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*Towards a better understanding of the way antecedents influence the transfer of training content to work practice*

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# CHAPTER 5

## Chasing the Goal(s): How a Goal-Setting Intervention Influences Transfer Motivation, its Antecedents and Transfer of Training

This chapter is based on De Jong, B., Cornelissen, L. J. F., Jansen in de Wal, J., & Peetsma T.T.D. (2023). Chasing the goal(s): How a goal-setting intervention influences transfer motivation, its antecedents and transfer of training. *Under Review*.

### Abstract

Despite large investments of companies in employee training, the transfer of training content to work practice remains low. One important component influencing transfer of training is transfer motivation, which in turn is predicted by personal and contextual antecedents. Previous research has shown that goal-setting can increase transfer of training. However, it is unclear how personal and contextual antecedents, types of transfer motivation, transfer intention and transfer of training are influenced through goal-setting and if these effects differ for different training types. This study investigated the effects of goal-setting on personal and contextual antecedents, transfer motivation, transfer intention and transfer of training. Data were collected among 615 participants, which were randomly assigned to either a goal-setting or control group. Both groups were asked to fill in a questionnaire directly after the training and indicated transfer after six weeks. Results showed beneficial effects of goal-setting for some contextual antecedents, whereas effects for different types of transfer motivation were mixed. Moreover, the effects of goal-setting differed for specific types of trainings. Importantly, we found no differences for personal antecedents, transfer intention or transfer of training itself, indicating that goal-setting has limited effects on personal antecedents, transfer motivation and transfer of training. Our results underline the necessity to intensify intervention designs and to consider specific training types to enhance transfer of training.

*Keywords:* unified model of task-specific motivation, transfer motivation, transfer intention, transfer of training, goal-setting

## 5.1. Introduction

Every year, companies invest billions in employee training (Grossman & Salas, 2011). However, the application of training content in practice (i.e., transfer of training; Blume et al., 2010) is often limited (Grossman & Salas, 2011). Previous research has consistently identified transfer motivation (i.e., the desire to use skills and insights acquired during the training in practice; Noe & Schmitt, 1986) as an important component influencing transfer of training (Gegenfurtner et al., 2009; Grohmann et al., 2014). If trainees are more motivated to transfer training content to practice, it is more likely that transfer occurs (Gegenfurtner et al., 2009b). Transfer motivation, in turn, is predicted by characteristics of the work environment (e.g., social norms and supervisory support) and individuals (e.g., self-efficacy and perceived autonomy; Gegenfurtner et al., 2009b; Massenberg et al., 2015; Weisweiler et al., 2013).

A plethora of studies have now identified components influencing transfer of training (see Blume et al., 2010 for a review). Baldwin et al. (2017) therefore proposed that researchers should shift their focus to how we can influence these components with interventions to promote transfer. In this respect, goal-setting interventions in which trainees set goals about what they want to achieve through applying training content have been studied extensively (Rahyuda et al., 2014). Goal-setting can help individuals with organizing effort, increase determination and eventually aid overall performance (Latham & Locke, 2006). Goal-setting has also been found to increase transfer of training (e.g., Brown & Warren, 2009; Johnson et al., 2012; Richman-Hirsch, 2001).

Goal-setting tends to be more effective if goals are specific and challenging (Rahyuda et al., 2014) and if individuals set both proximal and distal goals (Brown, 2005; Brown & Warren, 2009). Studies have also shown that learning goals are more effective than performance goals (Latham & Brown, 2006; Seijts et al., 2004). As such, there is knowledge regarding which type of goals are most effective for performing behavior. However, the merits of goal-setting are not fully understood. Previous research did not examine which antecedents of transfer motivation and which types of transfer motivation are influenced through goal-setting and did not take into account (i.e., control for) relationships between the different components in analyzing

effects of goal-setting interventions on transfer of training (Brown & McCracken, 2010; Rahyuda et al., 2014).

Educational, psychological and organizational research already showed that, outside of transfer of training, goal-setting can influence behavior of individuals and how they perceive themselves and their contexts. Goal-setting can support individuals to persist in enacting behavior. It can help them in planning, monitoring and adjusting, which are important skills for applying training content in ever changing work circumstances (Latham & Locke, 2006; Locke & Latham, 2006). It can therefore be expected that goal-setting also enhances perceived circumstances in which transfer occurs. Moreover, pursuing difficult but obtainable personal goals can enhance self-efficacy (Schunk, 2003) and feelings of autonomy (Klimas, 2017). Goal-setting can therefore also enhance perceived characteristics of trainees themselves. Finally, goal-setting can be accompanied with higher feelings of determination and motivation among individuals to reach their goals (Smith et al., 2008). Consequently, goal-setting possibly also aids transfer motivation (Johnson et al., 2012) and transfer intention (Smith et al., 2008). However, the influence of goal-setting on most of these explanatory components is yet to be empirically tested in the transfer of training context.

In addition, it is unclear whether merits of interventions such as goal-setting differ for different types of trainings (Burke & Hutchins, 2008). Investigating this can give a finer grained insight in the types of trainings that benefit from goal-setting. Three training characteristics might be relevant here. Firstly, previous research has indicated that voluntary participation in trainings is associated with a higher (motivation to) transfer than mandatory participation (Gegenfurtner et al., 2016). Secondly, Martins et al. (2019) found that whether the training is offered in-person or online influences motivation to learn, which in turn can affect transfer motivation (Gegenfurtner et al., 2009b). Thirdly, previous research has shown that whether the training teaches soft-skills (i.e., inter- and intrapersonal skills like communication skills) or hard-skills (i.e., focused on following a specific procedure) can influence transfer of training and components associated with it (Laker & Powell, 2011).

It is important to get more insight in how goal-setting influences personal and contextual antecedents, transfer motivation and transfer of training and how they relate to each other, taking into account differences between types of trainings. This can reveal which antecedents are stimulated through goal-setting under what conditions and provide insight how this stimulates transfer motivation and eventually transfer of training. It can also provide insight into which antecedents should be targeted by different interventions because goal-setting does not affect them. Ultimately, this can add to our knowledge on how transfer of training can be fostered.

Therefore, this study investigates the effects of a goal-setting intervention on personal and contextual antecedents of transfer motivation, transfer motivation itself, and transfer of training for different types of trainings. In doing so, interrelationships between different predictors of transfer of training are taken into account, which has not been done in research to date. This study will approach transfer motivation and its antecedents through the lens of the unified model of task-specific motivation (UMTM; De Brabander & Martens, 2014).

### **5.1.1. The Unified Model of Task-Specific Motivation**

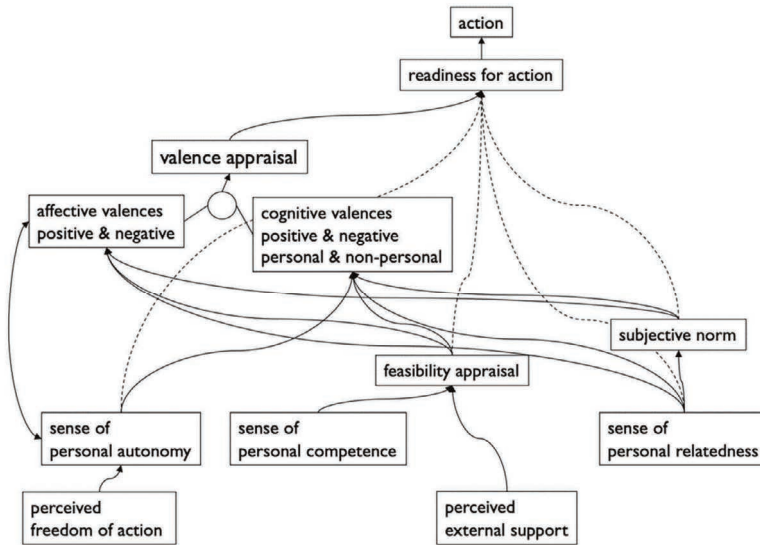
The UMTM aims to predict task-specific motivation of individuals at a given moment in time (De Brabander & Martens, 2018). The UMTM is based on an integration of six motivational theories, namely self-determination theory (Ryan & Deci, 2020), flow theory (Csikszentmihalyi, 1990), expectancy-value theory (Eccles & Wigfield, 2020), social cognitive theory (Bandura, 1989), theory of planned behavior (Ajzen, 1991) and the person-object theory of interest (Krapp, 2002). Through this integration, the UMTM intends to overcome the challenge of navigating through theories that have a different focus on motivation (see De Brabander & Martens (2014) for an in-depth discussion of the UMTM).

We employ the UMTM as a theoretical framework as it answers to the call of investigating transfer motivation multidimensionally (Gegenfurtner, 2009). Previous research often considered transfer motivation to be one-dimensional (Gegenfurtner, 2009), using Noe and Schmitt's (1986) conceptualization of transfer motivation. Motivational theories, however, posit that motivation is multidimensional and contains different types (e.g., self-determination theory, expectancy-value theory;

Eccles & Wigfield, 2020; Ryan & Deci, 2020). Recent research suggests that the same applies for transfer motivation and that different types of motivation have different effects on transfer intention and transfer of training (De Jong et al., 2023; Gegenfurtner, 2013; Gegenfurtner & Quesada-Pallarès, 2022). The UMTM acknowledges that motivation is multidimensional and includes both affective and cognitive types of motivation. Moreover, the UMTM integrates personal and contextual antecedents of motivation identified by the theories mentioned above. The UMTM is depicted in Figure 5.1.

**Figure 5.1.**

*The Unified Model of Task-specific Motivation (De Brabander & Martens, 2014, Adapted by De Brabander & Glastra, 2021).*



The affective and cognitive types of motivation are represented in the UMTM by affective and cognitive valences. *Affective valences* are feelings individuals expect to experience when they perform an activity (e.g., feeling enthusiastic about applying a recently learned skill in practice; De Brabander & Martens, 2014). *Cognitive valences* are values that are attributed to the results of performing an activity (e.g., increasing work efficiency through using training content). Individuals can see outcomes as valuable for themselves, but also for others (e.g., peers, supervisors, clients). As such, cognitive valences can be both personal and non-personal (De Brabander & Glastra, 2014).



Moreover, affective and cognitive valences can be both positive and negative. When they are negative, individuals experience negative feelings and/or adverse consequences resulting from performing the activity. The opposite is the case when the valences are positive. Together, the different types of valences provide a way to represent employees' transfer motivation multidimensionally.

Negative affective and cognitive valences are hypothesized to negatively predict readiness for action (De Brabander & Glastra, 2018), whereas the opposite is the case when the valences are positive. *Readiness for action* is conceptualized as the desire of individuals to perform task-specific behavior (De Brabander & Glastra, 2018), which, in the case of transfer, is comparable to the original definition of transfer motivation by Noe and Schmitt (1986). Finally, readiness for action predicts *action*, which is defined as exhibiting task-specific behavior (De Brabander & Glastra, 2018), of which transfer of training is an example.

### 5.1.2. Task-Specific Antecedents

The UMTM also incorporates personal and contextual antecedents that influence the extent to which different valences are experienced (De Brabander & Martens, 2014). These antecedents can be linked to known personal and contextual antecedents that influence transfer motivation and/or transfer of training (Blume et al., 2010; Gegenfurtner et al., 2009b; Massenberg et al., 2015; Weisweiler et al., 2013). The personal antecedents of motivation that the UMTM identifies are 1) *sense of personal autonomy* (i.e., the extent to which individuals see themselves as source of choosing and exhibiting task-specific behavior), 2) *sense of personal competence* (i.e., individuals' judgement about the extent to which they themselves are capable of performing a task successfully), and 3) *sense of personal relatedness* (i.e., the extent to which individuals experience a sense of connection and belonging with other individuals participating in the context of the task-specific behavior) (De Brabander & Martens, 2014). The contextual antecedents distinguished in the UMTM include 1) *perceived freedom of action* (i.e., the extent to which individuals experience freedom to make choices regarding the selection and performance of task-specific behavior), 2) *perceived external support* (i.e., the extent to which individuals experience their environment to hamper or support them in performing task-specific behavior), and 3)

*subjective norm* (i.e., the tendency of individuals to abide by the (dis)agreement of important others regarding exhibiting specific behavior) (De Brabander & Martens, 2014).

These antecedents are related to each other and the different valences in several ways. Firstly, sense of personal competence and perceived freedom of action together form a *feasibility appraisal*, which refers to expectations of individuals about the feasibility of performing a task successfully (De Brabander & Martens, 2014). Secondly, sense of personal relatedness and perceived freedom of action are expected to predict subjective norm and sense of personal autonomy, respectively (De Brabander & Martens, 2014), which is in line with the self-determination theory (Ryan & Deci, 2020). Thirdly, feasibility appraisal, subjective norm and sense of personal relatedness are expected to positively predict positive valences and negatively predict negative valences, in line with the social cognitive theory, self-determination theory and expectancy-value theory (Ajzen, 1991; Bandura, 1989; Eccles & Wigfield, 2020; Ryan & Deci, 2020). Sense of personal autonomy is expected to positively predict positive cognitive valences and negatively predict negative cognitive valences, in line with the self-determination theory (Ryan & Deci, 2020), while it is hypothesized to have reciprocal associations with affective valences (De Brabander & Martens, 2014). In addition, direct effects of the antecedents on readiness for action are also possible based on previous research (De Jong et al., 2020; De Brabander & Glastra, 2018, 2021; De Brabander & Martens, 2018) and in line with theory of planned behavior (Ajzen, 1991).

### **5.1.3. Effects of Goal-Setting on UMTM Components and Transfer of Training**

Multiple studies have provided support for the proposed relationships between the UMTM components (De Jong et al., 2020, 2023; De Brabander & Glastra, 2018, 2021; De Brabander & Martens, 2018), and showed that UMTM components can predict transfer of training (De Jong et al., 2020, 2023). Yet, these studies did not employ an experimental design to examine to what extent it is possible to affect the personal and contextual antecedents of motivated behavior, as identified by the UMTM, and whether changes in these components lead to changes in the valences, transfer intention and transfer of training. Based on organizational, psychological,

educational and transfer of training research, we expect that goal-setting can affect different components of the UMTM.

We expect that goal-setting positively affects personal antecedents and positive cognitive valences. Setting difficult but attainable goals together with trainees can communicate towards trainees themselves that they have the capabilities of performing specific behavior (Lunenburg, 2011). If these goals are set by trainees themselves, they can feel in control over what they learn, how they can apply what they have learned and that they pursue their own learning needs, leading to higher feelings of ownership (Klimas, 2017). Eventually, setting goals can align behavior (i.e., the application of training content) with personally valued outcomes (Eccles & Wigfield, 2002). In sum, goal-setting can increase sense of personal autonomy (Klimas, 2017). It can boost sense of personal competence, as evidenced by the effect of goal-setting on self-efficacy (Brown & Latham, 2002; Brown & Warren, 2009; Latham & Brown, 2006). Finally, it can enhance cognitive valences (i.e., utility value) among trainees (Eccles & Wigfield, 2002).

We further hypothesize that goal-setting positively affects perceptions of contextual antecedents and negatively influences negative cognitive valences. Goal-setting can activate cognitive strategies such as planning, monitoring and evaluating progress (Latham & Locke, 2006; Locke & Latham, 2006). These cognitive strategies will prompt individuals to think about how changes in work circumstances in which training content is to be applied can be dealt with (Latham & Locke, 2006; Locke & Latham, 2006). This can enhance feelings of empowerment, which concerns a belief among individuals that they can make an impact on the course of activities at work and that they have sufficient opportunities to enact specific behavior (Taylor, 2013), such as applying training content. Moreover, goal-setting can change how individuals experience judgements of colleagues. When goals have been set, receiving feedback from colleagues on how behavior should be improved is more often seen as an indication that one should try harder and that more self-development is required instead of experiencing this as impediment of competency (Cianci et al., 2010; Cron et al., 2005). As a result, individuals feel less tendency to avoid negative judgements from colleagues when they perform behaviour (Cron et al., 2005). Finally, goal-setting can

stimulate trainees to devote more time to applying training content and feel more in control over the available time they have in their work to do so (Claessens et al., 2007). Together, this indicates that goal-setting can ensure that individuals perceive a more positive subjective norm, higher perceived freedom of action and perceived external support, and lower negative cognitive valences.

We also expect that goal-setting positively affects transfer intention (i.e., readiness for action) and transfer of training (i.e., action). Previous research has provided evidence that goal-setting is a positive predictor of transfer intention (Smith et al., 2008) and can increase transfer of training (e.g., Brown et al., 2016; Johnson et al., 2012; Richman-Hirsch, 2001). We therefore expect trainees that set goals also score higher on transfer intention and transfer of training.

Finally, there are UTM components for which we expect goal-setting to have no effects. We expect no effects of goal-setting for sense of personal relatedness, as relatedness is not expected to vary between task-specific behaviors (De Brabander & Martens, 2018). Moreover, we expect no effects of goal-setting on affective valences either. Previous research has shown that *reaching* goals can elicit positive and alleviate negative feelings (Latham & Locke, 2006; Locke & Latham, 2006; Wiese & Freund, 2005). This does however not imply that setting goals *in itself* already affects experienced feelings among individuals.

Summarizing, we have formulated the following hypotheses. We expect that goal-setting enhances sense of personal autonomy (H1), perceived freedom of action (H2), feasibility appraisal (i.e., sense of personal competence and perceived external support) (H3) and subjective norm (H4). Moreover, we expect that goal-setting enhances positive cognitive valences (H5) and decreases negative cognitive valences (H6). Finally, we expect that goal-setting enhances transfer intention and transfer of training (H7).

## 5.2. Method

### 5.2.1. Sample

This study was conducted at the Dutch training institute for the judiciary. We collected data among trainees that took part in one of 64 included trainings. Trainings were included if training application was voluntary, as transfer could otherwise not

be ascribed to transfer motivation. Moreover, trainings were included if they did not already contain elements of goal-setting at the end of the training. Otherwise it would not be clear if effects were due to the goal-setting intervention that this study evaluates.

A total of 615 participants gave consent to participate in this study (response rate = 92%). Of these participants, 302 were randomly assigned to the intervention group, whereas 313 participated in the control group. A total of 233 participants (response rate = 35%) still participated after six weeks, of which 107 were part of the intervention group and 126 of the control group. The number of participants per training ranged between 2 and 22 ( $M = 9.61$ ). Most participants were women (73.6%), and the mean age was 36.86 ( $SD = 10.61$ ) years. Participants practiced a number of different jobs, including legal assistant (27.9%), public prosecutor secretary (19.2%), public prosecutor (15.7%), administrative assistant (9.8%), judge (5.5%), evaluator (3.0%), staff lawyer (2.6%) and deputy public prosecutor (2.6%). The participants had on average 4.00 years of experience in their job ( $SD = 5.70$ ). Independent sample t-tests and Pearson chi-square tests revealed no differences between the intervention and control group for age ( $t(582) = -1.66, p = .10$ ) and experience ( $t(582) = 0.59, p = .56$ ), nor for distribution of gender ( $X^2(2, N = 598) = 5.02, p = .08$ ) or work type ( $X^2(14, N = 605) = 6.75, p = .94$ ). Participation was voluntary and without incentives.

A total of 28 trainings provided soft-skills (43.8%;  $N = 255$ ) whereas 36 trainings provided hard-skills (56.2%;  $N = 358$ ). Training participation was mandatory for 22 trainings (34.4%;  $N = 140$ ) and voluntary for 42 trainings (65.6%;  $N = 473$ ). Finally, 31 trainings were held online (48.4%;  $N = 277$ ) and 33 in-person (51.6%;  $N = 358$ ). In online trainings, the content was provided synchronously via platforms such as Teams or Zoom. All trainings were group trainings and contained a mixture of lectures provided by trainers, and exercises. Trainees were given time to practice their skills with exercises. Both individual and group exercises were used and were discussed plenary together with the trainer(s). The amount of training days ranged between half a day and two days.

### 5.2.2. Procedure

#### *Intervention and Time 1 Data Collection in the Intervention and Control Group*

The procedure was based on previous transfer of training research into goal-setting conducted by Brown and colleagues (2005, 2009, 2013). Towards the end of each training, participants were informed that they would conclude the training in two separate groups after which they would fill in a questionnaire. To diminish the likelihood of socially desirable answers, participants were not informed about the specific research aims during the study. After finalizing participation, all participants were informed about the specific research aims.

The intervention group was supervised by the trainer of the training. Prior to the intervention, the researcher and trainer went through the intervention procedure that was written down in a detailed script that had to be followed throughout the intervention. Moreover, the researcher discussed example goals with the trainer that would suit the content of the training. The trainer instructed the participants to formulate learning goals about how they were going to apply training content in practice. They were asked to set one distal goal and multiple proximal learning goals in line with the distal goal, which had to be specific and challenging but feasible to achieve. Participants were informed that they had freedom in deciding on the content of their goals. To provide inspiration for setting learning goals, the trainer gave several example goals that participants could pursue. After this instruction, participants had five minutes to formulate goals. As next step, participants were asked one by one to state their goals towards the rest of the group, which can stimulate goal commitment and sense of personal competence (e.g., self-efficacy; Brown, 2005). In addition, trainers used this moment to provide feedback about the specificity and difficulty of the goals formulated by the participants. Participants were then informed that they had five more minutes to make alterations to their goals, based on feedback. After these five minutes, participants were asked to fill in a questionnaire that measures the UMTM components. In total, this session lasted approximately 20 minutes.

In a separate room from the intervention group, the control group reflected on training quality based on questions asked by one of the researchers. These questions were kept similar across different trainings to ensure standardization for the control

group. After this session, participants also filled in a questionnaire about the UMTM components. The whole session lasted approximately 20 minutes.

### *Time 2 data collection*

After six weeks, all participants were asked to indicate their transfer of training. Previous transfer of training research varies in the time between the end of the training and measurement of transfer, ranging between three weeks to one year (De Jong et al., 2020; Brown, 2005; Gegenfurtner, 2013; Saks & Burke, 2012). We chose six weeks to ensure that participants had had some opportunities to transfer training content, but also to ensure a substantial number of responses among trainees.

### **5.2.3. Measures**

We used an adapted version of a questionnaire measuring the UMTM components (see Table 5.1.; De Brabander & Glastra, 2018). In this questionnaire, nonpersonal positive and negative cognitive valences were measured with multiple items referring to stakeholders for which applying training content could have value (i.e., team, court, judiciary and litigants). The other UMTM components were measured with one item and were answered on a bipolar seven-point Likert answering scale.

Using one item per construct is non-standard within social sciences. It implies that reliability of item responses needs to be examined alternatively by means of inspecting structural equation model (SEM) fit indices. Indices of model-fit were originally introduced as coefficients to evaluate reliability of latent structural equated scores (Tucker & Lewis, 1973) and “to avoid models with superfluous parameters that assume meaningless values” (Browne & Cudeck, 1993, p. 136). As unreliable item response patterns are not able to predict or correlate with responses on other items, model-fit indices inform about the unreliability of items. Moreover, we are interested in evaluating the predictive value of latent structural equated scores. Model-fit indices, unlike most regular alpha coefficients, inform about the reliability of these latent scores. Previous research already provided evidence for the reliability of the UMTM questionnaire through employing this analysis (De Jong et al., 2023).

**Table 5.1.***Items and Answering Scales for the UMTM Questionnaire*

Construct	Item	Answering scale
1. Sense of personal autonomy	When applying this course's content in my job, I would feel I did so [...]	Completely out of my own volition – Completely out of experienced pressure Very much – Very little
2. Perceived freedom of choice	When putting the things that were offered in this course into practice, I will have [...] opportunities for free choice	
3. Sense of personal competence	I personally feel [...] to successfully apply the knowledge, skills, and insights that I acquired in this course	Very able – Not able at all
4. Perceived external support	I find the facilities in our court to apply what I have learned successfully [...]	Very obstructive – Very conducive
5. Subjective norm	I think that colleagues who are important to me would assess me applying what I have learned during the course as [...]	Not positive at all – Very positive
6. Sense of personal relatedness	I feel [...] with colleagues that are involved when I apply the learned content in practice	Closely connected – Barely connected
7. Positive affective valence	When applying the knowledge, skills, and insights that I acquired in this course, I would [...] have a positive feeling	Very often – Rarely or never
8. Negative affective valence	When applying the knowledge, skills, and insights that I acquired in this course, I would [...] have a negative feeling	Rarely or never – Very often
9. Positive cognitive valence personal	Considering the positive consequences, applying the course content in my job would be [...] for me personally	Not or hardly rewarding – Very rewarding
10. Positive cognitive valence nonpersonal	Considering the positive consequences, applying the course content in my job would be [...] for my team	Not or hardly rewarding – Very rewarding
11. Negative cognitive valence personal	The costs and unwanted consequences of applying the course content in my job would be [...] for me personally	Very heavy – Negligible
12. Negative cognitive valence nonpersonal	The costs and unwanted consequences of applying the course content in my job would be [...] for my team	Very heavy – Negligible
13. Transfer intention	I am going to apply the things that I have learned during the course in my job.	Completely disagree – Completely agree
14. Transfer of training*	To what extent did you put the learned content into practice?	Not at all – Very much

Note. Items 1, 2, 3, 6, 7, 11 and 12 were recoded, so that a high value would indicate much of the measured construct.

\* Item only measured after six weeks.

### 5.2.4. Data-analysis

#### *Assumption Checking*

Before we analysed the data, we investigated assumptions of homoscedasticity, absence of univariate and multivariate outliers, linearity, multicollinearity, normally



distributed data (Kline, 2015) and independence of residuals (Barker & Shaw, 2015). Analyses showed two outliers which were excluded from further analysis. Moreover, we found multicollinearity between the item measuring negative cognitive valence in relation to the judiciary and multiple other negative cognitive valence items. Therefore, we excluded this item from further analyses. To keep factor structures similar, we also excluded the item referring to positive valence for the judiciary from further analyses. All other assumptions were met.

### *Measurement Quality*

To investigate the factor structure of feasibility appraisal and nonpersonal positive and negative cognitive valence, we employed confirmatory factor analysis. Moreover, since our sample consisted of an intervention and control group, we tested for measurement invariance in these constructs. To compare latent group means partial scalar invariance should hold (Van de Schoot et al., 2012). We used multiple goodness-of fit indices to examine model-fit. For SRMR and RMSEA, a value below .05 indicated a good fit and below .08 was sufficient. For the CFI and TLI, a value above 0.95 was considered good and above 0.90 sufficient (Geiser, 2012). To compare different models, we used the chi-square difference test. This analysis showed that the scalar model fitted significantly worse than the configural model ( $\Delta\chi^2(10) = 28.94, p = .001$ ). Nevertheless, model-fit of the scalar model was still sufficient to good ( $\chi^2(44) = 82.676, p < .001$ ; RMSEA = 0.05; CFI = 0.98, TLI = 0.98, SRMR = 0.07). Moreover, if BIC decreases and the CFI does not decrease more than .01, a model with more constraints can be considered tenable (Cheung & Rensvold, 2002; Van de Schoot et al., 2012). As such, measurement invariance between the intervention and control group was assumed.

Subsequently, reliability of the items measuring the UMTM components was tested. A path model was specified that contained the scalar invariance measurement model for feasibility appraisal and nonpersonal positive and negative cognitive valence and the single items representing other UMTM constructs. These were modelled in line with the dynamics proposed by the UMTM. We constrained relationships between the constructs in the direction proposed by De Brabander and Martens (2014). In addition, we added correlations between all valences and among

personal and contextual antecedents (cf. De Brabander & Glastra, 2018). Based on this model, results indicated that the item measuring sense of personal relatedness consistently did not relate to the hypothesized components in the direction that was proposed by De Brabander and Martens (2014), which indicates unreliability. We therefore decided to exclude sense of personal relatedness from further analyses. After this exclusion, model-fit was sufficient ( $\chi^2(203) = 415.508, p < .001$ ; RMSEA = 0.06; CFI = 0.94, TLI = 0.92, SRMR = 0.08), providing support for reliability of the questionnaire measuring the UMTM components.

### *Hypothesis Testing*

To examine our hypotheses, the final model based on the reliability analysis was used in a multi-group SEM to compare the intervention and control group on the effectivity of goal-setting. All participants took part in trainings in which other participants also took part. They were therefore clustered in groups. As we did not formulate group-level hypotheses, we controlled for clustered structure of the data by using cluster-robust standard errors and fit statistics (using option '*type = complex*' in Mplus 8.0) with the maximum likelihood ratio estimator. Through the model that was used in the reliability analysis, we investigated relationships between antecedents of transfer motivation, transfer motivation and transfer of training to investigate how goal-setting potentially enhanced transfer of training. We constrained regression coefficients between the components to be equal between the intervention and control conditions to be able to meaningfully compare intercepts of all model components between groups.

Equality between indicator intercepts was inspected with Wald tests (Klopp, 2019). A significant Wald test ( $p < .05$ ) indicates a significant difference on an indicator intercept between the conditions. In addition, the factor means (intercepts) of feasibility appraisal and nonpersonal positive and negative cognitive valence were set at zero in the intervention group (i.e., the reference group) and freely estimated in the control group. A  $p$ -value below .05 of the freely estimated intercept indicates a significant mean difference between the conditions. Next, we tested for effects of training characteristics. To do so, the intercepts of UMTM components were compared between the intervention and the control group for employees who 1) followed the

training online, 2) followed the training in-person, 3) attended voluntarily, 4) attended mandatorily, 5) learned about soft-skills, and 6) learned about hard-skills.

### **5.3. Results**

#### **5.3.1. Descriptive Statistics**

Table 5.2. provides an overview of correlations between the different UMTM components for the intervention and control group. Most correlations were in line with the dynamics of the UMTM. Exceptions are negative cognitive valences which did not correlate with transfer of training. Moreover, perceived freedom of action did not correlate with negative cognitive valences and positive nonpersonal cognitive valence. Our results also indicated that the correlation matrix is relatively similar between the intervention and control group. An exception in this respect is subjective norm, which did not correlate with negative affective valence in the intervention group, whereas it did in the control group. In addition, unlike the control group, sense of personal autonomy did not correlate with nonpersonal cognitive valences and personal negative cognitive valence in the intervention group.

Table 5.2.

## Correlation Matrix Intervention and Control Group

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Feasibility appraisal												
2. Subjective norm	.51***											
3. Sense of personal autonomy	.42**	.13*										
4. Perceived freedom of action	.49***	.04	.26***									
5. Positive affective valence	.67***	.20***	.23***	.19**								
6. Negative affective valence	-.61***	.00	-.10	-.14*	-.37***							
7. Pers. positive cognitive valence	.51***	.18**	.23***	.20***	.43***	-.16**						
8. Pers. negative cognitive valence	-.53***	-.09	-.02	-.09	-.18**	.20**	-.13*					
9. NP. positive cognitive valence	.50***	.19**	.09	-.02	.39***	-.13*	.62***	-.10				
10. NP. negative cognitive valence	-.60***	-.09	.01	-.10	-.14*	.19**	-.11	.90***	-.06			
11. Transfer intention	.60***	.28***	.15*	.14*	.31***	-.10	.46***	-.08	.43***	-.07		
12. Transfer of training	.57**	.38***	.05	.20*	.33***	-.18*	.35***	-.07	.15	-.16	.36***	

Note. Correlations of the intervention group can be found below the diagonal. Correlations of the control group can be found above the diagonal.

Pers. = personal, NP. = non-personal.

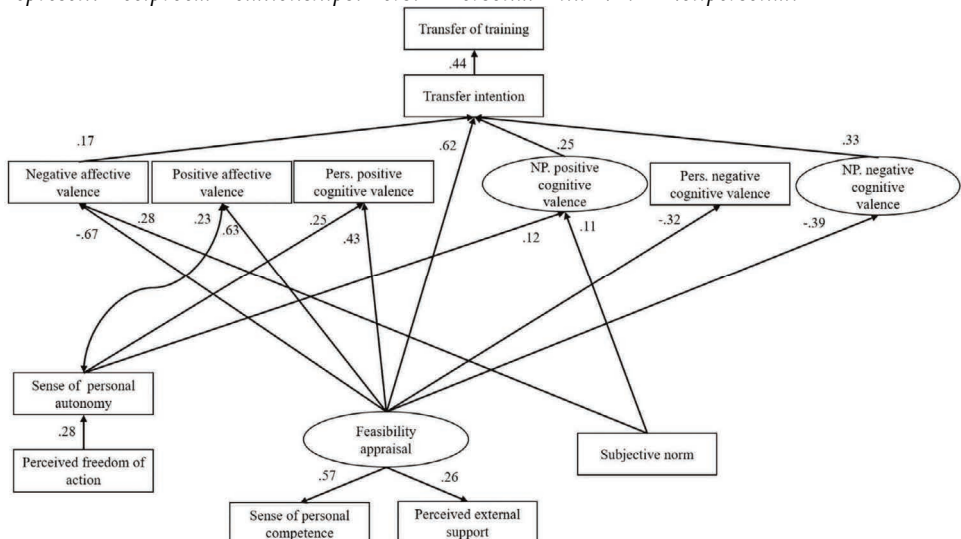
\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

### 5.3.2. Relationships Between UMTM Components

To investigate via which antecedents goal-setting potentially could have enhanced transfer of training, we investigated relationships between the UMTM components. Figure 5.2. shows that most relationships are in line with the dynamics of the UMTM. That is, the personal and contextual antecedents predicted the valences, the valences predicted transfer intention and transfer intention predicted transfer of training. Exception for this is sense of personal autonomy, which did not correlate with negative affective valence and did not predict negative cognitive valences. In addition, subjective norm positively predicted negative affective valence where negative effects were expected and did not predict the other valences. Finally, negative affective valence and nonpersonal negative cognitive valence positively predicted transfer intention whereas negative associations were expected.

**Figure 5.2.**

*Standardized Relationships Between the Components in the Intervention and Control Group. For Clarity of the Figure, we Only Added Significant Relationships ( $p < .05$ ) and Omitted Manifest Variables and Lower Order Latent Variables of Positive and Negative Cognitive Valences. Moreover, Correlations Between the Components were Omitted. Curved Lines Represent Reciprocal Relationships. Pers. = Personal And NP. = Nonpersonal.*



### 5.3.3. Mean Differences Between the Intervention and Control Group

Table 5.3. shows model-fit indices for the model that compares the intervention group and the control group in the whole sample and in the different subsamples. In the whole sample analysis, model fit was sufficient to good without modifications. For the analysis of the subsamples, initial model-fit was insufficient. Based on modification indices, we added a correlation between positive and negative cognitive valence items regarding the litigant and court. This resulted in a sufficient model-fit for most indicators. Only the SRMR remained somewhat unsatisfactory for most subsamples. Yet, since other indicators were sufficient to good and making further modifications did not make sense from a theoretical perspective, we decided to consider these models as tenable. Only model-fit of the sample that participated in training mandatorily was poor, likely due to the small sample size ( $N = 140$ ) compared to the number of estimated parameters. Therefore, we decided to exclude this subsample from further analyses.

**Table 5.3.**

*Model-Fit Training Characteristic Samples*

	$\chi^2$	DF	$p$	CFI	TLI	SRMR	RMSEA
General sample	422.757	204	<.001	0.93	0.91	.08	.06
Soft-skill sample	284.928	200	<.001	0.93	0.91	.09	.06
Hard-skill sample	363.627	201	<.001	0.93	0.91	.12	.07
Online sample	302.377	203	<.001	0.95	0.93	.10	.06
In-person sample	288.028	201	<.001	0.95	0.94	.11	.05
Voluntary sample	322.620	200	<.001	0.95	0.94	.08	.05

As a next step, we examined factor mean and indicator intercept differences between intervention and control group for the (sub)samples. Concerning the antecedents, we found that subjective norm was significantly higher in the intervention group than the control group for the general ( $W(1) = 0.23, p < .01$ ), hard-skill ( $W(1) = 0.24, p = .01$ ), online ( $W(1) = 0.34, p < .01$ ) and voluntary ( $W(1) = 0.27, p < .01$ ) samples. Also, perceived external support was significantly higher for the intervention group than the control group in hard-skill sample ( $W(1) = 0.31, p = .04$ ). Concerning the valences, the intervention group reported significantly lower nonpersonal negative cognitive valences than the control group in the hard-skill

subsample ( $W(1) = -0.22, p = .04$ ), whereas personal negative cognitive valence was significantly lower in the online sample ( $W(1) = -0.40, p = .03$ ). Finally, the intervention group scored significantly lower on positive affective valence in comparison to the control group in the soft-skill sample ( $W(1) = -0.27, p = .03$ ). We found no differences for the other components.

## 5.4. Discussion

Previous research that used goal-setting to enhance transfer of training rarely investigated its effects on antecedents of transfer motivation, transfer motivation itself and how they relate to each other in enhancing transfer of training (Brown & McCracken, 2010; Rahyuda et al., 2014). Yet, insight in this can demonstrate which personal and contextual antecedents are enhanced through goal-setting and how this eventually enhances types of transfer motivation, transfer intention and transfer of training. It can also show which antecedents are not stimulated through goal-setting and whether these antecedents need to be stimulated in different ways to enhance transfer of training via types of transfer motivation. Moreover, previous studies did not consider to what extent the effectivity of such an intervention depends on training characteristics (Burke & Hutchins, 2008). Eventually, investigating these understudied issues can provide insight into when and how integrating goal-setting components in training is fruitful. Departing from the UMTM, our study aimed at bridging this empirical gap. We examined the merits of goal-setting for antecedents of transfer motivation, transfer motivation, transfer intention and transfer of training, for different types of trainings. We hypothesized that goal-setting would enhance sense of personal autonomy (H1), perceived freedom of action (H2), feasibility appraisal (H3) subjective norm (H4) and positive cognitive valences (H5), whereas decreases in negative cognitive valences (H6) were expected. Finally, we expected that goal-setting would enhance transfer intention and transfer of training (H7). In general, we found few effects of goal-setting on antecedents of transfer motivation, transfer motivation and no effects for transfer of training.

### 5.4.1. Components for Which Goal-setting Had no Effect

We found no effects of goal-setting on the personal antecedents, feasibility appraisal, positive cognitive valence, transfer intention and transfer of training,

contrary to our expectations (H1, H3, H5 and H7). The lack of effects for personal antecedents might have to do with specific characteristics of this study. Firstly, this study was conducted among employees working within the judiciary, who tend to have much autonomy to practice their profession (Taal, 2016). As a result, perceived autonomy to apply training content might be taken for granted, and manipulations such as goal-setting may not affect trainees' perceived autonomy. Secondly, trainees in our study attended trainings that can be considered relatively complex (e.g., procedures to combat money laundering, strategies to interrogate a suspect). Wood et al. (1987) showed in their meta-analysis that a higher task-complexity can diminish the effectivity of goal-setting. Previous goal-setting research including trainings containing complex content (i.e., management development program) also found no effects for sense of personal competence (e.g., self-efficacy; Brown et al., 2016). Findings in our study and in the study of Brown et al. (2016) seem to underline that task complexity plays a role in the effects of goal-setting on sense of personal competence.

With respect to perceived external support, our study shows that goal-setting did not increase the amount of support trainees perceive to receive from their work environment. It seems that goal-setting does not affect perceived external support in the way it affects other contextual antecedents. Enhancing perceived external support requires additional effort from the work environment, e.g. in the form of receiving more feedback from, or sharing more knowledge by colleagues or supervisors (Grossman & Salas, 2011). This probably was not realized by setting goals at the end of trainings alone as it requires external input. For subjective norm and perceived freedom of action, additional effort from the work environment does not seem to be required. Instead, it requires more internal capabilities, such as that trainees are sufficiently empowered to deal with the possible constraints in their work environment, which can be realized with goal-setting (Taylor, 2013).

The lack of effects of goal-setting for positive cognitive valences, transfer intention and transfer of training can be explained by a lack of effects on their antecedents. Previous research and the current study showed that personal antecedents and perceived external support predict positive cognitive valences, which



in turn predict transfer intention (De Jong et al., 2020, 2023; De Brabander & Glastra, 2018, 2021; De Brabander & Martens, 2018) and transfer of training (De Jong et al., 2020, 2023). As we found no effects of goal-setting on personal antecedents and perceived external support, we might not have found effects on positive cognitive valences either. As a result of that, we likely also found no effects on transfer intention and transfer of training. As such, our results seem to indicate that the effectivity of transfer of training interventions depend on whether it enhances personal antecedents, perceived external support and positive cognitive valences.

#### **5.4.2. Components for Which Goal-setting Did Have an Effect**

We also found beneficial effects of goal-setting. It increased subjective norm, perceived freedom of action and diminished negative cognitive valences, in line with H2, H4 and H6. The results imply that goal-setting can make trainees feel more positive about the freedom they are granted to apply training content and about the way important colleagues would judge their application of training content in practice. Moreover, if one or more of the contextual antecedents were enhanced through goal-setting, personal or nonpersonal negative cognitive valences diminished. This confirms previous research that showed that contextual antecedents were predictors of transfer motivation (De Jong et al., 2023; Massenbergh et al., 2015, 2017). Moreover, these results also underline the possibility of influencing components of the UMTM with experimental research and shows how this affects other UMTM components. On the other hand, it also shows that only enhancing subjective norm and perceived freedom of action is insufficient to increase positive cognitive valences. This underlines the necessity to aim at increasing other antecedents of transfer motivation as well.

Interestingly, effects of goal-setting were only found for specific training characteristics. For example, most effects of goal-setting were found for hard-skill trainings (i.e., perceived freedom of action, subjective norm, nonpersonal negative cognitive valence). This may be explained from the observation that the amount of freedom to apply hard-skill training content is often limited (Laker and Powell, 2011), since the application of hard skills often includes prescribed procedures. This may leave more room for improvement in the case of hard-skill trainings to increase the

perceived freedom to apply training content than in the setting of a soft-skill training. In addition, applying content from hard-skill trainings often has clear consequences for oneself and others (Laker & Powell, 2011), which could make it easier for hard-skill trainees to identify changes in possible consequences like judgements of colleagues. As a result, the effects of goal-setting might be clearer in terms of consequences for hard-skill trainings and goal-setting might therefore be more effective for hard-skill trainings. This finding indicates that specific training characteristics can explain differences in the effects of goal-setting.

### **5.4.3. Limitations, Practical Implications and Future Research**

Taken together, our study showed that the effects of goal-setting are limited. These results are in line with Blume et al. (2010), who used a meta-analysis to investigate effects of goal-setting on transfer of training. They also found modest effects for single transfer of training interventions such as goal-setting and therefore concluded that single interventions might not have sufficient impact to enhance transfer of training. Our results show that goal-setting does have some positive effects for components preceding transfer of training. However, in order to make a bigger impact, we recommend future studies to intensify the intervention design of transfer of training interventions.

One way to intensify transfer of training interventions is by combining post-training interventions (Ford et al., 2018). For example, goal-setting could be combined with a relapse prevention element at the end of trainings. Relapse prevention involves identifying possible pitfalls (e.g., lack of time or negative judgements of colleagues) that could occur as a result of transferring training content. Setting up strategies to avoid these pitfalls can refrain trainees from falling back in old habits (Rayhuda et al., 2014). As a result, this can help trainees working around possible limitations in the available equipment and lack of expertise among colleagues to transfer training content (Burke & Baldwin, 1999), and stimulate sense of personal competence (i.e., self-efficacy; Pattni et al., 2007). Combining goal-setting with relapse prevention might therefore have more beneficial effects for personal antecedents and perceived external support. This eventually could result in a bigger impact on transfer of training. We recommend practitioners and policy makers to employ such a combination.

Yet, it should also be noted that more research is required on the effects of combining transfer of training interventions. Other combinations that could be made are combining pre- and post-training interventions (Baldwin et al., 2017) and integrating an intervention throughout the training program (Blume et al., 2010). We recommend researchers to investigate whether such combinations have effects on both personal and contextual antecedents of transfer motivation, transfer motivation and transfer of training.

Our results also indicate that the effectivity of transfer of training interventions could differ for different types of trainings (such as hard- or soft-skill trainings). It is important to get more insight in whether effects of other transfer of training interventions also depend on training characteristics. Moreover, it is also important to get insight in why these differences exist. A component that could be taken into account to explain these differences is the quality of the training, which has been found to predict transfer motivation (Gegenfurtner et al., 2009b; Grohmann et al., 2014) and transfer of training (Blume et al., 2010). The perceived training quality might differ for different types of trainings. For example, trainees are more often resistant to acquire soft-skills than hard-skills as they often already have knowledge about soft-skills discussed in trainings, whereas this is not the case for hard-skills (Laker & Powell, 2011). As a result, trainees might perceive soft-skill trainings more often as redundant and therefore also judge the quality of these trainings as lower in comparison to hard-skill trainings. Explaining why the effectivity of interventions depend on training characteristics can help us with tailoring transfer of training interventions more specifically to specific types of trainings which could improve the effectivity of such interventions.

We also have a number of recommendations based on limitations of our study. Firstly, our sample size was considerably bigger than previous goal-setting research in the transfer of training context, which enabled us to be the first study to examine effects of goal-setting for different types of trainings. Yet, the sample size was still insufficient to examine the effectivity of goal-setting for a combination of training characteristics (e.g., hard-skill and online vs hard-skill and in-person trainings). Combining training characteristics could give a finer grained insight on the effects of

goal-setting for transfer of training. We recommend future studies to focus on examining different combinations of training characteristics for which we found beneficial effects of goal-setting.

Secondly, we measured transfer of training once after six weeks, following the procedure of Brown (2005). Yet, measuring transfer of training more frequently might provide more accurate insights of the effects of goal-setting on transfer of training. We therefore recommend future studies to examine transfer of training with a higher frequency. For example, once a week for six weeks (cf. Huang et al., 2017).

Thirdly, in previous goal-setting research (e.g., Brown, 2005; Brown et al., 2016) goal-setting was provided by one trainer, whereas we used multiple trainers due to including different trainings, which warrants more ecological validity. Despite the detailed script that all trainers adhered to, it could also have led to variations in the way goal-setting was provided towards participants, influencing the effects of goal-setting. We therefore recommend future studies to use different training types, but less diversity within these different types of trainings to diminish the number of included trainers.

### 5.5. Conclusion

Taken together, our study has provided more insight in the effects of goal-setting on transfer of training. Our results provide a more nuanced view on the merits of goal-setting, underline the necessity to aim at stimulating different personal and contextual antecedents and show that interventions may need to be intensified and tailored to specific types of trainings to make an impact on transfer of training. Ultimately, these insights may contribute to increasing the impact of trainings on work.