([1] never, [5] always), “There is a threatening environment within the team” (reversed) and “I am afraid to express my opinion within the team” (reversed). Unfortunately it turned out that the construct psychological safety had an exceptionally low Cronbach's alpha (.21 and .21) and therefore had to be left out of the analysis. Apparently (in Dutch culture) all three items described a different aspect of psychological safety (no correlation above .30).

*Commitment to each other* on the team level was composed by direct consensus composition and is assessed with three items on a five-point scale. Example items are “I help my team members to achieve

personal and professional goals” ([1] never, [5] always) and “Me and my team members have mutual concern for each other’s welfare”. The construct had a Cronbach’s alpha of .78 and .75.

#### 3.3.4. TEAM GOAL CHARACTERISTICS

Of the selected team goals three main characteristics were assessed: the perceived importance, the difficulty, and the clarity. For verification of the intervention two additional aspects of the selected short-term goal were assessed in the second questionnaire: (1) the method through which the goal was set, and; (2) whether or not the goal matched the instructed characteristics. Due to the study design the selected short-term team goal of the intervention is only evaluated at the second measurement. The first measurement on the other hand evaluated ‘the most important team goal’, in which every member of the team could individually decide on the goal that he or she perceived as the most important team goal. The advantage of this method is that each team member evaluated an (in his or her perspective) important team goal. The disadvantage however is that different team members may have selected different team goals, which obstructs the composition of team-level variables.

The *goal’s importance* is seen with respect to the overarching team purpose and the contribution to the team’s corresponding long-term goal(s). It is about knowing why this goal is relevant and what achieving it will contribute. The team-level construct was composed by aggregating the individual-level perceptions of the goal’s importance through direct consensus (four items). Example items are “It is very important to achieve this goal” ([1] totally disagree, [5] totally agree) and “I feel achieving this goal is very valuable for the organisation and the stakeholders”. The Cronbach’s alpha was respectively .88 and .90.

In order to assess the *goal’s difficulty* the objective difficulty of the goal was used (i.e., probability of success; Locke & Latham, 2002), instead of the perceived difficulty or perceived challenge, because the perceived difficulty is affected by multiple variables (such as self-efficacy; Bandura, 2011). The objective difficulty of a goal can be categorised as easy, moderate or difficult (e.g., Klein et al., 1999). Many fields studies that used this categorisation however do not provide information about the cut-off points for the probability of success for each group. Kleingeld et al. (2011) used the following classification: goals with an objective probability of attainment of less than 15% are coded as difficult, goals between 16% and 50% are coded as moderate and goals with an objective probability of attainment greater than 50% are coded as easy. For two reasons this classification is slightly adjusted: (1) it is likely that very few managers will set goals that have a success probability of less than 15%, and (2) smaller classes facilitate more elaborate assessment of relation between difficult goals and team work engagement. The following classification was used in this study: a ‘very difficult’ goal has a probability of attainment of less than 15%, a ‘difficult’ goal a probability less than 33%, a ‘moderate’ goal a probability between 33% and 67%, and an ‘easy’ goal a probability of attainment greater than 67%. Indeed, it was found that none of the teams had set a very difficult goal (probability of success < 15%). Because objective longitudinal goal-setting data was unavailable, the goal’s difficulty could not be truly objectively determined. Therefore the team’s leader or supervisor was requested to assess the goal’s success probability, because he or she was expected to be aware of the team’s capabilities and external influences.

Based on Sawyer (1992) in the team context the *goal’s clarity* is operationalized as the extent to which the goal is clearly stated and well defined, and to which the goal is understood equally among the team members. Goal clarity was measured with a four-item five-point scale, based on Sawyer (1992) and Lee, Bobko, Early and Locke (1991). Example items are “All team members articulate the team goal in the same way” ([1] totally disagree, [5] totally agree) and “The relative importance and the priority of the goals is clear to all members”. This construct obtained a Cronbach’s alpha of .86 and .89.

### 3.3.5. TEAM GOAL COMMITMENT

*Team goal commitment* was measured by the five-item scale by Klein, Wesson, Hollenbeck, Wright and DeShon (2001). Because team goal commitment has been defined as a psychological bond (and not as determination or persistence), the state might not always be visible to outsiders. Therefore the team-level construct is composed through aggregation of the individuals' commitment towards the team goal with direct consensus composition. Example items are "I am strongly committed to pursuing this team goal" ([1] totally disagree, [5] totally agree) and "It wouldn't take much to make me abandon this goal" (reversed). The Cronbach's alpha was respectively .72 and .75.

### 3.3.6. TEAM PERFORMANCE

Due to the variety of teams it was not possible to find direct performance indicators that are comparable across teams. Therefore three indirect performance indicators were assessed: team task performance, team contextual performance, and goal performance (second questionnaire).

The *team's task performance* was measured with a five-item five-point scale, extended from the individual task performance scale (Demerouti, 2013). Example items are "The team accomplishes its predetermined activities in an adequate manner" ([1] totally disagree, [5] totally agree) and "The team does not succeed in executing the essential activities" (reverse scored). Similarly, the *team's contextual performance* was measured with a five-item five-point scale, inspired by the individual contextual performance scale (though adjusted to the team setting; Demerouti, 2013). The items are based on enhancing the organizational effectiveness from the team-level; actions of the team that go beyond what is stated in the team's formal task description and that increase organizational effectiveness. Example items are "The team helps spreading relevant information throughout the organisation" and "The team proactively takes on additional activities that contribute to the organisation's functioning".

The construct *goal performance* describes the actual performance that is attained on a specific task (specified by the goal). For example, when the goal states a team has to sell 10 books before the end of the week (i.e., goal level), the goal performance consists of the actual number of books sold at the end of the week. Suppose another team, with the same capabilities, has set themselves the goal to sell 20 books before the end of the week (higher goal level; more difficult). Goal setting theory predicts that although the latter team might not completely attain their goal, their actual (goal) performance is likely to be higher. A challenge arises when two (or more) teams have different goals; what if the sales team has to sell 20 books before the end of the week, while the production team should have built 5 cars by the end of the week? In this scenario goal performance can be approached by an indirect composite measure, consisting of a product of the goal's difficulty (probability of success) and the actual performance (written as a percentage of the goal level; 100%: goal attained, >100%: actual performance transcends goal level). This principle can also be found in the evaluation of gymnastic routines, in which the routine's difficulty (goal level) defines the maximum score the gymnast can receive and the execution of the routine determines the final score. The actual performance, as well as the goal's difficulty, have been rated by the team's supervisor. Essential in this method is the scoring of the differences in goal level between a very difficult goal, a difficult goal, a moderately difficult goal and an easy goal. In this study was assumed that the goal level of a very difficult goal (probability of success < 15%; e.g., sell 20 books) is twice as high as the goal level of an easy goal (probability of success > 67%; e.g., sell 10 books). An exemplary calculation is presented in Table 10 (Appendix G).

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## 4. Results

### 4.1. DESCRIPTIVE STATISTICS

#### 4.1.1. CORRELATIONS

Table 3 shows the descriptive statistics (mean and standard deviation) and the cross-sectional correlations between the team-level variables. All teams with a (team work engagement)  $r_{wg}$  of below .55 are excluded from the analysis, which results in a sample size of 36 at the first measurement (T=1) and 34 at the second (T=2). From these teams 25 teams had set a specific short-term goal during the intervention (T=2; N=25 on goal variables). Analysis of the intraclass correlation coefficient (ICC(1); Bliese, 2000) of each variable showed that all variables are allowed to be aggregated to the group-level (ICC(1)>.05), except for: Commitment to each other<sub>1</sub> (T=1; ICC(1)=.029) and Goal importance<sub>1</sub> (T=1; ICC(1)=-.044). The latter variable, Goal importance<sub>1</sub>, is directly excluded from further team-level analyses; the variable can only be interpreted on the individual level. Commitment to each other<sub>1</sub> on the other hand is not directly excluded from the analyses, but should be preceded with caution when trying to interpret.

As can be seen in Table 3, at both measurements team work engagement correlates significantly with commitment to each other (.699\*\* and .584\*\*) and skill development (.342\* and .564\*\*). Team work engagement is found to correlate significantly with both team task performance (.453\*\*) and team contextual performance (.562\*\*) at the second measurement. From the three TWE aspects, team vigour has the highest correlations with team task performance (.283 and .539\*\*) and team contextual performance (.279 and .613\*\*). Note that task interdependence correlates significantly with all aspects of team work engagement at T=1. On the other hand, none of the goal characteristics has a direct significant correlation with any of the team work engagement aspects. There is however a correlation between team goal commitment and team vigour (.295 and .532\*\*). Furthermore, both the importance and the clarity of the short-term team goal (second measurement) have a strong correlation with team task performance (importance: .574\*\*; clarity: .803\*\*) and team contextual performance (importance: .460\*\*; clarity: .625\*\*).

#### 4.1.2. INTERVENTION

Table 11 (Appendix H) shows how the intervention is fulfilled by the teams from the experimental and control group. Teams that have not specifically selected a short-term team goal were excluded from the analysis. After exclusion of teams (N=25) two out of three matching criteria were still met: (1) the team types are relatively even distributed between both groups; (3) on average both groups have similar task interdependence (t-test not significant). The second criterion, the generally used strategy for the setting of short-term goals (not shown in Table 11), is slightly skewed; within the experimental group the participation strategy is overrepresented.

Through the intervention the teams in the experimental group were expected to set difficult and important team goals. This effect is particularly visible on the (average) goal difficulty set by both groups (coding: 1=easy; 2=moderately difficult; 3=difficult; 4=very difficult). The significance of this difference is tested with an Independent Samples t-test, equal variances assumed (Levene's test not significant for all 4 variables). Another difference between the groups is found in the origin of the selected short-term goals; most teams from the control group decided to select a previously set short-term team goal, while many teams from the experimental group decided to derive a short-term goal from a previously set long-term goal or to set a completely new short-term goal.

An overview of the short-term goals that were selected, including goal difficulty and goal performance, can be found in Appendix I.



TABLE 3: DESCRIPTIVE STATISTICS AND CROSS-SECTIONAL CORRELATIONS BETWEEN MAIN VARIABLES

Variable (team-level)	Descriptive stat.		Scale validation		Cross-sectional correlations														
	M	SD	$\alpha$	ICC <sub>1</sub>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<i>T=1; N=36</i>																			
1. Task Interdependence	3.65	.773	.769	-	1														
2. Team Skills <sub>1</sub>	3.74	.446	.771	.108	-.071	1													
3. Skill Development <sub>1</sub>	3.85	.446	.818	.125	.018	.339 *	1												
4. Commitment to each other <sub>1</sub>	3.75	.421	.780	.029	.380 *	.300	.331 *	1											
5. Goal Difficulty <sub>1</sub>	2.10	.562	-	.288	.082	-.483 **	-.032	-.126	1										
6. Goal Importance <sub>1</sub>	4.37	.262	.883	-.044	-.178	-.027	.096	-.088	.097	1									
7. Goal Clarity <sub>1</sub>	3.66	.570	.861	.168	-.153	.512 **	.001	.170	-.224	.138	1								
8. Team Goal Commitment <sub>1</sub>	4.38	.278	.722	.078	.037	.203	.008	.125	-.109	.478 **	.403 *	1							
9. Team Vigour <sub>1</sub>	4.45	.492	.867	.104	.344 *	.288	.303	.663 **	.031	.076	.145	.295	1						
10. Team Dedication <sub>1</sub>	4.63	.513	.895	.096	.354 *	.212	.458 **	.668 **	-.022	.031	.009	.166	.881 **	1					
11. Team Absorption <sub>1</sub>	4.35	.504	.697	.121	.367 *	.215	.197	.633 **	.216	.036	.219	.258	.807 **	.767 **	1				
12. Team Work Engagement <sub>1</sub>	4.48	.472	-	.134	.379 *	.254	.342 *	.699 **	.080	.051	.132	.255	.955 **	.942 **	.915 **	1			
13. Team Task Performance <sub>1</sub>	3.84	.394	.780	.163	-.116	.782 **	.357 *	.370 *	-.449 **	.079	.564 **	.326	.283	.226	.315	.293	1		
14. Team Contextual Performance <sub>1</sub>	3.52	.462	.803	.197	-.017	.479 **	.613 **	.393 *	-.003	.109	.380 *	.091	.279	.300	.339 *	.327	.666 **	1	
<i>T=2; N=34, 25</i>																			
1. Task Interdependence	3.54	.842	.769	-	1														
2. Team Skills <sub>2</sub>	3.80	.487	.854	.147	-.205	1													
3. Skill Development <sub>2</sub>	3.89	.495	.860	.180	.020	.757 **	1												
4. Commitment to each other <sub>2</sub>	3.72	.401	.748	.080	.283	.342 *	.376 *	1											
5. Goal Difficulty <sub>2</sub>	2.12	.726	-	-	.158	-.188	-.074	-.141	1										
6. Goal Importance <sub>2</sub>	4.04	.611	.904	.162	-.170	.572 **	.568 **	.028	-.133	1									
7. Goal Clarity <sub>2</sub>	3.90	.558	.888	.187	-.491 *	.735 **	.628 **	.211	-.284	.589 **	1								
8. Team Goal Commitment <sub>2</sub>	4.26	.390	.753	.071	-.072	.451 *	.500 *	.312	-.391	.746 **	.547 **	1							
9. Team Vigour <sub>2</sub>	4.59	.514	.901	.108	.222	.603 **	.593 **	.624 **	-.076	.358	.351	.532 **	1						
10. Team Dedication <sub>2</sub>	4.77	.503	.878	.149	.329	.469 **	.534 **	.466 **	-.064	.290	.235	.455 *	.882 **	1					
11. Team Absorption <sub>2</sub>	4.30	.436	.612	.069	.234	.379 *	.425 *	.531 **	.207	.251	.234	.334	.793 **	.670 **	1				
12. Team Work Engagement <sub>2</sub>	4.55	.449	-	.148	.283	.529 **	.564 **	.584 **	.015	.318	.290	.469 *	.968 **	.927 **	.877 **	1			
13. Team Task Performance <sub>2</sub>	3.85	.422	.784	.157	-.274	.851 **	.617 **	.331	-.166	.574 **	.803 **	.621 **	.539 **	.402 *	.301	.453 **	1		
14. Team Contextual Performance <sub>2</sub>	3.65	.406	.829	.153	-.025	.685 **	.774 **	.328	-.055	.460 **	.625 **	.430 *	.613 **	.501 **	.434 *	.562 **	.625 **	1	
15. Goal Performance	1.16	.406	-	-	.360	.388	-.039	.184	.335	.101	-.150	-.030	.108	.084	.196	.137	.025	-.221	1

\* $p < .05$  \*\* $p < .01$

Note: first questionnaire evaluated important team goal, second questionnaire evaluated selected short-term goal (intervention).

T=1: both *Commitment to each other*<sub>1</sub> and *Goal Importance*<sub>1</sub> have an insufficient interrater consistency (ICC<sub>1</sub><.05), so results for these variables should be taken with caution.

T=2: 34 teams had an interrater agreement of >.55, from these teams 25 teams had selected a goal as instructed by the intervention; N=25 for the variables 5, 6, 7, 8 and 15.

## 4.2. TESTING THE HYPOTHESES

### 4.2.1. INTERACTION

The first hypothesis (1.a) stated that challenging and important short-term team goals yield higher team work engagement and goal performance than (1) irrelevant team goals, and (2) relevant easy team goals. This implies an interaction effect between goal difficulty and goal importance, such that the short-term team goal enhances team work engagement and goal performance when both variables score high (and therefore the product term is high as well). The variables team work engagement, goal difficulty and goal performance only exist on the team level, so the analysis has to be conducted on the team level.

The results of the multiple linear regression analyses are shown in Table 4, in which goal performance and team work engagement are predicted. Following the guide of Frazier, Tix and Barron (2004), the variables goal difficulty and goal importance have been standardized to create the interaction term. In order to be able to interpret the size and direction of the interaction, the unstandardized regression coefficients are presented.

TABLE 4: MULTIPLE LINEAR REGRESSION; INTERACTION EFFECT (N=25)

Variable	Goal Performance <sub>2</sub>			Team Work Engagement <sub>2</sub>		
	B	SE(B)	p	B	SE(B)	p
<i>Step 1: Control variable</i>						
Team Work Engagement <sub>1</sub>	-	-	-	.756**	.147	.000
R <sup>2</sup> (adj.)	-	-	-	.516		
<i>Step 2: Main effects</i>						
(Control variable <sub>1</sub> )	-	-	-	.741**	.143	.000
Goal Difficulty <sub>2</sub>	.142*	.080	.091	.066	.069	.353
Goal Importance <sub>2</sub>	.055	.074	.467	.116*	.064	.085
R <sup>2</sup> (adj.)	.055			.551		
R <sup>2</sup> change	.133		.207	.071		.174
<i>Step 3: Interaction effect</i>						
(Control variable <sub>1</sub> )	-	-	-	.727**	.145	.000
Goal Difficulty <sub>2</sub>	.108	.082	.204	.047	.074	.527
Goal Importance <sub>2</sub>	.054	.072	.465	.116	.065	.087
Difficulty <sub>2</sub> *Importance <sub>2</sub>	.144	.101	.171	.075	.090	.417
R <sup>2</sup> (adj.)	.096			.544		
R <sup>2</sup> change	.076		.171	.013		.417

\*p < .10    \*p < .05    \*\*p < .01

Note: The main effects are standardized.

Table 4 shows that the interaction between goal difficulty and importance is not significant for neither goal performance nor team work engagement. Interestingly though, the regression analyses show that goal difficulty is a predictor of goal performance (on the p<.10 level), while goal importance is a

predictor of team work engagement (on the  $p < .10$  level). For further understanding of the relation between the goal's difficulty, the goal's importance and team work engagement an interaction plot is shown in Figure 3. The one-way ANOVAs and descriptive statistics for the groups can be found in Table 12 (Appendix H).

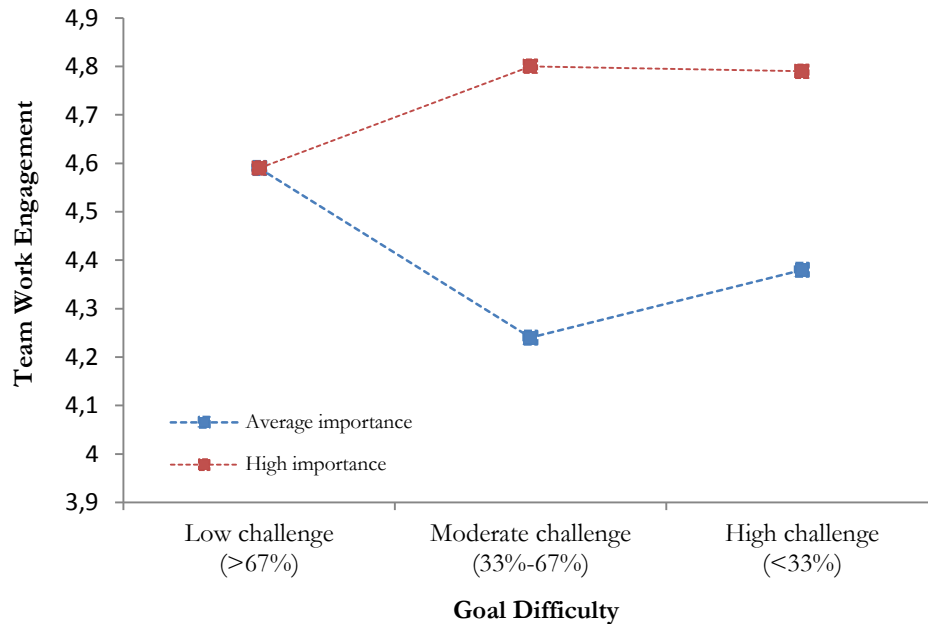


FIGURE 3: INTERACTION PLOT: GOAL DIFFICULTY AND IMPORTANCE (N=25)

One-way ANOVA analysis (Table 12; Appendix H) shows that there is a significant difference between the average team work engagement levels of the “moderate challenge, low importance” and “moderate challenge, high importance” scenarios ( $p = .041$ ). For the low challenge as well as the high challenge scenario the difference in team work engagement levels is not significant ( $p$  respectively .997 and .303).

The interaction plot indicates that challenging (moderate-high challenge) and important short-term team goals yield higher team work engagement than (1) goals with an average importance, and (2) easy goals. The interaction effect for goal performance however is not found. Therefore the first hypothesis is not confirmed, but there is a trend following the expectation.

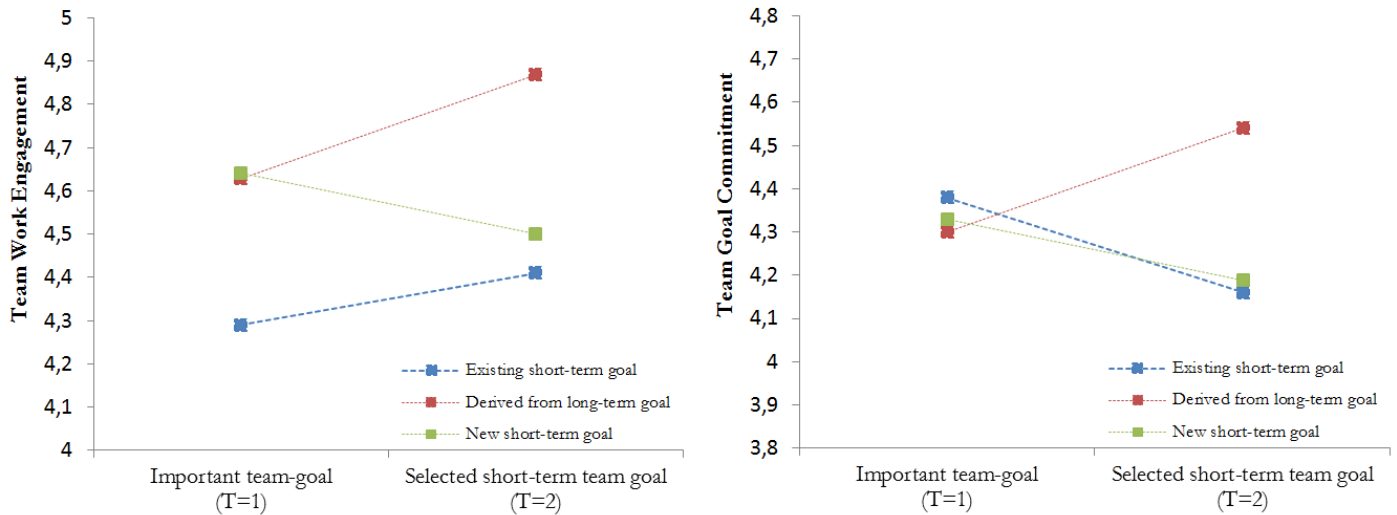
#### 4.2.2. GOAL POSITION

The second part of the first hypothesis (1.b) stated that short-term team goals that are connected to or derived from the team's purpose and prior long-term goals yield higher TWE and Goal Performance than short-term goals that are not.

First, the effect of these characteristics on team work engagement and goal performance were measured directly with multiple linear regression, with the items: “This goal is relevant for the team's purpose” ( $r_{twe} = .318$ ;  $r_{gp} = .168$ ) and “This goal is derived from the prior long-term team goals and directly contributes to attaining them” ( $r_{twe} = .334$ ;  $r_{gp} = -.004$ ). Multiple linear regressions did not show a significant interaction effect for team work engagement (controlling for team work engagement at T=1), but did find a significant interaction term for goal performance (on the  $p < .10$  level;  $B = .101^*$ ,  $p = .084$ ). This regression can be found in Table 13, Appendix H.

Further analysis of the relation between goals and team work engagement showed the effect of the goal's origin on both the team's work engagement and team goal commitment. Although the sample size is small, a repeated measures ANOVA (GLM) was conducted to test for significant differences

between the goal origin categories: existing short-term goal (N=14); derived from long-term goal (N=5), and; new short-term goal (N=5). The interaction plots are shown in Figure 4. Note that a different goal is evaluated in both questionnaires, hence the team's commitment towards two different goals is measured: the team's most important team goal (T=1) and the selected short-term goal (intervention; T=2).



Goal origin	N	TWE1		TWE2		TGC1		TGC2		Goal Perf.	
		$\mu$	$\sigma$	$\mu$	$\sigma$	$\mu$	$\sigma$	$\mu$	$\sigma$	$\mu$	$\sigma$
Existing short-term goal	14	4.29	.51	4.41	.42	4.38	.26	4.16	.39	1.24	.25
Derived from long-term goal	6	4.63	.53	4.87	.63	4.30	.18	4.54	.35	0.96	.67
New short-term goal	5	4.64	.22	4.50	.50	4.33	.31	4.19	.32	1.15	.38

FIGURE 4: INTERACTION PLOTS (GOAL ORIGIN) (N=25)

The interaction plots suggest that deriving a new short-term team goal from a previously set long-term team goal yields higher team work engagement and team goal commitment than setting a completely new short-term team goal. The repeated measures ANOVA however did not find strong significant within subject interactions for both team work engagement ( $p = .214$ ) and team goal commitment ( $p = .095$ ). Also the average team's goal performance tends to differ between the groups (see Figure 4), such that the highest goal performance is attained on previously set (i.e., existing) short-term team goals. One-way ANOVA however did not find significant between group differences ( $p = .379$ ).

Although indications are found for the effect of the goal's position, the hypothesis can not yet be confirmed, due to the lack of strong results. Both the multiple linear regression and repeated measures ANOVA require a greater sample size.

#### 4.2.3. INTERVENTION EFFECT

The effect of the intervention on the team's work engagement, goal commitment and performance is assessed with repeated measures ANOVA. The within-subject interaction effects for team task performance ( $p = .378$ ), team work engagement ( $p = .784$ ) and team goal commitment ( $p = .788$ ) did not show any significant differences between the control (N=10) and experimental (N=15) group. Also the

team's goal performance did not significantly differ between the control and experimental group, according to the one-way ANOVA ( $p = .701$ ). The repeated measures ANOVA however did find a significant difference between the groups' team contextual performance ( $p = .038$ ), such that teams in the control group had a higher increase in contextual performance.

#### 4.2.4. MODERATION

The second hypothesis stated that the relation between a clear and difficult team goal and goal performance is independently moderated by (1) team goal commitment, and (2) team work engagement, such that the effect becomes stronger for high levels of TGC and TWE.

For this moderation analysis the guide from Frazier, Tix and Barron (2004) is followed. Goal difficulty is coded using effects coding (to highlight the contrast with the average goal performance) and both the team's skills and goal commitment are standardized. When interpreting the results, the unstandardized regression coefficients ( $B$ ) are interpreted, because the standardized coefficients ( $\beta$ ) for the interaction terms are not properly standardized. The results from the hypothesized moderation models can be found in Table 14 and Table 15 (Appendix H). According to Frazier, Tix and Barron (2004) the moderator effect is significant when the stepwise ( $R^2$ ) change for the step in which the (multiple) product term(s) are entered is significant. The analyses show that the moderating effect of team goal commitment is close to significance ( $p = .115$ ) and the moderating effect of team work engagement is not significant ( $p = .225$ ). Team vigour on the other hand did show a significant moderating effect (on the  $p < .10$  level;  $p = .076$ ).

Then, the effects can best be interpreted by computing predicted value of the outcome variable for representative groups and plotting the results in an interaction plot (Frazier et al., 2004). Table 5 shows the mean goal performance for different groups of teams.

TABLE 5: MODERATOR EFFECTS: PREDICTING GOAL PERFORMANCE (N=25)

	Goal Difficulty									<i>p</i>
	Easy (>67%)			Moderate (33%-67%)			Difficult (<33%)			
	<i>N</i>	$\mu$	$\sigma$	<i>N</i>	$\mu$	$\sigma$	<i>N</i>	$\mu$	$\sigma$	
Average Team Goal Commitment (<4.25)	1	1.00	-	5	1.23	.15	6	1.19	.56	
High Team Goal Commitment (>4.25)	4	1.00	.08	7	0.99	.40	2	1.83	.24	
Multiple Regression: testing moderation										<b>.115</b>

First of all, it is noteworthy that the team's goal commitment was universally high; the average level of goal commitment (on a 1-5 scale) in both groups is respectively 3.93 (average commitment group; SD = .23) and 4.56 (high commitment group; SD = .22). Table 5 indicates that teams with a difficult goal and high team goal commitment attain the highest goal performance. Furthermore it shows that an increase in goal difficulty does not automatically result in an (equivalent) increase in goal performance, when the team is not really committed to the goal.

Although the results indicate a moderating trend, the lack of diversity in team goal commitment make it difficult to find significant moderation results. Team work engagement is not indicated as a moderator of the difficult goal – performance relationship. The second hypothesis has therefore not been confirmed.

Not hypothesized, but definitely worth mentioning is the relation between team skills and team work engagement. Hierarchical regression (Table 16; Appendix H) and the interaction table (Table 6) reveal

that higher levels of team work engagement only benefit the team’s goal performance when the team has sufficient skills to attain the goal. This implies that the team’s skills moderate the relation between team work engagement and goal performance.

TABLE 6: INTERACTION: TEAM SKILLS AND TEAM WORK ENGAGEMENT (N=25)

	Team Work Engagement									<i>p</i>
	Low (<4.32)			Average			High (>4.60)			
	<i>N</i>	$\mu$	$\sigma$	<i>N</i>	$\mu$	$\sigma$	<i>N</i>	$\mu$	$\sigma$	
Low Team Skills (<4.0)	5	1.05	.30	5	1.05	.48	3	0.96	.77	
High Team Skills (>4.0)	3	1.22	.19	4	1.22	.22	5	1.39	.43	
Multiple Regression: testing moderation										<b>.015</b>

#### 4.2.5. CROSS-SECTIONAL PREDICTORS

The third hypothesis stated that the level of team work engagement is predicted cross-sectional by (1) the availability of sufficient team skills to meet the team’s demands, and (2) the team’s climate. Psychological safety is excluded from the analysis due to insufficient internal consistency ( $\alpha$ ).

The cross-sectional correlations between the variables are presented in Table 3. The hypothesis is tested with multiple regression analysis, in which is controlled for the dependent variable at T=1. Table 7 shows several multiple regression analyses, respectively on the individual and team level and with team work engagement, team vigour or team dedication as dependent variable. Additionally, both the standardized coefficients of the full model (Step 2: Enter Predictors) and the reduced model (Alternative method: Backward; OUT: .10) are presented.

TABLE 7: MULTIPLE REGRESSIONS: CROSS-SECTIONAL PREDICTORS OF TWE (N=34)

Variable	TWE <sub>2</sub>		TV <sub>2</sub>		TD <sub>2</sub>		TA <sub>2</sub>	
	$\beta$	$\sigma$	$\beta$	$\sigma$	$\beta$	$\sigma$	$\beta$	$\sigma$
<i>Step 1: Control variable</i>								
Team Work Engagement <sub>1</sub>	.726**	.115						
Team Vigour <sub>1</sub>			.732**	.124				
Team Dedication <sub>1</sub>					.663**	.132		
Team Absorption <sub>1</sub>							.692**	.110
R <sup>2</sup> (adj.)	.512		.521		.422		.462	
<i>Step 2: Enter predictors (full model)</i>								
(Control variable <sub>1</sub> )	.503**	.127	.459**	.130	.498**	.174	.558**	.110
Team Skills <sub>2</sub>	.233	.155	.304*	.163	.206	.209	.129	.161
Skill Development <sub>2</sub>	.063	.161	.066	.166	.068	.227	.026	.164
Commitment to each other <sub>2</sub>	.229*	.144	.243*	.157	.100	.198	.298	.141
R <sup>2</sup> (adj.)	.610		.669		.442		.550	
R <sup>2</sup> change	.131*		.174**		.070		.125*	
<i>Alternative method: Backward (reduced model)</i>								
(Control variable <sub>1</sub> )	.517**	.119	.470**	.125	.568**	.135	.581**	.105
Team Skills <sub>2</sub>	.275*	.107	.349**	.114	.266*	.140	-	-
Skill Development <sub>2</sub>	-	-	-	-	-	-	-	-
Commitment to each other <sub>2</sub>	.231*	.142	.246*	.154	-	-	.345**	.113
R <sup>2</sup> (adj.)	.622		.679		.470		.559	

\* $p < .10$  \*\* $p < .05$  \*\*\* $p < .01$

Note: Backward method: variables excluded at .10 range.

The regression analyses in Table 7 show that the vigour aspect of team work engagement is particularly affected by the team's skills, while the team absorption aspect is most affected by the team's commitment to each other. Consequently team work engagement is predicted by a combination of the availability of sufficient team skills and a high level of commitment to each other. Thereby the third hypothesis is partly confirmed; both team skills and commitment to each other have been found to predict team work engagement.

#### 4.2.6. MEDIATION

The fourth and final hypothesis states that team work engagement mediates the long-term effect of team skills and team climate on team (task and contextual) performance. Because the study has not obtained a sufficiently large sample to perform SEM analyses, the existence of the mediation effect is tested with multiple regression, according to the guide of Frazier, Tix and Barron (2004). The process of mediation implies a causal chain; the mediator is assumed to be caused by the predictor variable and to cause the outcome variable (Frazier et al., 2004).

Note that the variable commitment to each other (T=1) was not allowed to be aggregated to the team level, due to insufficient interrater consistency (ICC(1); Table 3). Therefore commitment to each other

(T=2) is also included in the mediator analysis. Although the variable represents a relatively stable team characteristic, also these results should be interpreted with caution.

TABLE 8: MEDIATION ANALYSIS (N=34)

Variable	<i>Step 1: Predictor<sub>1</sub> to Outcome<sub>2</sub></i>				<i>Step 2: Predictor<sub>1</sub> to Mediator<sub>2</sub></i>			
	TP <sub>2</sub>		CP <sub>2</sub>		TWE <sub>2</sub>		TV <sub>2</sub>	
	$\beta$	$\sigma$	$\beta$	$\sigma$	$\beta$	$\sigma$	$\beta$	$\sigma$
<i>Predictors</i>								
Team Skills <sub>1</sub>	-.027	.247	.065	.173	.079	.131	.129	.149
Skill Development <sub>1</sub>	.119	.145	.254	.158	.192	.120	.172	.135
Commitment to each other <sub>1</sub>	.188	.173	.290*	.162	-.034	.208	-.063	.226
Commitment to each other <sub>2</sub>	.293	.158	.327*	.145	.295*	.148	.317*	.173
<i>Step 3a: Mediator<sub>2</sub> to Outcome<sub>2</sub> (no control for predictors)</i>								
<i>Mediators</i>								
Team Work Engagement <sub>1</sub>	.185	.143	.321*	.129				
Team Vigour <sub>1</sub>	.285*	.132	.325*	.118				
Team Work Engagement <sub>2</sub>	.345*	.145	.441**	.130				
Team Vigour <sub>2</sub>	.427**	.124	.505**	.106				

\* $p < .10$     \* $p < .05$     \*\* $p < .01$

*Note:* Within every model is controlled for Outcome<sub>1</sub> or Mediator<sub>1</sub> respectively

Because none of the predictors has a significant long-term relation with the outcome and mediator variables, Step 3 of the mediation analysis only shows the standardized coefficients of the mediators on the outcome variables.

First is tested for a significant temporal relation between the predictor (T=1) and team performance (T=2), controlled for team performance at the first measurement (N=34). Table 8 shows that the team's skills and potential for skill development have no significant longitudinal effect with either team task or team contextual performance.

Secondly is tested for a temporal relation between the predictor and team work engagement and team vigour. Again, none of the predictors have a longitudinal relation with either team work engagement or team vigour. Therefore it is concluded that team work engagement does not causally mediate the relationship between team skills, team climate and team performance; the hypothesis is not confirmed. This is mainly due to the lack of significant long-term effects from the predictors on both team work engagement and team performance.

The high correlations in Table 3 however do suggest that there is a relation between team work engagement (and team vigour in particular) and team performance. Indeed, multiple regression shows significant cross-sectional relations at T=2 between team work engagement and team task performance<sub>2</sub> ( $\beta = .352^*$ ; *adj. R*<sup>2</sup> = .284) and team contextual performance ( $\beta = .441^{**}$ ; *adj. R*<sup>2</sup> = .397), when controlled for respectively team task performance and team contextual performance at T=1. Team vigour at T=2 turns out to be an even stronger cross-sectional predictor of team task performance ( $\beta = .427^{**}$ ; *adj. R*<sup>2</sup> = .338) and team contextual performance ( $\beta = .505^{**}$ ; *adj. R*<sup>2</sup> = .461). Both team work engagement and team vigour at T=1 also have a significant over time relation with team contextual performance at T=2



(respectively  $\beta = .321^*$  and  $\beta = .325^*$ ), although only team vigour predicts team task performance over time (on the  $p < .10$  level;  $\beta = .285^*$ ).

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## 5. Discussion

The central aim of this study was to examine the predictors that contribute to the emergence of team work engagement (including goal setting) and the impact of team work engagement on team performance. The study makes three important contributions. First, this study evaluates the possible connections and synergies between (team) work engagement and goal setting, thereby potentially opening a new research area. Second, multiple cross-sectional predictors for team work engagement are identified – including team skills, team climate and a specific use of team goals – and the relation between team work engagement (and team vigour in particular) and the team's current task and contextual performance has been confirmed. This is in line with the expectation of Schaufeli, Taris and Bakker (2006), who reasoned that enthusiasm about the task is also likely to predict in- and extra-role performance on the team level. Third, the study uses an innovative composite measure of goal performance, that enables the comparison of a performance outcome over a diversity of teams. Thereby this study contributes to the knowledge about team effectiveness dynamics and the measurement of performance, by focusing on a combination of team work engagement and goal setting as prior determinants of team performance.

According to the longitudinal data the intervention did not significantly improve the experimental condition's team work engagement, goal commitment or performance in comparison with the teams in the control condition. When comparing the control and experimental condition (Table 11) three causes for the absence of a direct effect can be identified: (1) within the experimental group more teams had set a completely new short-term goal, and; (2) between the groups no strong difference was found in the average goals' importance and clarity. Even although the intervention did not result in significant engagement, commitment or performance improvements for the experimental group (and thereby lacks practical value), the intervention however did ensure that most of the teams had set a performance-oriented short-term goal, which equalized conditions over teams and enabled the comparison of goals across different teams (theoretical value).

The data showed a trend that challenging (i.e., moderately difficult or difficult) and important short-term goals yield higher team work engagement than (1) goals that are less important, and (2) easy team goals. On the other hand no evidence was found for an interaction effect towards goal performance, so the first hypothesis is not directly confirmed. The analysis of the second part of the first hypothesis again shows a trend that short-term goals that are derived from the team's previously set long-term goals yield higher team work engagement and goal commitment than short-term goals that are not. Due to the small sample size (N=25) and the division into subgroups the repeated measures ANOVA and multiple linear regression analyses could not find significant effects (insufficient power). With a higher statistical power (e.g., through a greater sample size) these trends might indeed turn out to be significant effects.

Another reason for lack of significant effects might be located in the evaluation of the goal's difficulty and performance. The supervisors' evaluation of the short-term team goal (Table 17; Appendix I) raises two questions: (1) is the supervisor capable of objectively estimating the probability of success, particularly for new goals (i.e., no prior knowledge), and; (2) is the supervisor's evaluation of the team's actual performance biased? Table 17 shows that the supervisors (too?) frequently evaluated the team's short-term goal as completely attained (100%), even when team members scored the goal's performance differently. The problem of biased (supervisor) ratings has been recognised by previous research, which have found relatively low correlations between self- and supervisor-ratings of performance (Harris & Schaubroeck, 1988).

While testing the moderating effect of team work engagement and team goal commitment on the relationship between a difficult goal and goal performance, it was found that the teams' goal commitment was universally high, which lowered the power of finding significant moderator effects. Even although the data showed that teams with difficult goals and a high team goal commitment attained the highest goal performance, team goal commitment was not identified as a significant moderator (and neither was team work engagement). The second hypothesis has therefore not been confirmed. The third hypothesis on the other hand has been confirmed; both the team's skills and the commitment to each other have been found to predict team work engagement (cross-sectional). Only the potential for skill development was not a significant predictor of current team work engagement. Finally, also the mediating role of team work engagement in the relation between team skills, team climate and team performance (fourth hypothesis) could not be found, due to the lack of long-term relations between the predictors and both the outcome and mediating variable. Although the mediating relation could not be found, team work engagement – and team vigour in particular – have been indicated as strong predictors of the team's current task and contextual performance and decent predictors of future team task and contextual performance. The lack of future predictive power might be resolved by a different operationalization. The team's skills are measured specifically against the current demands of the team and is therefore not stable over time. In contrast, the (aggregated) *absolute* level of skills within the team is a more stable team characteristic (i.e., might slowly progresses over time) and therefore more likely to predict future team work engagement and team performance.

The results showed two additional relations that were not hypothesized beforehand. First, (from the goal's characteristics) goal difficulty has been found to primarily predict goal performance, while the goal's importance primarily predicts team work engagement. Second, the team's skills moderate the relation between team work engagement and goal performance, such that higher levels of team work engagement only yield higher goal performance when the team has sufficient skills to attain the goal.

## 5.1. THEORETICAL IMPLICATIONS

The findings of this study entail multiple theoretical implications. The main implication is the opening of a new research area: the connection between the goal-striving process and team work engagement. Multiple connections have been found between goal characteristics, team work engagement and goal performance, and Table 3 shows a correlation between team goal commitment and team vigour. Other connections between team work engagement and goal setting might be placed within the High Performance Cycle (Locke & Latham, 1990; Borgogni & Dello Russo, 2013), a meta-theory that predicts an employee's job performance and satisfaction based on specific goals and moderators such as self-efficacy, ability, goal commitment, feedback and task complexity. It can be argued the goal-striving process and (team) work engagement synergize on four areas: (1) a challenging and important goal energizes; (2) an engaged team is more persistent (team vigour) and spends more effective time (team absorption) to attain the goal; (3) an engaged team will have a higher goal commitment, and; (4) goal attainment enhances future self-efficacy and work engagement. Two additional theoretical implications are discussed below.

The finding that a short-term goal that is derived from a long-term team goal enhances team work engagement is in line with the reasoning of Sun and Frese (2013), who argued that the use of a long-term and a related (attainable) short-term team goal increases motivation and leads to higher self-efficacy (both related to work engagement). Whether this short-term goal should be difficult or not is not clear yet. The central finding of goal setting theory describes that difficult goals lead to higher actual goal performance, but only when goal commitment is high. On the other hand, setting more difficult goals increases the number of goal 'failures'. Eberly et al. (2013) found that failing to achieve a goal results in a drop of self-efficacy and positive affect, if and only if the individual had a high

commitment towards the goal. However, failing to attain an (intermediate) goal does not always entail reduced consequent effort. Bandura and Cervone (1986) found that (upon receiving goal progress feedback) those who were dissatisfied with the substandard performance, though judged themselves still efficacious to meet the challenge, redoubled their efforts. Note that easy goals can also have beneficial effects; Katzenbach and Smith (1993) recognize that small successes can lead to an improvement of the team's spirit and therefore advise to use attainable short-term goals when the team (1) is in the start of a project, or (2) has low collective efficacy. So, what can be concluded? The results of this study indicated that the team's goal commitment is related to the goal's clarity and strongly related to the goal's importance (Table 3) and the goal's origin (Figure 4). Therefore the optimal goal difficulty is likely to depend on multiple conditions, such as: the performance level desired, the goal's importance and clarity, the goal's relatedness to the team's purpose and long-term goals, and the current (collective) efficacy of the team. Also the task's complexity and the availability of task strategies have been argued to impact the effectiveness of setting difficult goals, although these ideas have not yet been validated on the team-level (Kleingeld et al., 2011).

The found relation between the team's skills and team work engagement might also be explained through a related construct: collective efficacy (Salanova, Llorens, Cifre, Martínez & Schaufeli, 2003). A closer look on the operationalization of team skills shows that this variable measures the (aggregated) individual *beliefs* that the current team skills are sufficient to deal with the team's demands. Perceived collective efficacy on the other hand is defined as *a group's shared belief in its con-joint capabilities to organize and execute the courses of action required to produce given levels of attainment* (Salanova et al., 2003). on the individual level self-efficacy is found to partly mediate the relationship between job resources and work engagement (Xanthopoulou et al., 2007). The construct collective efficacy might therefore provide an alternative explanation to the emergence of team work engagement, as moderator between the team's resources and team work engagement. In addition to the function in the emergence of work engagement, Salanova et al. (2003) found that perceived collective efficacy moderates the relation between subjective well-being (engagement) and team task performance. Collective efficacy is therefore a potent construct in the further study of team work engagement.

## 5.2. STRENGTHS AND LIMITATIONS

The design of the study (i.e., longitudinal quasi-experimental design with independent group pretest-posttest) entails several strengths and weaknesses. The pretest served to form a baseline of multiple dependent and independent variables, which enables testing for causality (and mediation) and controlling for homogenous stability (Kenny, 1975), thereby increasing the understanding and the power of the found relationships. The intervention facilitates similar conditions between teams, such that all teams have set a performance-oriented short-term goal that takes approximately 4 weeks to attain. Additional strengths of the study are the thoroughly reasoned composition of the team-level constructs from individual-level data, based on Van Mierlo, Vermunt and Rutte (2009) and the inclusion of multiple team types (e.g., management teams, project teams, departments) from multiple organizations, facilitating both the generalization of found results and the examination of differences between team types.

The diverse sample however also entailed difficulties for the objective measurement and comparison of goal-related performance. Kleingeld et al. (2011) emphasize that realizing a strong (quasi-experimental) design with valid performance measures that are comparable across conditions and reflect the multidimensional nature of team performance is extremely challenging. To deal with this issue a composite measure of goal performance was created, based on the goal's difficulty (supervisor rating) and the relative goal performance (supervisor rating).

Additional limitations of the study are caused by the study's design, the operationalization of the constructs and the moderate sample size. The three-item scale of psychological safety (based on May, Gilson & Harter, 2004) contained an insufficient internal consistency ( $\alpha = .21$ ) and therefore had to be excluded from the analysis. The design of the study on the other hand inhibited the repeated evaluation of goals and goal characteristics; different goals are evaluated at the first (important team-goal) and second (short-term team goal) questionnaire. Moreover, the small sample size ( $N=43$ ) and the use of constructs that exclusively exist on the team level (e.g., team performance, team work engagement) limit the power of findings significant effects. The sample size is further reduced through the exclusion of teams with an insufficient interrater agreement on team work engagement ( $r_{wg}$ ;  $N=34$  at second measurement). This provides particular limitations for the examination of differences between for example team types and goal setting methods, because these analyses require the sample to be divided into smaller subgroups.

Though perhaps the most important limitation is the exclusive focus on *one* team goal in both questionnaires. Most teams within an organizational context have set themselves multiple short- and long-term team goals, as the team has to perform well on multiple dimensions. Every goal within this portfolio has an effect on the team's work engagement, in which the effect of each goal is possibly proportionally related to the goal's importance. Because this study focuses merely on one (important) goal from this portfolio, only a part of the effect on team work engagement can be assessed. Therefore this limitation reduces the power of finding significant relations between goal setting and work engagement.

### 5.3. FUTURE RESEARCH

The recommendations for future research provided here complement the already developed research agenda on the field of team work engagement (see Costa et al., 2012; Costa et al., 2013) and goal setting theory (Locke & Latham, 2013<sup>b</sup>).

First of all, instead of focusing exclusively on team performance dimensions, team work engagement research might embrace the outcome indicator *team effectiveness*. Generally team effectiveness has been defined as a combination of: (1) performance; (2) meeting of team-member needs, and; (3) team viability (i.e., the willingness of members to remain in the team) (Hackman, 1987). Team work engagement is defined as a positive state of work-related well-being and is therefore likely to be related with both the meeting of team-member needs (2) and team viability (3). Moreover, because results on the individual level have shown that work engagement requires the availability of sufficient job resources (Bakker & Demerouti, 2007), it is expected that the needs of an engaged employee are already met. Therefore assessing team effectiveness as final outcome variable might increase the (managerial and scientific) value of team work engagement.

Also the dynamics through which team work engagement results in higher team performance in different team contexts should be further examined. Previously in this article multiple general and situational dynamics have been identified, such as willingness to go the extra mile, less waste of time (team absorption), proactive behaviour and better collaboration within the team. This study contributed by finding that the team's work engagement only resulted in a higher goal performance when the team had sufficient skills to attain the goal, which implies a moderating effect of team skills. Understanding the functioning of team work engagement in the creation of (short- and long-term) team performance is crucial in the evolution of the construct. Therefore future research should focus on validating these dynamics and understanding the situational conditions in which they enhance the team's performance.

Future goal setting studies can also explore the outcome variable *goal performance*. While the idea of a performance outcome variable (Beal, Cohen, Burke & McLendon, 2003) that facilitates comparison across teams is promising, further validation of the composition formula is required, as well as the development of alternative methods for assessing the goal's difficulty and the team's relative performance. Teams (and supervisors) might have troubles in evaluating the difficulty of a goal, particularly when the task is new and complex. Therefore new measurement methods should be empirically examined. Maybe the measurement's validity can be enhanced through: (1) instead of measuring the goal's difficulty categorically, request the respondent to evaluate the probability of successful goal attainment on an analogue rating scale, or; (2) instead of using merely a supervisor rating, assess the goal's difficulty and goal performance with a weighted score of the supervisor rating and the average rating of the team members.

Finally, the central recommendation for future research concerns the exploration of team and individual work engagement dynamics in organizational goal setting contexts. If this new research area is embraced, future work should aim at further building an explicit theoretical framework and at assessing: (1) the effect of the entire goal portfolio on work engagement; (2) the relation between team goal commitment and team vigour and dedication; (3) the effect of goal types (e.g., performance goal, learning goal) on team work engagement for complex and easy tasks, and; (4) the effect of goal attainment (or failure) on future work engagement. The High Performance Cycle (Borgogni & Dello Russo, 2013) might provide a useful theoretical framework to incorporate both team work engagement and the temporal aspect (4), which is particularly relevant for on-going teams.

## 5.4. CONCLUSION

So, how can the setting of goals contribute to the emergence of team work engagement and what is the impact of team work engagement on team performance? The results from this longitudinal study showed that the combination of an important and (moderately) difficult short-term goal was capable of enhancing the team's work engagement, particularly when it was derived from a previously set long-term goal. The combination of using a long-term goal and a short-term goal provides the team with a concrete milestone and increases the long-term goal's urgency. Also the skills of the team (relative to the team's demands) and the commitment to each other (aspect of team climate) have been found to predict the team's current work engagement. Although the mediating role of team work engagement has not been confirmed, it is found that team work engagement (and team vigour in particular) predict both the current team's task and contextual performance and thereby plays an important role in the creation of an effective team.

Future research should continue to study the relations and synergies between aspects from goal setting theory and work engagement, because: (1) a challenging and important goal motivates; (2) an engaged team has more potential to attain difficult goals; (3) the attainment of goals is expected to result in future work engagement, and; (4) both performance and subjective well-being are important aspects of current organizational life. Because teams generally have multiple objectives, particularly the entire goal portfolio is expected to be related to work engagement.

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## 6. Practical Advice Design

Though every job has its specific resources and demands (Bakker & Demerouti, 2007), it is expected that each type of team (e.g., management team, project team) possesses a unique dynamic for which some basic rules of engagement can be found. Team work engagement has been argued to drive (sustainable) team performance through multiple general and situational mechanisms. Indeed, in many different teams the team's work engagement has been found to increase both the team's task as well as the team's current contextual performance. In general engaged teams enjoy a high level of energy and enthusiasm within the team, are willing to go the extra mile, waste less time, and work in a sustainable state of well-being. Engaged teams are furthermore likely to display proactive behaviour, have vital meetings, take on additional tasks and transfer their enthusiasm and engagement to others outside the team.

From a theoretical perspective team work engagement is particularly relevant for teams with a high degree of task interdependence; teams in which the members have to work closely with each other when doing their work and in which the team's performance is dependent on exchanging information and work products correctly. If the team's task does not require the combination of multiple skills, judgments and experiences, and is merely the sum of individual work products, the team would benefit more by focusing on individual work engagement and individual performance. Additionally, engagement has been argued to be capable of both enhancing and impeding the team's performance, dependent on the timing within the team process.

Therefore team work engagement should only be the primary focus of the team if:

- The team's work product is an aggregated product that requires the combination of multiple skills, judgments and experiences, and;
- The team benefits from *shared* high levels of work engagement (it is essential that *each* member of the team has a high level of work engagement), and;
- The team has sufficient skills to deal with the team's demands, and;
- Collaboration and information sharing between team members are essential aspects in attaining team performance, or;
- The team requires vivid discussions to attain team performance, or;
- The team wants to improve the organizational climate and the work engagement of others within the organization, or;
- The team wants to expand its role within the organization and improve the organization's functioning.

If the team's work is mainly built around individual performance and individual accountability, the team is more likely to improve its performance by focusing on the team members' individual work engagement.

So how can the team consciously stimulate its team work engagement? First of all, the team should focus on the availability of sufficient skills within the team to deal with the team's demands. Therefore team members should be selected on the basis of their complementary skills and personal development should be stimulated within the team. According to Katzenbach and Smith (1993) the team environment is the ideal context to improve one's personal skills, particularly when the team members are committed to each other. The next step is to build a psychologically safe climate within the team and develop a common vision and long-term goals together. Specifically, the findings of this study reveal that teams are capable of increasing their engagement by using a combination of long-term and specific challenging short-term goals. The use of short-term goals affects the team's motivation and goal

commitment (through increase of urgency, tangibility and self-efficacy) and facilitates the development of effective task strategies (through feedback, better detection and management of errors and learning). The difficulty of the short-term should results as a function of the desired team performance, the goal's importance and position within the goal portfolio, and the current collective efficacy of the team. If the team's collective efficacy is high and the team has previously set important long-term goals, set a challenging short-term goal that contributes to the attainment of the long-term goal. When the team's collective efficacy is low or the team has just been initiated, use attainable short-term goals to achieve small wins and thereby improve the team's spirit and work engagement.



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# Appendices

## APPENDIX A – COMPARISON BETWEEN IWE AND TWE

### Individual Work Engagement

<p><b>Definition</b></p> <p><i>"[...] a positive, fulfilling, work-related state of mind that is characterized by vigour, dedication, and absorption"</i> (Schaufeli, González-Roma &amp; Bakker, 2002)</p>
<p><b>Function</b> (the outcome of the construct)</p> <p>Mediate the relationship between job resources and individual performance</p>
<p><b>Structure</b> (how the construct emerges)</p> <ul style="list-style-type: none"><li>- Rooted on an individual's perception of his/her own level of engagement (individual-level);</li><li>- Facilitated by the availability of (individual) job- and personal resources in the face of job demands.</li></ul>
<p><b>Dimensions</b> (see Table 1 for a detailed description)</p> <p>Individual vigour Individual dedication Individual absorption</p>

Same function

Different structure

### Team Work Engagement

<p><b>Definition</b></p> <p><i>"a shared, positive, fulfilling affective-motivational emergent state of work related well-being that is characterized by team vigour, team dedication, and team absorption"</i> (Costa, Passos &amp; Bakker, 2012)</p>
<p><b>Function</b> (the outcome of the construct)</p> <p>Mediate the relationship between job resources and team performance</p>
<p><b>Structure</b> (how the construct emerges)</p> <ul style="list-style-type: none"><li>- Rooted on team members' <i>shared</i> perception of their team's level of engagement (team-level);</li><li>- Emerges through sharing the same resources, experiencing the same (affective) events, and emotional interactions between team members.</li></ul>
<p><b>Dimensions</b> (see Table 3 for a detailed description)</p> <p>Team vigour Team dedication Team absorption</p>

FIGURE 5: COMPARISON BETWEEN INDIVIDUAL WORK ENGAGEMENT AND TEAM WORK ENGAGEMENT

# APPENDIX B – FULL RESEARCH MODEL

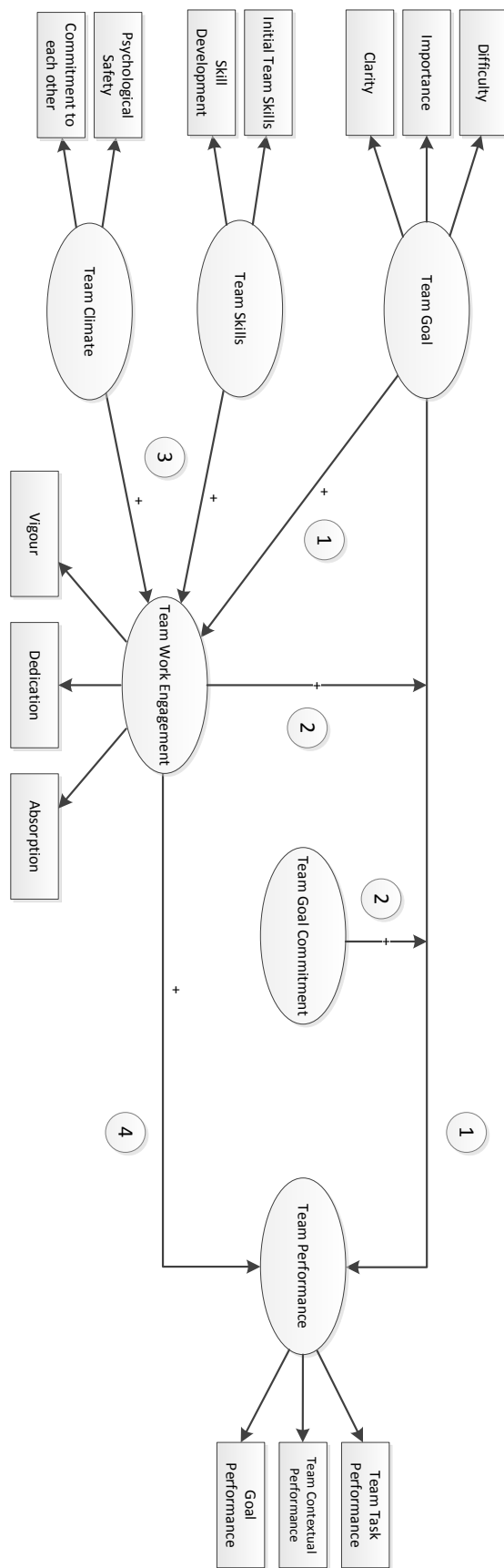


FIGURE 6: COMPLETE RESEARCH MODEL

# APPENDIX C – TIMELINE OF THE STUDY

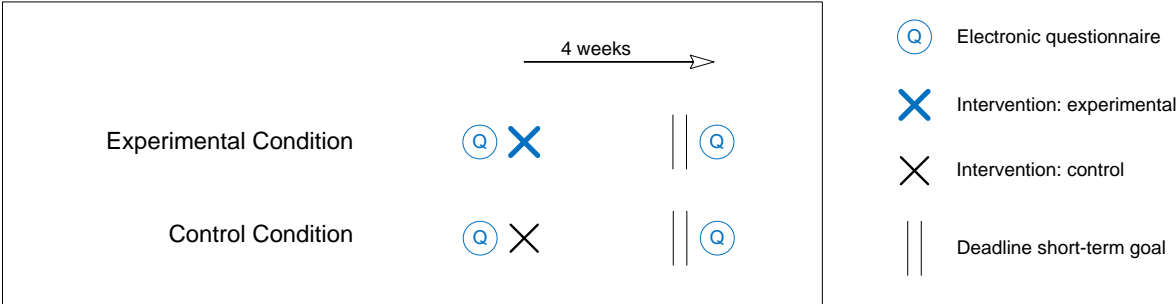


FIGURE 7: TIMELINE OF THE STUDY



# APPENDIX D – INTERVENTION

## INSTRUCTION EXPERIMENTAL CONDITION

Roland van de Kerkhof  
[T] +31613090408  
[E] [r.m.v.d.kerkhof@student.tue.nl](mailto:r.m.v.d.kerkhof@student.tue.nl)

### INSTRUCTIE

#### HET STELLEN VAN EEN DOEL

Alle teams in het onderzoek worden gevraagd om één specifiek doel of mijlpaal te vinden dat in de loop van het onderzoek behaald kan worden. Wij gaan ervan uit dat het team op dit moment al meerdere doelstellingen heeft die meer dan 4 weken nodig hebben om behaald te kunnen worden. Binnen deze context is het mogelijk om een gezamenlijke korte-termijn doelstelling te vinden die rechtstreeks bijdraagt aan de belangrijkste doelstelling(en).

Voor het vinden van dit doel hebben wij hieronder een procedure weergegeven. Omdat er veel teams deelnemen aan het onderzoek is het belangrijk dat deze procedure zo goed als mogelijk gevolgd wordt. In de 2<sup>e</sup> vragenlijst (volgt over 4 weken) wordt specifiek naar deze korte-termijn doelstelling gekeken.

#### PROCEDURE

Wij vragen het team om een korte-termijn doel te vinden dat voldoet aan onderstaande eigenschappen.

Eigenschappen van het doel	
Resultaatgericht	Dit doel is concreet en resultaatgericht, en het is duidelijk wanneer het doel bereikt is.
Relevant	Dit doel is afgeleid van de belangrijk(st)e doelstellingen van het team en draagt hier direct aan bij.
Uitdagend	Dit doel is moeilijk en uitdagend en vereist doorzettingsvermogen om het te behalen.
Gezamenlijke inspanning	Voor het bereiken van het doel is de gezamenlijke inspanning van alle teamleden benodigd.
Korte-termijn	Dit doel moet binnen de komende 4 weken behaald kunnen worden.

Voor het vinden van dit doel vragen wij u om tijdens *de eerstvolgende teamvergadering* de volgende stappen te volgen:

- (1) Overleg wat de bestaansredenen van het team is. Deze vragen kunnen daarbij helpen:
  - a. Wat is onze functie als team?
  - b. Wat zijn de gevolgen als wij er niet zouden zijn?
- (2) Overleg wat de lange-termijn doelstellingen van het team zijn en beantwoord deze vragen:
  - a. Waarom zijn deze doelen belangrijk?
  - b. Welke doelen hebben prioriteit?
- (3) Bepaal vervolgens in onderling overleg (participatief) een korte-termijn team doelstelling, die gebaseerd is op de bestaansredenen van het team en rechtstreeks bijdraagt aan de belangrijkste lange-termijn doelstelling van het team. Indien er in onderling overleg gevonden wordt dat er al een korte-termijn doel aanwezig is dat voldoet aan al deze 5 eigenschappen, kan dit doel gebruikt worden.

Als u vragen heeft over deze procedure, neem dan alstublieft even contact op met mij. Mijn contactgegevens zijn rechtsboven op deze pagina te vinden.

## VOORBEELDEN

Hier geven we enkele voorbeelden van geschikte korte-termijn doelstellingen, die ter inspiratie dienen.

- Project team - zorg ervoor dat alle werknemers van het ziekenhuis voorzien zijn van informatie en educatie over het voor hen relevante gedeelte van het Elektronisch Patiënten Dossier (EPD) voor 31 mei 2013.
- Sales team - (doel tot einde van het jaar) verkrijg voor 1 januari 2014 40 nieuwe grote klanten met een individuele jaarlijkse omzet van meer dan €10.000.  
- (mijlpaal voor over 4 weken) verkrijg voor 1 juni 2013 5 nieuwe grote klanten met een individuele jaarlijkse omzet van meer dan €10.000.
- Service team - beperk deze maand (mei 2013) de wachttijd van minstens 90% van de facturen tot minder dan 24 uur.

# INSTRUCTION CONTROL CONDITION

Roland van de Kerkhof  
[T] +31613090408  
[E] [r.m.v.d.kerkhof@student.tue.nl](mailto:r.m.v.d.kerkhof@student.tue.nl)

## INSTRUCTIE

### HET VINDEN VAN EEN DOEL

Alle teams in het onderzoek worden gevraagd om één specifiek doel of mijlpaal te vinden dat in de loop van het onderzoek behaald kan worden. Wij gaan ervan uit dat het team op dit moment al meerdere doelstellingen heeft die meer dan 4 weken nodig hebben om behaald te kunnen worden. Binnen deze context is het mogelijk om een gezamenlijke en resultaatgerichte korte-termijn doelstelling te vinden.

Voor het vinden van dit doel hebben wij hieronder een procedure weergegeven. Omdat er veel teams deelnemen aan het onderzoek is het belangrijk dat deze procedure zo goed als mogelijk gevolgd wordt. In de 2<sup>e</sup> vragenlijst (volgt over 4 weken) wordt specifiek naar deze korte-termijn doelstelling gekeken.

### PROCEDURE

Wij vragen het team om tijdens de eerstvolgende teamvergadering een resultaatgericht korte-termijn doel te *selecteren* (zie onderstaande tabel). Dit doel mag geselecteerd worden uit de bestaande doelen van het team. Concreet houdt dit in dat het doel binnen 4 weken behaald moet kunnen worden (vóór de 2<sup>e</sup> vragenlijst) en dat het duidelijk is onder welke voorwaarden het doel is bereikt.

Eigenschappen van het doel	
Resultaatgericht	Dit doel is concreet en resultaatgericht, en het is duidelijk wanneer het doel bereikt is.
Korte-termijn	Dit doel moet binnen de komende 4 weken behaald kunnen worden.

Indien het team geen korte-termijn doelen heeft die voldoen aan bovenstaande eigenschappen, kan het team ook een lange-termijn doelstelling *vertalen* naar een mijlpaal die stelt waar het team over 4 weken hoort te zijn (zie het 2<sup>e</sup> voorbeeld hieronder).

In beide gevallen (selecteren/vertalen) is het de bedoeling dat alle teamleden op de hoogte zijn van het gekozen doel. Als u vragen heeft over deze procedure, neem dan alstublieft even contact op met mij. Mijn contactgegevens zijn rechtsboven op deze pagina te vinden.

### VOORBEELDEN

Hier geven we enkele voorbeelden van geschikte korte-termijn doelstellingen, die ter inspiratie dienen.

**Project team** - zorg ervoor dat alle werknemers van het ziekenhuis voorzien zijn van informatie en educatie over het voor hen relevante gedeelte van het Elektronisch Patiënten Dossier (EPD) voor 31 mei 2013.

**Sales team** - (doel tot einde van het jaar) verkrijg voor 1 januari 2014 40 nieuwe grote klanten met een individuele jaarlijkse omzet van meer dan €10.000.  
- (mijlpaal voor over 4 weken) verkrijg voor 1 juni 2013 5 nieuwe grote klanten met een individuele jaarlijkse omzet van meer dan €10.000.

**Service team** - beperk deze maand (mei 2013) de wachttijd van minstens 90% van de facturen tot minder dan 24 uur.

## APPENDIX E – GOAL CHARACTERISTICS

TABLE 9: ELABORATION GOAL CHARACTERISTICS

Goal characteristics	
Performance-oriented	The goal is concrete and performance-oriented. It is clear under which conditions the goal is attained.
Relevant	The goal is derived from the prior long-term goal(s) of the team and directly contributes to attaining these goals.
Challenging	The goal is difficult and challenging and requires persistence to attain.
Joint effort	The combined effort of all team members is required for attaining the goal.
Short-term	The deadline of the goal lies within 3 weeks.

## APPENDIX F – COMPOSING GROUP-LEVEL CONSTRUCTS

Based on Van Mierlo, Vermunt and Rutte (2009).

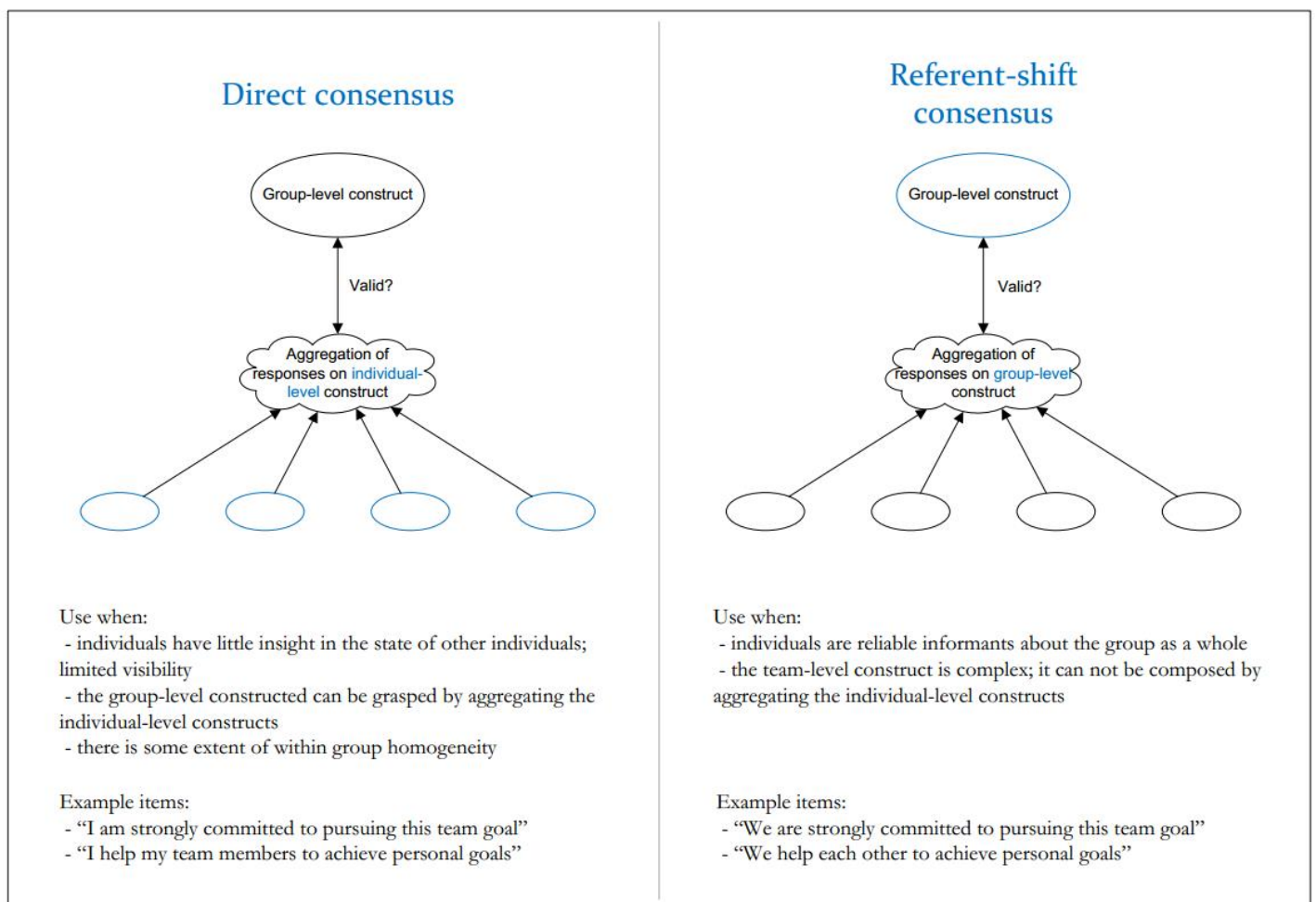


FIGURE 8: COMPOSING GROUP-LEVEL CONSTRUCTS

## APPENDIX G – CALCULATION OF GOAL PERFORMANCE

TABLE 10: CALCULATION OF GOAL PERFORMANCE

Goal Level # of books	Goal Difficulty			Goal Performance		
	Coding	Probability of success	Scoring	Actual	% of goal level	Variable
30	Easy	100%-67%	1,00	36	120%	1,20
40	Moderate	67%-33%	1,33	36	90%	1,20
50	Difficult	33%-15%	1,67	36	72%	1,20
60	Very difficult	15%-0%	2,00	36	60%	1,20

Assumption: goal level of a very difficult goal is twice (2x) as high as the goal level of an easy goal.

## APPENDIX H – RESULTS

### INTERVENTION

TABLE 11: DESCRIPTIVE STATISTICS AND FREQUENCIES; CONTROL AND EXPERIMENTAL CONDITION

Variable	Experimental Condition (N=15)		Control Condition (N=10)		
<b>Team Characteristics</b>					
Team Type	N		N		
Management team	2		2		
Project team	9		4		
Department	4		4		
Task Interdependence	Mean	SD	Mean	SD	t-test
	3.61	0.89	3.72	0.725	.756
<b>Characteristics of selected short-term goal</b>					
Goal Characteristics	Mean	SD	Mean	SD	t-test
Importance	4.13	0.49	3.91	0.77	.404
Difficulty	2.33	0.72	1.80	0.63	.071
Clarity	3.90	0.50	3.89	0.66	.950
Goal-Setting Strategy used	N		N		
Tell	1		1		
Tell-and-Sell	2		0		
Consultation	3		4		
Participative	9		5		
Short-term Goal's Origin	N		N		
Existing short-term goal	5		9		
Transformed long-term goal	5		1		
New short-term goal	5		0		

Note: t-test shows Independent Samples t-test, equal variances assumed (Levene's Test not significant)

### HYPOTHESIS 1.A

TABLE 12: INTERACTION: GOAL DIFFICULTY AND IMPORTANCE

Goal Difficulty	N		Average GI		High GI		ANOVA
	<i>Average</i>	<i>High</i>	$\mu$	$\sigma$	$\mu$	$\sigma$	$p$
Easy (low challenge)	1	4	4.59	-	4.59	.74	.997
Moderately difficult	7	5	4.24	.42	4.80	.39	.041
Difficult (high challenge)	4	4	4.38	.22	4.79	.68	.303

## HYPOTHESIS 1.B

TABLE 13: INTERACTION: GOAL RELEVANCE AND ORIGIN

Variable	Goal Performance <sub>2</sub>		
	B	SE(B)	p
<i>Step 1: Main effects</i>			
Relevant to the team's purpose	.157	.120	.203
Derived from important long-term team goals	-.129	.125	.315
R <sup>2</sup> (adj.)	-.012		
R <sup>2</sup> change	.073		.436
<i>Step 2: Interaction effect</i>			
Relevant to the team's purpose	.254*	.126	.057
Derived from important long-term team goals	-.128	.119	.294
Relevant*Derived	.101*	.056	.084
R <sup>2</sup> (adj.)	.084		
R <sup>2</sup> change	.125*		.084

\* $p < .10$     \* $p < .05$     \*\* $p < .01$

*Note:* The main effects are standardized.

## HYPOTHESIS 2

TABLE 14: MODERATION: TEAM GOAL COMMITMENT

Variable	Team Goal Commitment					
	Model 1		Model 2		Model 3	
	B	Sig.	B	Sig.	B	Sig.
<i>Step 1: Control variable</i>						
Team Skills	.161 *	.060	.287 **	.005	.290 **	.004
<i>Step 2: First-order effects</i>						
Dummy: Easy goal			-.216	.119	-.181	.262
Dummy: Moderate goal			-.047	.634	-.110	.309
Team Goal Commitment			-.131	.177	-.126	.304
Team Vigour						
<i>Step 3: Interaction effect</i>						
DEasy*Commitment					-.175	.343
Dmoderate*Commitment					-.087	.457
DEasy*TV						
Dmoderate*TV						
R <sup>2</sup> (adj.)	.113		.310		.402	
R <sup>2</sup> change			.279 *		.128	
					<b>.115</b>	

\* $p < .10$     \* $p < .05$     \*\* $p < .01$

Note: All variables (except for Goal Performance) are standardized.

TABLE 15: MODERATION: TEAM WORK ENGAGEMENT AND TEAM VIGOUR

Variable	Team Vigour						Team Work Engagement					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	B	Sig.	B	Sig.	B	Sig.	B	Sig.	B	Sig.	B	Sig.
<i>Step 1: Control variable</i>												
Team Skills	.161 *	.060	.341 **	.003	.356 **	.001	.161 *	.060	.327 **	.004	.323 **	.004
<i>Step 2: First-order effects</i>												
Dummy: Easy goal			-.236 *	.078	-.236 *	.068			-.261 *	.055	-.250 *	.065
Dummy: Moderate goal			-.082	.408	-.100	.279			-.073	.462	-.080	.404
Team Goal Commitment												
Team Vigour			-.180 *	.091	-.182 *	.064			-.162	.116	-.145	.150
<i>Step 3: Interaction effect</i>												
DEasy*Commitment												
Dmoderate*Commitment												
DEasy*TV					.010	.923					-.018	.870
Dmoderate*TV					-.188 *	.053					-.136	.164
R <sup>2</sup> (adj.)	.113		.348		.461		.113		.334		.376	
R <sup>2</sup> change			.310 *		.031				.299 *		.038	
											<b>.225</b>	

\* $p < .10$     \* $p < .05$     \*\* $p < .01$

Note: All variables (except for Goal Performance) are standardized.



TABLE 16: MODERATION: TEAM WORK ENGAGEMENT AND TEAM SKILLS

Variable	Team Work Engagement					
	Model 1		Model 2		Model 3	
	B	Sig.	B	Sig.	B	Sig.
<i>Step 1: Control variable</i>						
Dummy: Easy goal	-.164	.281	-.261*	.055	-.309*	.013
Dummy: Moderate goal	-.050	.662	-.073	.462	-.076	.378
<i>Step 2: First-order effects</i>						
Team Skills			.327**	.004	.450**	.000
Team Work Engagement			-.162	.116	-.265*	.011
<i>Step 3: Interaction effect</i>						
Skills*TWE					.132*	.015
R <sup>2</sup> (adj.)	.043		.334		.449	
R <sup>2</sup> change			.324*	.012	.158*	<b>.015</b>

## APPENDIX I – SELECTED SHORT-TERM GOALS

TABLE 17: SELECTED SHORT-TERM GOALS (INTERVENTION)

Selected short-term team goal	Goal Difficulty <sup>a</sup>	Goal Attainment (%)		Goal Performance <sup>c</sup>	Used goal-setting strategy	Goal origin
		TM <sup>b</sup>	S <sup>b</sup>			
<b>Management team</b>						
- Registratie en goedkeuren van uren op wekelijkse basis, coverage van 100%	Difficult	80%	100%	1,67	Participative	New
- Bad Debt is maximaal x%.	Easy	145%	100%	1,00	Consultation	Derived
- Heldere groeistrategie (met hoe en waarvoor) vertaald in jaardoelen en een heldere roadmap	Difficult	127%	120%	2,00	Participative	Derived
<b>Project teams</b>						
- Sprint 1 delivery	Moderate	88%	80%	1,07	Participative	Existing
- Definiëren/Ontwikkelen van een operationele (beta) versie voor dossier management voor brede toepassing binnen [...]	Difficult	50%	40%	0,67	Participative	New
- Complete the DFS QMS Rollout	Moderate	89%	100%	1,33	Participative	Existing
- Implementeren WEB release 13.1	Difficult	97%	90%	1,50	Tell	Existing
- Afronding van de BluePrint per 1 juni 2013	Moderate	95%	100%	1,33	Tell	Existing
- Voor 18 juni 2013 en naar tevredenheid van de klant afronden van alle user stories van de huidige iteratie	Moderate	82%	100%	1,33	Consultation	Existing
<b>Departments</b>						
- Het selecteren en inwerken van een vijftal nieuwe teamleden	Difficult	80%	100%	1,67	Participative	Existing
- Jaartarget halen	Easy	70%	110%	1,10	Consultation	Derived
- Het verwerken van twee opdrachten voor ieder lid van het team op eigen initiatief voor 15 juni	Moderate	88%	90%	1,20	Participative	Derived
- Optimale bezetting bij klant events (Topshelf en workshop)	Difficult	83%	80%	1,33	Participative	Existing
- Op 31/05/2013 de PRV files t/m eind juni weggewerkt	Moderate	65%	70%	0,93	Consultation	Existing
- In het algemeen: Tijdige en kwalitatieve aanlevering van de interne en externe gevraagde informatie/rapportages	Easy	95%	90%	0,90	Consultation	Existing
- Voor 7 juni is het proces omtrent “geïnformeerd verlengen” geïmplementeerd zodat vanaf deze vastgestelde datum alle polissen middels de procedure worden geprolongeerd.	Moderate	97%	100%	1,33	Participative	New
- Voor 18 juni 2013 en naar tevredenheid van de klant afronden van alle user stories van de huidige iteratie	Moderate	82%	100%	1,33	Consultation	Existing
- Bijwerken, reviewen en aanscherpen van de relevante werkprocessen die omschreven staan in het kwaliteitshandboek voor einde mei 2013	Easy	85%	100%	1,00	Tell-and-Sell	New
- Materiaal registratie op projecten en werkbonden 100% foutloos	Moderate	68%	80%	1,07	Participative	New
- Juiste aantallen materiaal bepalen vanaf tekening ipv calculatie; Beter startwerk met monteur; verbeteren van de communicatie met de monteur; verbeteren terugkoppeling naar en van monteurs; etc.	Easy	69%	50%	0,50	Consultation	New
- Invoering nieuw proces van stage/afstudeerbegeleiding	Moderate	60%	80%	1,07	Consultation	Existing

[a] Coding of goal difficulty is based on probability of success: 1=Easy (>67%), 2=Moderate (33%-67%), 3=Difficult (15%-33%), 4=Very difficult(<15%)

[b] TM = average team member score; S = supervisor score

[c] Goal performance is calculated by the formula: ((goal difficulty/3)+2/3)\*goal attainment (supervisor rating)