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Can motto goals outperform performance and learning goals?

Influence of goal setting on performance, intrinsic motivation,
processing style, and affect in a complex problem solving task

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Abstract

The present study investigated whether motto goals – a new goal type which has proven successful in the psychotherapeutic and coaching context (e.g., M. Storch, Keller, Weber, Spindler, & Milos, 2011; M. Storch & Krause, 2014; Weber, 2012) – are more beneficial in a complex problem solving task than high, specific goals. The influence of goal type on task performance, affect, intrinsic motivation, and processing style was analyzed. Building on past research (e.g., Drach-Zahavy & Erez, 2002; Seijts & Latham, 2001; Seijts, Latham, Tasa, & Latham, 2004; Winters & Latham, 1996), high, specific goals were further differentiated into learning and performance goals. An experimental study with 123 participants was conducted. In dependence of their goal condition, subjects developed a personal motto, learning, or performance goal adapted for the complex problem solving task (the Tailorshop; cf. Danner, Hagemann, Holt, et al., 2011). Other than expected, goal type did neither influence performance, nor intrinsic motivation towards the task, nor processing style. However, as hypothesized, motto goals led to higher positive and lower negative affect than the other two goal types. Even though positive affect decreased and negative affect increased in all three groups during Tailorshop completion, participants with motto goals reported the lowest rates of negative affect. Exploratory analyses revealed that motto goals were furthermore associated with the highest level of perceived goal attainment and the highest satisfaction with goal attainment. Further exploratory questions regarded the influence of goal type on the time spent on the task and the interplay between affect and performance. Possible explanations for the findings as well as theoretical and practical implications are discussed.

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1 Introduction

He went from the church transfigured, out into a world utterly changed. Since his sight of this sweet and blessed Mother of God, Goldmund had a thing he had never known, a thing he had often smiled at, or envied, in others: an aim. Yes, he had an aim, and would reach it, and so, perhaps, his whole confused existence might take on new meaning and unity. The knowledge brought both joy and fear. The fair road was no longer what it had been, a playground, a good place to enjoy, and loiter in; it was nothing now but a road to the city; to the Master! (Hesse, 1973, p. 144)

When Goldmund, a restless and objectless vagabond, sees a wooden figure of Saint Mary in a church in Hesse's famous novel *Narziss und Goldmund*, he immediately feels the strong need to meet the creator of the figure and to be taught by him. At once he makes a discovery that changes his life: He recognizes that having an aim can create strong feelings, provide a sense of purpose, and determine how he perceives the world. Goldmund begins to orient his whole life towards his new goal. In doing so, he ascertains something that is today a substantiated insight in psychological research: Goals can structure our life, direct our thoughts and behavior, and ultimately affect our well-being (Brandstätter, Schüler, Puca, & Lozo, 2013). However, not every goal we pursue is such a strong motivator as it is in Goldmund's experience. To practice more sports, to stop smoking, or to eat healthier are goals which seem to be pursued only halfheartedly by many of us. Hence, an important research question in motivational psychology is how goals must be designed to successfully guide behavior (e.g., Locke & Latham, 1990; M. Storch, 2011). To approach this question, the influential research group around Locke and Latham conducted a vast amount of studies to find out what kind of goal maximizes performance. In my view, this approach – its high validity and success notwithstanding – discounts one important aspect: The aim of goals should not only be to increase a person's performance but also to foster positive feelings and intrinsic motivation. A goal concept that explicitly addresses these two factors relies on so-called motto goals, which are part of the Zurich Resource Model, a successful self-management training (e.g., M. Storch, 2011, 2013; M. Storch & Krause, 2014). An important research issue is therefore the comparison of motto goals to the goals propagated by Locke and Latham with regard to performance, but also affect and intrinsic motivation.

In a next step, it is important to consider that goals can refer to various situations and tasks. As we will see in the following, simple tasks that are easy to accomplish because a person knows the relevant task strategies require different goals than complex tasks that demand intense concentration and the acquisition of new task-relevant knowledge. Because we live in a largely uncertain and complex world (e.g., Hastie & Dawes, 2010), situations of the latter kind yield highly relevant research questions. Not only global problems like climate change, unstable political systems, and the financial crisis pose complex challenges, but also the systems we apply in daily life, for instance computers and

phones, steadily increase in complexity (Osman, 2010). Solving complex problems is thus seen as key competency in today's world (Funke, 2013a; Greiff, Holt, & Funke, 2013).

When connecting the importance of successfully handling our complex environment with the influence of goal setting on our actions and emotions, it seems particularly interesting to investigate what kind of goals can help us to successfully deal with complex problems. This is exactly the aim of the present study. To approach this question, the above mentioned motto goals are applied and tested against performance goals and learning goals. The latter have been proven successful in complex environments in past research. Doing this, not only problem solving success, but also the interaction with emotional and motivational processes is regarded, which constitutes one of the leading issues in today's complex problem solving research (Funke, 2014).

2 Theoretical Background

The following section aims to deliver insight into the theoretical background of the present study and into the current stage of research regarding the influence of goal setting on problem solving. First of all, the concept of complex problem solving is described. Subsequently, the importance of goal setting is illustrated by delineating Locke and Latham's (1990) Goal Setting Theory as well as the Zurich Resource Model by M. Storch and Krause (2014) and its concept of so-called motto goals. Lastly, the influence of goal setting on different aspects of complex problem solving, namely performance, intrinsic motivation, processing style, and affect is considered in more detail.

2.1 Complex problem solving (CPS)

In this chapter, the concept of and the research on complex problem solving (CPS) is described. First, it seems necessary to define problems and CPS. Thereafter, methods for the measurement of CPS performance are introduced and the role of affect and processing style in CPS is discussed.

2.1.1 Definition of problems and CPS

First and foremost, some definitions seem essential to fully understand the concept of CPS. This already starts at the question of what a problem is, which is answered quite differently by different researchers (Frensch & Funke, 1995). A useful definition which fulfills the present purpose was delivered by Dörner (1979). He characterized problems by a certain undesirable initial state which is hindered to be transformed into a desirable target state by a barrier. With this definition of problems in mind, it can be concluded that problem

solving occurs when operations are undertaken to transfer the initial state into the goal state (A. Fischer, Greiff, & Funke, 2012).

Past research often applied simple problems, which are characterized by a clearly defined problem space and an optimal solution. To successfully solve them, a single barrier has to be overcome (Frensch & Funke, 1995; Funke, 2003). The advantage of using simple problems in research arises from their definition: As the optimal solution is explicitly definable, they are highly controllable (Öllinger & Knoblich, 2006) and the problem solving process can often be directly observed (Funke & Frensch, 2007). Yet, most real-life problems are structurally different: Problems like ending political conflicts or overcoming world hunger have an open problem space, so that a generalization of experimental findings on simple problems to real-life problems is problematic (Betsch, Funke, & Plessner, 2011; Funke, 2003). Today's research increasingly investigates complex problems, in which multiple, simultaneously coexisting barriers have to be overcome (Frensch & Funke, 1995; Funke, 2014). As defined by Dörner, Kreuzig, Reither, and Stäudel (1983), complex problems are characterized by complexity, connectivity, dynamics, intransparency, and polytely. *Complexity* is often operationalized through the number of involved variables. Apart from the number of variables per se, their mutual *connectivity* also determines the complexity of a problem. A problem containing 50 highly interconnected variables (e.g., the pieces of a watch) is more complex than one with 100 largely independent variables (e.g., the pieces of a puzzle) (Funke, 2003). Further, complex problems are *dynamic* in that the system changes over time. The dynamics can be based on the (exogenous) actions of the problem solver as well as on the problem's (endogenous) momentum of its own. Moreover, complex problems are *intransparent*, so that the problem solver does not have all the information necessary to come to an optimal decision. The last criterion of complex problems, *polytely*, expresses the existence of multiple goals which are often working in opposite directions (Funke, 2003, 2006).

As for the definition of problems, researchers follow different approaches regarding the concept of CPS (Frensch & Funke, 2002). For the present study, the definition by Frensch and Funke (1995) seems most appropriate:

CPS occurs to overcome barriers between a given state and a desired goal state by means of behavioral and/or cognitive, multistep activities. The given state, goal state, and barriers between given state and goal state are complex, change dynamically during problem solving, and are intransparent. The exact properties of the given state, goal state, and barriers are unknown to the solver at the outset. CPS implies the efficient interaction between a solver and the situational requirements of the task, and involves a solver's cognitive, emotional, personal, and social abilities and knowledge (p. 18).

Thus, while simple problems can often be solved with the aid of a single cognitive or behavioral action, CPS requires prioritization and thorough planning of multiple cognitions and activities (Frensch & Funke, 1995). It further has to be noted that CPS does not imply

that the optimal solution is found. Rather, it describes the process of working on the problem, which might only bring about an approximate solution (Frensch & Funke, 2002).

2.1.2 Assessment of CPS performance

By now, it should have become clear how complex problems and CPS can be defined. Next, it seems important to depict the assessment of CPS performance. As two fundamental features of complex problems, connectivity and dynamics, cannot be measured through paper-and-pencil tests, a computer-based measurement of CPS seems indispensable (Funke, 2001). Computer-simulated microworlds, which simulate the structural dependencies and the temporal dynamics of a given problem (Funke, 2003), are used in many cases. They bring ecological validity into laboratory settings while at the same time offering high controllability (Brehmer & Dörner, 1993). The Tailorshop, which was applied in the present study, is such a microworld. In this simulation participants are asked to behave like the CEO of a small T-shirt factory who aims to maximize the company value (e.g., Danner, Hagemann, Holt, et al., 2011; Danner, Hagemann, Schankin, Hager, & Funke, 2011; Funke, 2003; Funke, 2010; Kersting & Süß, 1995; Putz-Osterloh, 1981; Wittmann & Hatrup, 2004; also see Chapter 4.3). Developed by Dörner and first published by Putz-Osterloh (1981), the Tailorshop is a well-established computer simulation which can be regarded as drosophila of CPS research (Funke, 2010).

In addition to the use of microworlds, CPS can be assessed with the help of formal task analyses (Buchner, 1995). This framework concentrates on the construction of a precise system, which is equipped with an adequate semantic in a second step (as opposed to microworlds where the semantic determines the system structure) (Funke, 2003). Tasks can be constructed applying Linear Structural Equation Systems or Finite State Automata¹.

2.1.3 The role of affect and processing style in CPS

With the definition and the assessment of CPS in mind, the influence of affect as well as processing style, which are important issues in the current study, is delineated next. Positive affect can be defined as pleasant, active, enthusiastic, and alert feeling state. Negative affect, in contrast, describes several aversive mood states, for instance guilt, anger, or fear (Estrada, Isen, & Young, 1994; Watson, Clark, & Tellegen, 1988). Positive and negative affect are largely independent (e.g., M. Storch, 2013; Watson et al., 1988), so that it is important to regard their influence separately. Affect, as defined in the present study, refers to general mood and has to be seen in contrast with emotions that are more intense, rise quickly, and mostly fade again quite soon (Schwarz & Clore, 2007).

¹ For a thorough explanation of the formal task analyses approach, see Buchner (1995, pp. 42-53), Funke (2001, pp. 74-83), and Funke (2003, pp. 154-170).

In the problem solving process, affect can on the one hand be seen as independent variable; that is, the affective state of a person might influence his or her problem solving behavior. On the other hand, affect can serve as dependent variable. This implies that the success of a person in solving a problem may influence his or her affective state. Even if this distinction becomes intertwined in dynamically changing environments, it still seems important to investigate both possible directions of influence.

When regarding affect as dependent variable, the proposed influence seems fairly straightforward and intuitive: Success in problem solving triggers positive and failure triggers negative affect (e.g., Barth & Funke, 2010; Funke, 2003, 2010). Yet, when regarding affect as independent variable, two contradicting directions of influence are suggested by theory and research. On the one hand, positive affect might be helpful in CPS situations because it is associated with higher self-esteem (e.g., Brown & Mankowski, 1993) and a stronger confidence in one's own resources (Schwarz & Skurnik, 2003). Positive affect moreover fosters creativity (Estrada et al., 1994; Isen, Daubman, & Nowicki, 1987) – a competency that is often vital in CPS (Funke, 2000). On the other hand, individuals with high positive affect tend to think in a top-down and heuristic way and to rely on general, pre-existing knowledge structures which raises the danger to disregard important details (Bless et al., 1996; Schwarz, 2000). Further, positive affect often leads to a higher evaluation of the own performance. This might be beneficial for self-esteem, but it increases the chance to terminate the problem solving process before the best solution is detected (Schwarz & Skurnik, 2003). Negative affect, in turn, fosters bottom-up, analytic, and systematic processing, so that persons tend to pay greater attention to details and to rely less on pre-existing knowledge structures (Bless et al., 1996; Forgas, 2007; Schwarz, 2000). Yet, negative affect is detrimental for self-esteem (Brown & Mankowski, 1993). The influence of affect on problem solving is thus not straightforward. Rather, positive as well as negative affect seem to mobilize distinct resources which might either be helpful or hindering in dependence of their fit with task demands (Schwarz, 2000; Schwarz & Skurnik, 2003).

Two experiments that analyzed the influence of affect in a CPS task are worth mentioning. Spering, Wagener, and Funke (2005) asked participants to manage a forest enterprise in a computer simulation. Before working on the task, participants received false positive or negative feedback on an intelligence test to trigger either positive or negative affect. During task completion, they again received false feedback. The analyses showed that, surprisingly, the nature of feedback and the associated affect did not influence CPS performance. Nevertheless, participants with negative feedback gathered more information at the beginning of the task (Spering et al., 2005). This is in accordance with the above mentioned phenomenon that negative affect fosters the acquisition of new information instead of relying on pre-existing knowledge.

Barth and Funke (2010) found further evidence for analytic processing in case of negative affective environments. Their participants worked on the Tailorshop, which was either characterized by a positive environment (positive performance feedback through increasing profit) or by a negative environment (negative performance feedback through decreasing profit). As expected, the positive environment fostered positive affect whereas the negative environment fostered negative affect. The analyses revealed that the negative environment increased CPS performance – a result that had not been found in the above mentioned study by Spering et al. (2005). Yet, a mediational analysis did not display the hypothesized influence of affect on the environment-performance relationship. In fact, the environment influenced affect, profit, and information retrieval, but affect did not have a mediating function. Hence, negative environments were beneficial for analytic processing and CPS performance, but the exact role of affect still remains to be clarified.

A construct that is closely related to affect and that might influence CPS as well is a person's processing style. Since many decades, human processing has been assumed to rely on two different styles. Navon (1977) differentiated global from local processing, Kimchi (1992) spoke of wholistic as opposed to analytic perception and Kahneman (2012) distinguished between the automatic System 1 and the effortful System 2, just to name a few approaches. The processing style of a person indicates "whether processing of the overall structure precedes and determines the processing of the component parts or properties or whether the parts are registered first and are then synthesized to form the objects of our awareness" (Kimchi, 1992, p. 24). In other words, it describes whether a person perceives the forest (global processing) or the trees (local processing) (Navon, 1977). Usually, global is preferred over local processing (e.g., Kimchi, 1992; Navon, 1977). However, processing is also influenced by a person's affective state. Above it was already mentioned that positive affect is often associated with heuristic (global) and negative affect with analytic (local) processing. This relationship is supported by a large body of research (e.g., Fiedler, 2001a; Fiedler, 2001b; Fiedler & Bless, 2000; Fredrickson & Branigan, 2005). However, research also indicates that the situation can be more complex. Baumann and Kuhl (2005) assumed that positive affect does not necessarily lead to global processing, but that it can foster both processing styles in dependence of situational requirements. They grounded this hypothesis on Kuhl's PSI theory (Chapter 2.3.1.3), which assumes that positive affect activates the so-called extension memory, a functional system associated with intuitive and flexible cognitive processing (Baumann & Kuhl, 2005). In their study, participants were primed with positive, negative, or neutral words. Right after, they completed a task which required them to decide whether a target shape (e.g., a circle) was contained in a given geometric figure. In half of the figures, the target shape was absent, whereas in the other half it was present either globally (a large circle consisting of small

other geometric figures) or locally (a large geometric figure consisting of small circles). Processing style was operationalized via the time participants needed to decide whether the target shape was present or absent. Doing this, the authors did not measure the *preferred* processing style, but the *ability* to apply a certain processing style. The analyses revealed the typical global-over-local precedence, but participants indeed responded significantly faster to local targets when primed with positive words in comparison to neutral or negative words. The authors conclude that “positive affect can facilitate cognitive flexibility and enable individuals to overcome the precedence of global over local information processing when the task requires local processing” (Baumann & Kuhl, 2005, p. 132). Exactly this cognitive flexibility, namely the ability to switch between global and local processing in accordance with task requirements, seems important in CPS (Spering et al., 2005).

Summarizing the above described findings and considerations, the exact function of affect in CPS is still to be clarified. The present study might contribute to a further illumination of the interplay between affect and CPS performance.

2.2 Classic goal setting research

Besides the association between affect and performance, the central question of the present study regards the influence of goal setting on different facets of CPS. While the last chapter dealt with CPS, the present chapter aims to illustrate important theories and findings in goal setting research. First, it is outlined how goals and goal orientation can be defined. Thereafter, Goal Setting Theory developed by Locke and Latham (1990) is described, followed by a critical comment.

2.2.1 Definition of goals

Even though the goal construct is a central one in motivational science, different researchers disagree in how goals can best be defined. For the purpose of the present thesis, the following definition seems appropriate: “A *goal* is a cognitive representation of a future object that the organism is committed to approach or avoid” (Elliot & Fryer, 2008, p. 244). In the present thesis, three different goal types are investigated: Performance goals, learning goals, and motto goals. Both performance and learning goals are based on Locke’s and Latham’s research and can be described as difficult and specific goals. Performance goals focus on the performance outcome (e.g., specific score in an exam). Learning goals, in contrast, focus on the discovery of strategies and procedures required to perform a task successfully (Latham & Locke, 2007). Although learning goals are, like performance goals, mostly formulated as a specific outcome (e.g., *identify 4 or more shortcuts within the next 24 minutes*), they are assumed to draw attention away from a specific result to the person’s behavior (Seijts & Latham, 2001, 2012). To summarize, the “purpose of a learning goal is to stimulate one’s imagination, to engage in discovery, and to ‘think outside the box,’ whereas

the purpose of a performance goal is to choose to exert effort, and to persist in the attainment of a desired objective or outcome using the knowledge one already possesses” (Seijts & Latham, 2005, p. 130). Motto goals, in contrast, focus on the general approach of a person towards a situation or a task (e.g., *I take one step at a time at my very own speed*). They integrate conscious and unconscious processes and are associated with high positive and low negative affect. Furthermore, whereas other goal types are mostly formulated in future tense, motto goals are in present tense and make use of a figurative language (M. Storch & Krause, 2014; for a detailed description of motto goals see Chapter 2.3.2). In the following, a further important construct related to goal setting, goal orientation, is explained.

2.2.2 The concept of goal orientation

Apart from a goal itself, a person's goal orientation can influence how he or she approaches a task. Dweck and her colleagues found that children typically have implicit theories which describe a general cognitive, affective, and behavioral pattern towards problems and obstacles (e.g., Dweck & Leggett, 1988). Children with a *performance goal orientation* typically regard tasks as situations in which they are judged according to their competence. When confronted with obstacles, they often feel helpless, develop negative self-cognitions, and show maladaptive attributions of failures (Diener & Dweck, 1978, 1980; Dweck & Leggett, 1988). The feeling of helplessness is typically associated with negative affect and anxiety. In highly difficult tasks, performance orientation can deteriorate task performance (Dweck & Leggett, 1988). Children with a *learning goal orientation*, in contrast, tend to perceive difficult tasks as challenge and possibility to acquire new skills. In case of failure, they often focus on solution-oriented thinking and develop new strategies. They mostly think more optimistic, have higher confidence that their effort will be fruitful, report higher levels of positive affect, and perform better in highly difficult tasks than children with a performance goal orientation (Dweck & Leggett, 1988). Research furthermore showed that not only the (stable) individual goal orientation determines reactions to a task, but that goal orientation can also be manipulated experimentally (Elliott & Dweck, 1988; Kozlowski & Bell, 2006).

In the next paragraphs, the focus is again on goal setting. First, Goal Setting Theory is explained and examined critically. The next chapter then introduces motto goals along with their theoretical foundation.

2.2.3 The original Goal Setting Theory

One of the most famous and widespread motivational psychological theories is probably Goal Setting Theory by Locke and Latham (1990). It was developed in an inductive fashion on the basis of 393 studies with almost 40,000 subjects in eight countries. The authors' main concern was to explain how goals influence performance on work tasks.

To achieve this, they aggregated the studies' results and identified two core findings which constitute the main postulations of Goal Setting Theory: First, the association between *goal difficulty* and performance can be described through a linear relationship. This means that performance improves with increasing goal difficulty, provided that a person's ability level is not exceeded. Second, *goal specificity* plays a crucial role in obtaining high performance. More precisely, the authors propose that specific and difficult goals give rise to a better performance than so-called do-your-best goals. It is important to mention that when the authors speak of high, specific goals they mostly refer to *performance* goals (Seijts, Latham, & Woodwark, 2013).

Locke and Latham (1990) not only make predictions about the influence of goal specificity and difficulty on task performance, but also about goal mechanisms that are assumed to mediate the goal-performance relationship. In particular, they state that individuals who pursue high, specific goals exert greater *effort* and maintain higher *persistence* over time. Furthermore, according to the authors, high, specific goals indicate a particular *direction*, so that the focus is placed on goal-relevant behavior and the required knowledge and skills. These three primarily motivational goal mechanisms are assumed to operate automatically. Apart from that, in cases that require problem solving instead of the application of already acquired habits, the authors propose the discovery of *task strategies* as further – this time cognitive and less automatic – goal mechanism. Additionally, the authors identify several moderating factors such as goal commitment, feedback, personality, ability, and – especially interesting in the context of the present study – task complexity (Locke & Latham, 1990; also see Chapter 2.4.1.1).

2.2.4 Limitations of the original Goal Setting Theory

Even though Goal Setting Theory has proven valid and practically useful (Locke & Latham, 1990, 2013c), it still has limitations that are important to regard. First, the performance-orientated difficult and specific goals are not always successful; for instance, in complex situations it can even be more successful not to pursue any goal (Chapter 2.4.1.1). Second, in studies testing Goal Setting Theory, goals are mostly defined as outcome or behavior (Seijts & Latham, 2001). However, the question with what kind of attitude persons approach a task and whether they perceive the goal to be attractive is mostly disregarded (M. Storch, 2011). Third, Goal Setting Theory focuses on conscious cognitive and motivational mechanisms and does not explicitly include unconscious psychological processes (Locke & Latham, 2002). Although researchers have begun to investigate unconscious goals with the help of priming (Friedman, 2013), classic high, specific goals seem to trigger primarily conscious thought processes. However, in complex tasks, unconscious thought often seems important to reach a good decision and to achieve successful problem solving (Dijksterhuis, Bos, Nordgren, & van Baaren, 2006; Dijksterhuis

& Nordgren, 2006; Spitz, 1993). This is, for instance, due to the capacity of the unconscious to process a large amount of information very fast (Dijksterhuis & Nordgren, 2006; Kuhl, 2001). Fourth, when developing Goal Setting Theory, the authors' aim was to increase performance, whereas the affective connotation of goals and the development of intrinsic motivation seemed secondary. Although the affective reaction to goals is regarded as mediator of the goal-performance relationship (cf. Eberly, Liu, Mitchell, & Lee, 2013; Plemmons & Weiss, 2013), classic high, specific goals clearly focus on the achievement of the best possible performance. Yet, the evaluation of goals predicts goal pursuit (Ferguson, 2007), so that it is important to emphasize the importance of affective processes, and to promote goals with a positive affective connotation.

These constraints do not disprove the high validity of and empirical support for Goal Setting Theory, especially since the authors underline that the theory is open to change (Locke & Latham, 2013b). However, with the merits, but also the limitations in mind, the investigation of alternative goal setting approaches is very promising. The concept of motto goals seems to overcome these limitations in that unconscious thought processes are taken into account and the importance of a positive affective goal evaluation is recognized (M. Storch, 2011). This is exactly why high, specific goals were compared to motto goals in the present study. The next chapter presents motto goals and their theoretical foundation.

2.3 The Zurich Resource Model (ZRM)

Motto goals are part of the Zurich resource Model (ZRM), a self-management training based on different psychological schools of thought. In this paragraph, the theoretical foundation and phases of the ZRM along with the development of motto goals are explained.

2.3.1 Theoretical background

With their ZRM, which originated in the 1990s, M. Storch and Krause (2014) developed a well-established training that can be (and already is) used in a wide variety of settings such as coaching, psychotherapy, and adult education. This paragraph gives an overview of the theoretical basis of the ZRM.

2.3.1.1 The Somatic-Marker Theory

M. Storch and Krause (2014), referring to neurological findings, regard the human brain as knowledge storage shaped by experiences. They assume that the brain organizes a person's experiences in a way that facilitates his or her well-being. To explain how this is accomplished, they rely on Damasio's neuroscientific research, which integrates the role of the body and of emotions in human behavior. In his Somatic-Marker Theory, Damasio (2006) states that persons evaluate situations or objects in terms of their consequences

based on prior experiences. To achieve this, specific situations are connected neurologically with particular bodily sensations called somatic markers. When persons find themselves in a specific situation, the somatic markers tell them immediately and automatically in terms of a gut feeling whether prior experiences in similar situations have been good or bad. When an individual has learned that the outcome of a particular situation is negative, the somatic marker “functions as an automated alarm signal” (Damasio, 2006, p. 173) and leads to avoidance behavior. When the outcome is positive, the somatic marker works as “beacon of incentive” (Damasio, 2006, p. 174) and promotes an approach behavior. M. Storch and Krause (2014) extend Damasio’s thought by adding the consideration that somatic markers can give an indication of inner themes, intentions, and plans. In the ZRM, somatic markers are therefore used as diagnostic tool (Chapter 2.3.2).

2.3.1.2 The Rubicon Process

Apart from neuroscientific research, the ZRM bases on the Rubicon Model of action phases (Heckhausen & Gollwitzer, 1987), which describes how goals and intentions are translated into action. M. Storch and Krause (2014) extend the original model by adding a fifth phase, the phase of unconscious needs, as proposed by Grawe (2000). Their resulting concept of the Rubicon Process is depicted in Figure 1.

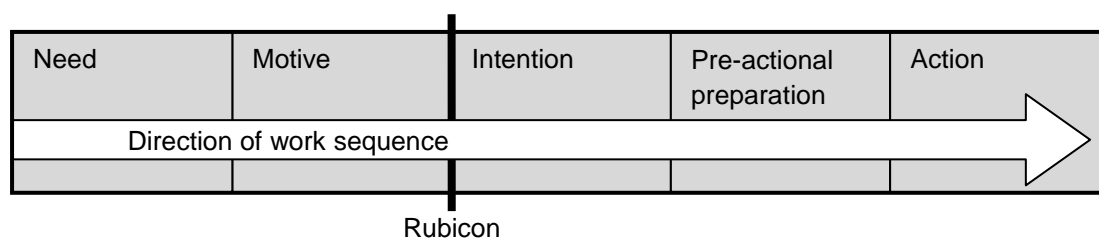


Figure 1. The Rubicon Process (M. Storch, 2004, p. 30).

The Rubicon Process explains how unconscious wishes and needs, that often differ from conscious motives, can be translated into behavior (M. Storch, 2004; M. Storch & Krause, 2014). First, unconscious needs must be transferred into consciousness, so that they become motives. In the second phase, these motives are weighed up against each other until one of them prevails and an action goal is set. This indicates the crossing of the Rubicon² (M. Storch & Krause, 2014). When the psychological Rubicon is crossed, a firm intention is built to transfer the goal into action. In the third phase, the goal is pursued consistently, and psychological processes like selective attention and devalorization shield the individual from information that might impede goal attainment. In the fourth phase, as its

² The Rubicon is a river in Italy, which – legend says – was crossed by Julius Caesar after a phase of balancing arguments in favor and against a war. When he finally decided to start the war, he said his famous sentence “alea iacta est” and crossed the Rubicon (M. Storch, 2004).

name suggests, the translation of an intention into action is prepared. In the last phase, the intended behavior is displayed.

2.3.1.3 The Personality Systems Interaction Theory

Another important foundation of the ZRM is Personality Systems Interaction Theory (PSI theory) developed by Kuhl (2000, 2001). PSI theory delivers a theoretical basis for the mechanism of motto goals and helps to clarify the role of conscious and unconscious processes in the activation of resources (M. Storch, 2013). The core premise of PSI theory is that human personality consists of different functional systems. These systems as well as their interactions are reciprocally related with affective states and direct a person's behavior and perception (Kuhl, 2000, 2001; M. Storch & Kuhl, 2013). In this paragraph, the four systems are portrayed, and the role of affective processes is described³. Table 1 gives an overview of the four functional systems in dependence of their complexity (elementary vs. complex) and their type of processing (analytic vs. holistic).

Table 1

Overview of the four functional systems and their affective correspondences (based on Kuhl, 2001, p. 162)

	Analytic (conscious)	Holistic (unconscious)
Complex	Intention memory (Positive affect absent)	Extension memory (Negative affect absent)
Elementary	Object recognition (Negative affect present)	Intuitive behavior control (Positive affect present)

The *extension memory* plays a central role among the functional systems (M. Storch & Kuhl, 2013). It is a highly inferential and complex system that processes information intuitively, holistically, flexibly, and very fast. According to Kuhl (2000), the extension memory “integrates an extended network of representations of own states, including personal preferences, needs, emotional states, options for action in particular situations, and past experiences involving the self” (p. 131), so that it possesses a wide variety of behavioral options (M. Storch, 2011). When the extension memory is active, persons are assumed to apply self-regulation⁴, which is characterized by “inner democracy” (Kuhl, 2000, p. 115) because different, potentially conflicting needs, motives, and experiences are integrated. In this way, flexible and creative behavior is fostered. Further, it is the only

³ PSI theory is an extensive theory which integrates various personality theories and explains a vast amount of human behavior. It is beyond the scope of this thesis to illustrate all of its facets. Rather, I concentrate on aspects that are, in my view, important to understand its core idea and which are relevant for the present study. PSI theory is described in detail in Kuhl (2000, 2001).

⁴ The concepts of self-regulation and self-control are understood differently by different researchers (Brandstätter et al., 2013). To maintain consistency, I define the concepts in Kuhl's sense.

system which enables persons to regulate their affect (Kuhl, 2000, 2010). The second highly inferential system is the *intention memory*, which serves the function to translate goals into intentions, to maintain them over time, and to plan the intended action if the required behavior cannot be shown immediately. Other than the extension memory, it processes information analytically and sequentially and is connected to conscious thought processes like thinking and planning, which can be useful in problem solving. However, it can lead to rigidity, so that persons might not find alternative actions in case of failure on a task (Kuhl, 2000, 2001). The activation of the intention memory seems to be associated with self-control, which becomes necessary when situations are too unpleasant for self-regulation to initiate action (Kuhl, 2001, 2010). This occurs when the inner democracy is dominated by thoughts and feelings which disapprove of the action, for instance when an externally formulated goal does not comply with the inner needs of a person. Instead of integrating all information, self-control demands the suppression of all information that might hinder the person from achieving a goal, so that it can be seen as “inner dictatorship” (Kuhl, 2000, p. 115). The *intuitive behavioral control* is also unconscious and able to process a large amount of information all at once, but other than the extension memory it is active when automatic and intuitive behavioral patterns and routines are shown. Lastly, the *object recognition* is conscious and focuses on specific, isolated sensations without their context. It is regarded as elementary system and serves to detect dangers and errors. Concerning goal setting, it is important to note that general presence-oriented goals, like motto goals, are assumed to activate the extension memory whereas concrete future-oriented goals, like high, specific goals, are assumed to activate the intention memory (Kuhl, 2001; M. Storch & Krause, 2014; Weber, 2013).

As already mentioned above, the four systems have to interact and communicate with each other to elicit adaptive behavior. For example, in complex situations in which the optimal solution is not obvious it is important to recall prior experiences (extension memory) without losing sight of actual intentions and goals (intention memory). To understand how this interaction can be achieved, the role of affective processes has to be considered. Kuhl (2000, 2001) assumes that the affective state of a person and the activation of the systems reciprocally influence each other. To illustrate this, he formulates several modulation assumptions⁵. Most importantly for the present study and as displayed in Table 1, he hypothesizes that positive affect activates the intuitive behavioral control and that, when associated with a down-regulation of negative affect, it indirectly activates the extension memory. So, persons in a positive mood are likely to behave intuitively and spontaneously. Negative affect is assumed to activate the object recognition and, if it inhibits positive affect, it indirectly activates the intention memory. A person with negative feelings is hence likely to

⁵ It is beyond the scope of the present thesis to explain all modulation assumptions. For a detailed description see Kuhl (2001, pp. 163-191) and Kuhl (2000, pp. 134-147).

focus on single, uncomfortable details taken out of their context (Kuhl & Strehlau, 2014; M. Storch & Kuhl, 2013). This assumption is in accordance with the above mentioned finding that negative affect fosters a local processing style (Chapter 2.1.3). Because the relationships are assumed to be reciprocal, Kuhl states that activation of the intention memory should reduce positive affect while activation of the extension memory should reduce negative affect. The activation of the extension memory is further assumed to foster intrinsic motivation (Kuhl, 2000).

2.3.2 Phases of the ZRM training and the development of motto goals

By now, the theoretical foundation of the ZRM should have become clear. The next step is to explain the development of motto goals along with the different phases that persons participating in the ZRM training undergo.

Usually, the ZRM training is conducted in a group setting, but it can also be undertaken with single persons. Basing on the Rubicon Process (Chapter 2.3.1.2), it consists of five phases. Participants can either develop a motto goal freely without any specific topic in mind or work on a specific, predefined topic (M. Storch & Krause, 2014). In the following, the first two phases, which are important in the light of the present study, are delineated⁶. The first phase aims to translate a current, unconscious need into a conscious motive. To identify unconscious needs, participants choose one of several pictures that represent various resources (e.g., landscapes, animals, humans in pleasant situations). They are instructed to base their decision on somatic markers (Chapter 2.3.1.1) and to select the picture which triggers the most positive markers while not triggering any negative ones. Persons who develop a motto goal for a specific topic are instructed to choose a picture which serves as resource for this particular issue. It is assumed that the picture portrays current needs of the person, so that it is used as a foundation to build a motto goal (M. Storch, 2004; M. Storch & Krause, 2014). To transfer the need into verbal and conscious motives, the authors developed the *idea basket* (originally: *Ideenkorb*) technique: In small groups, participants utter free, but always resource-oriented associations on their group members' pictures. Participants listen to these associations and select all those that trigger positive somatic markers.

The focus of the second phase is the formulation of a (preliminary) goal which makes it possible to cross the psychological Rubicon. The resulting goal contradicts the principles proposed by Locke and Latham (1990, 2013c): Instead of being specific, the goal is *general* and can often be seen as an identity or life goal – just as experienced by Goldmund (Chapter 1). Moreover, the goal focuses on the *attitude* of a person instead of a specific behavior or outcome (M. Storch, 2011; M. Storch & Krause, 2014). Because of that,

⁶ For a comprehensive presentation of all five phases, see M. Storch and Krause (2014).

the authors designated this new goal type *motto goal*. Motto goals follow three important criteria: They are approach instead of avoidance goals, goal realization has to be completely controllable by the person, and they are associated with positive somatic markers. Examples for motto goals that fulfill all criteria are *I breathe happiness* or *Eruption on demand* (M. Storch, 2011, p. 202). The goal concept bases on Kuhl's PSI theory (Chapter 2.3.1.3): High, specific goals are assumed to activate the intention memory, which is associated with an absence of positive affect. Yet, to cross the Rubicon, positive affect is necessary. Motto goals, as they are associated with high positive and absent negative affect, foster an interaction between the intention and the extension memory and enable a person to cross the Rubicon (M. Storch, 2011; M. Storch & Krause, 2014). Transferring these considerations to the current study, the overall objective of the Tailorshop (to increase company value) should activate the intention memory. When participants specify this overall objective in the form of a high, specific learning or performance goal, the intention memory should remain activated. Motto goals, on the other hand, should over and above activate the extension memory. Because the latter is able to integrate of a large amount of information and personal experiences, and because it fosters a person's vigilance towards possibly relevant information (Kuhl, 2001), its activation seems helpful if not indispensable in complex tasks (Kuhl & Strehlau, 2014).

The third, fourth and fifth phase of the ZRM mainly concern the pre-actional preparation phase. Participants develop resources to automate the goal and prepare its practical implementation with the help of priming, embodiment, implementation intentions, and the creation of social networks (M. Storch & Krause, 2014).

In the present study, instead of participating in a multi-day training, subjects developed a motto goal with the help of an online-tool (Chapter 4.5.1) that contained a compressed version of the first and the second phase of the ZRM. Participants constructed a motto goal for the Tailorshop scenario on the basis of one out of 10 photographs. The idea basket consisted of associations by four experienced ZRM trainers (J. Weber, personal communication, January 08, 2015).

2.4 Influence of goal type on CPS

After having delineated CPS and goal setting, this chapter synthesizes both concepts. In current psychological research the powerful influence of goal setting on behavior in general and on task performance in particular is beyond dispute. However, only a small percentage of studies made use of complex environments and compared learning and performance goals. Moreover, the current study is the first one to compare motto goals with high, specific goals in a CPS task. It seems reasonable to first delineate research that investigated performance and learning goals in complex tasks, which allows the generation

of hypotheses regarding these two goal types. In a next step, possible differences between motto and high, specific (learning or performance) goals are described. This is done separately for all dependent variables applied in the present study.

2.4.1 Influence of goal type on CPS performance

The vast majority of studies that investigated the influence of goal setting used performance as dependent variable (Latham & Brown, 2006). The relevant aspects of these studies are reported in the following.

2.4.1.1 Task complexity as moderator of the goal-performance relationship

In their Goal Setting Theory, as already explained, Locke and Latham propagate high, specific goals because a number of empirical studies attested their positive impact on performance. Yet, it is noteworthy that most of the studies applied “fairly simple laboratory tasks” (Locke & Latham, 1990, p. 42). As we will see in the following, the classic high, specific (performance) goals reach their limits in complex environments.

Several studies documented detrimental effects of high, specific goals in complex tasks (e.g., Earley, Connolly, & Ekgren, 1989; Kanfer & Ackerman, 1989; Mone & Shalley, 1995). Because it was one of the first and most influential ones, the study by Kanfer and Ackerman (1989) is reported here in an exemplary manner. The authors asked staff of the U.S. Air Force to complete a computer-simulated Air Traffic Control task. The objective was to land planes safely and efficiently, considering various factors like weather conditions (which changed over time) and plane and runway characteristics. The task contained a high number of interconnected, partly intransparent variables and several competing goals and therefore seems to fulfill Dörner’s (1983) complexity criteria. The authors found that high, specific performance goals were more beneficial than do-your-best goals when participants already knew the task rules, but they were detrimental for participants who had not acquired task rules yet. The authors explain this finding with their resource allocation theory: Participants who know task rules need little cognitive resources for the task itself and profit from allocating them to the pursuit of a high, specific goal. On the other hand, participants who have yet to acquire task rules benefit from putting cognitive resources into the discovery of strategies. When they pursue a high, specific goal, they are tempted to allocate too many cognitive resources on goal attainment. Faced with these results, researchers around Locke and Latham took a closer look at goal setting in complex tasks. The following paragraph provides an insight into this field of research.

2.4.1.2 Advantage of learning over performance goals in complex tasks

The finding that high, specific goals can impede performance raise the question whether Goal Setting Theory in general is limited or whether the fault is with the type of

goal. Winters and Latham (1996) approached this question by distinguishing *learning* goals from *performance* goals⁷. Participants were asked to allocate 12 college classes into blank schedules following certain rules (class schedule task). Doing this, they could use several shortcuts that made class schedule production more efficient. The authors created two tasks that varied in their complexity and investigated the influence of high, specific performance goals (number of correct schedules to be produced), high, specific learning goals (number of effective shortcuts to be detected), and do-your-best goals (as many shortcuts and schedules as possible). As expected, learning goals resulted in a significantly higher performance than performance as well as do-your-best goals in the complex version of the task. In the simple task, the difference between performance and learning goals was not significant. The authors integrated their findings into Goal Setting Theory by concluding that high, specific goals still increase task performance, but that a distinction between learning and performance goals has to be made when subjects lack knowledge in a task.

The insight that learning goals can be beneficial in complex tasks led to a number of subsequent studies that mostly replicated this finding. Seijts and Latham (2001) produced the same findings in the class schedule task. Drach-Zahavy and Erez (2002) asked participants to predict stock values of different firms based on business data. Beforehand, they were assigned either a learning (find the best task strategies), a performance (80% correct predictions), or a do-your-best goal⁸. In addition, the authors framed the task as challenge (subsequent memory test and interview with the best performers), threat (memory test and interview with the worst performers), or neutral. Results showed that goal type did not influence performance when the task was regarded as challenge. Then again, when the task was perceived as threat, learning goals led to a significantly higher performance than do-your-best or performance goals. The latter were even detrimental for performance. So, the advantage of learning over performance goals seems to be especially crucial in situations that are regarded as threatening.

Seijts, Latham, Tasa, and Latham (2004) replicated the finding that learning goals outperform performance and do-your-best goals in a Cellular Industry Business Game. Subjects played the role of a mobile phone company's CEO over a fictitious period of 13 years with the objective to increase the organization's market share. Before, they were assigned a performance (21% market share by the end), a learning (identify and implement 6 strategies), or a do-your-best goal (as much market share as possible). To increase market share, they could make several decisions (e.g., pricing, advertising). The applied task has slight similarities with the Tailorshop scenario and seems to be one of the few truly complex tasks used in classic goal setting research. Participants with learning goals not

⁷ To be precise, Winters and Latham (1996) speak of learning goals as opposed to outcome goals. I decided to use the learning vs. performance goal differentiation in order to maintain consistency.

⁸ To be precise, the authors differentiate between strategy and specific, difficult goals.

only performed better in general, but also, other than the two other groups, managed to increase their performance over time. A possible reason for the better performance might have been that subjects with a learning goal spent more time on the task than participants in the other two conditions, so that they might have gained extra knowledge (Seijts et al., 2004).

Two subsequent studies that applied the class schedule task or the Cellular Industry Business Game indicated that the goal difficulty postulation of Goal Setting Theory – the assumption that performance increases with increasing goal difficulty – is also valid for learning goals (Latham, Seijts, & Crim, 2008; Seijts & Latham, 2011).

Some of the studies described above investigated not only differences in performance between learning and performance goals, but also mediating variables. It was found that learning goals led to higher self-efficacy (Seijts & Latham, 2001; Seijts et al., 2004; Winters & Latham, 1996), use of effective strategies (Winters & Latham, 1996), goal commitment (Seijts & Latham, 2001; Seijts et al., 2004), and information search (Seijts et al., 2004). Apart from these findings, performance goals might be detrimental in complex tasks because they encourage tunnel vision (Locke & Latham, 1990) and distract attention away from task-relevant strategies (Seijts & Latham, 2001). Furthermore, they seem to interfere with information processing and learning and to encourage participants to switch from one strategy to another (Mone & Shalley, 1995). To my knowledge, only one study, applying the class schedule task, did not demonstrate a general superiority of learning over performance goals in complex tasks (Seijts & Crim, 2009).

The advantage of learning over performance goals notwithstanding, it is important to point out shortcomings and limitations of the studies described above. The main criticism is that most of the studies did not apply truly complex problems. In many tasks, the required strategies were either known or simple to detect and the only difficulty was to accomplish the task as fast as possible. Especially the frequently used class schedule task, which was perceived as being moderately complex by the authors and their participants (Latham et al., 2008; Seijts & Crim, 2009; Seijts & Latham, 2001; Winters & Latham, 1996), is transparent and static, so that it does not fulfill the criteria of a complex problem. The lacking complexity is reinforced by the large percentage of participants who learned all possible strategies until the end of the task (e.g., 69% in the study by Seijts & Crim, 2009). The only applied truly complex problem seems to be the Cellular Industry Business Game (Seijts & Latham, 2011; Seijts et al., 2004). However, to my knowledge, reliability and validity of this computer simulation have not been tested yet. A second point of criticism regards goal setting per se. Learning goals were mostly defined as a number of strategies to be learned, which gives two causes of concern: First, to identify a difficult but attainable learning goal, the number of strategies used in pilot studies was counted (e.g., Latham et al., 2008; Seijts & Latham,

2001). The problem with this is the missing differentiation between implicit and explicit learning. The coding of pilot tests only revealed how many strategies the persons used; it did not show if it occurred consciously or unconsciously. Thus, if some of the strategies had been learned only implicitly, the derived goal might be too difficult as it described the number of strategies the participants should detect explicitly. Second, performance in the class schedule task was defined as the number of produced class schedules, which was mostly only made clear to participants in the performance goal condition. Subjects in the learning goal condition might have had a disadvantage because they were given a number of strategies accompanied by the explanation that “thinking about specific strategies to help you more quickly produce class schedules results in the production of a larger number of schedules” (Latham et al., 2008, p. 228). It remains questionable whether subjects were conscious of the true performance operationalization.

In the current study, I tried to overcome these limitations by applying a well-established, validated, and truly complex task: the Tailorshop (Chapter 4.3). Further, I avoided confounding explicit and implicit learning to develop a learning goal (Chapter 4.5.3), and I gave all participants the same information about how performance was operationalized (Chapter 4.4.2).

2.4.1.3 Motto-goals as promising new approach for complex tasks

While the previous paragraph made clear that learning goals seem more adaptive than performance goals in complex tasks, the following section delineates why motto goals might be even more successful. The ZRM has been used successfully in a wide variety of settings – be it in coaching and adult education (M. Storch & Krause, 2014), to treat persons with eating disorders (M. Storch, Keller, Weber, Spindler, & Milos, 2011) or adolescents with other clinical disorders (Schuler & Sandmeier, 2008), to stop smoking (M. Storch, 2008), or to avoid procrastination (J. Storch & Weber, 2013). The efficacy of the ZRM in practice has been validated in several studies in various contexts. To pick out a few, M. Storch, Gaab, Küttel, Stüssi, and Fend (2007) conducted a stress test in which they compared the reaction of persons who three months earlier had participated in the ZRM training to the reaction of persons who had not participated. As expected, individuals with ZRM experience showed a significantly lower cortisol level during and after the stress test. In a randomized controlled study with patients with eating disorders, M. Storch et al. (2011) showed that the ZRM training helped patients to down-regulate negative affect and to reduce dietary restrains. In another efficacy study, persons participated in a health prevention program which consisted of the ZRM combined with progressive muscle relaxation and movement therapy. Results showed that participation in the prevention program increased affect regulation competencies and prospective action orientation in comparison to a control group (M. Storch & Olbrich, 2011).

While all these studies tested the overall effect of the ZRM, further studies analyzed motto goals in particular and compared them to high, specific goals. Bruggmann (2003) showed that even after 1.5 years participants with motto goals reported significantly higher goal attainment and personal identification with the goal than persons with high, specific goals. Temme (2013) investigated police students who developed motto goals or high, specific goals regarding administrative tasks. His findings showed that motto goals led to significantly higher positive and lower negative affect than high, specific goals. Huwyler (2012) compared participants' commitment to an unpleasant company objective. As expected, subjects with motto goals felt stronger committed to the goal than participants with high, specific goals. However, other than in the study by Temme (2013), motto goals did not increase positive affect and only slightly decreased negative affect. Weber (2013) examined the influence of a motto goal training in comparison to a high, specific goal training with regard to unpleasant duties. She found a multitude of influences on different psychological levels. One of the most important results in the light of the present study was the activation of different functional systems by the different goal types. To analyze system activation, she used a modified version of the Stroop task⁹. Stroop items are generally assumed to activate the intention memory because they require a suppression of intuitive behavioral tendencies (read the word) and an activation of intentional behavior (say the color) (Weber, 2013). The results showed that only participants with high, specific goals were able to overcome the stroop effect in that they responded equally fast to words that were written in the color that they described as to words that were written in a diverging color. Based on these findings, the author concluded that high, specific goals were associated with the intention memory, which enabled participants to overcome the stroop effect. Subjects with motto goals, in contrast, showed the typical stroop effect, but completed the task as accurately as subjects with high, specific goals. Weber inferred from this finding that motto goals synchronized the intention memory with the highly inferential extension memory, which can explain the slower, but evenly accurate performance. Apart from the different activation of functional systems, motto goals led to higher positive affect and to lower negative affect, whereas high, specific goals did not change the affective state. Motto goals furthermore activated self-regulating (instead of self-controlling) tendencies and led to a significantly higher subjective change of experience and behavior one week after the training. All in all, Weber's results illustrate that motto goals seem more promising than high, specific goals to successfully handle unpleasant duties and to approach them with a self-regulative style and a positive affective state.

⁹ The Stroop task consists of color names written in different colors. Participants are asked to indicate the color in which the word is written without regarding the meaning of the word. Typically, participants respond slower when the color a word describes differs from the color it is written in. This phenomenon describes the so-called Stroop effect (Stroop, 1935).

We now have seen that motto goals can be more beneficial than high, specific goals when dealing with unpleasant company objectives or individual duties. The next section addresses the question whether this might also be true in CPS. First and foremost, the transfer of the above mentioned results to CPS seems reasonable because unpleasant duties like learning for exams or conducting critical conversations (Weber, 2013) might also be interpreted as complex problem. When motto goals are successful in real-life contexts, which they obviously are, these results might be generalizable to complex problems in laboratory settings. Moreover, as proposed theoretically (e.g., M. Storch & Krause, 2014) and corroborated by empirical findings (Weber, 2013), motto goals seem to activate the extension memory and to synchronize it with the intention memory. This synchronization seems necessary to successfully deal with complex tasks. High, specific goals, in contrast, are associated merely with the intention memory (Chapter 2.3.2). In Chapter 2.2.4 it was mentioned that unconscious processes often improve decision making and problem solving, which seems to further corroborate the importance of the unconscious extension memory in CPS tasks. A further reason why motto goals may be more effective in complex problems is that high, specific goals are rather static in nature as they describe a fix state to be achieved. However, complex tasks require goal adjustment (Betsch et al., 2011). Motto goals avoid this problem: As they refer to a general approach instead of a specific goal state, they should be successful even in the face of changing environments. All in all, it seems reasonable to assume that motto goals prepare participants better for successful CPS than high, specific learning or performance goals.

2.4.2 Influence on intrinsic motivation

Apart from performance, motto goals should also be beneficial for intrinsic motivation. Intrinsic motivation can be defined as performance of an activity because it is inherently enjoyable or interesting (Ryan & Deci, 2000a). An important theory in the context of intrinsic motivation is Self-Determination Theory (Deci & Ryan, 2000; Ryan & Deci, 2000b). The authors assume that situations which satisfy innate psychological needs, above all the need for competence and autonomy, facilitate intrinsic motivation. According to Deci and Ryan (2000), goals that allow a satisfaction of inner needs lead to higher intrinsic motivation than goals that are unrelated or even antagonistic to them. Motto goals base exactly on the translation of inner needs into a conscious goal (Chapter 2.3.2), so that they should lead to higher intrinsic motivation than high, specific goals, which do not take inner needs into account. Furthermore, the authors emphasize that autonomy in goal pursuit and goal attainment fosters intrinsic motivation. The pursuit and attainment of a motto goal, namely to approach the task with a certain motto in mind, should be perceived as more autonomous than the attainment of learning and performance goals, which are only reached by approximately 10 percent of a population (Kanfer & Ackerman, 1989; Locke &

Latham, 1990, 2013c; Winters & Latham, 1996). This feeling of autonomy should also increase intrinsic motivation in the motto goal group.

Apart from Self-Determination Theory, the postulated differential influence of motto goals in comparison to high, specific goals on intrinsic motivation can again be explained with the help of Kuhl's PSI theory: When goals are associated with the intention memory, they are mostly justifiable with logical arguments, but their affective value and their fit with personal needs and motives is often disregarded (M. Storch, 2011). In extreme cases, this can lead to *self-infiltration* which means that persons perceive the expectations and goals of other persons to be their own ones (Kuhl & Strehlau, 2014; M. Storch, 2013; M. Storch & Kuhl, 2013). According to Kuhl (2001), the activation of the extension memory is a crucial requirement for intrinsic motivation. Only then, a consistency between goals and personal needs and motives is ensured (M. Storch, 2011; M. Storch & Krause, 2014). As the extension memory activation seems to be achieved only by motto goals (Chapter 2.3.2), they should lead to higher intrinsic motivation.

The question whether learning goals are more beneficial for intrinsic motivation than performance goals or vice versa is somewhat more difficult to approach because Locke and Latham (1990) do not explicitly differentiate intrinsic from extrinsic motivation in Goal Setting Theory (Deci & Ryan, 2000). However, studies by Pekrun, Elliot, and Maier (2006), Daniels et al. (2009), and Pekrun, Elliot, and Maier (2009) hint towards a differential influence of learning and performance goal orientation on intrinsic motivation. In all three studies, learning goal orientation positively predicted enjoyment and negatively predicted boredom. Performance goal orientation, in contrast, was not associated with these two constructs. Even if the authors regarded enjoyment and boredom as discrete emotions, they can also be interpreted as indicators of intrinsic motivation (two of the five intrinsic motivation items used in the present study assessed enjoyment and boredom, see Appendix C.5.3). Thus, learning goal orientation seems to evoke higher intrinsic motivation than performance goal orientation. Possibly, these results are generalizable to the pursuit of learning versus performance goals. The assumption that learning goals lead to higher intrinsic motivation is further supported by the fact that performance goals allow a direct and constant observation of their attainment via the feedback on actual company value. Because a large percentage of participants will probably not attain the goal, frustration and a low feeling of competency are a likely consequence. The attainment of learning goals, in contrast, seems not directly observable, so that they might lead to less frustration and a higher feeling of competency. Because feeling competent is seen as prerequisite for intrinsic motivation (Deci & Ryan, 1985), participants with learning goals should report higher intrinsic motivation than participants with performance goals.

To summarize, both PSI theory and Self-Determination Theory constitute a theoretical foundation for the assumption that motto goals are associated with higher intrinsic motivation than high, specific goals. Further, research indicates that learning goals might lead to higher intrinsic motivation than performance goals.

2.4.3 Influence on processing style

With regard to processing style, it seems reasonable to assume that high, specific goals trigger a quite local style. Locke and Latham (1990) state that performance goals might encourage tunnel vision (Chapter 2.4.1.2), which could explain why they are often detrimental in complex tasks. Learning goals may be associated with a slightly more global style because they encourage imaginative and creative thought processes (Chapter 2.2.1). However, because learning goals in Locke's and Latham's sense, like performance goals, are specific and difficult and often focus on a specific end state (e.g., number of strategies to be learned until the end), they should still be related to a quite local processing style. Motto goals, on the other hand, are assumed to foster resources that an individual perceives as helpful in a specific task (M. Storch & Krause, 2014). These resources might vary across participants: Persons who tend to get lost in details might focus on resources that help them to maintain an overview in the Tailorshop. Persons who tend to work hastily and sloppily might benefit from resources that encourage them to focus on details. Hence, when participants follow motto goals, their processing style may be global as well as local – in dependence of their individual needs. On average, however, it can still be assumed that participants with motto goals process information more globally (even if some of them process information locally) than participants with high, specific learning or performance goals who should process information quite locally.

Furthermore, the above described study by Baumann and Kuhl (2005) indicates that the extension memory fosters flexible processing when required by the task. In the Tailorshop, both processing styles seem helpful: A focus on details combined with thorough information retrieval and scrutiny (Barth & Funke, 2010) as well as creative and flexible thinking (Spering et al., 2005) seems necessary to achieve high performance. Since motto goals are assumed to activate the extension memory (Chapter 2.3.2), they should encourage exactly this alternation between both styles. High, specific goals, on the other hand, seem to merely activate the intention memory, so that this alternation might not be achieved.

2.4.4 Influence on positive and negative affect

Although most previous studies focused on task performance, affective processes before and after problem solving are also important to consider for two main reasons. First, as we already have seen, affect and performance can be closely interconnected (Chapter

2.1.3). Second, the experience of positive affect during task completion is certainly more desirable than the experience of negative affect. Hence, it seems important to investigate how positive affect alongside of performance can be maximized during CPS.

When investigating the influence of goal setting on affect, it is important to differentiate between affect directly after the goal induction, i.e. the affective state prompted by the goal, and affect after the CPS task has been finished. The former shows whether participants approach the task with different affective states, while the latter reveals whether participants deal differently with possible frustration in the task in dependence of their goal.

2.4.4.1 Influence on affect after goal induction

To my knowledge, the affective content of learning versus performance goals has not been investigated yet. However, findings on goal orientation deliver fruitful insights into this issue. As explained in Chapter 2.2.2, performance goal orientation is often associated with helplessness, negative self-cognitions, and maladaptive attributions, while learning goal orientation relates to solution-oriented thinking in case of failure. Moreover, Pekrun et al. (2006) investigated whether students' goal orientation in a particular class influenced subsequent discrete emotions towards this class¹⁰. They found that learning goal orientation negatively predicted anger and positively predicted hope. In contrast, performance goal orientation that focused on avoidance (instead of approach) was associated with increased anxiety. Similar results were obtained by Daniels et al. (2009) who showed that learning goal orientation decreased and performance goal orientation increased anxiety. In a further study, Pekrun et al. (2009) examined the goal orientation of students towards an exam. The results revealed that learning goal oriented students reported less anger and shame and more hope on the day prior to the exam. Performance-avoidance goal orientation, on the other hand, positively predicted anger, anxiety, hopelessness, and shame. A similar pattern might occur when goal setting instead of general individual goal orientation is analyzed. This assumption seems even more plausible when considering that in the present study goal induction covered the induction of the respective goal orientation (Chapter 4.5).

Next, the question arises whether motto goals are even more beneficial for the affective state of a person than high, specific learning goals. The above described studies by Weber (2013) and by Temme (2013) found evidence for high positive and low negative affect if motto goals instead of high, specific goals had been induced. This finding is little surprising because motto goals are by definition associated with high positive and low negative affect: Their whole construction process bases on this affective pattern (Chapter 2.3.2). Above that, PSI theory postulates that the intention memory, which is assumed to be

¹⁰ To be precise, Pekrun et al. (2006, 2009) and Daniels et al. (2009) speak of mastery versus performance goals. To keep the terminology consistent, I maintain the differentiation between learning and performance goal orientation.

active when high, specific goals are pursued, is associated with absent positive affect. The extension memory, which is assumed to be active when motto goals are pursued, is associated with absent negative affect (Kuhl, 2001). The assumption that motto goals lead to higher positive and lower negative affect is also corroborated in a study by Biebrich and Kuhl (2004). They showed that a feeling of inner security, which seems to be related to the extension memory, corresponded with high positive and low negative affect. As a consequence, motto goals should trigger the highest positive and the lowest negative and performance goals the lowest positive and the highest negative affect.

2.4.4.2 Influence on affect after CPS

Apart from the affective state directly after a goal has been set, affective state subsequent to CPS is measured in the present study. In the following, two studies that compared the influence of learning and performance goals on affect during and after the completion of (moderately) complex tasks are presented.

Kozlowski and Bell (2006) analyzed the influence of goals on affective self-regulation in a computer-based radar-tracking simulation, a task which is described as complex and dynamic by the authors. Subjects were asked to pursue goals which varied in their content and in their orientation. Goal content was manipulated by setting a specific performance score to be strived after (performance content) or by providing a list with specific strategies to be learned (learning content). To manipulate goal orientation, task mastery was framed as possibility to acquire knowledge and skill (learning frame) or as possibility to demonstrate competence (performance frame). The authors found that learning goals led to significantly lower negative affect and higher self-efficacy during task completion than performance goals, especially if both goal content and goal frame had a learning focus.

Cianci, Klein, and Seijts (2010) examined the mediating influence of emotional tension on the relationship between goal orientation and performance. They were particularly interested in the performance after negative feedback. Twice, they requested subjects to read text passages and to answer subsequent text comprehension and analogy questions. Beforehand, the authors induced them either a learning (learn how to approach the task) or a performance goal orientation (demonstrate ability in the task). After the first task, participants received false negative performance feedback. As expected, performance goal orientation was associated with significantly higher tension after negative feedback than learning goal orientation. The authors concluded that a "learning goal appears to buffer against negative feedback" (p. 627). In accordance with past research, it is thus assumed that subjects with learning goals can deal better with frustrating experiences and report higher positive and lower negative affect after CPS than subjects with performance goals.

The present study is the first one to compare the affective state between persons with motto, learning, and performance goals after a CPS task. Assumptions on the

difference between motto goals and high, specific goals can be based on a large body of research that has shown that the *attainment* of a goal fosters positive affect while failure increases negative affect (e.g., Henkel & Hinsz, 2004; Latham & Brown, 2006; Plemmons & Weiss, 2013). The fact that difficult goals lead to high performance but to low satisfaction, because they are not attained by most persons, is referred to as "goal-setting-dilemma[s]" by Locke (1996, p. 122). Motto goals are more likely to be achieved as they are characterized by a general approach instead of a specific end state. The assumption that motto goals lead to a positive affective state is corroborated by theoretical assumptions of PSI theory. In case it is true that motto goals activate the extension memory, they should allow an integration of (possibly frustrating) Tailorshop experiences into the self and avoid a feeling of helplessness and frustration (Biebrich & Kuhl, 2003; Kuhl, 2001).

In total, motto goals seem to increase positive and to decrease negative affect to a greater extent than high, specific goals – both directly after their induction and possibly also after the CPS task. Further, learning goals seem to trigger higher positive and lower negative affect after their induction and after task completion than performance goals.

3 Current study

After this in-depth description of the theoretical background, the next step is to outline the aims and relevance of the present study along with the postulated hypotheses and exploratory research questions.

3.1 Aims and relevance

We have seen that the idea of empirically investigating the influence of goal setting on problem solving is by far no innovation, and that plenty of studies dealt with this topic in the last decades. The current study can be regarded as replication of past research that revealed superiority of learning over performance goals in complex tasks. However, the present study also comprises various innovations and contributes to the present state of research in several points: First, it includes motto goals as new and innovative goal type and systematically compares them to high, specific learning and performance goals as proposed by Locke and Latham (1990, 2013c). Second, in contrast to most previous studies on goal setting, the present study applies a well-established and truly complex problem solving task with high validity and reliability (Danner, Hagemann, Holt, et al., 2011). Third, while previous studies mostly focused on problem solving performance, the present study additionally includes emotional and motivational processes. In doing so, it follows one of the leading questions in current problem solving research (Funke, 2014). Fourth, the present study regards possible influences of goal setting on average processing style and on the

alternation between global and local processing. Fifth, to better understand the complex, still ambiguous interplay between affect and performance, the relationship between the two constructs is analyzed and combined with the concept of processing style.

In total, the present study can be seen as an attempt to validate the concept of motto goals in a highly complex environment. To strictly scrutinize motto goals, it is important to compare their effects with a goal type that has proven successful in past research. Several studies have shown that high, specific learning goals are often beneficial in complex tasks regarding performance and affective state (Chapter 2.4.1.2 and 2.4.4). Therefore, I decided to apply this very goal type, which should be successful according to past research, and compare its effect with motto goals. As previous studies often compared high, specific learning to high, specific performance goals, this is done as well in the present study. Doing this, performance goals can be regarded as control condition because they have shown to be comparatively maladaptive in complex tasks. For this reason, it did not seem necessary to include a further do-your-best control condition.

3.2 Hypotheses

Building on the theoretical background expounded in Chapter 2, the next section concerns the derivation of hypotheses. As it will become clear in the following, a main effect of goal type is assumed with regard to CPS performance, intrinsic motivation, and processing style, while an interaction between goal type and time of measurement is hypothesized with regard to affect.

3.2.1 Influence of goal type on CPS performance

Goal Setting Theory states and past research has repeatedly shown that high, specific performance goals are adaptive when individuals already possess the skills and the knowledge required to fulfill a task successfully. When the task is novel and a person lacks the necessary strategies, a high, specific learning goal seems more beneficial (Chapter 2.4.1.2). Motto goals, however, might be even more adaptive as they can activate the extension memory, which is considered helpful in complex environments. For instance, it can help to flexibly adjust goals in a CPS task and to search for new problem solving strategies (Biebrich & Kuhl, 2003). Research has already shown that persons with motto goals handle unpleasant duties more successfully than persons with high, specific goals (Chapter 2.4.1.3). The present study hypothesizes that this is also the case for complex problems. The task used in the present study is a highly complex computer-simulation, participants are not acquainted with. In accordance with theoretical assumptions and past research, the following hypotheses, assuming a main effect of goal type, are postulated:

Hypothesis 1a: Participants with motto goals show a higher CPS performance than participants with high, specific performance or learning goals.

Hypothesis 1b: Participants with high, specific learning goals show a higher CPS performance than participants with high, specific performance goals.

3.2.2 Influence of goal type on intrinsic motivation

In Chapter 2.4.2 findings and theories were presented indicating that learning goal orientation (and possibly also learning goals) might lead to higher intrinsic motivation than performance goal orientation (and performance goals). Furthermore, PSI theory and Self-Determination Theory indicate that motto goals might lead to higher intrinsic motivation than learning or performance goals. This is because motto goals are assumed to activate the extension memory, which is related to intrinsic motivation, and to foster a feeling of competency and autonomy.

No assumptions are made concerning a possible change of intrinsic motivation after CPS. On the one hand, intrinsic motivation might be stable and rather independent of possible frustration in the task. After all, even if participants do not manage the Tailorshop successfully, they might enjoy the task. On the other hand, possibly frustrating experiences with the Tailorshop might lead to less enjoyment of the task and to a feeling of boredom. Thus, intrinsic motivation might also decrease over time. Because both options seem plausible, the assumptions regarding group differences concentrate on a main effect of goal condition, which leads to the following hypotheses:

Hypothesis 2a: Participants with motto goals report higher intrinsic motivation than participants with learning or performance goals.

Hypothesis 2b: Participants with learning goals report higher intrinsic motivation than participants with performance goals.

3.2.3 Influence of goal type on processing style

In Chapter 2.4.3 we saw that high, specific goals might foster a rather local processing style while motto goals should be able to foster both styles in dependence of individual needs. On average, learning and performance goals may therefore be associated with a more local processing style than motto goals. It further became clear that motto goals might foster an intraindividual alternation between global and local processing over time. The reason for this assumption is the supposed activation of the extension memory along with an increase of positive affect in case of motto goals, which both should foster cognitive flexibility and the ability to adapt processing style to situational requirements. The following hypotheses, assuming a main effect of goal type, are postulated:

Hypothesis 3a: Participants with motto goals perceive objects more globally than participants with learning or performance goals.

Hypothesis 3b: Participants with motto goals show a greater readiness to switch between global and local processing than participants with learning or performance goals.

3.2.4 Influence of goal type on positive and negative affect

In Chapter 2.4.4 it became clear that it is reasonable to distinguish between affect directly after a goal has been set and after a complex problem has been worked on with the goal in mind. Thus, separate hypotheses are formulated for each of the two points in time.

3.2.4.1 Influence on affect after goal induction

Regarding the influence of goals on affect directly after their induction (i.e. before CPS), research on goal orientation revealed that learning goals can foster a more positive affective state than performance goals. Furthermore, research showed that motto goals can increase positive and decrease negative affect to an even higher degree (Chapter 2.4.4.1). These findings are in line with PSI theory, which assumes a relationship between absent positive affect and the intention memory – a system which is assumed to be active when high, specific goals are pursued. Absent negative affect, on the other hand, is related to the extension memory, which can be activated with the help of motto goals (Weber, 2013). Further, motto goals rely on high positive and low negative affect in their whole construction process, so that maintenance of this affective pattern seems likely. Based on theoretical assumptions and previous findings, the following hypotheses, assuming an interaction between goal type and time of measurement, are postulated:

Hypothesis 4a: The induction of motto goals leads to higher positive and lower negative affect than the induction of learning or performance goals.

Hypothesis 4b: The induction of learning goals leads to higher positive and lower negative affect than the induction of performance goals.

3.2.4.2 Influence on affect after CPS

Complex problems, as they are very difficult to complete successfully, are likely to trigger frustration and a feeling of being overwhelmed (Chapter 2.1.3). However, this effect might vary in dependence of goal setting. According to PSI theory, an activation of the extension memory via motto goals should buffer against a feeling of frustration (Chapter 2.4.4.2). This implies that persons with motto goals should cope with frustration more successfully than persons with learning or performance goals, whose extension memory is assumed to be deactivated. This assumption is in accordance with the expected lack of goal

attainment for most participants with learning and performance goals, which might foster negative affect. Besides, research indicated that learning goals can buffer against negative feedback and confine the increase of negative affect in case of frustration. Summarizing, even though the Tailorshop might generally be a frustrating experience, affective reactions are assumed to depend on goal condition. Motto goals should buffer more than high, specific goals and learning goals should buffer more than performance goals against frustration. These considerations lead to the following hypotheses, postulating an interaction between goal type and time of measurement:

Hypothesis 5a: After having worked on the CPS task, positive affect decreases less and negative affect increases less for participants with motto goals than for participants with learning or performance goals.

Hypothesis 5b: After having worked on the CPS task, positive affect decreases less and negative affect increases less for participants with learning goals than for participants with performance goals.

3.3 Exploratory research questions

Apart from testing the hypotheses, further exploratory analyses concern differences between the three goal conditions. In this regard, degree and difficulty of goal attainment, satisfaction with goal attainment, and the degree of keeping the goal in mind during Tailorshop completion are investigated. Further, the interplay between affect and CPS performance is explored. Moreover, it is analyzed whether groups differ in the time participants invest in Tailorshop completion and whether the invested time predicts CPS performance. Lastly, the possible influence of gender and further control variables on all dependent variables is investigated.

4 Method

In order to test the hypotheses, an experimental study was conducted. In dependence of their experimental condition, participants were instructed to develop a high, specific performance goal, a high, specific learning goal, or a motto goal adapted for the Tailorshop. With this goal in mind, they completed the Tailorshop scenario. Dependent variables as well as control variables were collected at different points in time. In the following paragraphs, the study sample and design, the experimental task, the procedure, the goal manipulation, and the measurement of dependent and control variables is described.

4.1 Participants

Participants were recruited during the introduction week for first semester psychology students of fall semester 2014/ 2015 as well as via mailing lists of the institute of psychology and via social networks. In order to create more diverse groups, further participants were recruited in two lectures addressing teacher trainees and in the Heidelberg University Choir. A total of 127 subjects participated in the study. Two participants in the learning goal condition and two participants in the motto goal condition were excluded from the analysis due to language difficulties. So, the final sample consisted of 123 participants, 99 (80.50%) of them female and 24 (19.50%) male. Analyses via G*power 3.1 revealed that this sample size should provide enough power to detect middle effect sizes. The age ranged between 17 and 35 years ($M = 21.19$, $SD = 3.51$)¹¹. Most subjects ($n = 105$) were psychology students of Heidelberg University. Of the other participants, 16 were students of other subjects (e.g., educational science, politics, law), one participant was employed, and one participant was a high school student. Subjects in the three conditions did not differ regarding age, $F(2, 119) < 1$, *n.s.*, final high school grade, $F(2, 114) = 2.09$, $p = .13$, gender distribution, $\chi^2(2) = 2.60$, $p = .27$, personality factors, all $F(2,120) < 1.22$, all $p > .30$, and the fact whether they studied psychology or not, $\chi^2(2) = 1.70$, $p = .43$. Table 2 shows the distribution of subjects among the three conditions.

Table 2

Distribution of participants' gender, age, and average high school grade among the three conditions

Goal condition	<i>N</i>	Gender (Female/ male)	Age <i>M</i> (<i>SD</i>)	High school grade <i>M</i> (<i>SD</i>)
Motto	42	31/ 11	21.36 (3.61)	1.26 (0.52)
Learning	41	36/ 5	21.40 (3.85)	1.46 (0.47)
Performance	40	32/ 8	20.80 (3.09)	1.28 (0.43)
Total	123	99/ 24	21.19 (3.51)	1.33 (0.48)

As compensation for study attendance, psychology students received course credit. Furthermore, five Amazon vouchers, worth 20 Euros each, were raffled among all those who finished the study and voluntarily provided their email address.

4.2 Design

A mixed factorial design was applied. Goal type served as between-subjects factor with three levels (performance goals/ learning goals/ motto goals). Intrinsic motivation was measured twice and affect was measured three times, so that the time of measurement of

¹¹ One participant did not specify her age.

both variables constituted a within-subjects factor. Data was collected in groups of 3 to 20 participants ($M = 12.70$, $SD = 6.60$). Participants worked on the task on their own and were asked not to interact with each other during the whole study. The group design was chosen for efficiency reasons. Group size did not correlate with any of the dependent variables (all $|r| < .15$, all $p > .10$), except for the baseline value of negative affect ($r = -.21$, $p < .05$). This implies that participants in larger groups reported lower negative affect at the beginning of the study. However, as group sizes varied in all three goal conditions and as baseline negative affect did not differ between groups (Chapter 5.2.4), this finding is unlikely to influence experimental results. All members of each group were assigned to the same goal condition to avoid that participants discovered the existence of different goal conditions. To ensure that groups did not differ in any variable other than the goal type, the standardization of possible confounding variables was tried to be maximized (Chapter 4.4.1).

4.3 Experimental task

The experimental task was the latest German version of the Tailorshop scenario (Danner, Hagemann, Holt, et al., 2011). In this computer simulation, subjects are the managers of a fictional organization that produces and sells T-Shirts. It consists of two phases with different requirements: In the exploration phase, which lasts a simulated period of 6 months, participants are instructed to explore the system freely. During the second phase, the control phase, participants manage the Tailorshop over a period of 12 months with the assignment to maximize the company value. Figure 2 depicts the Tailorshop's user interface.

Tailorshop

Monat 2 von 6

Kennzahl	Wert	Planung		Kennzahl	Wert	Planung				
Kontostand	83317	↓	(i)	Unternehmenswert	220588	↓	(i)			
Hemden verkauft	347	↓	(i)	Kundeninteresse	703	↓	(i)			
Preis Rohmaterial	8.27	↑	(i)	Rohmaterial auf Lager	0	↓	(i)			
Hemden auf Lager	0	↓	(i)	Rohmaterial Bestellung	250	<input type="text"/> + -	(i)			
Arbeiter 50	5	↓	<input type="text"/> + -	(i)	50er Maschinen	8	↓	<input type="text"/> + -	(i)	
Arbeiter 100	3	<input type="text"/> 5	+ -	(i)	100er Maschinen	5	<input type="text"/> 7	+ -	(i)	
Lohn	980	↓	<input type="text"/> 1080	+ -	(i)	Reparatur & Service	1200	<input type="text"/> + -	(i)	
Hemdenpreis	52	<input type="text"/> 57	+ -	(i)	Sozialkosten pro Arb.	100	↑	<input type="text"/> 150	+ -	(i)
Verkaufsstellen	1	<input type="text"/> 2	+ -	(i)	Werbeausgaben	2800	<input type="text"/> + -	(i)		
Arbeitszufriedenheit %	50.7	↓	(i)	Geschäftslage	Stadtrand	<input type="text"/> Vorort	▼	(i)		
Produktionsausfall %	43.4		(i)	Maschinenschäden %	10.2	↓	(i)			

Figure 2. User interface of the Tailorshop.

The Tailorshop version used in the present study consists of 24 variables, of which 22 are visible in the user interface, and 12 can be directly controlled by the participants. The other variables cannot be manipulated directly, but are influenced by the subjects' actions (Danner, Hagemann, Holt, et al., 2011). In case participants do not change any of the variables, the company value decreases continuously due to the system's momentum of its own. Thus, in order to maximize the company value, participants have to intervene from the outset (Funke, 2003). Each simulated month, they can manipulate as many of the controllable variables as they like. An "information" button delivers useful explanations on the variable content. For instance, when subjects select the information button next to the variable *company value (Unternehmenswert)*, they learn that "*the total capital describes the total value of your company. It consists of liquid assets, the value of machines, and the value of raw material and shirts in stock*". When participants click on the "next" button, the passing of one month is simulated and the updated values of the system are displayed. Arrows that point up or down visualize monthly increases and decreases. This process is repeated until the last month has passed (Danner, Hagemann, Holt, et al., 2011).

4.4 Procedure

Before the different goal manipulations and the measurement of dependent and control variables are considered in more detail, the study procedure is explained in the following paragraph. First, test dates and standardization efforts are described, followed by an illustration of the course of the experiment.

4.4.1 Test dates and standardization efforts

The experiment lasted approximately one hour, but there was no imposed time limit. The main part of data was collected at three different days (14th, 16th, and 24th of October 2014). Because four participants in the performance goal condition did not appear, an additional session was held on the 9th of November. The experiment was conducted in the CIP Pool I of the Psychological Institute of Heidelberg University. Each day, except for the 9th of November, three different points in time were offered, so that subjects in all three experimental conditions were allocated to at least three different days. This was done to minimize possible influences of the specific day and of particular classes or events. Moreover, to avoid daytime effects, data in each experimental group was collected both in the morning and in the afternoon (the allocation of participants on the different points in time is depicted in Appendix A.1). To minimize experimenter effects, I was blind regarding goal condition at the beginning of each session. However, some participants asked questions which revealed their condition, so that a complete blindness was not possible. Furthermore, I wore the same clothes at all sessions and tried to constantly behave friendly, but distanced. All other external influences were kept as minimal as possible: The study took

always place in the same room on the same computers. Instructions were equal in all groups and previously sent e-mails containing a time and date reminder and directions were formulated identically. Furthermore, lighting conditions, seating arrangements, and temperature were held as similar as possible in all groups.

4.4.2 Course of the experiment

The study was computer-based and programmed with the help of the online survey tool Questback EFS 10.4. When subjects arrived in the computer lab, they were asked to choose a computer which already displayed the first page of the questionnaire. As soon as all participants of a group had arrived and signed an informed consent, I welcomed them, briefly explained the purpose of the study, and gave some technical information about the study procedure (the entire instruction is found in Appendix C.1). Thereafter, participants started the questionnaire. Except for the goal induction part, the questionnaires were identical in all three conditions. Figure 3 illustrates the composition of the online questionnaire (the complete online questionnaire can be found in Appendix C.5).

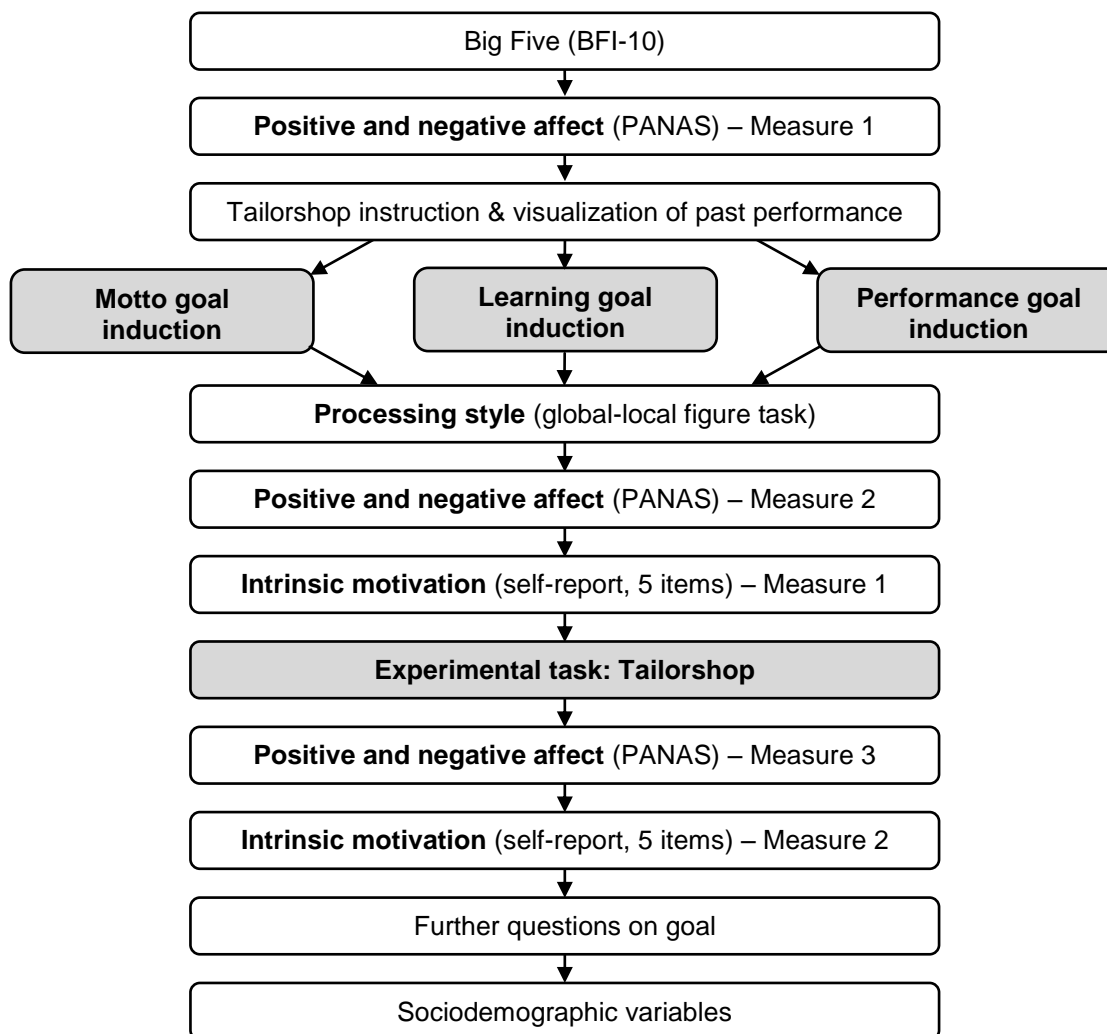


Figure 3. Course of the online questionnaire.

To avoid sequence effects, all items of multiple-item scales were presented in a randomized order. All questions (except for final high school grade and age) were mandatory, so that no missing values occurred. As depicted in Figure 3, participants first answered a short Big Five inventory for control purposes. Personality was assessed at the beginning of the questionnaire because it might have been affected by performance in the experimental task if it had been assessed at the end. After a baseline measure of positive and negative affect, subjects read the standard instruction of the Tailorshop. This way, they familiarized themselves with the task, but did not have the chance to gain any positive or negative experience with it. Additionally, they were presented a graph which illustrated the Tailorshop performance of previous participants. The graph was constructed using data collected by Danner, Hagemann, Holt, et al. (2011)¹². It depicted participants' ($N = 155$) company value at the end of the simulation in intervals of 50,000¹³. The two rightmost bars showed a company value of more than 250,000, which was only reached by eleven percent of the participants. These bars were marked in red to display what was considered a very high performance. The graph was included for two main reasons. First, as participants in the learning and performance goal conditions were instructed to monitor their company value constantly, it seemed fair to inform them beforehand that an excellent performance did not necessarily mean to *increase* company value, but to *maintain* it. This knowledge could have helped participants to judge their performance more correctly. Second, as mentioned in Chapter 2.4.1.2, previous studies sometimes privileged subjects with performance goals by informing only them how performance was defined. I tried to overcome this limitation by informing all subjects equally how performance was measured in the end¹⁴.

In the next step, participants completed the goal induction part of the questionnaire. In dependence of their group, they were instructed to develop a personal performance, learning or motto goal, which they subsequently wrote down on a sheet headed "my goal". Because goals were assumed to influence processing style and because this influence might last for a short time only, subjects completed a global-local figure task directly after goal induction. Next, they rated their positive and negative affect a second time and answered five items assessing their intrinsic motivation towards the Tailorshop. As soon as participants had completed all these questions, they worked on the Tailorshop scenario. They were reminded twice to keep their goal in mind, once prior to the exploration phase and once prior to the control phase. After Tailorshop completion, positive and negative affect was measured a third and intrinsic motivation a second time. For exploratory

¹² At this point, I repeat my sincere thanks to Daniel Danner for providing me the study data.

¹³ Five participants (3.2%) had a final company value lower than -1,000,000 and were grouped in one category ($< -1,000,000$). Their values diverged too widely to maintain steps of 50,000.

¹⁴ It is important to mention that the final company value is only one of two performance measures applied in the present study (Chapter 4.6.1). The graphic was built on final company value because participants probably associate success in the Tailorshop with a high final company value.

purposes, several questions on the goal followed. First, subjects rated on a scale from 1 to 10 to what degree they had achieved their goal (*not achieved at all – completely achieved*), how satisfied they were with this achievement (*not satisfied at all – completely satisfied*), and how difficult it was to achieve the goal (*not difficult at all – extremely difficult*). After that, they assessed the degree to which they had been aware of their goal while working on the Tailorshop on a 5-point Likert scale (*I did not have the goal in mind at any time – I permanently had the goal in mind*). Finally, they were posed the open question whether and, if so, how their goal had changed over time¹⁵. At the very end of the questionnaire, sociodemographic variables were assessed. After subjects had completed the questionnaire, they were allowed to quietly leave the room.

4.5 Manipulation of goal type

In the present study, like in some previous studies (e.g., Cianci et al., 2010; Seijts et al., 2004), goal orientation was manipulated via goal content. Research showed that the manipulation of goal orientation over and above the goal itself strengthens differential goal influences (Kozlowski & Bell, 2006). Further, motto goals are strongly connected to a resource-oriented goal orientation (M. Storch & Krause, 2014), so that goal manipulation could not happen without the associated goal orientation.

Goal induction in all conditions started with a text which manipulated goal orientation. Thereafter, participants developed a personal goal. In all groups, duration, grammatical structure, and vocabulary of the instructions were held as similar as possible. However, the motto goal text was slightly shorter than the other two texts because motto goals do not explicitly take into account errors and feedback. Texts for the learning and performance goal conditions were developed by aggregating instructions of different previous studies (Cianci et al., 2010; Kozlowski & Bell, 2006; Seijts et al., 2004). To make use of prior successful manipulations, as many parts of the instructions as possible were maintained and adjusted to the present purpose. The text was followed by a step-by-step online tool which led participants to a personal goal in line with their goal condition. The manipulation will now be explained in more detail for each group separately (the full goal induction can be found in Appendix C.5.2).

4.5.1 Motto goal condition

To manipulate goal orientation in the motto goal condition, participants were instructed to mobilize their own resources and to develop a personal approach to the task. Further, they were asked to see the Tailorshop as opportunity to make use of their own resources. Subsequent to this introductory paragraph, participants were reminded of the

¹⁵ Due to a lack of space, answers on this qualitative question were not analyzed.

overall objective (*High company value in the Tailorshop*). Afterwards, the motto goal-specific induction started with the request to freely describe their thoughts on the topic “high company value in the Tailorshop”. Next, participants were shown 10 pictures in randomized order and were asked to choose one of them which was associated with a good feeling and which served as resource for the Tailorshop. After they made their decision, subjects received the *idea basket* for their favorite picture and marked all ideas that prompted a good feeling (for a sample picture with the idea basket, see Appendix C.2). With the help of their favorite ideas, participants formulated their personal motto goal, which described how they planned to approach the Tailorshop. To facilitate motto goal construction, they were shown sample motto goals, for instance “*I want to be like the lotus that grows in its own pace*”. As soon as subjects had developed a motto goal, they were asked to indicate how their personal condition changed when they approached the Tailorshop with this goal. Finally, participants were again shown their own goal along with the request to write it down on the paper headed “my goal”. This last goal induction page was the same for all three groups, save that participants in the motto goal condition were shown the goal as well as the picture they had chosen while subjects in the other two conditions merely saw their goal. Due to standardization reasons, as soon as the goal induction part had ended, subjects were only reminded of their goal by the “my goal” sheet, which was the same in all groups.

4.5.2 Performance goal condition

Analogous to the motto goal condition, participants in the performance goal condition started with reading a short text which aimed to induce performance goal orientation. Participants read that they should try to maximize their performance, to increase the company value, and to show their competence. Moreover, they were asked to try to avoid errors and to monitor their company value continuously in order to improve performance. The ensuing performance goal induction, like the motto goal induction, started with a reminder of the general objective of the Tailorshop. Afterwards, participants read a filler text which explained the importance of setting goals in general and of setting high, specific goals in particular. The purpose of this text was to adjust the length of the performance goal induction to the motto goal induction. Subsequently, subjects were informed that in a previous Tailorshop study the maintenance of a company value of 250,000 was identified as high performance¹⁶, so that this value constituted their goal. In a next step, participants were asked to specify their goal step by step. First, they put the general goal *company value of at least 250,000* into the first person singular. Next, they complemented this goal by

¹⁶ This number was obtained by analyzing the data by Danner, Hagemann, Holt, et al. (2011). In accordance with past research, I defined high, specific goals as performance of the top percentile of participants (cf. Chapter 2.4.2), which corresponded to a final company value higher than 252,706.60. To make this value more tangible, it was rounded to 250,000.

adding until when they wanted to achieve the goal, which methods they planned to use, and why they strived for this goal. The purpose for this method was a maximal comparability of the three goal type conditions: On the one hand, the goals should fulfill Locke's and Latham's criteria of high, specific performance goals, so that the specification of the aspired final company value was necessary. On the other hand, it was aimed to trigger a reflection process similar to the motto goal condition. The underlying intention was that participants should have the impression that they constructed their own personal goal in all three conditions. As in the motto goal group, the goal induction part ended with asking participants to write down their personal goal on the "my goal" sheet.

4.5.3 Learning goal condition

Before the learning goal manipulation is explained, it is important to annotate how learning goals are defined in the current study. Whereas past research often determined a number of task strategies to be learned (e.g., Seijts & Latham, 2001; Seijts et al., 2004), this operationalization seemed inappropriate in the present study. Rather, various approaches and strategies can be successful in the Tailorshop, so that a specific number of strategies to be learned would not do justice to its high complexity. For this reason, learning goals were defined as number of relationships between the Tailorshop's variables to be learned. This is in accordance with classic goal setting research, which sees the focus of learning goals in an increase in knowledge and skills (e.g., Latham et al., 2008; Seijts & Latham, 2005; Seijts & Latham, 2012). Knowledge increase in the Tailorshop can be interpreted as learning how the variables influence each other and consequently understanding the system structure, which should help to increase the company value. So, defining them as number of learned relations seems best suited to capture the understanding of learning goals in past research.

Like in the other two groups, participants first read a text which aimed to foster learning goal orientation. They were asked to try to maximize their learning success and to comprehend the relations underlying the system. Further, they were instructed to be open to learning experiences and to see the task as possibility to gain new skills. Lastly, the text said that errors should be regarded as learning opportunity and that the company value should be monitored and used as information indicating the learning success. The remaining learning goal induction was completely identical to the performance goal induction except that participants were asked to learn at least 15 relationships between the system variables¹⁷ instead of maintaining a company value of 250,000.

¹⁷ This number was obtained by using the data of Stephanie Hammon's Master's thesis (2012). In her thesis, participants in the experimental group ($n = 31$) drew a concept map indicating the assumed relationships between the Tailorshop system variables after having completed the exploration phase. Hence, these concept maps visualized the explicit knowledge participants had gained on the Tailorshop. I examined the concept maps and found that the top percentile had correctly identified 16 or more relationships. To make the number more tangible it was rounded to 15.

4.6 Measure of dependent variables

To analyze the influence of goal setting on problem solving, not only CPS performance, but also affect and intrinsic motivation were assessed at several points in time. In addition, the subjects' processing style served as dependent variable. In this paragraph, the measurement of dependent variables is described in detail.

4.6.1 CPS performance

Following past research (Danner, Hagemann, Holt, et al., 2011; Danner, Hagemann, Schankin, et al., 2011; Hammon, 2012; Meyer & Scholl, 2009), only performance in the control phase of the Tailorshop was analyzed. This was done via two indicators: Company value change and company value trend. The *company value change* (CV change) indicated the absolute gains or losses during the 12 months of the control phase. In other words, it described the difference between the company value at the beginning of the Tailorshop, which was the same for all participants, and the final company value. The *company value trend* (CV trend) indicated the number of months in which the company value increased. Binary variables were calculated for each month such that 1 indicated a positive trend (increase of the company value compared to the previous month) and 0 indicated a negative trend (decrease of the company value compared to the previous month). Trend values were added to obtain the total number of gain months. As proposed by past findings (Danner, Hagemann, Holt, et al., 2011), only trends between the second and the last month were included. A major advantage of CV trend in comparison to CV change is its higher psychometric quality and its robustness against outliers (Danner, Hagemann, Holt, et al., 2011).

4.6.2 Intrinsic motivation

In previous studies, intrinsic motivation was mostly measured twofold: Through a behavioral measure, operationalized via participants' decision to continue the task in a free-choice period, and through a self-report measure (e.g., Cellar & Barrett, 1987; Deci, 1971; Deci, Koestner, & Ryan, 1999; Elliot & Harackiewicz, 1994; Harackiewicz & Elliot, 1993). Even though a behavioral measure doubtlessly has its advantages, intrinsic motivation was exclusively measured via self-report in the present study. This is because the Tailorshop is in itself cohesive and takes quite a long time to work on. It probably would not have been attractive for participants to spend eight minutes, the typical free-choice time period (Guay, Vallerand, & Blanchard, 2000), on the task without the security to finish it. Moreover, as the experiment already lasted approximately one hour and demanded intense concentration, I felt it would have been too exhausting for the participants to prolong it even more.

For the self-report measure of intrinsic motivation, five items, which had been used successfully in past research (Elliot & Harackiewicz, 1994; Epstein & Harackiewicz, 1992; Harackiewicz & Elliot, 1993; Manderlink & Harackiewicz, 1984), were translated into German (e.g., *The Tailorshop will be (was) fun to play*). The items show similarities with the measure by Deci (1971) as well as with the intrinsic motivation subscale of the Situational Motivation Scale (SIMS; Guay et al., 2000) and were answered on a 7-point Likert scale (*strongly disagree – strongly agree*). Internal consistency was high (measure 1: Cronbach's $\alpha = .90$, measure 2: $\alpha = .89$).

4.6.3 Processing style

To measure processing style, I applied two different methods – one of them common and one newly developed. The first measure was a global-local *figure task* developed by Kimchi and Palmer (1982). The task had already been used successfully in prior research (e.g., H. Fischer & Gonzalez, n.d.; Förster & Dannenberg, 2010; Fredrickson & Branigan, 2005; Gasper, 2004; Kimchi & Palmer, 1982) and consisted of 8 items displaying different geometric figures. Each item contained three figures: one standard figure on top, one figure on the lower right side, and one figure on the lower left side. The figures consisted of several elements which had the shape of a triangle or a square. Together these elements formed a global shape which was also a triangle or a square (for a sample item, see Appendix C.3). Participants indicated whether they perceived the standard figure to be more similar to the left or to the right figure. The items were constructed in a manner which made it possible to differentiate global from local style: One of the items resembled the standard figure in global configuration (the right figure in Figure C.3). The other one consisted of the same local elements as the standard figure (the left figure in Figure C.3). To obtain the mean processing style, items perceived globally were coded with 1 and items perceived locally were coded with 0. The values were averaged for each person, so that the resulting score ranged from 0 (completely local processing style) to 1 (completely global processing style) (cf. H. Fischer & Gonzalez, n.d.; Kimchi & Palmer, 1982). Because hypotheses regarded not only group differences, but also the intraindividual alternation between both styles, an additional variable depicting intraindividual variability was computed. This was done by assigning participants who maintained a specific processing style over time – be it global or local – a low variability score and participants who switched between global and local processing a high variability score. The resulting variable ranged from 0 (all 8 items perceived in the same style) to 4 (4 items perceived globally, 4 items perceived locally).

The second, and innovative measure was called *intervention breadth* and applied the number of manipulated variables in the Tailorshop as indicator of processing style. A high number of manipulated variables seemed to reflect a wide-angle view on the overall system, so that it was assumed to indicate global processing. A low number of manipulated

variables seemed to reflect a focus on specific, single objects, so that it was assumed to indicate local processing. To obtain this measure, the number of manipulated variables was determined for each person and each month. Also here, the mean value over the 12 months of the control phase was calculated to obtain mean processing style. To examine the alternation between both styles, the intraindividual standard deviation (intraindividual *SD*) was computed (Ram, Conroy, Pincus, Hyde, & Molloy, 2012; Ram & Gerstorff, 2009). This variable indicated the individual flexibility in the number of manipulated variables over the 12 months of the control phase.

4.6.4 Positive and negative affect

To assess participants' momentary positive and negative affect, I applied the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988), which was translated into German and assigned a good reliability and validity by Krohne, Egloff, Kohlmann, and Tausch (1996). The PANAS consists of 20 adjectives on two largely independent subscales. 10 items measure positive affect (e.g., *interested, strong, enthusiastic*), while the other 10 measure negative affect (e.g., *upset, guilty, ashamed*) (Watson et al., 1988). The adjectives were rated on a 5-point Likert scale (*very slightly or not at all, a little, moderately, quite a bit, extremely*). Through aggregation of the items, I obtained total scores for positive and for negative affect. The internal consistency was high for positive (measure 1: Cronbach's $\alpha = .84$, measure 2: $\alpha = .91$, measure 3: $\alpha = .91$) as well as for negative affect (measure 1: Cronbach's $\alpha = .73$, measure 2: $\alpha = .81$, measure 3: $\alpha = .86$).

4.7 Measure of control variables

Several variables were assessed for control purposes. First, the 10-item short version of Big Five Inventory (BFI-10; Rammstedt & John, 2007) was applied. The BFI-10 measures personality by means of two items per factor, one with positive and one with negative polarity. Sample items are: *I see myself as someone who is generally trusting* (agreeableness, Cronbach's $\alpha = .39$), *...who tends to be lazy (reverse)* (conscientiousness, $\alpha = .58$), *...who is outgoing, sociable* (extraversion, $\alpha = .76$), *...who is relaxed, handles stress well (reverse)* (neuroticism, $\alpha = .68$), and *...who has an active imagination* (openness, $\alpha = .36$). The statements were answered on a 5-point Likert scale (*disagree strongly, disagree a little, neither agree nor disagree, agree a little, agree strongly*).

Because personality was assessed at the beginning of the study for good reasons (Chapter 4.4.2), it was important to minimize a possible manipulation of the participants, so that the BFI-10 was applied instead of a more comprehensive inventory (as for instance the BFI-44). In my view, the acceptable psychometric qualities of the BFI-10 (Rammstedt & John, 2007) and the fact that personality was only assessed for control purposes justify its application. Apart from personality, sociodemographic data (gender, age, final high school

grade), the size of the experimental groups, and prior Tailorshop experience was included as control variable.

5 Results

This chapter provides a detailed report of the study's results. First, it is explained how the data was prepared and screened at the outset. Thereafter, hypotheses tests and further exploratory analyses will be delineated.

5.1 Preliminary data preparation and data screening

All analyses were conducted with the IBM statistics software SPSS 22. To calculate mediational models (Chapter 5.3.3), the PROCESS 2.13 custom dialog box (Hayes, 2014) was installed. Prior to the analyses, the data were prepared and screened thoroughly. First, scales consisting of several items (positive and negative affect, intrinsic motivation, Big Five) were aggregated to receive scale means. Thereafter, the two CPS performance measures (CV change and CV trend) and the two measures of mean processing style and individual flexibility in processing (figure task and intervention breadth) were calculated as described in Chapter 4.6.1 and 4.6.3.

Subsequently, the data were screened according to the recommendations by Tabachnick and Fidell (2007) and Field (2013). To detect univariate outliers, z-scores of all dependent variables were calculated for each of the three groups separately. In the present sample, eight participants (motto goals: $n = 3$, learning goals: $n = 3$, performance goals: $n = 2$) were identified as outliers ($z > 3.29$, $p < .001$) regarding CV change, negative affect, or number of manipulated variables (intervention breadth). Following Tabachnick and Fidell, the deviant scores were not excluded, but adjusted to the next extreme score of the respective condition, so that their statistical impact did not distort the analyses, but the fact that the persons had extreme values was taken into account. Next, the assumption of linearity was tested through the inspection of scatterplots and was regarded as fulfilled. Correlations between dependent variables showed that no multicollinearity occurred (all $| r | < .90$). Normality was analyzed through histograms and z-scores of skewness and kurtosis. As depicted in Appendix A.3, not all variables were normally distributed. However, the sample size used in the present study is large enough for the central limit theorem to apply, and sample sizes of the three goal conditions were almost equal, so that the missing normal distribution in some dependent variables should not affect the analyses¹⁸ (Field, 2013; Tabachnick & Fidell, 2007). Further, method-specific assumptions like homogeneity

¹⁸ Although some researchers recommend data transformation in case of violated normality, I followed the arguments by Field (2013) and did not transform the data. For an overview of arguments in favor and against transformation, see Field (Chapter 5).

of variance-covariance matrices (analyzed via Box's M test and F_{\max}) and equality of variances (analyzed via Levene's test) were tested. Doing this, an error probability of $p = .05$ was applied as criterion of significance. In some cases, the Box's M test was significant, indicating unequal variance-covariance matrices. However, in large sample sizes this test is likely to become significant, so that the ratio between the largest and the smallest cell variances (F_{\max}) should also be regarded (results of the Box's M test and the respective F_{\max} values are depicted in Appendix A.4). Since sample sizes in the three groups were almost equal, an F_{\max} score as great as 10 was acceptable (Tabachnick & Fidell, 2007), which was fulfilled in all overall analyses. Hence, despite a significant Box's M test in some cases, homogeneity of variance-covariance matrices can largely be assumed¹⁹. Nevertheless, to ensure a conservative test of the hypotheses, the most robust F -statistics, Pillai's trace, was applied in all cases. The results of Levene's test will be reported whenever assumptions were violated. Thus, unless otherwise stated, assumptions can be regarded as fulfilled.

5.2 Hypotheses testing

The following section concerns the statistical tests of the postulated hypotheses. In all cases a two-tailed test was applied. First, results regarding the main effect of goal type on CPS performance, intrinsic motivation, and processing style are reported. Thereafter, the interaction between goal condition and time with regard to affect is addressed.

5.2.1 Influence of goal type on CPS performance

In a first step, Mahalanobis distance was calculated for both performance indicators to detect multivariate outliers (Tabachnick & Fidell, 2007). Two participants in the motto goal and one participant in the learning goal condition with extreme multivariate values ($\chi^2(1) > 10.828$, $p < .001$) were excluded from the subsequent analyses. Thereafter, as proposed by Tabachnick and Fidell (2007), Mahalanobis distance was calculated a second time to detect possible further outliers hiding behind the most prominent outliers. One further outlier in the motto goal group was identified and excluded²⁰. Table 3 depicts the means and standard deviations of both performance indicators in dependence of goal condition and gender (for the same table with all multivariate outliers included, see Appendix A.2).

¹⁹ Only in the exploratory analyses of gender influences on negative affect, Box's M test was significant and F_{\max} was close to or even higher than 10. These analyses have to be interpreted cautiously because sample sizes for both genders were not equal.

²⁰ None of the results in the present chapter, except for the interaction between goal type and gender, changed when multivariate outliers were included. Regarding gender influences, results with and without multivariate outliers are reported. With respect to all other analyses, results without multivariate outliers are reported.

Table 3

Means and standard deviations of the two performance indicators in dependence of goal condition and gender

Goal condition	Gender	<i>N</i>	CV change <i>M</i> (<i>SD</i>)	CV trend <i>M</i> (<i>SD</i>)
Motto	Female	29	-72,744.28 (42,453.66)	1.83 (2.84)
	Male	10	-54,586.13 (63,173.27)	3.10 (2.51)
	Total	39	-68,088.34 (48,350.23)	2.15 (2.79)
Learning	Female	35	-70,120.04 (57,666.66)	1.69 (2.83)
	Male	5	-56,692.36 (64,915.78)	5.20 (3.11)
	Total	40	-68,441.58 (57,892.51)	2.13 (3.06)
Performance	Female	32	-105,880.14 (68,655.20)	1.25 (2.85)
	Male	8	-27,005.39 (53,144.48)	3.25 (4.23)
	Total	40	-90,105.19 (72,625.81)	1.65 (3.22)
Total	Female	96	-82,832.81 (59,405.42)	1.58 (2.82)
	Male	23	-45,450.70 (59,057.99)	3.61 (3.29)
	Total	119	-75,607.70 (60,919.27)	1.97 (3.01)

Note. CV change = Absolute difference between the company value after the 12th month and the initial company value; CV trend = Number of months between the 2nd and the 12th month with increasing company value. Four multivariate outliers were excluded.

Other than in the study by Danner, Hagemann, Holt, et al. (2011), the correlation between both performance indicators was highly significant, $r = .69$, $p < .001$. Furthermore, as apparent in Table 3, mean CV change was negative in all three conditions. This indicates that participants on average were not able to maintain the initial company value. This finding is not surprising as past research also revealed that only a few participants accomplished a company value increase (Danner, Hagemann, Schankin, et al., 2011; Hammon, 2012; also see Chapter 4.5.2). Interestingly, performance operationalized via CV trend was significantly lower in the present study than in the study by Hammon (2012) ($M = 3.55$, $SD = 3.83$, $N = 91$), $t(208) = 3.35$, $p < .001$, and tendentially lower than in the study by Danner, Hagemann, Schankin, et al. (2011) ($M = 2.68$, $SD = 3.21$, $N = 173$), $t(290) = 1.90$, $p = .06$. Performance operationalized via CV change was lower than in the study by Hammon ($M = -50,172$, $SD = 67,135$), $t(208) = 2.87$, $p < .01$, but did not differ from the study by Danner, Hagemann, Schankin, et al. ($M = -135,029$, $SD = 182,056$, $N = 150$), $t(267) < 1$, *n.s.*²¹

Next, hypotheses on the influence of goal condition on performance were tested. Hypothesis 1a assumed that motto goals led to higher performance than learning or

²¹ To calculate the t-test on CV change, I used the data which I had received from Daniel Danner. To ensure comparability with my own data, I adjusted three univariate outliers to the next extreme score and excluded five multivariate outliers ($\chi^2(1) > 10.828$, $p < .001$).

performance goals, and Hypothesis 1b postulated that learning goals led to higher performance than performance goals. Table 3 shows that performance goals were indeed associated with the lowest performance, but that performance in the motto and the learning goal condition, other than expected, was nearly identical. To test the postulations statistically, a one-way independent multivariate analysis of variance (MANOVA) with goal condition as between-subjects factor and the two performance indicators as dependent variables was calculated. To specify the assumed main effect of goal type, orthogonal contrasts were constructed (see Table 4).

Table 4

Planned contrasts to analyze the influence of goal type on performance

Contrast	Motto goals	Learning goals	Performance goals
1	2	-1	-1
2	0	1	-1

Other than expected, the MANOVA revealed no significant overall effect of goal condition, $F(4, 232) < 1$, *n.s.* In line with this, two separate ANOVAs for both performance indicators showed that goal type did neither influence CV change, $F(2, 116) = 1.73$, $p = .18$, nor CV trend, $F(2, 116) < 1$, *n.s.* Not surprisingly, planned contrasts were also not significant, all $t(116) < 1.60$, all $p > .11$. Thus, Hypotheses 1a and 1b were not supported by the overall results.

To further qualify the analyses, control variables were included. First, possible gender influences were analyzed. For this purpose, a two-way independent MANOVA with goal condition and gender as between-subject factors and the two performance indicators as dependent variables was conducted. Unexpectedly, the main effect of gender was significant, $F(2, 112) = 5.28$, $p < .01$. Post-hoc tests with Bonferroni correction showed that men's CV change was significantly less negative, and men's CV trend was significantly higher than women's, both $p < .01$ (also see Table 3). Thus, men outperformed women in the Tailorshop on both performance indicators. Moreover, the interaction between goal type and gender was significant, $F(4, 226) = 3.18$, $p < .05$. To break down the interaction effect, as proposed by Field (2013), a simple effects analysis with Bonferroni correction was run. Doing this, the effect of goal type on performance was investigated for both genders separately²². Figure 4 visualizes the results.

²² A second option would have been to analyze the effect of gender on performance at each of the three goal conditions separately. Yet, cell sizes of men in the different goal conditions were too small for this analysis to be reasonable (see Table 3).

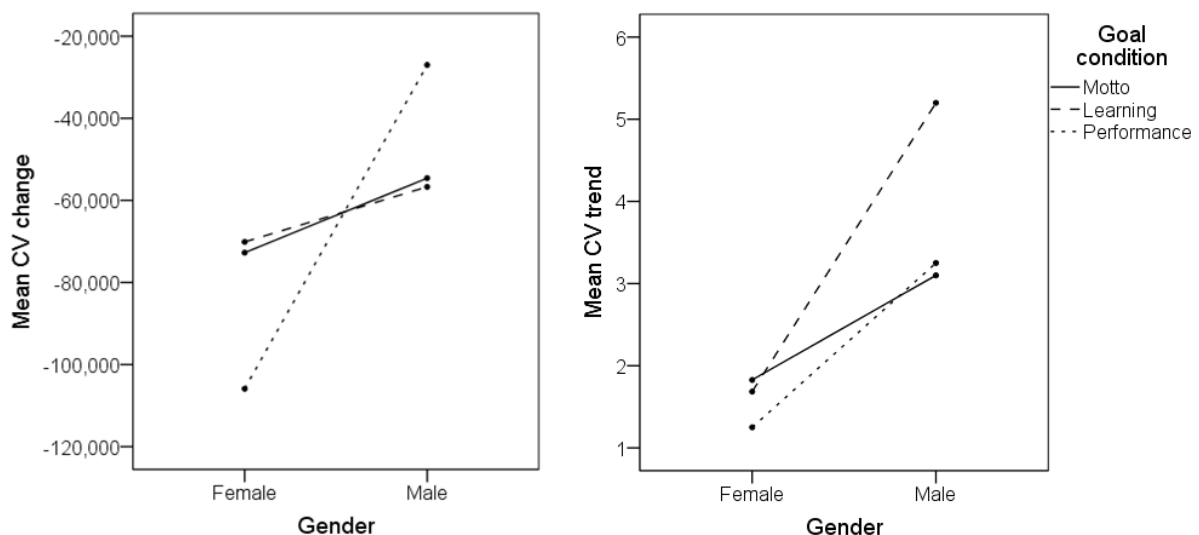


Figure 4. Graphical representation of the simple effects analysis illustrating the influence of goal type on performance in dependence of gender.

Note. Four multivariate outliers were excluded.

The simple effects analysis showed that women benefited marginally more from motto goals than from performance goals regarding CV change, $p = .09$, but not regarding CV trend, $p = .99$. The difference between motto and learning goals was non-significant for both performance indicators, both $p = .99$. Thus, Hypothesis 1a – assuming an advantage of motto goals over high, specific goals – was partly supported for female participants. The analyses further showed that women benefited more from learning goals than from performance goals regarding CV change, $p < .05$, but not regarding CV trend, $p = .99$. That is, when analyzing only women, Hypothesis 1b – assuming an advantage of learning over performance goals – was also partly supported. When analyzing only men, none of the goal types differed from each other, all $p > .58$. This is probably due to the small sample sizes of men which implied low statistical power. In summary, the analyses revealed an advantage of motto and learning goals over performance goals for female participants regarding CV change.

When the four multivariate outliers were included, as mentioned above, the results changed: Even though the main effect of gender was still significant, $F(2, 116) = 5.15$, $p < .01$, and the subsequent post-hoc test with Bonferroni correction revealed a significantly higher CV trend for men than for women, $p < .01$, the better performance of men regarding CV change was only marginal, $p = .08$. Moreover, the interaction between goal condition and gender was no longer significant, $F(4, 234) = 1.62$, $p = .17$. The reason for this change of results is that of the four excluded persons, three were women who belonged to the motto ($n = 2$) and the learning goal ($n = 1$) condition. Their final company value was substantially lower than of all other participants, so that including these four persons decreased the group means of the motto and the learning goal conditions. Therefore, the

advantage of these two goal types over performance goals in the female subsample disappeared when multivariate outliers were included.

After having analyzed gender differences, further control variables (final high school grade, age, prior Tailorshop experience, Big Five, group size) were included. First, correlations between the control variables and both performance indicators were calculated. To increase the power of an ANCOVA, only a small set of covariates that correlate with the dependent variable should be included (Tabachnick & Fidell, 2007). Only conscientiousness correlated significantly negative with CV trend, $r = -.20$, $p < .05$, and marginally with CV change, $r = -.18$, $p = .05$. To control for conscientiousness, it was included as covariate in a one-way MANCOVA. However, the overall effect of goal type on CV change and CV trend was still non-significant, $F(4, 230) < 1$, *n.s.*

To summarize, goal condition did not influence performance, which contradicted Hypotheses 1a and 1b. However, an unexpected main effect of gender showed that men on average performed better than women. Further, an unexpected interaction between gender and goal type revealed that women benefitted slightly more from motto goals and significantly more from learning goals than from performance goals.

5.2.2 Influence of goal type on intrinsic motivation

The next set of hypotheses concerned the influence of goal setting on intrinsic motivation. It was assumed that intrinsic motivation was higher for participants with motto goals than for participants with learning or performance goals (Hypothesis 2a), and that it was higher for participants with learning than for participants with performance goals (Hypothesis 2b). Intrinsic motivation was measured twice: Directly after goal induction as well as after Tailorshop completion. No hypotheses were formulated regarding the change of intrinsic motivation from measure one to measure two (Chapter 3.2.2), so that an overall main effect of goal condition was assumed. One participant in the performance goal condition was excluded because her Mahalanobis distance score of both measurements indicated that she was a multivariate outlier, $\chi^2(1) > 10.828$, $p < .001$ ²³. Table 5 presents means and standard deviations of intrinsic motivation at both times of measurement in dependence of goal condition.

²³ Including the multivariate outlier did not change any of the results.

Table 5

Means and standard deviations of intrinsic motivation at the two times of measurement in dependence of goal condition

Goal condition	<i>N</i>	Intrinsic motivation (measure 1) <i>M</i> (<i>SD</i>)	Intrinsic motivation (measure 2) <i>M</i> (<i>SD</i>)
Motto	42	5.16 (1.17)	5.24 (1.27)
Learning	41	4.78 (1.24)	5.05 (1.19)
Performance	39	5.14 (1.20)	4.99 (1.44)
Total	122	5.03 (1.21)	5.10 (1.30)

Note. Measure 1 = Intrinsic motivation after goal induction; Measure 2 = Intrinsic motivation measure after Tailorshop completion. Intrinsic motivation was measured via five items (cf. Chapter 4.6.2), range: 1-7. One multivariate outlier was excluded.

As recognizable in Table 5, intrinsic motivation was indeed slightly higher in the motto goal condition than in the other two conditions. To test the hypotheses statistically, a two-way mixed ANOVA with goal condition as between-subjects factor, time of measurement as within-subjects factor, and intrinsic motivation as dependent variable was conducted. The same planned contrasts as in Chapter 5.2.1 (Table 4) were calculated. Other than expected, the main effect of goal type, $F(2, 119) < 1$, *n.s.*, and the associated contrasts, both $t(119) < 1.01$, both $p > .32$, were not significant. Hence, the three goal types did not differ in intrinsic motivation, so that Hypotheses 2a and 2b were not supported. Also the main effect of time, $F(1, 119) < 1$, *n.s.*, and the interaction between goal condition and time of measurement, $F(2, 119) = 1.31$, $p = .27$, were not significant. This implies that intrinsic motivation did not change from the first to the second time of measurement – neither when all groups were aggregated nor in dependence of goal condition.

Including gender as further independent variable in the ANOVA did not reveal any significant main effects or interactions, all $F < 1.70$, all $p > .20$. Of the other control variables, conscientiousness correlated with the second measure of intrinsic motivation, $r = -.18$, $p < .05$, and neuroticism correlated with the first measure of intrinsic motivation, $r = -.28$, $p < .01$. These two variables were included as covariates. Yet, the main effect of goal type, $F(2, 117) < 1$, *n.s.*, the main effect of time, $F(1, 117) < 1$, *n.s.*, and the interaction between goal type and time, $F(2, 117) = 1.58$, $p = .21$, were still non-significant.

All in all, other than expected in Hypotheses 2a and 2b, none of the groups differed regarding their intrinsic motivation across both times of measurement.

5.2.3 Influence of goal type on processing style

The next two hypotheses concerned the influence of goal type on processing style. It was assumed that participants with motto goals perceived objects more globally (Hypothesis 3a) and switched more between global and local processing (Hypothesis 3b)

than participants with performance and learning goals. As explained in Chapter 4.6.3, processing style was measured via a figure task and via intervention breadth in the Tailorshop. For both variables, mean processing style was calculated to test Hypothesis 3a, and intraindividual variability was calculated to test Hypothesis 3b. Analyses were conducted for both indicators separately because they were structurally different from each other – the figure task measured processing style dichotomously, whereas the number of manipulated variables was interval scaled. Furthermore, both indicators did not correlate with each other (mean processing style: $r = .004$, $p = .97$; intraindividual variability: $r = -.03$, $p = .73$). To determine intraindividual stability of intervention breadth, correlations between the exploration phase and the control phase were calculated. Both the mean number of manipulated variables, $r = .63$, $p < .001$, and intraindividual SD , $r = .44$, $p < .001$, correlated significantly but moderately across both phases²⁴. Table 6 depicts the mean processing style and the alternation between global and local processing for both indicators in dependence of goal condition.

Table 6

Means and standard deviations of the two indicators of processing style and variability of processing style in dependence of goal condition

Goal condition	N	Figure task		Intervention breadth	
		Processing style M (SD)	Variability M (SD)	Processing style M (SD)	Intraindividual SD M (SD)
Motto	42	0.48 (0.33)	1.76 (1.30)	3.09 (1.27)	1.77 (0.58)
Learning	41	0.49 (0.34)	1.80 (1.50)	2.97 (0.96)	1.65 (0.58)
Performance	40	0.53 (0.34)	1.70 (1.36)	2.98 (1.29)	1.69 (0.53)
Total	123	0.50 (0.33)	1.76 (1.38)	3.01 (1.17)	1.70 (0.56)

Note. Figure task: Processing style = Mean probability to perceive items locally (0) or globally (1); Variability = Mean tendency to switch between global and local processing over time (0 = no variability, 4 = maximum variability). Intervention breadth: Processing style = Mean number of manipulated variables in the control phase of the Tailorshop; Intraindividual SD = Intraindividual standard deviation regarding the number of manipulated variables over the 12 months of the control phase (high values indicate high variability).

Interestingly, as discernible in Table 6, mean values of the figure task revealed no preference for either global or local processing: Across groups, the mean score was precisely between 0 and 1. Hence, the usual global over local preference (Chapter 2.1.3) was not found in the present study.

To test Hypothesis 3a, two one-way independent ANOVAs with goal condition as independent variable and processing style in the figure task respectively intervention breadth as dependent variable were conducted. To test for group differences, the same

²⁴ Implications of these results regarding the reliability of both measures are discussed in Chapter 6.1.3.

planned contrasts as in Chapter 5.2.1 (Table 4) were calculated. Against the expectations, the main effect of goal type and the planned contrasts were not significant in either of the two ANOVAs, both $F(2, 120) < 1$, *n.s.*, all $|t(120)| < 1$, *n.s.* Hence, Hypothesis 3a was not supported.

Including gender as further independent variable revealed a marginal main effect of gender in the figure task, $F(1, 117) = 2.99$, $p = .09$, showing that men tended to perceive the items more locally ($M = 0.40$, $SD = 0.33$) than women ($M = 0.52$, $SD = 0.33$). The interaction between goal type and gender was not significant, $F(2, 117) < 1$, *n.s.* Regarding intervention breadth, gender did not reveal any main or interaction effect, all $F < 1$, *n.s.* When analyzing further control variables, openness correlated negatively with processing style in the figure task, $r = -.26$, $p < .01$, and neuroticism correlated negatively with intervention breadth, $r = -.18$, $p < .05$. To control for the influence of these two variables, two further ANCOVAs were calculated. Each of them referred to one of the processing style indicators and included the respective covariate. However, group differences were still non-significant, both $F(2, 119) < 1$, *n.s.*

To test Hypothesis 3b, each of the two variability measures was applied as dependent variable in separate one-way ANOVAs with goal condition as independent variable. Again, the same planned contrasts were tested. Even though the results for intraindividual *SD* in intervention breadth pointed into the expected direction (see Table 6), the main effect of goal type and the respective contrasts were non-significant for both variability indicators, both $F(2, 120) < 1$, *n.s.*, all $|t(120)| < 1$, *n.s.*

When including gender as further independent variable, the main effect of gender in the figure task was not significant, $F(1, 117) < 1$, *n.s.*, but an unexpected interaction between goal type and gender on variability was found, $F(2, 117) = 3.31$, $p < .05$. A simple effects analysis with Bonferroni-correction showed that women had the same variability of processing style in all three goal conditions, all $p > .99$, whereas the processing style of men varied significantly more over time when they pursued learning goals ($M = 2.80$, $SD = 1.30$) instead of performance goals ($M = 0.88$, $SD = 1.13$), $p < .05$. The differences between motto goals and the other two goal types were not significant, both $p > .42$. However, due to the small sample size of men in the three conditions, this result is likely to be a random effect. With regard to intraindividual *SD* in intervention breadth, gender did neither exert a main effect, $F(1, 117) < 1$, *n.s.*, nor interact with goal type, $F(2, 117) < 1$, *n.s.* None of the other control variables correlated significantly with the two variability measures, all $|r| < .16$, all $p > .08$, so that no further analyses were conducted.

To summarize, goal condition did neither influence mean processing style nor intraindividual variability, so that Hypotheses 3a and 3b were rejected.

5.2.4 Influence of goal type on positive and negative affect

Next, the influence of goal condition on positive and negative affect was analyzed. Before the hypotheses were tested statistically, Mahalanobis distance was calculated for positive affect and negative affect separately. Each time, all three measurements were included in the analysis. However, none of the participants exceeded the critical $\chi^2(2)$ -score of 13.816 ($p < .001$). Table 7 depicts the affective state of participants in the three goal conditions at all three times of measurement.

Table 7

Means and standard deviations of positive and negative affect at the three times of measurement in dependence of goal condition

Goal condition	N	Positive Affect			Negative Affect		
		Measure 1 M (SD)	Measure 2 M (SD)	Measure 3 M (SD)	Measure 1 M (SD)	Measure 2 M (SD)	Measure 3 M (SD)
Motto	42	2.91 (0.58)	3.08 (0.67)	2.61 (0.78)	1.25 (0.25)	1.20 (0.22)	1.50 (0.46)
Learning	41	2.89 (0.65)	2.72 (0.76)	2.45 (0.73)	1.34 (0.37)	1.44 (0.49)	1.74 (0.61)
Performance	40	2.88 (0.62)	2.83 (0.73)	2.48 (0.81)	1.32 (0.32)	1.33 (0.27)	1.61 (0.59)
Total	123	2.89 (0.61)	2.88 (0.73)	2.51 (0.77)	1.30 (0.31)	1.32 (0.36)	1.61 (0.56)

Note. Measure 1 = Baseline affect; Measure 2 = Affect after goal induction; Measure 3 = Affect after Tailorshop completion. Affect was measured via the PANAS, range: 1-5.

Before examining the influence of goal setting on affect, it was important to analyze whether the three groups unexpectedly differed in their initial affective state. For this purpose, a one-way independent MANOVA with goal condition as independent variable and baseline positive and negative affect as dependent variables was conducted. Because no group differences were assumed at the baseline affect measure, a type two error seemed more dangerous than a type one error. Therefore, Roy's Largest Root, the most liberal test statistics, was applied. As expected, no baseline group differences were found, $F(2, 120) = 1.04$, $p = .36$. Subsequent univariate ANOVAs showed that all three groups reported the same baseline levels of positive as well as negative affect, both $F(2, 120) < 1$, *n.s.*

The hypotheses on affect were twofold and regarded two distinct theoretical issues: The first set of hypotheses concerned the influence of goal induction on affect; the second set of hypotheses concerned the change of affect in dependence of goal condition after CPS. For this reason, two different analyses were conducted. First, only the baseline measure and the affect measure after goal induction were included in the analyses (Chapter 5.2.4.1). Second, only the measure after goal induction, which occurred before CPS, and the measure after CPS were included (Chapter 5.2.4.2). Figure 5 gives an overview of positive and negative affect in dependence of goal condition at all three measures.

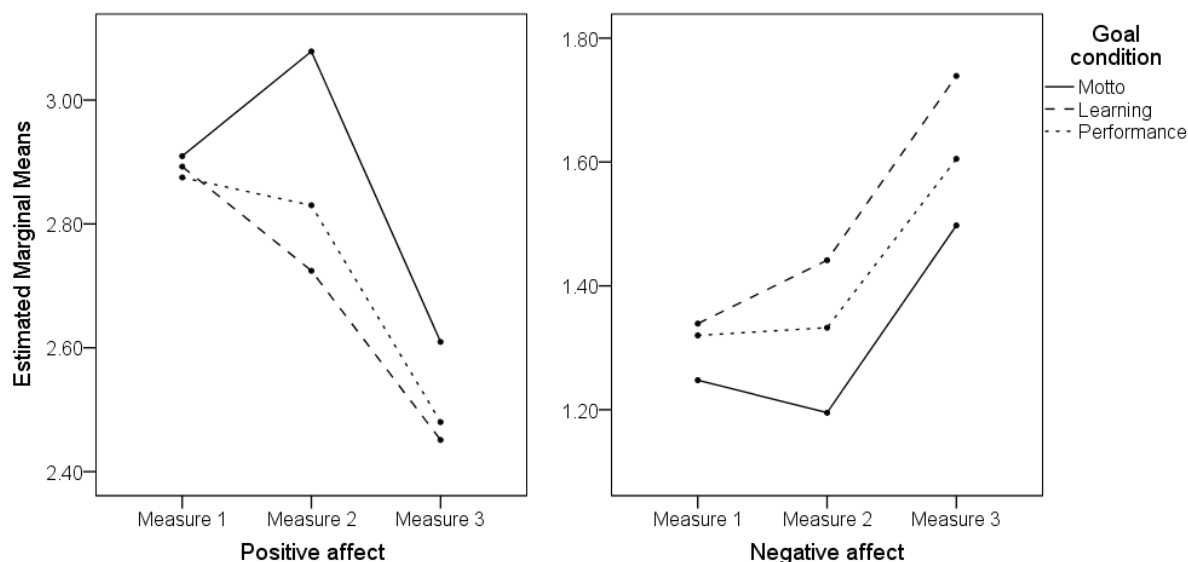


Figure 5. Change of mean positive affect (left side) and negative affect (right side) over the three measurements in dependence of goal condition.

Note. Measure 1 = Baseline affect; Measure 2 = Affect after goal induction; Measure 3 = Affect after Tailorshop completion. The figure only shows scale segments. The whole scale ranged from 1 to 5.

5.2.4.1 Influence on affect after goal induction

Regarding the influence of goal induction on affect, it was assumed that motto goals led to higher positive and lower negative affect than learning and performance goals (Hypothesis 4a) and that learning goals led to higher positive and lower negative affect than performance goals (Hypothesis 4b). Both hypotheses thus assumed an interaction between goal type and time of measurement. To test the assumptions, two separate two-way mixed ANOVAs with goal condition as between-subjects factor, time of measurement as within-subjects factor, and the first two measurements of positive respectively negative affect as dependent variable were conducted. Interaction contrasts were constructed to interpret the interaction between goal condition and time of measurement. These contrasts applied the weights depicted in Table 4, but additionally included the factor time. First, the results for positive affect will be reported. As expected, the main effects of time, $F(1, 120) < 1$, *n.s.*, and goal type, $F(2, 120) < 1$, *n.s.*, were not significant. Further, the interaction between goal type and time was significant, $F(2, 120) = 5.44$, $p < .01$. Also the first interaction contrast, comparing motto goals to the other two goal types over time, was significant, $t(120) = 3.07$, $p < .01$. This indicated that motto goal induction led to a higher increase of positive affect than learning or performance goal induction (see Figure 5), which supported the first part of Hypothesis 4a. Yet, the second interaction contrast, comparing learning to performance goals over time, was not significant and even pointed slightly into the opposite direction, $t(120) = -1.18$, $p = .24$. Hence, Hypothesis 4b was rejected with regard to positive affect.

In a next step, gender was included as further independent variable in the above described ANOVA. Doing this, the interaction between goal type and time disappeared,

$F(2, 117) < 1$, *n.s.* This might be explained by the lower power associated with a higher number of independent variables. Further, the interaction between goal type and gender unexpectedly was significant, $F(2, 117) = 4.13$, $p < .05$. A post-hoc simple effects analysis with Bonferroni correction showed that in the female subgroup motto goals were associated with marginally higher positive affect than learning goals, $p = .06$. The difference between motto and performance goals as well as between learning and performance goals was not significant, both $p > .68$. In the male subgroup, none of the differences between the three conditions were significant, all $p > .10$, which is probably due to the small sample size of men. The main effect of gender, $F(1, 117) < 1$, *n.s.*, as well as the interactions between gender and time, $F(1, 117) = 2.72$, $p = .10$, and between gender, time, and goal type, $F(2, 117) = 2.35$, $p = .10$, were not significant. After having analyzed gender influences, further control variables were taken into account. Only neuroticism correlated with positive affect, measure 1: $r = -.19$, $p < .05$, measure 2: $r = -.26$, $p < .01$, so that it was treated as covariate. However, controlling for neuroticism did not change the significant interaction between goal type and time with regard to positive affect, $F(2, 119) = 5.05$, $p < .01$.

Next, the influence of goal induction on change in negative affect was analyzed with the help of the same two-way mixed ANOVA – only this time with the first two measures of negative affect as dependent variable. Similarly with the findings for positive affect, the main effect of time was not significant, $F(1, 120) < 1$, *n.s.* However, this time the main effect of goal condition reached significance, $F(2, 120) = 3.24$, $p < .05$. Bonferroni-adjusted post-hoc tests showed that participants with motto goals reported significantly lower negative affect than participants with learning goals, $p < .05$. The differences between motto and performance goals and between learning and performance goals were not significant, both $p > .37$. Furthermore, the hypothesized interaction between goal type and time was significant, $F(2, 120) = 3.83$, $p < .05$. The first interaction contrast, comparing motto goals to the other two goal conditions over time, was significant, $t(120) = 2.26$, $p < .05$. This showed that the induction of motto goals led to a significantly higher decrease of negative affect than the induction of the other two goal types. Hence, Hypothesis 4a was supported – not only regarding positive, but also with concern to negative affect. The second contrast, however, was not significant, $t(120) = -1.58$, $p = .12$, and even pointed slightly into the unexpected direction. Thus, participants with learning goals did not differ from participants with performance goals regarding their change in negative affect after the goal was induced. Hypothesis 4b was therefore rejected, both with regard to positive and negative affect.

Next, gender was included in the ANOVA as further independent variable. As before, the main effect of goal type, $F(2, 117) = 1.81$, $p = .17$, as well as the interaction between goal type and time, $F(2, 117) < 1$, *n.s.*, disappeared. Probably, it was again the loss of power that was responsible for the missing significance. This assumption is corroborated by

the fact that neither the main effect of gender, $F(1, 117) < 1$, *n.s.*, nor the interactions between gender and goal type, $F(2, 117) = 1.82$, $p = .17$, gender and time, $F(1, 117) = 1.72$, $p = .19$, and gender, goal type, and time, $F(2, 117) < 1$, *n.s.*, were significant²⁵. Of the further control variables, neuroticism correlated with both measures of negative affect, measure 1: $r = .37$, $p < .001$, measure 2: $r = .35$, $p < .001$, and group size correlated with the first measure, $r = -.22$, $p < .05$. Therefore, both variables were included in the analysis as covariates. Doing this, the main effect of goal type, $F(2, 118) = 3.43$, $p < .05$, and the interaction between goal type and time, $F(2, 118) = 3.10$, $p < .05$, remained significant.

In summary, the significant interaction contrasts revealed that motto goals indeed fostered higher positive and lower negative affect than learning and performance goals, supporting Hypothesis 4a. However, learning goals did not differ from performance goals in the affective state they triggered, contradicting Hypothesis 4b.

5.2.4.2 Influence on affect after CPS

The next set of hypotheses concerned the influence of the Tailorshop experience on positive and negative affect in dependence of goal condition. More specifically, Hypothesis 5a assumed that positive affect decreased less and negative affect increased less after CPS when participants pursued motto instead of learning or performance goals. Hypothesis 5b postulated that positive affect decreased less and negative affect increased less after CPS when participants pursued learning instead of performance goals. Consequently, this time, the second and the third affect measures were regarded. Comparable to the previous chapter, the hypotheses assumed an interaction between goal type and time. Again, two separate two-way mixed ANOVAs with goal condition as between-subjects factor, time of measurement as within-subject factor, and the second and third measures of positive respectively negative affect as dependent variable were conducted. Moreover, the same interaction contrasts as in Chapter 5.2.4.1 were calculated.

The analysis of positive affect revealed an unexpected and highly significant main effect of time, $F(1, 120) = 28.68$, $p < .001$. As Figure 5 shows, positive affect generally decreased over the course of the Tailorshop. The main effect of goal type was not significant, $F(2, 120) = 1.75$, $p = .18$. Further, other than expected, the interaction between goal type and time and the corresponding contrasts were not significant, $F(2, 120) < 1$, *n.s.*, both $|t(120)| < 1.10$, both $p > .27$. A look at Figure 5 reveals that the missing interaction is little surprising: The lines of the three groups connecting the second to the third measure are almost parallel. All these results did not change when CV change and CV trend were included in the analysis as covariates. Hence, Hypotheses 5a and 5b were not supported with regard to positive affect.

²⁵ What is more, due to the significant Box's *M* test and the high F_{\max} -value (see Table A.4), this analysis has to be interpreted cautiously.

Including gender as further independent variable did not change any of the results. However, as in the analysis of the first two affect measures, the interaction between gender and goal type was marginally significant, $F(2, 117) = 2.91, p = .06^{26}$. A simple effects analysis with Bonferroni correction showed that among women motto goals were associated with marginally higher positive affect than learning goals, $p = .07$. The differences between motto and performance goals and between learning and performance goals were not significant, both $p > .75$. Also differences between the goal types in the male subgroup were not significant, all $p > .18$. The main effect of gender, $F(1, 117) = 2.31, p = .13$, as well as the interaction between gender and time, $F(1, 117) = 2.39, p = .13$, and between gender, goal type, and time, $F(2, 117) = 2.33, p = .10$, was not significant. When conscientiousness (correlation with positive affect at measure 3: $r = -.20, p < .05$) and neuroticism (correlation with positive affect at measure 3: $r = -.27, p < .01$) were included as covariates, the main effect of time disappeared, $F(1, 118) = 1.24, p = .27^{27}$. However, the main effect of goal type, $F(2, 118) = 1.35, p = .26$, and the interaction between goal type and time, $F(2, 118) < 1, n.s.$, were still non-significant.

Next, the change of negative affect from the second to the third measurement was analyzed. Again, the main effect of time was highly significant, $F(1, 120) = 43.09, p < .001$. Figure 5 shows that this main effect arose from a significant increase in negative affect from the second to the third measure. Further, the main effect of goal type was significant, $F(2, 120) = 4.00, p < .05$. Post-hoc tests, applying Bonferroni correction, showed that subjects with motto goals reported significantly lower negative affect than subjects with learning goals, $p < .05$. The difference between motto and performance goals as well as between learning and performance goals was not significant, both $p > .48$. The interaction between goal type and time and the corresponding contrasts, contrary to the hypotheses, were not significant, $F(2, 120) < 1, n.s.$, both $|t(120)| < 1, n.s.$ That is, groups did not differ in how negative affect increased from the second to the third measure, as indicated by the parallel lines in Figure 5. When controlling for CV change and CV trend by applying them as covariates, the main effect of goal type became even stronger, $F(2, 118) = 5.32, p < .01$. However, due to the missing interaction, Hypotheses 5a and 5b were not supported for negative affect either.

Next, gender was included as further independent variable. As in the previous chapter, the inclusion of gender let the main effect of goal type disappear, $F(2, 117) = 1.78, p = .17$. Beyond that, the main effect of gender, $F(1, 117) < 1, n.s.$, as well as the interactions between gender and goal type, $F(2, 117) < 1, n.s.$, gender and time,

²⁶ Due to the significant Box's M test and the high F_{\max} -value (see Table A.4), this analysis has to be interpreted cautiously.

²⁷ As the main effect of time was unexpected, an in-depth analysis of the covariates is beyond the scope of the present thesis.

$F(1, 117) < 1, n.s.$, and gender, goal type, and time, $F(2, 117) < 1, n.s.$, was not significant. Thereafter, neuroticism was included as covariate (correlation with measure 3 of negative affect: $r = .25, p < .01$). Comparable to the ANCOVA regarding positive affect, the main effect of time disappeared, $F(1, 119) = 2.47, p = .12$. However, the main effect of goal type remained significant, $F(2, 119) = 3.63, p < .05$, and the interaction between goal type and time remained non-significant, $F(2, 119) < 1, n.s.$

Summarizing the above, the hypothesized interaction between goal type and time was neither found for positive nor for negative affect when regarding the second and the third time of measurement. Thus, Hypotheses 5a and 5b were not supported. However, the main effect of goal type regarding negative affect indicates that subjects with motto goals experienced the lowest negative affect before and after CPS. This difference was significant when comparing motto goals to learning goals, but not when comparing them to performance goals.

5.3 Exploratory analyses

In the following, the exploratory analyses are presented. First, further analyses of the different goal types are briefly described. Thereafter, the influence of goal condition on the time participants invested in the Tailorshop is analyzed. Lastly, the interplay between affect and CPS performance is portrayed and relationships with processing style are examined.

5.3.1 Further analyses of the developed goals

Although an in-depth qualitative analysis of the developed goals is beyond the scope of the thesis, some interesting findings seem worth mentioning (for a full list of the goals in all three conditions see Appendix B.1): It was striking that a large number ($n = 15, 35.70\%$) of participants in the motto goal group chose the tree picture. However, these participants did not differ in their CV change or CV trend from participants who had chosen another picture, both $t(40) < 1, n.s.$ Furthermore, five participants (11.90%) selected the bear and another five the hiker. The wolf and the eagle were selected by four persons (9.50%) each. All of the other pictures, except for the lotus, were chosen by at least one participant. It is furthermore important to mention that the instruction was not understood similarly by all participants. Rather, two subjects in the motto goal condition developed goals which did not seem to truly reflect the picture they had chosen and five subjects in the learning goal condition developed goals which did not directly contain the learning of 15 relationships²⁸.

²⁸ These participants had not been excluded from the analyses because they went through the same goal manipulation as the other participants and because goal development was by definition highly individual. The exclusion would have been based too strongly on my subjective perception of acceptable goals. Above, their mother tongue was in all cases German and they seemed to belong to the same population as all other participants.

Further analyses investigated whether the perceived degree and difficulty of goal attainment and the satisfaction with goal attainment differed across groups. With regard to these three variables, one multivariate outlier in the motto goal condition ($\chi^2(2) > 13.816$, $p < .001$) was identified and excluded from the analysis²⁹. Figure 6 visualizes group means of these three variables.

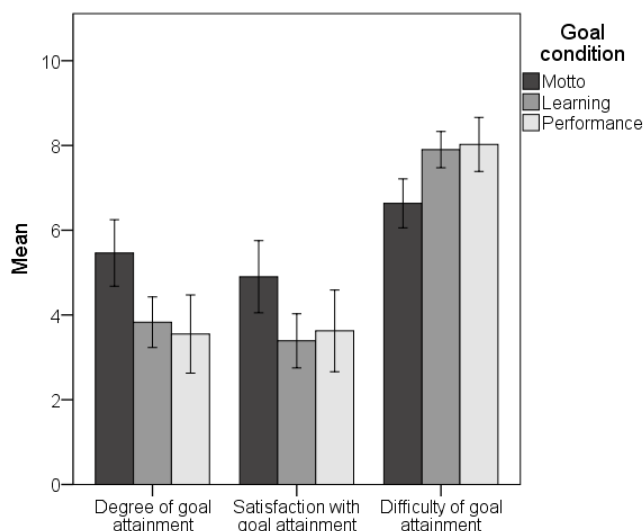


Figure 6. Means of the perceived degree of goal attainment, satisfaction with goal attainment, and difficulty of goal attainment in dependence of goal condition.

Note. Error bars display 95% confidence intervals. One multivariate outlier was excluded.

To test group differences, a one-way independent MANOVA with goal condition as independent variable and goal attainment, satisfaction with goal attainment, and difficulty of goal attainment as dependent variables was conducted. Levene's test showed that variances of degree of goal attainment, $F(2, 119) = 3.65$, $p = .03$, and satisfaction with goal attainment, $F(2, 119) = 5.85$, $p = .004$, were not equal across groups. However, due to equal sample sizes, subsequent ANOVAs should be robust against this violations of assumptions (Field, 2013). The overall effect of goal condition was significant, $F(6, 236) = 3.53$, $p < .01$. Subsequent one-way ANOVAs showed that goal type significantly influenced all three dependent variables, all $F(2, 119) > 3.98$, all $p < .05$. Bonferroni-corrected post-hoc tests revealed that, as depicted in Figure 6, participants with motto goals reported higher goal attainment, were more satisfied with goal attainment, and judged attainment as easier than the other two groups, all $p < .05$. The only group difference which was only marginal was between motto and performance goals regarding satisfaction with goal attainment, $p = .09$. Participants with learning goals did not differ from participants with performance goals on any of the three variables, all $p = .99$.

²⁹ Including the multivariate outlier did not change any of the results.

Next, it was examined whether groups differed in how strong they kept their goal in mind during Tailorshop completion. A one-way ANOVA with goal condition as independent variable and the degree of keeping the goal in mind as dependent variable was significant, $F(2, 120) = 4.17, p < .05$. Bonferroni-corrected post-hoc tests showed that subjects with performance goals ($M = 3.83, SD = 0.90$) kept their goal stronger in mind than subjects with motto goals ($M = 3.24, SD = 0.85$), $p < .05$. The difference between the learning goal group ($M = 3.51, SD = 1.00$) and the other two groups was not significant, both $p > .39$.

5.3.2 The role of time spent on the Tailorshop

Thereafter, it was analyzed whether groups differed in the time they invested in Tailorshop completion and whether the invested time influenced performance. Because not only time in the control phase, but also time taken to delve into the system in the exploration phase might be relevant, both phases were analyzed. First, it was noticeable that participants generally worked on the Tailorshop quite fast. Across groups, mean duration from the beginning of the exploration phase until the end of the control phase was $M = 15:58$ minutes ($SD = 05:10$). Before further analyses were conducted, one outlier in the motto goal condition who spent an extremely long time in the exploration phase ($z > 3.29$) was identified, and her score was adjusted downwards. Next, it was analyzed whether the three goal conditions differed from each other regarding the time participants spent in the two phases of the Tailorshop. One person in the motto goal condition and one person in the learning goal condition were identified as multivariate outliers, both $\chi^2(1) > 10.828, p < .001$, and excluded³⁰. Figure 7 depicts group means of the time subjects spent on both phases.

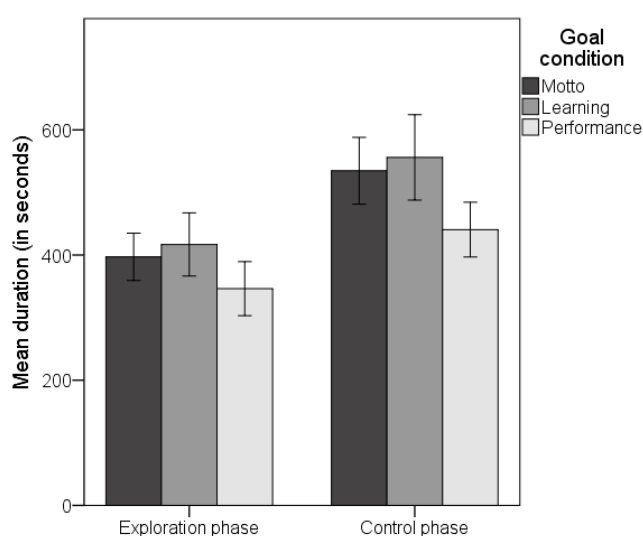


Figure 7. Means of time participants invested in the two phases in dependence of goal condition.

Note. Error bars display 95% confidence intervals. Two multivariate outliers were excluded.

³⁰ Including the multivariate outliers slightly changed some of the significance levels. These changes are reported below.

To test group differences, a one-way independent MANOVA with goal condition as between-subjects factor and time spent in the exploration phase and time spent in the control phase (in seconds) as dependent variables was conducted. According to Levene's test, variance in the duration of the control phase differed between groups, $F(2, 118) = 3.43$, $p = .04$. For this reason, the corrected Welch's F value is reported for the control phase (Field, 2013). The overall effect of the MANOVA was significant, $F(4, 236) = 2.41$, $p < .05$. Separate univariate ANOVAs revealed that goal condition influenced tendentially how fast participants completed the exploration phase, $F(2, 118) = 2.77$, $p = .07$, and significantly how fast they completed the control phase, $F(2, 118) = 4.87$, $p < .01$. Bonferroni post-hoc t-tests showed that participants with performance goals finished the exploration phase tendentially faster than participants with learning goals, $p = .07$. In the exploration phase, subjects with motto goals did not differ significantly from the other two conditions, both $p > .30$. Similar results were obtained for the control phase, which was finished significantly faster by participants with performance goals than by participants with learning goals, $p < .05$. In this phase, the difference between performance and motto goals was also nearly significant, $p = .05$. The motto and the learning goal condition did not differ from each other, $p = .99$. When the multivariate outliers were included, the influence of goal type on the time spent in the exploration phase was no longer marginal, but significant, $F(2, 120) = 3.34$, $p < .05$. Furthermore, the post-hoc found group difference between learning and performance goals in the exploration phase became significant, $p < .05$.

Subsequent analyses with all 123 participants revealed that the duration of the control phase correlated marginally with CV change, $r = .16$, $p = .07$, and CV trend, $r = .17$, $p = .07$. That is, performance was slightly higher for participants who invested more time in the Tailorshop. Also the time spent in the exploration phase correlated marginally with CV trend in the control phase, $r = .16$, $p = .07$, but not with CV change in the control phase, $r = .11$, $p = .21$. These results raise the question whether participants in the performance goal condition would have achieved higher performance scores than the other two groups if they had invested more time in the Tailorshop. It might be appealing to approach this question with the help of a one-way ANCOVA with duration as covariate. However, as convincingly propounded by Miller and Chapman (2001), such an analysis is not appropriate in the present case because the groups differ on the covariate. Thus, the question cannot be answered in the current study.

5.3.3 The interplay between affect and CPS performance

A further exploratory question regarded the role of affect in CPS. To illuminate this issue, mediational analyses were conducted for positive and negative affect and the two performance indicators. Affect before CPS (after goal induction) served as independent variable, affect after CPS served as dependent variable, and CPS performance served as

mediator variable. Doing this, the values of participants in all three conditions were aggregated. Because the two performance indicators seem to be causally related (a high number of gain months implies a high final company value and vice versa), a multiple mediator model with both performance indicators seemed inappropriate (Hayes, 2013). The preferred option was to calculate four different models for each of the two performance indicators and for positive and negative affect separately. As the variance of CV change was extremely large when compared to the variance of the other variables, all variables were z-standardized beforehand. The significance of indirect effects was tested with the help of bootstrapped 95% confidence intervals (bootstrapping sample = 5000). Figure 8 displays the resulting models including *b*-values and significance levels.

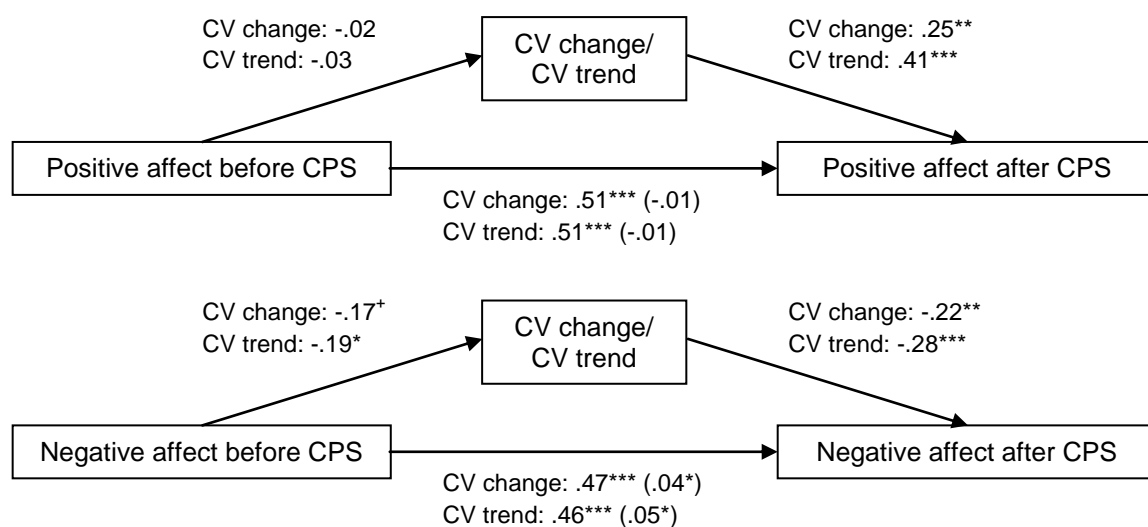


Figure 8. Models of affect before CPS as predictor of affect after CPS, mediated by CPS performance.

Note. The indirect effect of affect before on affect after CPS through CPS performance is in parentheses. + = $p < .10$, * = $p < .05$, ** = $p < .01$, *** = $p < .001$.

The first and the second mediational model (upper part of Figure 8) tested whether positive affect before and after CPS were related and whether this relationship was mediated by CV change respectively CV trend. Results showed that the direct effect of positive affect before CPS on positive affect after CPS was significantly positive. That is, subjects who experienced positive affect after goal induction were likely to experience positive affect after CPS as well. Furthermore, a high performance regarding CV change and CV trend significantly predicted positive affect after CPS. However, positive affect before CPS did neither predict CV change nor CV trend, so that the indirect effect of positive affect before CPS on positive affect after CPS through performance was not significant, too. Hence, performance did not mediate the relationship between positive affect before and after CPS.

The third and the fourth model (lower part of Figure 8) investigated whether the relation between negative affect before and after CPS was mediated by CV change respectively CV trend. The direct effect of negative affect before CPS on negative affect after CPS was again significantly positive. That is, participants who experienced negative affect after goal induction were likely to experience negative affect after having completed the Tailorshop as well. In addition, the relationship between CV change respectively CV trend and negative affect after CPS was significant and negative. Hence, low performance led to high negative affect. Finally, the influence of negative affect before CPS on Tailorshop performance was marginal for CV change and significant for CV trend. Thus, approaching the Tailorshop with high negative affect led to low CV trend and low CV change values, which indicates bad performance. The indirect effect of negative affect before CPS on negative affect after CPS through CV trend was small but significant in both models (model 3: $b = .04$, BCa CI [0.01, 0.09], $\kappa^2 = .04$; model 4: $b = .05$, BCa CI [0.02, 0.11], $\kappa^2 = .06$). This means, the relationship between negative affect before and after CPS was indeed mediated by Tailorshop performance, albeit with a small effect size.

Next, the four models were tested for each of the three goal conditions separately. The resulting models can be found in Appendix B.2. Although a comprehensive analysis of all models in each goal condition is beyond the scope of the present thesis, one interesting finding is worth to be mentioned: In the motto and learning goal conditions, positive affect did not significantly influence CPS performance. Yet, in the performance goal condition, positive affect was detrimental for subsequent CV change, $b = -.30$, $p < .05$. The relationship between positive affect before and after CPS was significantly mediated by CV change, $b = -.13$, BCa CI [-0.31, -0.03], $\kappa^2 = .19$. However, the relationship between positive affect before CPS and CV trend was not significant, $b = -.20$, $p = .25$, so that no mediation via CV trend occurred. Negative affect did neither influence CV change, nor CV trend in the performance goal condition, whereas it decreased performance in the learning and motto goal conditions.

After having tested these meditational models, it seemed interesting to analyze correlations of processing style with affect as well as CPS performance. In doing so, only the second measure of positive and negative affect was included because it occurred in the same stadium of the study as the measure of processing style. The resulting correlations are depicted in Table 8.

Table 8

Correlations between CPS performance, affect, processing style, and processing variability

Total (N = 123)	1	2	3	4	5	6	7	8
1 CV change	1.00							
2 CV trend	.57***	1.00						
3 Positive affect 2	-.02	-.03	1.00					
4 Negative affect 2	-.17 ⁺	-.19 [*]	-.15 ⁺	1.00				
5 Processing style (FT)	-.04	-.07	.03	-.09	1.00			
6 Variability (FT)	-.02	-.06	.19 [*]	.02	-.04	1.00		
7 Processing style (IB)	-.28**	-.11	.29**	-.13	.004	.09	1.00	
8 Intraindividual SD (IB)	-.09	.25**	.21 [*]	-.07	-.03	-.03	.22 [*]	1.00

Note. The correlation between CV change and CV trend differs from the correlation reported above (Chapter 5.2.1) because this time multivariate outliers were not excluded. FT = Figure task; IB = Intervention breadth; ⁺ = $p < .10$, ^{*} = $p < .05$, ^{**} = $p < .01$, ^{***} = $p < .001$.

Interestingly, positive affect was associated with a high intervention breadth, but not with global processing in the figure task. Furthermore, positive affect correlated with both variability measures. Negative affect did not correlate with any of the four measures. When analyzing CPS performance, general processing style as well as processing style variability in the global-local task did not correlate with either of the two performance indicators. However, intervention breadth correlated significantly negative with CV change, indicating that performance was higher when participants manipulated a low number of variables, which was interpreted as local processing style. Furthermore, intraindividual SD of intervention breadth significantly predicted CV trend in that participants who switched between global and local processing achieved a higher number of gain months.

6 Discussion

In this last section of the present thesis, the obtained results are discussed critically and interpreted in the light of the theoretical background. Furthermore, practical implications are derived and limitations of the present study are addressed. Finally, possible directions for future research are presented.

6.1 Discussion of the findings and theoretical implications

The major aim of the present study was to examine the influence of three different goal types – motto, learning, and performance goals – on performance, intrinsic motivation, processing style, and affect in a CPS task. Other than expected, the main effect of goal type on performance, intrinsic motivation, and processing style was not significant. Furthermore, expected interactions between goal condition and time with regard to positive and negative

affect were only partly supported: The interaction was only significant when analyzing affect directly after goal setting. When analyzing the influence of goal condition on affect after the CPS task was finished, no interaction was found. Instead, a main effect of goal type indicated that participants with motto goals experienced the lowest negative affect.

Exploratory analyses revealed that participants with motto goals reported the highest and easiest goal attainment and the highest satisfaction with goal attainment. Further, participants with performance goals completed the Tailorshop the fastest. Lastly, the relationship between affect and CPS performance was analyzed via mediational models. It was found that negative affect generally hindered participants from performing successfully, while positive affect was not related to CPS performance. In the following, all these results and further findings are described in more detail and discussed critically. Doing this, possible explanations for missing group differences are provided and the findings are embedded into previous research and theories. Before beginning the discussion, I would like to make one important remark: We will see in the following that the present findings can to a large extent be explained with the help of PSI theory. Even though these explanations are mostly consistent with prior research, they still hold the danger that in hindsight many findings can be integrated in PSI theory. Its great complexity and vast extent are certainly a major strength of the theory, but in the present study this might carry the risk to draw premature conclusions. Hence, it is important to mention that the possible explanations for the present results remain to a large extent speculative. In further research, the assumptions of PSI theory might be directly tested, like it was done for instance in the study by Weber (2013). This limitation, however, should not decrease the relevance of the present study as the overall aim was to detect group differences rather than investigating underlying mechanisms.

6.1.1 Findings on CPS performance

A first conspicuous result of the analysis of Tailorshop performance was that participants performed worse in the present study than in past research. This was especially the case for CV trend, which is the more reliable of both applied performance measures (Danner, Hagemann, Holt, et al., 2011). Several reasons might explain this unexpected finding. First, most participants in the present study were first semester psychology students who probably had little experience in the management of organizations. However, exactly such general economic knowledge might be important for a good Tailorshop performance (Wittmann & Hatstrup, 2004). Participants in the study by Danner, Hagemann, Schankin, et al. (2011) were employees with a mean age of 43 years, who probably had gained more economic knowledge and experience in organizational processes. However, participants in Hammon's (2012) study were also mainly undergraduate students and probably did not differ largely from participants in the present study. This means that there must be further

explanations for the low performance. One possible further reason regards the gender composition of the study sample: In the present study, the percentage of men was slightly lower (19.50%) than in the studies by Hammon (24.18%) and by Danner, Hagemann, Schankin et al. (29.75%). As men performed better than women in the present study, a more balanced gender ratio might have increased overall performance. Furthermore, the group testing setting might have led to competitive pressure and a subsequent decrease of performance. Another reason for the low performance might be the manipulation of the present study. Setting a particular goal and keeping it in mind during Tailorshop completion might have increased cognitive load and interfered with learning processes (Sweller, 1988). This assumption is in line with the resource allocation theory by Kanfer and Ackerman (1989, Chapter 2.4.1.1) which purports that cognitive resources should be allocated to the discovery of task strategies instead of goal pursuit as long as task rules have not been learned yet. Certainly, participants in the present study did not know task rules well. Apart from reading the instruction, most of them had not gained any previous experience with the Tailorshop. However, resource allocation theory in combination with subsequent research also indicates that pursuing learning goals does not lead to a maladaptive resource allocation. The same is assumed for motto goals, which seem to allocate resources on those cognitive functions that are necessary for a successful Tailorshop completion. Hence, increased cognitive load and maladaptive resource allocation can only explain why participants with performance goals performed poorly. In total, various explanations can be proposed for the rather low performance of the present sample. Which of these factors indeed exerted an influence cannot be decided on the basis of the present data, but may be illuminated in future research.

In the following, findings on the influence of goal type on CPS performance are described and related to the theoretical background. Thereafter, exploratory findings on CPS performance, namely gender differences and the influence of the time spent in the Tailorshop, are discussed.

6.1.1.1 Influence of goal type on CPS performance

The central question with regard to CPS performance was whether it differed in dependence of goal condition. More precisely, it was hypothesized that motto goals led to higher performance than learning and performance goals, and that learning goals led to higher performance than performance goals. However, none of the two hypotheses was confirmed. Instead, groups did differ neither in CV change nor in CV trend.

First, possible explanations for the missing difference between motto goals and high, specific goals are discussed. First and foremost, goal commitment might have been too low in all conditions to influence behavior. Several studies showed that commitment is a necessary prerequisite for high, specific goals to affect performance (e.g., Locke & Latham,

1990; Seijts & Latham, 2001; Seijts & Latham, 2011; Seijts et al., 2004). Achieving a high company value or learning relationships between the system's variables might not have been a goal participants felt strongly committed to, even though it was tried to increase the personal goal significance through individual goal specification. Motto goals might have been associated with higher commitment because they were developed freely and with the use of positive somatic markers. Yet, research has indicated that motto goals affect performance only if the assigned overall objective is indeed desired. Otherwise, participants seem to detach themselves from their motto goal (Temme, 2013). Participants might not have perceived the general objective in the Tailorshop – an increase of company value over time – as attractive enough for motto goals to work. In future research, it may be tried to stronger connect the CPS task to personal needs – for instance by introducing it as *computer game* to be played instead of a *complex problem* to be solved, or by rewarding high performance. Second, the missing performance differences between motto goals and high, specific goals might be explained by the fact that motto goals are developed on the basis of somatic markers: Participants were instructed to make use of their somatic markers when choosing a picture to help them in the Tailorshop, without even knowing exactly what the Tailorshop was like. However, successfully applying somatic markers as diagnostic tool requires that persons have gained previous experience with similar situations (M. Storch & Krause, 2014). Possibly, the lack of familiarity with the Tailorshop or comparable CPS tasks impeded the successful use of somatic markers, so that motto goals were not exactly adjusted to Tailorshop requirements. Similar inferences can be drawn from PSI theory: Motto goals are believed to activate the extension memory, which in turn is able to give an overview of prior life experiences that might be relevant in a specific situation (Kuhl & Strehlau, 2014). Even though this capacity is certainly helpful in most situations, it requires that a person indeed possesses relevant experiences. This might not have been the case in the Tailorshop. However, the extension memory possesses another capacity which might have helped participants indirectly: It is able to regulate affect (Kuhl, 2000; M. Storch, 2011). As different affective states are assumed to activate different systems (see Table 1 in Chapter 2.3.1.3), this capacity should enable the extension memory to activate any other system that is required to successfully work on the Tailorshop. The increase of negative affect during Tailorshop completion might indicate that participants with motto goals, whose extension memory was supposed to be active, activated the object recognition system by up-regulating negative affect. The object recognition is specialized on the detection of new and unexpected information and errors (M. Storch & Kuhl, 2013). Possibly, exactly this focus on defective details was adaptive in the Tailorshop scenario where single flaws, like not matching the number of workers to the number of machines, can have detrimental consequences. However, high, specific goals were also likely to activate the object

recognition system in addition to the intention memory. Participants in these two conditions were instructed to monitor their company value and were explained how to deal with errors, so that an activation of the object recognition system seems likely. Hence, if it is true that the objection recognition system was adaptive for Tailorshop completion and that it was active in all three groups, the missing performance difference is not longer surprising. Yet, it is difficult to bring these assumptions in line with the exploratory results concerning the relationship between affect and CPS performance. These analyses showed that negative affect was *detrimental* for CPS performance. This indicates that the object recognition system, if any, only played a minor role in successful CPS. A third reason for the missing difference between motto goals and high, specific goals might be that the present study did not fully exploit the potential of motto goals. One of the major strengths of motto goals is the facilitated crossing of the psychological Rubicon (Chapter 2.3.2), which allows the transfer of intentions into behavior. In the present study, this competency might not have been required because Tailorshop completion probably went without saying for all participants. Hence, the study design might not have made use of the unique strength of motto goals – to encourage persons to perform activities, as unpleasant as they may be.

Leaving aside motto goals, the finding that performance goals led to the same performance as learning goals was surprising in the light of the number of past studies that ascribed learning goals an advantage in complex tasks. One plausible explanation for this finding is that most of the previous studies did not use truly complex tasks (Chapter 2.4.1.2). Combined with the finding that, on average, the advantage of learning over performance goals has quite a low effect size ($d = -.39$) in complex tasks (Seijts et al., 2013), it can be speculated that the Tailorshop might have been too complex for learning goals to outperform performance goals. Instead of goal setting, the ability of participants to deal with such tasks might have been a stronger predictor of performance (Locke & Latham, 2002). A further reason for the missing difference between learning and performance goals might be that learning goals seem more beneficial for participants with low cognitive ability and performance goals more beneficial for participants with high cognitive ability (Seijts & Crim, 2009). In the current study, most participants were psychology students with an exceptionally good high school diploma, which most likely indicates high cognitive ability. Hence, in the present sample, performance goals might have had an advantage that counterbalanced the general advantage of learning goals in complex tasks. Furthermore, the task framing might have given performance goals an advantage. All participants learned that the overall objective was an increase in company value – which is a clear performance framing. Locke and Latham (1990) remarked that an effective goal has to match the performance measure. Even though it was tried to frame the Tailorshop in a way that was compatible with learning goals, participants always knew that in the end their performance

counted. This overall objective might have influenced behavior stronger than goal setting per se. Another possible explanation for the lack of difference between learning and performance goals can be inferred from the study by Drach-Zahavy and Erez (2002). The authors found that learning goals only led to higher performance when the task was perceived as threatening. When participants felt challenged by the task, performance goals were equally successful (Chapter 2.4.1.2). Possibly, subjects in the present study regarded the Tailorshop as challenge. The direct performance feedback, the precisely defined overall objective, the knowledge of previous participants' performance, and the group setting might all have contributed to the development of ambition and to a feeling of being challenged. If this assumption holds true, it could explain why both goal types were equally beneficial.

6.1.1.2 Gender differences in CPS performance

Unexpectedly, participants' gender influenced CPS performance in the form of a main effect as well as an interaction with goal type. The main effect revealed that men performed better than women on both performance indicators. This finding could on first glance be ascribed to a generally lower ability of women in the Tailorshop, but this explanation appears rather unlikely. Instead, it seems more plausible that women were exposed to a stereotype threat as it was the case in a study by Meyer, Grütter, Oertig, and Schuler (2009). The authors investigated whether the performance of female participants decreased if the Tailorshop was associated with negative female stereotypes. They introduced the task either as diagnostic tool and complex scenario (stereotype threat) or as simulation game (no stereotype threat). In the stereotype threat condition, women indeed reported slightly higher values of anxiety and their performance was significantly lower than in the neutral condition. In the present study, the Tailorshop was introduced as CPS task, subjects were aware of the performance operationalization, and they were shown a graph depicting previous participants' performance. All these methods were applied for good reasons (Chapter 4.4.2), but the flip side of the coin might have been an involuntary stereotype threat. However, in the study by Meyer et al. (2009), women also performed worse than men when the task was not framed as stereotype threat. This indicates that there must be other explanations for the comparatively low performance of women beyond a stereotype threat. Research has shown that experience with analogous problems increases CPS performance (A. Fischer et al., 2012; Funke, 2003). Hence, in future research it might be interesting to investigate what kind of computer experience participants possess. Possibly, before participating in the present study men had gained more experience with computer simulations similar to the Tailorshop. This assumption is corroborated by a study showing that boys aged between 5 and 13 played more computer games than girls and that they preferred games which were judged as being masculine (Cherney & London, 2006). Managing organizations, like in the Tailorshop, might be

perceived as masculine computer scenario because a prototypical manager is mostly perceived as being male (Meyer et al., 2009). Controlling for computer game experience and the perceived masculinity of preferred computer games might therefore be promising. Apart from that, variables like individual performance orientation, self-efficacy, or mathematical ability might be interesting to investigate.

Beyond the main effect of gender, results revealed an interaction between gender and goal type. This interaction was specified by the finding that women benefitted slightly more from motto goals and significantly more from learning goals than from performance goals with regard to CV change. This was in line with Hypothesis 1a, which assumed an advantage of motto goals over high, specific goals, and with Hypothesis 1b, which assumed an advantage of learning over performance goals. Possibly, the higher performance of females with motto and learning goals can be explained by the higher amount of time they invested in the Tailorshop. The positive correlation between Tailorshop duration and performance (Chapter 5.3.2) may explain why women with performance goals, who completed the Tailorshop the fastest, performed the worst. They might have felt higher pressure to work fast, less necessity to understand the system structure, or lower motivation to fully engage in the task. This consideration can also explain why the performance of females with motto goals, contrary to the expectations, did not differ from females with learning goals: Both groups invested the same amount of time in Tailorshop completion. Yet, it is important to mention two constraints of the analysis: First, the three goal conditions only differed with regard to CV change, which is the less reliable of both performance indicators (Danner, Hagemann, Holt, et al., 2011). Second, when multivariate outliers were included, the influence of goal condition on performance for women disappeared. This shows that these results are highly fragile and should not be overestimated. Even though learning and motto goals had a slight advantage over performance goals in the female subgroup, this advantage was not very pronounced. Group differences for men were not significant, which is certainly attributable to the small sample size, so that this result is not interpreted further.

6.1.1.3 Influence of invested time on CPS performance

Exploratory analyses unexpectedly revealed that participants with performance goals invested slightly less time in the exploration phase and significantly less time in the control phase of the Tailorshop than participants in the other two conditions. This finding is in line with the results by Seijts et al. (2004) who found that subjects with learning goals spent more time in the Cellular Industry Business Game, a task fairly similar to the Tailorshop, than subjects with performance goals. Apparently, the sheer outcome-focus of performance goals fosters the pressure to reach this outcome immediately and efficiently (Latham et al., 2008), without investing much time in the acquisition of task knowledge.

However, this speed can be detrimental as shown by the lower performance of the performance goal group in the study by Seijts et al. (2004). This is corroborated by the finding that the time spent in both Tailorshop phases correlated with performance in the present study (though the correlation was marginal). Whether performance in the performance goal condition would have been better if subjects had invested more time in Tailorshop completion could not be analyzed on the basis of the present data. However, a better performance of the performance goal group in comparison to the other two groups seems unlikely given the large amount of studies showing the opposite (Chapter 2.4.1.2). Furthermore, even if spending more time in the Tailorshop had increased performance in the performance goal group, this advantage would have been merely hypothetical. Rather, it seems to be a central feature of performance goals to hinder persons from investing the time necessary to understand the system's structure.

6.1.2 Findings on intrinsic motivation

Apart from the main effect of goal type on performance, a main effect on intrinsic motivation was assumed. More precisely, the hypotheses postulated that motto goals should lead to higher intrinsic motivation towards the Tailorshop than high, specific goals (Hypothesis 2a), and that learning goals should lead to higher intrinsic motivation than performance goals (Hypothesis 2b). Although participants with motto goals indeed reported slightly higher intrinsic motivation than participants in the other conditions, the main effect of goal type was not significant. Remarkable is the high degree of intrinsic motivation reported across groups. On a scale from 1 to 7, the mean was $M = 5.03$ ($SD = 1.21$) before and $M = 5.10$ ($SD = 1.30$) after Tailorshop completion. This finding is difficult to reconcile with Self-Determination Theory, which, as explained in Chapter 2.4.2, assumes that a feeling of competence and autonomy is crucial for intrinsic motivation. In the Tailorshop, most participants were not able to maintain the initial company value, which makes a feeling of competence unlikely. Nevertheless, they enjoyed the task. A possible reason for this discrepancy is that participants were well aware of the difficulty of the task: They had been shown the performance of previous participants before they themselves started the Tailorshop. This might have helped them to judge their own competence more realistically or even optimistically and to feel intrinsically motivated even in the face of losses. When interpreting the results in the light of PSI theory, the high level of intrinsic motivation may suggest that all three goal types activated the extension memory, which is associated with intrinsic motivation (Kuhl, 2000). However, this option seems quite unlikely for two main reasons. First, previous research indicated differential activation of systems through motto goals and high, specific goals (Weber, 2013). Second, the three goal conditions indeed differed in positive and negative affect, which contradicts the assumption of an active extension memory in all three groups. Rather, the Tailorshop seems to exhibit inherent

qualities that participants in all groups perceived as enjoyable, so that goal condition did not exert a strong influence beyond the task itself. Moreover, most subjects were first semester psychology students in the very first weeks of their studies. For many of them, the present study was the first one they ever participated in, so that they might have been more motivated than under other circumstances.

The missing difference in intrinsic motivation between the learning and performance goal condition indicates that, other than proposed in Chapter 2.4.2, results regarding individual *goal orientation* are not directly generalizable to externally prescribed *goal setting*. Possibly, individuals with learning goal orientation indeed experienced higher intrinsic motivation in the Tailorshop than participants with performance goal orientation, as it seems to have occurred in past research (Daniels et al., 2009; Pekrun et al., 2006, 2009). In this case, goal setting per se might have exerted less influence on intrinsic motivation than goal orientation. The probably even distribution of subjects with both types of goal orientation across groups could explain the lack in group differences. Beyond all these considerations, it is important to regard methodological constraints. Previous research mostly measured intrinsic motivation via behavioral as well as self-report measures (Chapter 4.6.2). In the present study, the behavioral measure was not taken into consideration. Although this happened for good reasons, the observation whether participants voluntarily repeated the Tailorshop in a free-choice period might have revealed further insightful results.

6.1.3 Findings on processing style

The next set of hypotheses assumed a main effect of goal type such that participants with motto goals processed information more globally (Hypothesis 3a) and switched more readily between global and local processing (Hypothesis 3b) than participants with high, specific goals. Mean processing style and intraindividual variability of processing style were measured via a global-local figure task as well as via intervention breadth in the Tailorshop. Surprisingly, both indicators did not correlate with each other. Apparently, either both indicators measured different constructs or one of them was unreliable. This raises the question which of the two indicators was more adequate to operationalize processing style. Although the figure task had been successfully used in previous studies (Chapter 4.6.3), research showed that it is subject to situational influences like exposure duration, retinal location, and relative size of the elements (Kimchi, 1992; Kimchi & Palmer, 1982). Because such influences were not controlled in the present study, the figure task might have measured processing style quite unreliably. Intervention breadth, on the other hand, might be more reliable since its values in the exploration and the control phase correlated significantly. It could be criticized that the correlation was not high enough to indicate good reliability, but the different requirements of both phases of the Tailorshop might account for the moderate correlation. Hence, the intervention breadth measure

seemed quite reliable, but until now the question remains open whether it indeed measured processing style.

To approach this question, analyzing convergent validity via the correlations between affect and processing style seemed promising. Interestingly, positive affect correlated with intervention breadth, but not with processing in the figure task. Since past research has repeatedly shown that positive affect is associated with a preference for global processing (Chapter 2.1.3), this result suggests that intervention breadth portrayed processing style more precisely than the figure task. The results further showed that positive affect not only correlated with average intervention breadth, but also with its intraindividual variability. This is in accordance with past research revealing that positive affect can enable individuals to switch between global and local processing when the task requires it (Baumann & Kuhl, 2005). We can conclude that in the present study processing style seems to be depicted more precisely by intervention breadth than by the figure task. However, the possibility cannot be ruled out that intervention breadth measured a third construct which is also related to positive affect. This possibility is supported by the missing link between negative affect and a preference for local processing.

In the following, results regarding overall processing style are discussed. Other than expected in Hypothesis 3a, motto goals fostered the same degree of local processing as the other two goal types, not only in the figure task, but also with regard to intervention breadth. Possibly, participants with motto goals perceived a focus on details (local processing) as stronger resource for the Tailorshop than maintaining an overview (global processing). If this assumption holds true, participants with learning or performance goals would have processed information locally because their high, specific goal encouraged this kind of processing. Participants with motto goals on the other hand would have processed information locally because they assumed this processing style to be adaptive in the Tailorshop. This consideration is in line with the finding that subjects in the present study did not show the typical global over local preference (e.g., Kimchi, 1992; Navon, 1977). However, it is important to note that the rather local processing in the figure task might also be explained by the methodological problems described above.

The second hypothesis regarded group differences in intraindividual switching between local and global processing. Although mean values of intraindividual *SD* in intervention breadth pointed in the expected direction, group differences were not significant, so that Hypothesis 3b was not supported. In the light of the finding that motto goals indeed increased positive affect more than the other two goal types (Chapter 5.2.4.1), this result is astonishing. Combined with the above described relationship between positive affect and intraindividual variability in intervention breadth, it is surprising that motto goals led to higher positive affect, but not to more frequent shifts between global and local

processing. This apparent contradiction might be attributable to the rather low correlations between positive affect and the alternation between both processing styles. Furthermore, the two indicators used in the present study might not have depicted the *ability* to change between global and local processing precisely enough. Especially the figure task measured preference for global versus local processing instead of the ability to adapt processing style to task requirements. Whether intervention breadth depicted the ability to adapt to task requirements cannot be said with certainty. As there are different possibilities to increase company value in the Tailorshop, it is difficult to precisely define task requirements, and it is unclear whether frequently varying the number of manipulated variables is indeed more successful than other strategies. Hence, even if groups differed in their ability to switch between local and global processing, the operationalization of this ability might not have been able to detect these differences. A further limitation of the intervention breadth indicator is that the *magnitude* of manipulation might be more indicative of processing style than the mere *number* of manipulated variables. When a participant changed all variables, his processing style was interpreted as maximally global, even if the changes were only faint (e.g., shirt price of 53 instead of 52). A participant who changed only one variable was assumed to have a local processing style, even if he or she chose an extreme value (e.g., shirt price of 150). In future research, it might be interesting to analyze the amount of change over and above the number of manipulated variables. Also reaction time measures, as applied by Baumann and Kuhl (2005), might reveal group differences in switching ability. Hence, the missing group differences in average processing style as well as in variability of processing style might be due to methodological problems. The fact that goal setting indeed influenced affect, and that affect is strongly connected to processing style (Chapter 2.1.3), emphasizes the need for further research to clarify the role of processing style.

6.1.4 Findings on positive and negative affect

With regard to the influence of goal type on affect, two sets of interaction hypotheses were postulated. The first two hypotheses concerned affect after goal induction and assumed that motto goals should lead to higher positive and lower negative affect than learning or performance goals (Hypothesis 4a), and that learning goals should lead to higher positive and lower negative affect than performance goals (Hypothesis 4b). The next two hypotheses regarded affect after Tailorshop completion and assumed that positive affect should decrease less and negative affect should increase less after CPS when participants pursued motto goals instead of learning or performance goals (Hypothesis 5a) and when participants pursued learning goals instead of performance goals (Hypothesis 5b). Analyses were conducted for positive and negative affect separately and in two subsequent steps. The results are discussed in the following.

6.1.4.1 Influence of goal type on affect after goal induction

In order to test the first two hypotheses, baseline affect and affect after goal induction was analyzed. Results indeed revealed the hypothesized interaction between goal type and time for positive as well as negative affect. Supporting Hypothesis 4a, interaction contrasts showed that positive affect increased and negative affect decreased stronger when participants were induced motto goals instead of learning or performance goals. This result is in line with the findings by Weber (2013) and Temme (2013) whose participants reported the same affective pattern after the development of motto goals (Chapter 2.4.4.1). Hence, the results of the present study deliver further support for the capability of motto goals to foster a positive affective pattern. This is corroborated by the significant main effect of goal type on negative affect, which revealed that subjects with motto goals reported the lowest negative affect of all groups (however, the difference between motto and performance goals was not significant). Taking into consideration that subjects in the present study did not participate in the original comprehensive and multi-day ZRM training, but only completed a short online tool, this influence on affect is a remarkable achievement of motto goals. However, it is important to note that positive affect was close to the scale mean in all three groups at the first and the second measure and negative affect was close to the left side of the scale in all three groups, which indicated a floor effect. Hence, none of the groups reported very strong affective experiences. Transferring the results to PSI theory, motto goals indeed seemed to activate the extension memory more than the other two goal types did. Although the activation of personality systems was not directly tested in the present study, past research supports the association of the extension memory with increasing positive and decreasing negative affect (Weber, 2013).

Results further showed that the difference in affect triggered by learning versus performance goals was not significant, contradicting Hypothesis 4b. On the one hand, this missing difference indicates that past research on goal orientation, which built the foundation for Hypothesis 4b (Chapter 2.4.4.1), might not be generalizable to mere goal setting. Possibly, stable individual goal orientation, as it had been assessed in past research, exerted stronger influence on subsequent affect than externally assigned high, specific goals in the present study did. On the other hand, methodological differences between the studies might explain why the results of past research were not corroborated by the present study. The authors of the cited studies did not assess momentary positive and negative affect, as it was done in the present study, but learning-related emotions (e.g., *I get tense and nervous when studying*) (Daniels et al., 2009; Pekrun et al., 2006, 2009). Possibly, goal setting and goal orientation are more strongly related to such domain-specific affective experiences than to general affective state. The missing difference between the learning and the performance goal condition can furthermore be explained by PSI theory:

As both goal types are assumed to activate the intention memory (Chapter 2.3.2), it is not surprising in the light of PSI theory that they triggered the same affective pattern.

When gender was included as further independent variable, the influence of goal type on affect disappeared. Although this might be attributable to the power loss through a higher number of independent variables, the result suggests that the positive affective pattern triggered by motto goals does not necessarily apply to both genders. This is further supported by the significant interaction between goal type and gender regarding positive affect. Post-hoc tests showed that women benefitted more from motto goals than from learning goals with regard to subsequent positive affect, whereas positive affect did not differ across conditions when only men were analyzed. Unfortunately, the present sample size of men was too small to further investigate whether both genders responded differently to goal induction. Nevertheless, the results indicate that motto goals might be especially beneficial for women. More thorough investigation of such gender differences might be a promising issue for further research.

6.1.4.2 Influence of goal type on affect after CPS

In a second step, affect after goal induction and affect after CPS was analyzed to test group differences in dealing with frustration in the Tailorshop. Other than expected, the interaction between goal type and time was not significant this time. Instead, positive affect decreased and negative affect increased in all three goal conditions, contradicting Hypotheses 5a and 5b. The most likely explanation for this result is that participants felt highly frustrated since most of them did not manage to maintain the initial company value in the Tailorshop. Past research showed that failure in CPS can increase negative and decrease positive affect (Barth & Funke, 2010; Biebrich & Kuhl, 2003). When persons are not able to integrate frustrating experience into the self, this can even lead to inner capitulation (Biebrich & Kuhl, 2003). Apparently, negative experiences in the Tailorshop were so intense that neither motto nor learning goals were able to completely buffer against this frustration. Beyond that, the increase of positive and decrease of negative affect may also be explained with the help of PSI theory, as already pointed out in Chapter 6.1.1.1. In this respect, the affective change in the motto goal group might be the symptom of object recognition activation through the extension memory. However, as already explained above, findings on the negative relationship between negative affect and CPS performance make this assumption unlikely. Hence, increasing negative affect in the motto goal group seems to be a consequence of frustration rather than of an active object recognition system. The decrease of positive affect might be a symptom of frustration as well, but it could also be indicative for an activation of the intention memory in all three conditions, as this system is associated with an absence of positive affect. Most likely, the Tailorshop required a focus on the intention to reach the personal goal and on associated challenges, so that a down-

regulation of positive affect might have been adaptive (Kuhl, 2000). Yet, the lacking correlation between positive affect and CPS performance speaks against this assumption. Interestingly, the main effect of time disappeared when controlling for conscientiousness and neuroticism. Apparently, personality influenced how subjects dealt with frustration in the Tailorshop. Although in-depth analyses on this topic were beyond the scope of the present thesis, further research on this issue might yield insightful results.

The missing difference between subjects with learning and performance goals contrasts with past findings indicating that learning goals can buffer against negative performance feedback (Chapter 2.4.4.2). Possibly, learning goals in the present study were substantially different from those in past research. To learn 15 relationships might have unsettled participants because it sounds quite hard to achieve. Hence, even though the present goals fulfilled the criteria of high, specific learning goals to the same degree as the learning goals in past research, the subjective perception of goal difficulty might have differed. Possibly, positive affect might have decreased less and negative affect might have increased less if learning goals had been formulated as the number of effective strategies to be learned, as it was often the case in past research (Chapter 2.4.1.2). Yet, as explained in Chapter 4.5.3, such an operationalization of learning goals was difficult in the Tailorshop.

Although the expected interaction was not significant, a main effect of goal type revealed that participants in the motto goal condition reported significantly lower negative affect than participants with learning goals. Hence, although negative affect increased in all three conditions, participants with motto goals experienced it the weakest. Apparently, motto goals helped persons to approach the task with low aversion and reduced frustration more than learning goals did. Applying PSI theory, this might indicate a stronger integration of frustrating experiences into the self and a facilitated regulation of negative affect when motto goals were pursued. Furthermore, the main effect suggests that participants with motto goals approached the Tailorshop with a self-regulative style, which is associated with the extension memory and absent negative affect, while participants with learning goals applied self-control, which is associated with absent positive affect and the intention memory (Chapter 2.3.1.3). The main effect remained significant after controlling for CPS performance, which indicates that the advantage of motto goals over learning goals with regard to negative affect is quite robust and independent of performance. However, the effect disappeared when including gender as further variable, so that it should also not be overestimated. Why negative affect did not differ between persons with motto goals and persons with performance goals remains a matter of speculation. On the one hand, participants with learning goals might have experienced higher frustration than participants with performance goals because the former were likely to attain neither their learning goal (15 relationships) nor the overall objective of the Tailorshop (high company value), which

might have appeared as double frustration. On the other hand, sample size and statistical power might have been too small for group differences to become significant. The latter might also explain why the main effect of goal type on positive affect was not significant.

6.1.5 Further differences between the three goal types

On an exploratory basis, certain qualitative aspects of motto goals and further differences between the three goal types were analyzed.

Interestingly, one third of the participants with motto goals chose the tree picture. Apparently, they perceived the growth, calmness, roots, energy, and fruit of a tree as useful resources for the Tailorshop. The tree picture was followed by the bear, who might symbolize tranquility and slowness, and by the hiker, who might stand for a stepwise, goal-directed behavior. Only two participants chose the vespa, which appears to portray the highest velocity of all pictures. This indicates that generally a slow, steady, and calm approach towards the Tailorshop was perceived as expedient resource. Except for the lotus, all pictures were selected by at least one participant. This variety of chosen pictures suggests that participants indeed selected a picture on the basis of their individual needs.

A further exploratory finding revealed that participants with motto goals judged their goal attainment as higher, easier, and more satisfying than participants with learning or performance goals did. These results are in accordance with the fact that high, specific goals can only be reached by a small percentage of a population (Chapter 2.4.2). Past research has shown that the attainment of personally important goals predicts life satisfaction (Judge, Bono, Erez, & Locke, 2005), subjective and psychological well-being, and even perceived meaning of life (Stauner, 2013). Above that, a long-term consequence of goal attainment might be an increase in self-efficacy. High goal attainment can therefore be seen as further positive feature of motto goals beyond the positive affective pattern. This way, motto goals might offer a solution to the goal setting dilemma addressed by Locke (1996), which describes the conflict that high, specific goals increase performance, but decrease satisfaction: Motto goals seem to be at least as successful for CPS performance as high, specific goals are, and at the same time they avoid the problem of low attainment and satisfaction values.

Additionally, participants with performance goals kept their goal significantly stronger in mind than participants with motto goals. This suggests that motto goals work on a more unconscious basis than performance goals. A positive consequence might be the reduction of cognitive load, so that cognitive resources can be placed on task-relevant thoughts. However, as the difference between learning and motto goals was not significant and as none of the groups differed in CPS performance, these considerations remain speculative.

6.1.6 Interplay between affect and CPS performance

In the following, exploratory results concerning the interplay between affect and CPS performance are discussed. Because affect was found to be interlaced with processing style (Chapter 2.1.3), this chapter also tries to integrate the results for these two constructs. Mediation analyses showed that – in line with past research – success in CPS increased positive affect, while failure increased negative affect (e.g., Barth & Funke, 2010). This affective response on CPS performance is intuitively comprehensible: If persons perform well, they feel good and vice versa. The results become more interesting if affect *before* CPS is regarded as well, which in past research delivered ambiguous findings (Chapter 2.1.3). In the current study, negative affect before CPS negatively predicted performance when all three conditions were aggregated. Thus, subjects completed the Tailorshop more successfully if they approached it with low negative affect. This result at first sight appears to contradict the findings by Barth and Funke (2010). In their study, performance was higher when the Tailorshop's environment was characterized by bad performance feedback. Considering that Barth and Funke used the same affect measure (items of the PANAS) and the same CPS task (Tailorshop) as the present study, this discrepancy of results is particularly astonishing. A possible explanation for this contradiction is that both studies applied different designs: Barth and Funke regarded affect as symptom of a nice or nasty environment, whereas the present study regarded affect as symptom of a particular goal induction. The main difference between these two approaches is that in the first case affect was assessed during Tailorshop completion and was likely to be influenced by the ongoing Tailorshop experience, while in the latter case affect was measured before the Tailorshop was started. Furthermore, taking a closer look at the results by Barth and Funke, it was not negative affect per se that increased performance. Rather, nasty environments influenced negative affect as well as CPS performance, but negative affect did not mediate this relationship. Barth's and Funke's study and the present findings could be integrated by assuming that persons perform well if they approach the Tailorshop with low aversion, but if they experience negative affect to some degree during task completion, as this can foster a focus on the retrieval of important task information (Spering et al., 2005). Even though these observations might explain the diverging results of the two studies, some findings of the present study are still hard to interpret: As discussed above, negative affect was detrimental for CPS performance. At the same time, a local processing style, operationalized via a low number of manipulated variables in the Tailorshop, predicted high performance regarding CV change. These two findings apparently conflict with each other since local processing style is often associated with negative affect (Chapter 2.1.3). Furthermore, intraindividual switching between global and local processing predicted CV trend, but was not related to negative affect, which predicted CV trend as well. Possibly, these contradictions can be ex-

plained with the help of PSI theory: Low negative affect seems to be associated with the extension memory (Chapter 2.3.1.3), which in turn should help to perform well. This can explain the negative correlation between negative affect and CPS performance. At the same time, the extension memory seems to be able to regulate a person's processing style. Hence, it can help individuals to process information locally and to switch between both processing styles when the task requires it (Baumann & Kuhl, 2005). This can explain the relation between local processing as well as the alternation between both processing styles and CPS performance. Yet, two questions remain open: First, the lacking correlation between negative affect and intraindividual switching between global and local processing is difficult to integrate in these assumptions, because both should be associated with an active extension memory. Second, these considerations cannot explain why participants with motto goals did not perform better than participants with learning or performance goals. This result is particularly astonishing as research indicated that motto goals activate the extension memory (Weber, 2013) and as the present study suggested a performance-enhancing effect of the extension memory.

The picture becomes even more complicated when analyzing group-specific relations between affect and CPS performance. In the performance goal condition, other than in the overall analyses and in the other two conditions, positive affect *impaired* and negative affect did *not influence* CPS performance. Apparently, the goal condition moderated the relationship between affect and performance. When relating this finding to PSI theory, it might be inferred that performance goals have to be stored in the intention memory, which is associated with absent positive affect, in order to positively influence performance. The fact that good performance was not associated with positive affect in the other two goal conditions suggests that the intention memory was less active in these two conditions. Possibly, performance goals, which merely focus on a particular final outcome, require stronger intentions than learning and motto goals, which also focus on the problem solving process.

All in all, the role of affect in CPS is still not straightforward. Other than suggested by Barth and Funke (2010), high negative affect impaired performance in the present study. What is more, positive affect helped subjects to switch between local and global processing, which in turn increased CPS performance. However, the fact that the correlations were rather low in most cases, and that not all results can be explained straightforwardly, indicates that there must be more to CPS than an adaptive affective pattern and an adaptive processing style. Although these two constructs certainly play an important role, they alone cannot explain why participants succeed or fail in CPS tasks. For instance, other factors like previous experience with similar tasks (A. Fischer et al., 2012; Funke, 2003), self-efficacy (Bandura & Wood, 1989), locus of control, action orientation, or personal

competencies, might have influenced CPS success. Bearing in mind that the overall relationships between affect, processing style, and performance were not the main concern of the present study, and that past research revealed ambiguous findings, it would be asked too much of the present study to provide a comprehensive explanation for the complex interplay. Still, the present results demonstrate the importance of understanding CPS not merely as cognitive, but also as emotional and motivational process (cf. Funke, 2003, 2010, 2014).

6.2 Limitations of the present study

In the following, limitations of the present study are discussed. In my view, there are three main issues. First, several aspects of the experimental situation can be criticized. Since data was collected in the first week of the fall semester, participants might have been in an exceptional state – they might have been more motivated, more stressed, or more open to experiences than later in the semester. This should not affect group differences, as data in all three conditions was collected at the same days, but it might limit the generalizability of the study's results. Further, it can be criticized that data was collected in groups. As all participants in a group belonged to the same goal condition, external factors (e.g., weather conditions, prior classes, environmental noise) might have selectively influenced only one or two goal conditions. Yet, since groups did not differ in any of the variables measured at the beginning, such group-specific influences are extremely unlikely.

The second limitation concerns the study sample: The majority of participants were first semester psychology students with an exceptionally good final exam grade who were most likely highly motivated and ambitious. Although it was tried to recruit a more diverse sample (Chapter 4.1), the lacking course credit made participation unattractive for non-psychology students. Further, all subjects clearly belong to the so-called WEIRD (western, educated, industrialized, rich, democratic) population (Henrich, Heine, & Norenzayan, 2010), which makes the generalization of results to a broader population difficult.

The third limitation refers to goal manipulation: Even though learning and performance goal manipulation was highly similar, the motto goal condition differed in some aspects: Motto goals were developed completely freely, while the other two goal types were based on a specific outcome goal (final company value of at least 250,000/ learning at least 15 relationships between variables), which was specified individually. Hence, participants in the motto goal condition formulated their goal self-reliantly while parts of the other two goal types were predetermined. Resulting group differences might thus be due to a difference in participation rather than to goal type per se. To minimize this problem, a reflection process was encouraged in all three groups. Participants with motto goals were instructed to choose a picture and their favorite ideas and to develop a motto goal, while participants with

learning and performance goals were instructed to consider until when, how, and why they wanted to achieve the goal. In doing so, the way participants reflected on their goal and the perceived participation was tried to be equalized in all three groups. Furthermore, according to Locke and Latham (2013a), “self-set goals are as effective, but not more effective in bringing about goal commitment and increasing performance than an assigned or a participatively set goal” (p. 10). Hence, even if perceived participation had varied across groups despite all the effort, this should not have influenced the results strongly. Another point of criticism is that – because of the step-by-step specification – subjects in the learning and performance goal condition typed their goal into the computer several times, while participants in the motto goal group only typed it once. This might have led to a higher availability of learning and performance goals. Yet, to minimize this danger, all participants wrote down their goal manually after its development and were reminded of their goal twice. An additional limitation is the possibility that participants developed further, self-set goals. As indicated in the study by Seijts and Latham (2011), subjects with learning goals often pursue an additional performance goal. Hence, it is possible that some of the participants in the motto or learning goal condition also aimed to attain a specific final company value in the Tailorshop. Although the self-setting of goals probably cannot be prevented, future research might benefit from asking participants after task completion whether they had developed any additional goal. Furthermore, goals might have varied with regard to their proximity. In most cases, learning and performance goals referred to the last of the 12 months, whereas motto goals described a general approach from the outset of the Tailorshop. Future research might benefit from controlling for goal proximity, for instance by combining high, specific distal goals with proximal sub-goals as it was done for instance in studies by Kozlowski and Bell (2006) and Seijts and Latham (2001). Lastly, it cannot be said with certainty that the operationalization of learning and performance goals in the present study captured Locke’s and Latham’s understanding of these two goal types. Because the Tailorshop had not been applied before in the context of learning and performance goals, the operationalization had to be newly developed. Further, the above mentioned questions on learning and performance goals, which served the purpose of an individual goal specification, were not applied in past research. Even though it was tried to maximally adapt goal definition to prior research, the possibility that goals were not exactly defined in Locke’s and Latham’s sense cannot be completely ruled out.

6.3 Implications for further research

To qualify and extend the present findings, several ideas for further research projects seem promising. First and foremost, the present study mainly tested main and interaction effects to analyze the influence of goal condition on different dependent

variables. To better understand the *mechanism* underlying these relationships, the inclusion of further possible mediator and moderator variables seems important. This way, not only the question *which* goal type is most adaptive, but also the question *why* one or the other goal type works best can be answered. In this regard, variables like goal commitment, self-efficacy, or action orientation might be of interest. Also an in-depth qualitative analysis of the developed goals could yield insights into mechanisms of goal setting. For instance, goal complexity might influence cognitive load, and in turn performance or other dependent variables. Second, motto goals may be tested against high, specific goals in a CPS task participants are well acquainted with. Doing this, motto goal development could be better based on personal experiences with the task, and the use of somatic markers might be more promising. In this case, performance between the goal conditions might indeed differ. Third, further research may investigate whether goal setting influences specific discrete emotions (Funke, 2010). In the present study, affect was only analyzed in a global fashion. However, the adaptivity of specific affects or emotions in CPS tasks might differ. For instance, a certain degree of nervousness or anxiousness might be beneficial (cf. Yerkes-Dodson-Law, Yerkes & Dodson, 1908), while shame or hostility seem less adaptive in complex tasks. Beyond, it might be interesting to analyze not only explicit, but also implicit affect, which also seems to be influenced by motto goals (Weber, 2013). Fourth, further research may apply individual goal orientation as further control variable or analyze the fit between personal goal orientation and external goal setting. For instance, learning goals might be more adaptive if individuals exhibit a stable learning goal orientation. Similarly, implicit motives, especially power and achievement motives, might interact with goal setting (Schultheiss & Brunstein, 1999). Apart from that, the *grit* trait and action versus state orientation might be included. The former is defined as “perseverance and passion for long-term goals” (Duckworth, Peterson, Matthews, & Kelly, 2007, p. 1087); the latter describes whether persons tend to focus their cognitions on specific states or whether they focus on actions to transform the current state into a particular future state (Kuhl, 1985, 2000). Building on this, a fifth proposition for future research is the investigation of long-term consequences of goal setting. Possibly, participants with motto goals are able to better regulate their emotions after CPS and to bring themselves back into an action orientation faster than participants with high, specific goals. Hence, the investigation of dependent variables some hours or days after CPS might deliver further interesting results. Sixth, latest research has suggested that the simultaneous use of learning and performance goals can increase performance (Masuda, Locke, & Williams, 2015). Further research may extend these findings by investigating different combinations of goals. For instance, the combination of motto and learning goals might be adaptive in CPS situations. Furthermore, in the study by Masuda et al. (2015), goal difficulty influenced task performance in form of a curvilinear

relationship, so that it seems promising to be open to non-linear results in further research. Seventh, the comparison of goal setting in simple and complex problems would be interesting. Possibly, different degrees of complexity require different goal features, so that in less complex tasks the advantage of motto goals might not only be found for affect, but also for performance. Lastly, the results of the present study hint at possible gender influences on the adaptivity of different goal types (Chapter 5.2.1 and 5.2.4). In past research on learning and performance goals, gender effects were mostly not analyzed (Cianci et al., 2010; Drach-Zahavy & Erez, 2002; Kozlowski & Bell, 2006; Latham & Brown, 2006; Latham et al., 2008; Seijts & Crim, 2009; Seijts & Latham, 2001, 2011; Seijts et al., 2004; Winters & Latham, 1996). Future research could reveal whether it is important to consider the fit between goal type and gender.

6.4 Practical implications

The main objective of the present study was to investigate the influence of different goal types on various facets of CPS. Bearing in mind that problem solving is one of the key competencies in today's world, the practical relevance of this topic is apparent. Complex technologies are all around, organizations apply complex tasks in personnel selection (Meyer et al., 2009), and even the latest PISA study acknowledged the importance of cross-curricular problem solving competencies by incorporating CPS tasks (Funke, 2013b; Greiff et al., 2013). The present study revealed a slight advantage of motto goals over high, specific goals. Albeit performance did not differ across goal types, motto goals increased positive and decreased negative affect directly after their induction and helped participants to maintain the low level of negative affect even in the light of frustrating experiences in the Tailorshop. What is more, motto goals led to a higher degree of and satisfaction with goal attainment, which might positively influence well-being (Chapter 6.1.5). Hence, even though learning goals have proven successful in complex tasks in past research (Chapter 2.4.1.2), they seemed to be outperformed by motto goals at some points. The present study thus extends the list of situations in which motto goals can be beneficial. This is especially noteworthy with regard to the fact that high, specific goals enjoy great success not only in research, but also in practice – be it in psychotherapy, in coaching, or in economics. Hidden under the acronym S.M.A.R.T. (specific, measurable, attractive, realistic, terminated), high, specific goals are well-known and are often the first choice in situations where goal setting is relevant (M. Storch, 2011). The present study further corroborates Storch's argument that the potency of such S.M.A.R.T. goals is limited in complex situations. Since our environment is largely uncertain and complex, the need of goal types that are successful in exactly such situations becomes apparent. The advantage of motto goals might be even more pronounced when considering real-life complex problems in which persons make use of a

broad network of past experiences and options for action (Kuhl & Strehlau, 2014). For instance, when confronted with complex and possibly aversive job tasks or organizational restructuring measures, motto goals might enable persons to approach such challenges with a positive affective state. In doing so, they might also prevent stress-related illnesses.

Above that, practical implications arise from the gender difference found for CPS performance. In case the performance differences between men and women indeed arose from a stereotype threat instead of true competency differences between both genders, an application of the Tailorshop or similar scenarios in diagnostic settings might be misleading. Before applying CPS tasks in personally relevant settings like personnel selection, it should be substantiated that women do not have a systematic disadvantage (Meyer et al., 2009).

6.5 Conclusion

The present study contributes to CPS research as well as goal setting research by comparing a newly developed goal type – motto goals – to the well established high, specific goals in a CPS task. With regard to CPS research, it was tried to shed light on the complex interplay between affect and performance, also integrating the role of processing style. The results revealed that low negative affect, a local processing style, and the alternation between global and local processing were associated with high CPS performance. These findings emphasize the role of affective processes in CPS, even though they cannot fully explain the complex relationships between these three constructs.

With regard to goal setting research, it was analyzed whether motto goals can outperform learning and performance goals in several aspects of CPS. Against the expectations, CPS performance did not differ across the three goal conditions, which suggests that goal setting exerted a weaker influence than other factors, for instance personal problem solving competencies. It cannot be decided with certainty whether this result reflects a true limitation of motto goals or whether it was subject to the applied CPS task or the artificial experimental situation. Further, contrary to what was expected, goal type did not influence intrinsic motivation towards the CPS task, which was most likely due to methodological constraints. Instead, participants in all three conditions reported high levels of intrinsic motivation. Moreover, processing style was not influenced by goal condition. This result is surprising as goal condition indeed influenced affect, which has shown to be related to processing style in past research. Yet, the first processing style indicator (a global-local figure task) seemed to be unreliable in the present study, and the second one (intervention-breadth in the Tailorshop) was newly developed for the present purpose, so that further research is needed to understand the role of processing style in goal setting. Despite these missing group differences, motto goals showed a clear advantage over the other two goal types: First, participants with motto goals perceived their goal attainment as higher, easier,

and more satisfying than participants with learning or performance goals. Second, motto goals animated subjects to approach the Tailorshop with a more positive affective state and to maintain comparatively low negative affect in the course of the possibly frustrating CPS experience. All these results show that motto goals – even if developed in a short online tool – have the power to encourage persons to approach difficult tasks with a good feeling.

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Appendix

Appendix A: Tables

Table A.1

Distribution of participants over the different test dates

Time	Tuesday, 14 th of October	Thursday, 16 th of October	Friday, 24 th of October	Friday, 9 th of November
9.30.		Motto goals $n = 16$ ($n = 15$)	Learning goals $n = 5$	
11.30	Learning goals $n = 20$ ($n = 18$)	Performance goals $n = 20$	Motto goals $n = 9$	
12.30				Performance goals $n = 3$
14.00	Motto goals $n = 19$ ($n = 18$)	Learning goals $n = 18$	Performance goals $n = 7$	
15.30	Performance goals $n = 10$			
Total	$n = 49$ ($n = 46$)	$n = 54$ ($n = 53$)	$n = 21$	$n = 3$

Note. The group size in parentheses depicts group size after having excluded participants whose German competencies were not sufficient.

Table A.2

Means and standard deviations of the two performance indicators in dependence of goal condition and gender with multivariate outliers included

Goal condition	Gender	<i>N</i>	CV change <i>M</i> (<i>SD</i>)	CV trend <i>M</i> (<i>SD</i>)
Motto	Female	31	-96,354.46 (100,175.43)	1.71 (2.78)
	Male	11	-89,786.12 (131,229.60)	2.82 (2.56)
	Total	42	-94,634.18 (107,478.40)	2.00 (2.74)
Learning	Female	36	-76,049.81 (67,054.23)	1.64 (2.80)
	Male	5	-56,692.36 (64,915.78)	5.20 (3.11)
	Total	41	-73,689.14 (66,308.13)	2.07 (3.04)
Performance	Female	32	-105,880.14 (68,655.20)	1.25 (2.85)
	Male	8	-27,005.39 (53,144.48)	3.25 (4.23)
	Total	40	-90,105.19 (72,625.81)	1.65 (3.22)
Total	Female	99	-92,049.96 (79,568.60)	1.54 (2.79)
	Male	24	-61,964.68 (99,404.58)	3.46 (3.30)
	Total	123	-86,179.66 (84,213.21)	1.91 (2.98)

Note. CV change = Absolute difference between the company value after the 12th month and the initial company value; CV trend = Number of months between the 2nd and the 12th month with increasing company value.

Table A.3
z-scores of skewness and kurtosis of the dependent variables

Variable	Included goal conditions	Skewness (z-scores)	Kurtosis (z-scores)
CV change	Motto	-6.72***	8.29***
	Learning	-1.72	3.30***
	Performance	-0.11	0.28
CV trend	Motto	3.48***	0.88
	Learning	4.29***	2.79**
	Performance	5.27***	3.59***
Intrinsic motivation 1	Motto	-2.53*	1.07
	Learning	-3.07**	2.47*
	Performance	-1.76	-0.11
Intrinsic motivation 2	Motto	-0.97	-0.87
	Learning	-2.19*	0.60
	Performance	-1.75	0.20
Processing style (figure task)	Motto	0.31	-1.67
	Learning	0.50	-1.48
	Performance	-0.47	-1.70
Processing style (intervention breadth)	Motto	3.94***	3.73***
	Learning	3.77***	4.57***
	Performance	3.50***	2.77**
Variability (figure task)	Motto	0.14	-1.50
	Learning	0.07	-2.10*
	Performance	0.52	-1.75
Intraindividual SD (intervention breadth)	Motto	1.99*	0.13
	Learning	0.75	-0.18
	Performance	1.44	0.08
Positive affect 1	All conditions	0.24	0.67
Negative affect 1	All conditions	6.61***	4.29***
Positive affect 2	Motto	-0.15	-0.33
	Learning	0.40	-1.29
	Performance	-0.39	-1.22
Negative affect 2	Motto	2.94**	0.37
	Learning	4.39***	3.09**
	Performance	2.09*	0.29
Positive affect 3	Motto	1.24	-0.12
	Learning	1.03	-0.94
	Performance	1.69	0.35
Negative affect 3	Motto	3.16**	1.03
	Learning	1.79	-0.35
	Performance	2.76**	0.29
Degree of goal attainment	Motto	-0.16	-1.39
	Learning	1.83	-0.53
	Performance	2.99**	0.32

Table A.3 (continued)

z-scores of skewness and kurtosis of the dependent variables

Variable	Included goal conditions	Skewness (z-scores)	Kurtosis (z-scores)
Satisfaction with goal attainment	Motto	0.21	-1.80
	Learning	2.85**	0.97
	Performance	2.64**	-0.37
Difficulty of goal attainment	Motto	-1.76	0.53
	Learning	-1.89	0.88
	Performance	-4.09***	2.94**
Degree of having kept the goal in mind	Motto	0.03	-1.07
	Learning	-0.31	-1.39
	Performance	-1.39	-0.42
Extraversion	All conditions	-2.98**	-0.84
Agreeableness	All conditions	-1.58	-1.52
Conscientiousness	All conditions	-2.68**	-0.74
Neuroticism	All conditions	-0.15	-1.69
Openness	All conditions	-3.17**	0.02
Age	All conditions	6.74***	3.89***
Final high school degree	All conditions	8.49***	8.50***

Note. The distribution of the baseline affect measure and the personality measure was analyzed for the whole sample, while the distributions of all other variables were analyzed for each goal condition separately. Significant z-scores indicate that the variable differs from a normal distribution. * = $p < .05$, ** = $p < .01$, *** = $p < .001$.

Table A.4

Results of the Box's *M* test to analyze homogeneity of variance-covariance matrices and F_{\max} -values

Analysis	Included variables	Box's <i>M</i> test $F(df1, df2), p$	F_{\max}
MANOVA	IV = Goal Type DVs = CV change, CV trend	$F(6, 334069.39) = 1.46, p = .19$	2.26
MANOVA	IV = Goal Type DVs = CV change, CV trend (<i>multivariate outliers included</i>)	$F(6, 355096.80) = 3.95, p < .001$	2.63
MANOVA	IVs = Goal Type, gender DVs = CV change, CV trend	$F(15, 2936.28) = 1.47, p = .11$	2.84
MANOVA	IVs = Goal Type, gender DVs = CV change, CV trend (<i>multivariate outliers included</i>)	$F(15, 2935.11) = 2.67, p < .001$	6.10
Mixed ANOVA	IVs = Goal Type, Time of measurement DV = Intrinsic Motivation	$F(6, 343974.73) = 0.51, p = .80$	1.51
Mixed ANOVA	IVs = Goal Type, Time of measurement DV = Intrinsic Motivation (<i>multivariate outlier included</i>)	$F(6, 355096.80) = 0.71, p = .64$	1.55
Mixed ANOVA	IVs = Goal Type, Time of measurement, gender DV = Intrinsic Motivation	$F(15, 2942.71) = 0.71, p = .78$	5.61
Mixed ANOVA	IVs = Goal Type, Time of measurement, gender DV = Intrinsic Motivation (<i>multivariate outlier included</i>)	$F(15, 2935.11) = 0.91, p = .55$	5.61
MANOVA	IV = Goal Type DVs = Positive affect, negative affect (baseline)	$F(6, 355096.80) = 3.26, p = .003$	6.76
Mixed ANOVA	IVs = Goal Type, Time of measurement DV = Positive affect (measure 1 and 2)	$F(6, 355096.80) = 0.22, p = .97$	1.72
Mixed ANOVA	IVs = Goal Type, Time of measurement, gender DV = Positive affect (measure 1 and 2)	$F(15, 2935.11) = 0.95, p = .51$	7.18
Mixed ANOVA	IVs = Goal Type, Time of measurement DV = Negative affect (measure 1 and 2)	$F(6, 355096.80) = 5.53, p < .001$	4.96
Mixed ANOVA	IVs = Goal Type, Time of measurement, gender DV = Negative affect (measure 1 and 2)	$F(15, 2935.11) = 3.05, p < .001$	8.57
Mixed ANOVA	IVs = Goal Type, Time of measurement DV = Positive affect (measure 2 and 3)	$F(6, 355096.80) = 1.20, p = .30$	1.46
Mixed ANOVA	IVs = Goal Type, Time of measurement, gender DV = Positive affect (measure 2 and 3)	$F(15, 2935.11) = 0.74, p = .74$	3.30
Mixed ANOVA	IVs = Goal Type, Time of measurement DV = Negative affect (measure 2 and 3)	$F(6, 355096.80) = 5.06, p < .001$	7.69
Mixed ANOVA	IVs = Goal Type, Time of measurement, gender DV = Negative affect (measure 2 and 3)	$F(15, 2935.11) = 2.66, p < .001$	10.08

Table A.4 (continued)

Results of the Box's M test to analyze homogeneity of variance-covariance matrices and F_{\max} -values

Analysis	Included variables	Box's M test $F(df1, df2), p$	F_{\max}
MANOVA	IV = Goal Type DVs = Degree of goal attainment, difficulty of goal attainment, satisfaction with goal attainment	$F(12, 68540.39) = 2.17, p < .05$	4.93
MANOVA	IV = Goal Type DVs = Degree of goal attainment, difficulty of goal attainment, satisfaction with goal attainment (<i>multivariate outlier included</i>)	$F(12, 69531.05) = 2.06, p < .05$	4.95
MANOVA	IV = Goal Type DVs = Tailorshop duration exploration phase, Tailorshop duration control phase	$F(6, 345778.65) = 1.61, p = .14$	3.17
MANOVA	IV = Goal Type DVs = Tailorshop duration exploration phase, Tailorshop duration control phase (<i>multivariate outliers included</i>)	$F(6, 355096.80) = 2.49, p < .05$	3.12

Note. IV = Independent variable; DV = Dependent variable. F_{\max} is defined as ratio of the largest cell variance to the smallest. Because sample sizes were almost equal in the present study, F_{\max} -values below 10 are acceptable (Tabachnick & Fidell, 2007). F_{\max} -values above 10 are in boldface.

Appendix B: Additional results

B.1 Goals developed in the three conditions

B.1.1 Participants with motto goals

Note. Orthographic and typing mistakes made by the participants are not corrected. Motto goals that do not truly reflect the chosen picture are written in italics.

Chosen picture: Tree

- Ich will sein wie ein Baum und wachsen in mein eigenen Tempo. Ich will jedes neues Erfolg wie warmes Licht auf mein Gesicht fühlen. Ich will es land genießen können wie Licht durchflutet.
- Ich will mich auf starke Wurzeln und einen starken Stamm verlassen können. Ich will dabei in meinem Tempo nach oben wachsen, all meine Ressourcen, die ich habe, nutzen und in Harmonie mit mir und meiner Umgebung handeln. Dabei will ich jedoch ebenso flexibel und beweglich sein, um so auf Veränderungen spontan reagieren zu können. So will ich es erreichen, dass alles saftig und grün wird (und bleibt) und am Ende süße Früchte trägt, die dann auch präsentierbar sind.
- Ich will fest verwurzelt sein wie ein alter Baum. Ich möchte Ruhe ausstrahlen wie sie in einem Wald vorherrscht. Ich will sicher und standhaft sein und mit anderen in guter Gemeinschaft leben. Ich möchte lebendig sein in meiner Ruhe. Ich möchte mich wohlfühlen, wie bei einem Spaziergang durch den Wald.
- Ich will mich fühlen wie in einem Wald. Es soll warmes Licht geben und ein angenehms Klima. Ich will, dass alles sicher und verwurzelt ist, wie ein Baum. Ich will freundlich und warm handeln und damit Leichtigkeit vermitteln.
- Ich will sein, wie der Stamm eines Baumes aus dem alle Äste hervorgehen.
- Ich will fest im Boden verwurzelt sein und einen starken Stamm haben. Ich will in den Himmel wachsen. Ich will Wärme und Licht leben und geben. Ich will anderen Schutz und ein Zuhause bieten. Ich will die Weisheit der Narut kennen.
- Ich will in Gemeinschaft und Symbiose handeln, sodass die Bäume Früchte tragen.
- *Ich will mich fühlen wie ein freier Vogel.*
- Ich will sein wie ein lichtdurchfluteter Baum, der frisch, energiegeladen und stark ist, der seine Ressourcen nutzen, um Früchte zu tragen.
- Ich will alles wachsen lassen. Ich will beweglich bleiben. Ich will Licht ins Dunkle bringen. Ich will langsam aber erfolbringend an meine Arbeit herangehen.
- Ich will aus einem soliden Fundament Wachstum erzeugen.
- Ich will Kraft schöpfen aus der Schönheit der Natur, aus den Ressourcen die mir eigen sind und mich dann energievoll an die Bearbeitung meiner Aufgaben machen. Mit der Ruhe und Sicherheit die mir meine Wurzeln geben, kann ich mich flexibel auf neue Herausforderungen einstellen. Dabei gibt mir das BEwusstsein, dass ich mich meinen Aufgabgen nicht vollkommen allein stellen muss, ein Gefühl von Sicherheit und Zufriedenheit.
- Ich will ausdauernd sein wie der Baum während seiner Wachstumsphase, um am Ende in jedem Fall die süßen Früchte zu ernten.
- Ich möchte nachhaltig handeln und Waldgeruch erhalten.
- Ich will mich fühlen, wie der Strahl eines warmen Lichts, das lichtdurchflutend Energie aus dem Boden nach oben fließen lässt.

Chosen picture: Hiker

- Ich will mich fühlen wie ein freier Mensch, der gut gerüstet, aber vollkommen unabhängig seinen eigenen Weg geht und dabei beginnt seine eigenen Stärken und Fähigkeiten zu erfahren. Ich will zu mir selbst finden und mit stets treu bleiben. Gerade bei Talfahrten nicht den Glauben verlieren, sondern schritt für Schritt vorangehen und den Gipfel erklimmen und am Ende für all meine Mühen durch ein tolles Bergpanorama belohnt werden.
- Ich will wie der Wanderer nicht nur den Profit sondern auch die Umwelt im Blick haben.
- Ich will Schritt für Schritt meinen eigenen Weg vorangehen.

- Ich will mich frei fühlen wie unter freiem Himmel. Ich will einen Blick haben wie auf ein Bergpanorama. Ich will Etappen hinter mich bringen wie bei einer langen Wanderung.
- Ich will aufbrechen und mich neuen Zielen und Herausforderungen entgegen bewegen, denn ich fühle mich motiviert und gut gerüstet.

Chosen picture: Bear

- Ich will mir die Zeit nehmen, die ich brauche. Ich will mir meine Energien einteilen. Ich will sein wie ein schlafender Bär.
- Ich will nicht unter Stress das Unternehmen entwickeln, sondern mir dabei die dafür nötige Zeit eingestehen. Ich will, dass meine Mitarbeiter zwar produktiv arbeiten, aber dabei nicht nervös werden sondern gelassen bleiben. Ich möchte meine Energien produktiv einteilen. Ich will, dass meine Mitarbeiter sich in ihrer Arbeitsumgebung sicher fühlen. Ich möchte mich in einer Umgebung befinden, in der ich so gerne bin, wie in Umgebungen mit Waldgeruch. Ich will meine Anliegen freundlich, aber dennoch bestimmt zum Ausdruck bringen. Ich möchte so glücklich sein wie ein Bär, der gerade Honig schleckt. Wenn ich eine Pause mache, möchte ich mich fühlen, als würde ich auf einem Thron ruhen. Ich will, dass meine Kunden sich beim Kauf fühlen, als besäßen sie pure Kraft. Ich möchte mir in stressigen Situationen zusagen dürfen, dass ich das jeweilige Problem auch mit Gemütlichkeiten lösen darf. Ich möchte mich am Ende des Tages groß und stark fühlen.
- Ich will mich fühlen wie der Bär, der sich seine Energien einteilt und sich die Zeit nimmt, die er braucht.
- Ich will handeln wie ein Bär, der mit Gelassenheit an seine Arbeit herangeht, eine Bärenruhe in sich trägt und trotzdem seine Ziele ganz bewusst vor Augen hat.
- Ich will mit Gelassenheit, freundlich aber bestimmt auf mein Ziel hinarbeiten und dabei nicht vergessen ab und an mal an einem Honig zu schlecken wie der Bär, sprich kleine Erfolge wertzuschätzen.

Chosen picture: Wolf

- Ich fühle mich fokussiert wie der Wolf auf das Ziel den Unternehmenswert auf einen Maximalwert zu steigen und dabei ebenfalls eine robuste Grundlage zu schaffen und dies auf meinem eigenen Weg zu tun.
- Ich möchte instinktsicher meinen Eingebungen folgen, fokussiert das Ziel im Auge behalten, einen klaren Blick auf die Ergebnisse haben und meinen Weg gehen, auch wenn er manchmal schwierig wird, denn ich habe ein dickes Fell.
- Ich will handeln wie ein Wolf, mit klarem Blick und mit dem Ziel stets vor Augen. Ich will robust bleiben, meinen Ideen treu bleiben und auf mein Wissen vertrauen.
- Ich will handeln wie ein Wolf, der mit klarem Blick seinen Weg geht, dabei im Rudel zusammenhält und an einem Strang zieht, instinktsicher und schlaue große Strecken wandert und das Ziel dabei immer im Auge behält. Loyal als Begleiter und Beschützer, aber auch mutig und robust als Überlebenskünstler mit schützendem Fell und Vertrauen auf das eigene Wissen will ich mit gutem Orientierungssinn vorangehen, mein Revier schützen und mein Rudel bestmöglichst voranbringen.

Chosen picture: Eagle

- Ich will den Überblick haben und dabei völlig frei sein.
- Ich fühle mich wie ein Adler, der sich in die Lüfte hinauf schwingt. Ich will handeln wie ein Adler, der frei, aber starke Entscheidungen trifft. Ich will sein wie ein Adler, der den Überblick hat.
- Ich möchte alleine und in Ruhe, und damit selbstständig handeln, wie ein Adler, der durch die Lüfte kreist. Ich will meine eigenen freien Entscheidungen treffen. Diese treffe ich, in dem ich ich zurückziehe und mir einen Überblick verschaffe.
- Ich will frei und selbstständig handeln, um mit dem Ergebnis zufrieden zu sein.

Chosen picture: Boy with fish

- Ich will mich fühlen wie der kleine Junge, der stolz auf seinen Fang ist und vor Freude am eigenen Erfolg lacht und strahlt. Ich will sein wie der kleine Junge und den Moment genießen,

Abenteuer und Neues erleben und die Welt mit Kinderaugen betrachten, um mir wenig Stress und Sorgen zu machen. Ich will mich freuen wie der kleine Junge und mir selbst meine Schätze (meinen Gewinn im Tailorshop-Unternehmen) vergegenwärtigen. Ich will handeln wie der kleine Junge und aus eigener Mühe in den Himmel wachsen. Ich will handeln wie der kleine Junge und barfuß auf dem Steg laufen.

- Ich will sein wie ein Kind - ohne Angst vorm Scheitern und zu viel zu Grübeln - und später wie der Junge über meinen Erfolg freuen und rufen: Yeaah, ich hab's geschafft!
- Ich will vor Stolz strahlen, wie ein Kind, das sich etwas zum ersten Mal selbst verdient.

Chosen picture: Palmtree

- Ich will mich fühlen wie ein Kind, das ohne Sorgen Sonne und Meer am Strand genießt. Ich will mich fühlen wie im Urlaub, wenn man einfach nur entspannt mit einem guten Buch und einem Cocktail in der Hängematte liegen und entspannen kann. Ich will mich fühlen wie ein Reisender, der stets auf der Suche nach dem nächsten Abenteuer und neuen Erlebnissen in fremden Kulturen ist. Ich will mich fühlen wie jemand, der einfach auf das Meer blickt und dessen ganze Weite und Unendlichkeit in sich aufnimmt.
- Ich möchte ein sonniges Gemüt haben und beruhigt sein, wie vom Rauschen des Meeres. Ich möchte auch mal abschalten können und die Gemütlichkeit nicht vergessen. Ich möchte mich fühlen, als hätte ich den Duft des Meeres in der Nase Ich möchte sein wie die Hängematte, entspannt und locker. Ich möchte, wie auf der Palme einen Überblick über die Insel, genauso einen Überblick über die Herausforderungen und Zielen haben. Ich möchte handeln, als könnte ich darauf hinarbeiten, anschließend die Seele baumeln zu lassen.
- Ich will die Aufgabe erledigen wie die schwebende Leichtigkeit unter Wasser.

Chosen picture: Vespa

- Ich will so gewagt und selbstsicher vorgehen wie die Frau auf der Vespa; aber ebenso wenig die Kontrolle verlieren.
- *Ich will mich fühlen wie ein Seegler mit Wind im Rücken. Meine Ideen nach vorne bringen, mit Richtung doch innovativ. Wie der Bär sollte ich in mir ruhend den Fortschritt mit seinen Problemen betrachten.*

Chosen picture: Raspberries

- Ich möchte lustvoll arbeiten und voller Elan sein, während ich den Tailorshop bearbeite. Ich will ein leidenschaftlicher, aber auch liebevoller Geschäftsführer sein. Ich will das die Arbeit mir Kraft gibt und ich Kraft in die Arbeit stecke.

B.1.2 Participants with learning goals

Note. Orthographic and typing mistakes made by the participants are not corrected. Learning goals that do not explicitly contain the learning of 15 relationships are written in italics.

- Ich möchte mind. 15 Zusammenhänge durch Üben bis zum Ende der Übungsphase erkannt haben, um: Produktivität zu steigern und den Unternehmenswert zu erhöhen
- Da ich ambitioniert bin, werde ich in 12 Spielrunden mindestens 15 Zusammenhänge begreifen, indem ich aufmerksam arbeite.
- Ich will in den ersten 6 simulierten Monaten 15 Zusammenhänge im Tailorshop entdecken und verstehen, indem ich aufmerksam und geduldig die sich verändernden Faktoren analysiere und deren Veränderung auswerte, weil ich so kontrolliert einen hohen Wert der simulierten Firma erwirtschaften kann.
- Ich möchte bis zum 12. Monat mind. 20 Zusammenhänge erlernt haben, in dem ich immer wieder andere Variablen verändere und ihre Effekte beobachte, um spätestens im letzten Monat meinen Unternehmenswert erheblich steigern zu können.
- Ich lerne innerhalb der ersten neun Monate (Übungsphase+3 Monate der Arbeitsphase) des Tailorshops mindestens 15 Zusammenhänge, indem ich mir die Auswirkung einzelner Variablen aufeinander anschau und merke, um den Unternehmenswert zu halten bzw. zu steigern.

- Ich möchte 18 Zusammenhänge in so kurzer Zeit wie möglich durch Konzentration erzielen, weil ich ehrgeizig bin und besser als der Durchschnitt sein möchte.
- Ich werde mindestens 15 Zusammenhänge erfassen, um einen höheren Unternehmenswert zu erreichen. Bis zum Ablauf der Testphase – 12 Monate. Ich werde genau beobachten, und strategische Massnahmen entwickeln. Um den Test durchzuführen. (Im Spiel: um das Unternehmen auf solide Beine zu stellen)
- Ich werde 15 Zusammenhänge mithilfe von Erfahrungstatsachen innerhalb der nächsten Stunde lernen um meinen Tailorshop möglichst erfolgreich zu führen.
- Ich möchte in einem Zeitraum von 12 simulierten Monaten mindestens 15 zusammenhängende Faktoren erkennen und lernen wie diese die Entwicklung positiv bzw. negativ beeinflussen, indem ich verschiedene Faktoren variere und prüfe, wie dies sich auf die Entwicklung des Unternehmenswerts ausübt mit dem Ziel die Methoden zu optimieren, um den Unternehmenswert zu maximieren.
- Ich erkenne bis zum Ende dieser Studie mindestens 15 Zusammenhänge, indem ich aufmerksam auf die Beeinflussung der einzelnen Faktoren achte, damit ich den Unternehmensbetrag steigern kann und somit die geforderte Aufgabe erfolgreich erfülle.
- Ich möchte im Tailorshop im Zeitraum von 12 Runden (einem simulierten Jahr) mindestens 15 zusammenhängende Faktoren erkennen und erlernen. Dies möchte ich erreichen, indem ich aus den vorangegangenen Monaten und Handlungen in diesen (Änderungen bezüglich der Faktoren) lerne. Ich möchte sehen, wie schnell ich Zusammenhänge erlernen kann und so den Gewinn im Tailorshop maximieren kann.
- Ich setze mir das Ziel mindestens 15 Zusammenhänge richtig zu erkennen und zwar innerhalb der ersten sechs Monate. Dabei werde ich die Arbeitnehmerzufriedenheit berücksichtigen. Mir geht es um meinen eigenen Lernerfolg.
- Ich möchte mindestens 15 Zusammenhänge in einer Stunde erlernen mit Hilfe von Innovation. Ich möchte mein Wissen erweitern, um produktiver zu arbeiten.
- Ich muss durch Konzentration binnen 6 Monaten im Tailershop mindestens 15 Zusammenhänge erkennen um zu den besten zu gehören.
- Mein Ziel ist es mindestens 15 Zusammenhänge bis nach dem 6.Monat in der Arbeitsphase wahrzunehmen, um dann den Wert des Tailorshops möglichst hoch zu halten, zu stabilisieren. Hierfür möchte ich in der Übungsphase extreme Veränderungen in spezifischen Bereichen vornehmen, um deren Einfluss abschätzen zu lernen.
- Ich sollte mindestens 15 Zusammenhänge des Unternehmens verknüpfen können, um die Leistung meines Unternehmens zu optimieren. Ich bin der Meinung, dass dieses Ziel spätestens nach 1 Jahr voll umgesetzt werden sollte. Ich würde dazu folgende Methoden vorschlagen: - Recherche -Fortbildung -Austausch(wenn möglich) mit anderen shops -Mitarbeiter nach Ideen und Umsetzung fragen -ständige Überwachung der eigenen Ideen, ob diese zum gewünschten Ziel führen -Feedback von den Kunden einholen, welche Verbesserungen man einführen könnte, um somit den Umsatz zu steigern. Gründe, Zweck & Nutzen: Den Umsatz des Shops zu steigern. Den Mitarbeitern ein Gutes Umfeld zu schaffen, sodass sich diese Wohlfühlen, da man weiß, Mitarbeiter die sich wohl fühlen, bringen sich mehr in Unternehmen ein und zeigen mehr eigen Engagement.
- *Ich will den Gewinn bis zum Jahresende maximieren, indem ich mehr Produkte verkaufe und so eine höhere Position auf dem Markt erreiche. Ebenso kann mehr Lohn ausgeschüttet werden.*
- Ich möchte innerhalb von zehn Stichprobe und der Veränderung einzelner Werte herausfinden, wie sich mindestens 15 Zusammenhänge positiv aufeinander auswirken um den Gewinn zu steigern und die Kosten der Produktion zu senken.
- Ich werde mindestens 15 Zusammenhänge innerhalb der vorgegebenen Zeit von ungefähr einer Stunde erkennen, indem ich genau Beobachte und mir Zeit lasse, weil ich den Eigenanspruch habe, ein gutes Ergebnis zu erzielen.
- Ich finde bis zum Ende der Übungsphase durch experimentieren mit extremen Werten und durch genaues Beobachten der Veränderungen/ Folgen mindestens 15 Zusammenhänge zwischen den Faktoren, die mein Unternehmen beeinflussen, heraus, um in der zweiten Phase meinen Gewinn zu maximieren.
- Ich will in den nächsten 60 Minuten mindestens 15 Zusammenhänge lernen, indem ich genau auf die Faktoren, die sich ändern und weshalb sie dies tun, achte. Dies will ich tun, um meine Lernstrategien zu verbessern und zu sehen, was ich alles kann.

- Um den Tailorshop durch Gewinnsteigerung erfolgreich führen und in Zukunft vergrößern zu können, möchte ich im Verlauf von 12 Monaten dafür sorgen, den Unternehmenswert zu steigern, indem ich möglichst viele Einflussfaktoren auf den Erfolg (z.B. Mitarbeiterführung) miteinander verknüpfe und nicht nur als einzelnen Faktor betrachte.
- Ich möchte bis Ende der Studie mithilfe des Tailorshops mindestens 15 Zusammenhänge lernen, um einen möglichst hohen Unternehmenswert zu erreichen.
- Ich möchte bis zum Ende des Versuchs, in einer Stunde, durch kombinieren und hohe Aufmerksamkeit, mindestens 15 Zusammenhänge herausgefunden haben, um diesem hohen Anspruch gerecht zu werden und mich gut zu fühlen.
- *Ich möchte durch sehr gute Zusammenarbeit meine Mitarbeiter und mich höchst möglich glücklich werden lassen bis zum Ende des nächsten Jahres, indem ich alle mir menschenmöglichen Fähigkeiten einsetze und meine ganze Kraft nur in die Firma stecke, denn auf diese Weise erlange ich großes Ansehen in der Gesellschaft und bei meinen Mitarbeitern.*
- Ich lerne mindestens 15 Zusammenhänge im Zeitraum von einer Stunde kennen, mithilfe der Analyse, Planen und Nachdenken, weil ich das in meinem Zukunft gut gebrauchen kann.
- Mein Ziel ist, durch aufmerksames Beobachten und Reflektieren innerhalb von 12 Runden mindestens 15 Zusammenhänge zu verstehen und aus ihnen zu lernen, um den Wert des Tailorshops zu maximieren.
- Ich möchte im Laufe der Studie, also etwa einer Stunde, durch genaues Beobachten der Vorgänge mindestens 15 Zusammenhänge erlernen und danach handeln, um einen möglichst hohen Wert des Tailorshops zu erreichen.
- Ich möchte innerhalb dieser Versuchsstunde mindestens 15 Zusammenhänge erlernen um Probleme anschließend effektiver lösen zu können.
- Ich möchte innerhalb der vorgegebenen 12 Monate mindestens 15 Zusammenhänge erkennen und möglichst positiv beeinflussen, um meine Lernstrategie zu optimieren, hierbei werde ich versuchen aus Erfahrungen zu lernen
- *Ich will in den nächsten 12 Monaten den Gewinn des Tailorshops maximieren und dabei eine hohe Mitarbeiterzufriedenheit erreichen. Zur Gewinnmaximierung optimiere ich die Produktion und schätze meinen Absatzmarkt richtig ein, sodass ich meine Mitarbeiter gerecht entlohnen kann. Die Maximierung des Gewinns bringt persönliche Vorteile für mich, mit zufriedenen Mitarbeitern beruhigt sich mein Gewissen, ich tue Gutes und fühle mich gut dabei!*
- Ich möchte bis zum Ablauf des 12. Monats im Tailorshop durch genaues Beobachten der Zahlen und indem ich aus meinen Fehlern lerne mindestens 15 Zusammenhänge erkannt haben, damit ich mich danach zufrieden, stolz und erfüllt fühle.
- Ich nehme mir als Ziel, während der Bearbeitungszeit der Studie mindestens 15 Zusammenhänge zwischen den verschiedenen Variablen des Tailorshops herzustellen, indem ich mir die Auswirkungen der zu veränderen Variablen versuche möglichst gut zu merken und im Folgemonat zu optimieren. Grund dafür ist die Aussicht, einen möglichst hohen Unternehmenswert mit dem Tailorshop zu erreichen.
- Ich möchte im Laufe der 12 Monate durch hohe Aufmerksamkeit und Konzentration mindestens 15 Zusammenhänge verstehen, um dieses Wissen dazu zu nutzen den Wert meiner Firma zu steigern
- Ich möchte in dieser Simulation mindestens 15 Zusammenhänge der einzelnen Faktoren erkennen und durch dieses Wissen einen möglichst hohen Unternehmenswert innerhalb der vorgegebenen 12 Monate erreichen. Dies versuche ich durch erhöhte Aufmerksamkeit, einer guten Konzentration und gut durchdachten Entscheidungen zu verwirklichen. Ich will dieses Ziel erreichen, weil ein gut laufendes Unternehmen einen größeren Gewinn abwirft, die Wirtschaft stärkt und Arbeitsplätze schafft.
- *Bis zum Ende des Jahres 2015, möchte ich die Umsätze des Ladens steigern. Hierbei möchte ich die Zufriedenheit der Mitarbeiter nicht außer Acht lassen. Ein gutes Arbeitsklima soll hierbei helfen. Ich möchte Verbesserungsvorschläge der Mitarbeiter, zur Produktion der T-Shirts, entgegennehmen und eventuell umsetzen. Hierbei kann ich aus den Erfahrungen der Mitarbeiter mit dem Produkt profitieren. Regelmäßige Besprechungen sollen hierbei helfen, das Produkt zu optimieren und einen guten Bezug zu den Mitarbeitern zu bekommen, über die Stimmung in der Firma im Bilde zu sein und über Wünsche und Anliegen informiert zu sein. Durch die Motivation der Mitarbeiter soll es zu möglichst wenig Fehlproduktionen kommen. Hierdurch werden Kosten*

minimiert. Wenn Mitarbeiter sich als Teil des Ganzen fühlen und mitbestimmen, entwickeln und planen können steigt die Arbeitsmotivation.

- Damit die Firma mehr Profit macht, muss ich innerhalb eines Monats 15 Zusammenhänge für den Tailorshop finden indem ich mich mit sovielen anderen Unternehmen wie möglich in Verbindung setze.
- Ich will mindestens 15 Zusammenhänge im Zuge der Bearbeitung des Tailorshops (bis in einer Stunde) durch ausprobieren der Zusammenhänge in der Übungsphase erkannt haben, weil diese Fähigkeit des vernknüpften Denkens mir später im Beruf zu Gute kommen kann.
- Ich möchte es innerhalb der virtuellen 12 Monate schaffen, in der Simulation des Tailorshops einen möglichst hohen Firmenwert zu erreichen um einen hohen potentiellen Verdienst zu simulieren. Dies geschieht über die analyse der geschäftlichen zusammenhänge.
- *Ich möchte, dass sich meine Mitarbeiter zu jeder Zeit wohlfühlen und nicht negativ in ihrem jeweiligen Arbeitsgebiet beeinflusst werden. Ich möchte weiterhin erreichen, dass bis zum Ende des 12. Monats ein angenehmes Arbeitsklima erhalten bleibt. Bei Problemen muss kollektiv eine Lösung erarbeitet werden. Jeder Standpunkt sollte thematisiert werden, damit die Möglichkeit besteht, gemeinsam herauszufinden, wo genau die Probleme liegen. Durch genaue Problemanalyse können Möglichkeiten entstehen, die zur jeweiligen Lösung beitragen und das Unternehmen stark machen. Jeder Mitarbeiter ist also involviert und wird ernst genommen.*
- Ich möchte bis zum Ablauf der Arbeitsphase durch Aufmerksamkeit, Konzentration, Offenheit und Kreativität mindestens 15 Zusammenhänge finden, da dies die Vorgabe der Studie ist.

B.1.3 Participants with performance goals

Note. Orthographic and typing mistakes made by the participants are not corrected.

- Ich möchte den Unternehmenswert mit möglichst arbeitnehmer- und kundenfreundlichen Mitteln in einem Zeitraum von 12 simulierten Monaten über 250.000 halten, um sowohl mein Gewinnstreben als auch die Bedürfnisse der Arbeitnehmer und Kunden nach Möglichkeit zu erfüllen
- Ich werde mit Kompetenz, Engagement und guter Auffassungsgabe zuerst lernen ein Unternehmen zu leiten und mit diesem Wissen dann innerhalb von 12 Monaten als Leiter den Unternehmenswert des Tailor-Shops auf einen Wert von 250 000 bringen, um den Tailor-Shop zu dem besten Shop der Stadt zu machen!
- Ich möchte innerhalb der ersten sechs Monate einen Unternehmenswert von mindestens 250000 erreichen, durch kluges und wirtschaftliches Handeln um nach zwölf Monaten einen möglichst hohen Unternehmenswert zu haben.
- Ich möchte einen Unternehmenswert von mindestens 250000 Euro innerhalb der nächsten 12 Monate erzielen und am besten beibehalten, durch Motivation der Arbeitnehmer, gute Investitionen in Rohstoffe und Werbung, damit mein Unternehmen expandieren kann und mehr Umsatz gemacht wird.
- Unternehmenswert von 230'000. Nach 12 Monaten. Qualität der Kleidung erhalten/verbessern. Ansehen bei den Konsumenten, abheben von der Konkurrenz.
- Ich möchte im Laufe der nächsten 12 Monate einen Unternehmenswert von mindesten 250000 erreichen, indem ich aus Erfahrungen lerne um eine führende Marktposition zu erreichen und gleichzeitig ein angenehmes Arbeitsumfeld für meine Mitarbeiter zu etablieren.
- Ich will innerhalb von 45 Minuten einen Unternehmenswert von mindestens 250000 erreichen, indem ich konzentriert und gewissenhaft arbeite. Der Nutzen daraus ist die Gewinnmaximierung der Firma
- Ich möchte einen Unternehmenswert von mindestens 250000 in den nächsten 12 Monaten durch gutes Management erzielen, weil ich mir beweisen möchte, dass ich es kann
- Ich werde in einem Zeitraum von 12 Monaten den Unternehmenswert von mindestens 250'000 mittels engmaschiger Evaluation und Kontrolle, punktueller Investition beziehungsweise Minimierung beibehalten, um das Unternehmen nachhaltig zu stärken und nicht zu schwächen.
- Ich will durch eine disziplinierte Arbeit mit realistischer Zielsetzung einen Unternehmenswert von mind. 250000 erreichen und halten. Mittels flexibler Anpassung an neue Situationen und sich ändernde Gegebenheiten soll das Ziel bis nach 6 Monaten erreicht sein und bis zum 12. Monat

der Mindestwert nicht mehr maßgeblich unterschritten werden. Somit wäre es mir gelungen den Tailorshop gewinnbringend zu führen und Geld für weitere Projekte übrig zu haben.

- Mein Ziel ist es, im Tailorshop bis Ende des Jahres (also nach zwölf Monaten) den Unternehmenswert von 250.000 nicht zu unterschreiten, um Insolvenz zu vermeiden. Gleichzeitig werde ich zwischen dem 3. und 10. Monat versuchen, die größte Gewinnsteigerung zu erreichen - ich beginne mit der Maximierung demnach dann, wenn ich mich an die Aufgaben gewöhnt habe und versuche in den letzten beiden Monaten den bis dahin erzielten Unternehmenswert zu halten. Zu diesem Zweck werde ich bis zum dritten Monat die Arbeiterzahl steigern, um die Verkaufszahlen kontinuierlich zu erhöhen. Abhängig vom jeweiligen Absatzmarkt müssen Arbeiterzahl und Produktionszahlen angepasst werden - eine Komponente, die ich im Voraus nicht beeinflussen kann und auf die ich zur Zielerreichung besonders achten muss.
- Ich beabsichtige durch erhöhte Verkaufszahlen und zugleich gering erhöhte Preise spätestens bis zum 10. Monat des Jahres einen Unternehmenswert von mindestens 250'000 im Tailorshop zu erreichen, um erfolgreich zu sein, einen guten und fairen Stundenlohn zahlen zu können und in Zukunft das Unternehmen weiter ausbauen zu können.
- Ich beabsichtige einen Unternehmenswert von mindestens 250'000 innerhalb eines Jahres zu erreichen, indem ich die Leistung und Produktion der Firma durch eine bessere Unternehmensstruktur und kreative Ideen vorantreibe. So kann ein möglichst hoher Gewinn für das Unternehmen gemacht werden und auch die Mitarbeiter und andere Instanzen davon profitieren.
- Ich habe das Ziel mit sorgfältig gewählten Entscheidungen die Firma betreffend, einen Unternehmenswert von mindestens 250 000 nach 12 Monaten im Tailorshop zu erreichen, um den Gewinn zu maximieren und meine Arbeiter besser bezahlen zu können.
- Ich möchte, dass der Tailorshop spätestens am Ende der 12 Monate einen Unternehmenswert von mindestens 250,000 Euro erreicht. Um dies zu schaffen, will ich dafür sorgen, dass faire Preise für Rohstoffe und Produktionsgüter bestehen, aber auch, dass ein gutes Arbeitsklima herrscht und die Mitarbeiter gerne in der Firma arbeiten. Somit sind sie motivierter und arbeiten besser. Ich möchte mein Ziel erreichen, weil ich Chef des Tailorshops bin und viel Kraft und Mühe in die Firma investiert habe, sodass es ein Lebensprojekt ist, das mir sehr am Herzen liegt.
- Ich möchte einen Unternehmenswert von mindestens 250 000 beibehalten, bzw. diesen steigern. Mein Ziel ist es, dies bis zum Ende des 8. Monats geschafft zu haben, indem ich an der Mitarbeiterzufriedenheit arbeite und mich mit anderen führenden UNternehmern vergleiche. Ich denke, dass mit einer hohen Mitarbeiterzufriedenheit, die Motivation aller gefördert und ein gutes Arbeitsklima geschaffen wird, was meiner Meinung nach essentiell für ein erfolgreiches Unternehmen ist. Damit keinen Entscheidungen überstürzt werden, halte ich es für sinnvoll, meinem UNternehmen einige Monate Zeit zu geben um unsere Ziele zu erreichen. Da ich langfristig mit anderen UNternehmen in Konkurrenz stehe, werde ich mich deren Strategien vergleichen.
- Ich möchte in meinem Unternehmen spätestens ab dem 8. Monat einen Unternehmenswert von mindestens 250 000 erreichen bzw. beibehalten. Dabei setze ich auf die Zufriedenheit meiner Mitarbeiter und strebe an, sie, im Rahmen meiner finanziell vertretbaren Möglichkeiten, zufrieden zu stellen, um im Endeffekt eine hohe ökonomische Leistung zu erreichen. Ich möchte dieses Ziel erreichen, weil durch ökonomischen Erfolg in einem Betrieb mit gutem Arbeitsklima meine Zufriedenheit, aber auch die Zufriedenheit und materielle Unbesorgtheit meiner Mitarbeiter erhöht wird.
- Ich möchte den Unternehmenswert von mindestens 250000 innerhalb der ersten 6 Monate beibehalten, indem ich meine Mitarbeiter dazu motiviere, viel Leistung zu erbringen. Meine Mitarbeiter können nur motiviert arbeiten, wenn sie zufrieden sind und gerne zur Arbeit gehen, weshalb ich nicht an ihren Arbeitsbedingungen sparen sollte. Dadurch entsteht eine Win-Win-Situation für beide Parteien: Ich, als Arbeitgeber, mache mehr Umsatz, was sich dann natürlich auch auf meinem Konto widerspiegelt. Zudem gewinnt mein Unternehmen durch faire Arbeitsbedingungen viel Ansehen. Meine Mitarbeiter sind durch faire Arbeitsbedingungen zufriedener und können ihre Familien ernähren. Da ich in den nächsten 6 Monaten sogar versuchen möchte, den Unternehmenswert zu erhöhen, müssen aber auch weitere Maßnahmen getroffen werden, wie zum Beispiel eine Werbestrategie.
- Ich werde den Unternehmenswert von mindestens 250'000 in weniger als 12 Monaten erreichen. Ich werde versuchen, die Zufriedenheit der Arbeiter zu erhöhen, um diese Leistung zu erreichen.

Dann wird meine Firma genug Geld haben, damit sie selbstständig funktionieren und profitieren kann.

- Ich werde einen Unternehmenswert von mindestens 250000 durch Aufmerksamkeit in der gegebenen Zeit von 12 simulierten Monaten erreichen um eine möglichst gute Leistung abzugeben.
- Ich werde einen Unternehmenwert von mindestens 250 000 innerhalb dieser Stunde durch das Anpassen der Preise der Shirts, die Erhöhung der Produktion oder die Anzahl der Arbeiter, um einen Gewinn der Firma zu und somit auch die Erhaltung dieser Firma zu erzielen.
- Mein Ziel ist es den Unternehmensgewinn von 250,00 beizubehalten, bzw zu maximieren innerhalb eines Zeitraums von 12 Monaten. Dazu werde ich die Produktion antreiben, die Kosten dafür senken. Ich möchte die Firma wirtschaftlich stark machen, um meinen Mitarbeitern gute Löhne garantieren zu können.
- Mein Ziel ist es, innerhalb von 12 Monaten einen Unternehmenswert von mindestens 250'000 oder mehr zu erreichen, indem ich versuche, Fehler zu vermeiden und den maximalen Gewinn zu erreichen, um den Erhalt des Unternehmens zu sichern.
- Mein Ziel ist es im Tailorshop über eine Zeitspanne von 12 Monaten einen Unternehmenswert von mindestens 250'000 aufrechtzuerhalten. Dieses Ziel werde ich durch nachhaltige und gut durchdachte Planung von Tätigkeiten im Tailorshop umsetzen, um das Unternehmen in seinem Wert zu steigern und die Erträge zu maximieren.
- Ich werde innerhalb von 12 Monaten einen Unternehmenswert von mindestens 250000 erreichen und das mit Hilfe von Motivation, Intelligenz und Organisation, damit ich erfolgreich bin und weil ich die Verantwortung habe
- Ich will innerhalb eines Jahres durch effiziente Arbeitsmethoden einen Unternehmenswert von mindestens 250000 schaffen um so in den nächsten Jahren einen stetigen Gewinn zu erreichen, der nicht nur zum Wachstum des Unternehmens beiträgt, sondern auch Arbeitsplätze sichert.
- Ich will den Unternehmenswert von mindestens 250000 innerhalb der ersten 6 Monate aufrecht erhalten, indem ich Verluste vermeide und versuche, den Gewinn zu maximieren, weil ich mir ein erfolgreiches und solides Unternehmen wünsche
- Ich will durch komplexes Denken und hohe Aufmerksamkeit bis Ende der Simulation einen Unternehmenswert von mindestens 250000 halten, um erfolgreich zu sein.
- Ich werde möglichst viele Mitarbeiter so schnell wie möglich beteiligen und werde durch ausführliche Analyse der vorangegangenen Monate einen Unternehmenswert von mindestens 250000 erreichen, weil ich damit ein zufriedenstellendes Ergebnis erreicht habe und meine Mitarbeiter und ich von dem Unternehmen profitieren.
- Ich will durch vorausblickende und kalkulierende Regulierung von Human- und Kapitaleinsatz nach einem Zeitraum von 12 simulierten Monaten einen Unternehmenswert von mindestens 250'000 des Tailorshops erarbeitet haben, da es das Ziel dieser Studie ist.
- Ich möchte einen Unternehmenswert von 250.000 erreichen innerhalb von 12 Monaten, indem ich mich auf das Wesentliche fokussiere und Nebensächliches ausblende, weil mein Unternehmen erfolgreich werden soll.
- Ich muss die besten Mitarbeiter einstellen und mich um die Zufriedenheit am Arbeitsplatz kümmern: durch die Förderungs- und Weiterbildungsmaßnahmen, Verbesserung von AP und Arbeitsbedingungen, um die Arbeitsqualität und die Motivation der Arbeitnehmer zu steigern. Die Kunden sollen mit der Qualität der Produktion zufrieden sein, um auf dem Markt zu bleiben.
- Ich werde einen Unternehmenswert von mindestens 250.000 (€, \$, Ostmark?) erwirtschaften. In einem Zeitraum über 12 Monate. Mit möglichst fairen Methoden. Die Gründe hierfür liegen in meinem persönlichem Ehrgeiz.
- Wenn ich konzentriert und mit voller Leistung arbeite, werde ich in 12 Monaten den Unternehmenswert von mindestens 250'000 erreichen und konstant halten. Dies mache ich im Rahmen einer Studie und um selber zu sehen, wie ich Ziele umsetzen kann.
- Ich möchte innerhalb von 12 Monaten einen Unternehmenswert von mindestens 250,000 erreichen, damit ich eine gute Leistung im Tailorshop erbringen kann. Dazu muss ich profitsteigernde Maßnahmen entdecken und umsetzen.
- Ich möchte einen Unternehmenswert von min. 250.000 am Ende der zwölf Monate erreicht haben, indem ich die Produktion gesteigert haben werde, um die Firma auszubauen.

- Ich werde den Unternehmenswert in 6 Monaten um mindestens 1 steigern. Dazu soll die Produktion und der Absatz gesteigert werden, was zusätzliche Investitionen insbesondere in Personal und Marketing erfordert. Möglicherweise muss auch der Produktpreis verändert werden, um evtl steigende Rohstoffpreise und die Investitionen zu decken.

B.2 Group-specific mediation models

B.2.1 Participants with motto goals

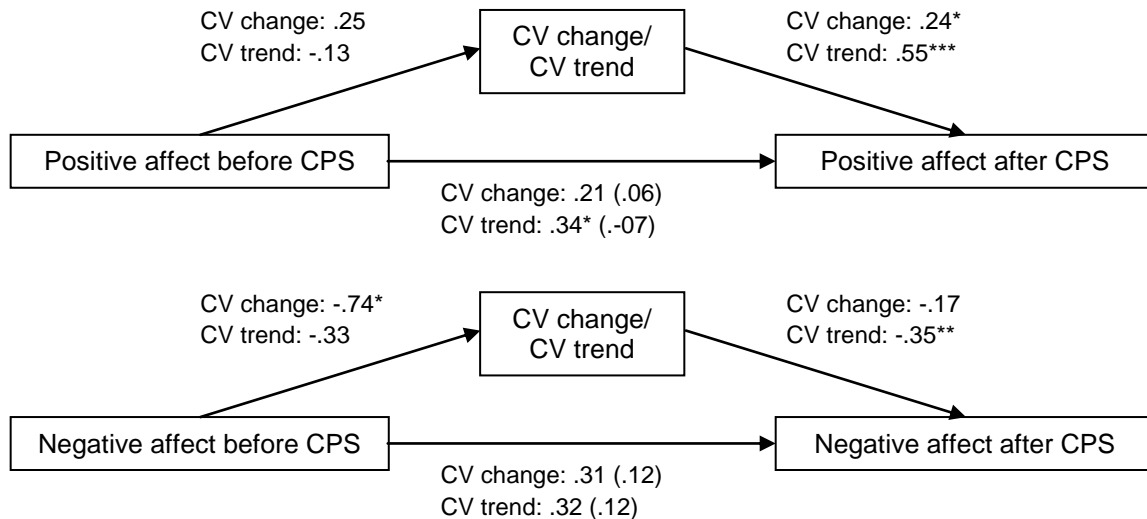


Figure B.2.1 Models of affect before CPS as predictor of affect after CPS, mediated by CPS performance. Only participants with motto goals ($n = 42$) were included.

B.2.2 Participants with learning goals

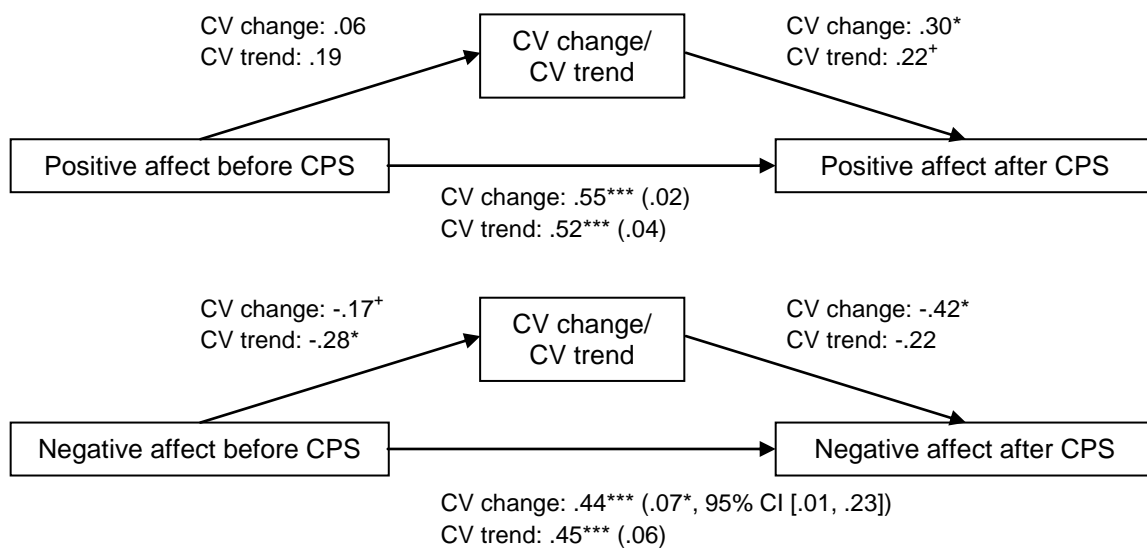


Figure B.2.2 Models of affect before CPS as predictor of affect after CPS, mediated by CPS performance. Only participants with learning goals ($n = 41$) were included.

Note. CI = Confidence interval.

B.2.3 Participants with performance goals

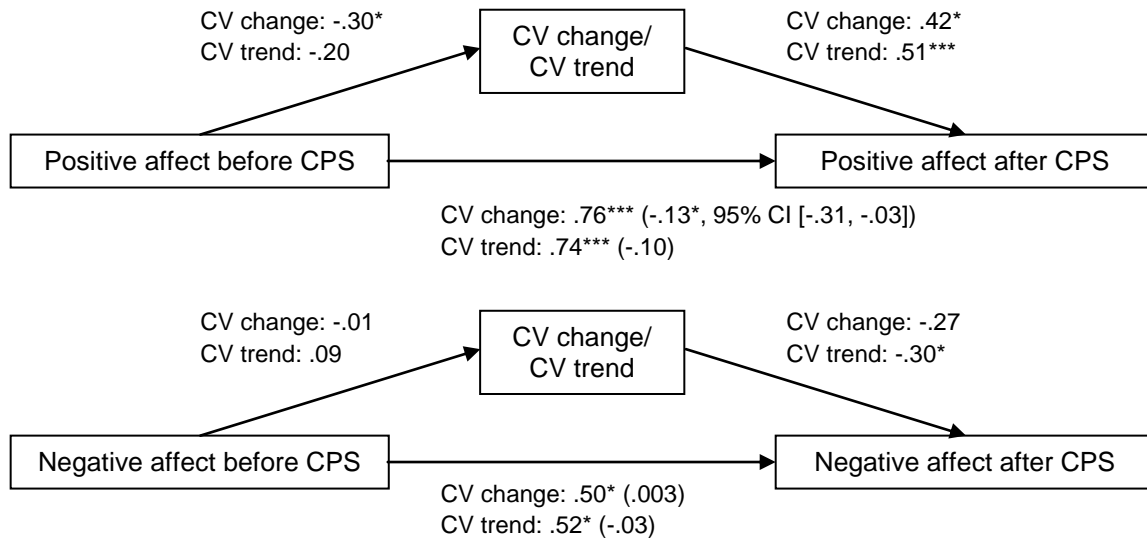


Figure B.2.3 Models of affect before CPS as predictor of affect after CPS, mediated by CPS performance. Only participants with performance goals ($n = 40$) were included.

Note. CI = Confidence interval.

Appendix C: Materials

C.1 Oral instruction of all participants in the three conditions

Hallo, herzlich Willkommen und vielen Dank, dass ihr bei meiner Studie mitmacht!

Es geht in der Studie darum, wie Ziele dabei helfen, ein Problem zu lösen. Das heißt, Ihr entwickelt nachher ein Ziel und bearbeitet dann damit ein Unternehmensplanspiel, den Tailorshop. Vielleicht könnt ihr mal kurz auf euren PC schauen und die Maus kurz bewegen: Dort müsste der Fragebogen schon geöffnet sein. Ist das bei allen so? Gut, wenn ich euch Bescheid sage, fangt ihr einfach mit dem Fragebogen an. An einer Stelle im Fragebogen kommt dann ein Link zum Tailorshop. Wenn dieser Link kommt, klickt ihr einfach drauf, dann öffnet sich der Tailorshop in einem neuen Fenster. Ihr bearbeitet dann bitte den Tailorshop und wenn ihr damit fertig seid, öffnet ihr wieder das Tab, in dem der Fragebogen ist und macht noch den Fragebogen fertig. Das heißt, nochmal kurz zusammengefasst: Ihr fangt mit dem Fragebogen an, der jetzt schon geöffnet ist, bearbeitet dann zwischendrin den Tailorshop in einem anderen Tab und füllt nach dem Tailorshop den Fragebogen fertig aus. Wenn ihr am Gewinnspiel teilnehmen wollt, könnt ihr ganz am Ende eure Mailadressen eintragen. Die Adressen werden getrennt von allen anderen Daten gespeichert, so dass eure Anonymität gesichert ist. Ihr müsst aber natürlich nicht teilnehmen, wenn ihr eure Adresse nicht angeben wollt. So, schaut bitte kurz auf den Tisch, an dem ihr sitzt: Dort müssten 2 Papiere liegen. Haben alle die Papiere? Auf einem Papier steht „Mein Ziel“. Dort schreibt ihr später euer Ziel auf, wenn ihr dazu aufgefordert werdet. Auf dem anderen Papier steht „Teilnehmer-Code“. Das ist euer persönlicher Code; er ist individuell und anonym. Wir brauchen diesen Code, damit wir später die Daten des Fragebogens zu den Tailorshop-Daten zuordnen können. Der Code wird also sowohl im Fragebogen als auch im Tailorshop eingetippt. Es ist ganz wichtig, dass ihr den Code richtig eintragt, damit wir die Daten später zuordnen können. Füllt den Zettel mit dem Code am besten jetzt gleich aus und meldet euch, wenn ihr Fragen habt (ca. ½ Minute Pause).

Gut, ihr seht außerdem eine Nummer auf eurem Zettel. Ihr werdet im Fragebogen und im Tailorshop auch dazu aufgefordert, diese Nummer einzutippen. Das ist dann aber an der entsprechenden Stelle nochmal genau erklärt. Gibt es soweit Fragen?

Dann sage ich kurz noch 2 Dinge, die ganz wichtig sind. Erstens: Klickt bitte im Browser nicht auf den „Zurück“-Button – weder bei dem Fragebogen noch bei dem Tailorshop – denn sonst werden die Daten nicht richtig gespeichert. Und zweitens: Schließt bitte das Tab mit dem Fragebogen nicht, während ihr den Tailorshop bearbeitet, denn sonst geht alles verloren, was ihr bis dahin eingetragen habt. Lasst das Fragebogen-Tab also einfach immer offen, auch wenn ihr den Tailorshop bearbeitet. Die Studie wird ungefähr 1 Stunde dauern. Wer fertig ist, kommt einfach zu mir und füllt noch den Zettel mit den Versuchspersonen-Stunden aus. Ihr könnt euren Versuchspersonen-Stunden-Zettel dann in ein paar Tagen unterschrieben in der Institutsbibliothek abholen. Wenn ihr den Zettel ausgefüllt habt, könnt ihr leise gehen. Bitte arbeitet in Ruhe und nehmt euch die Zeit, die ihr braucht. Arbeitet auch bitte allein, also schaut nicht, was die anderen so machen und redet bitte auch nicht miteinander. Macht euch auch bitte keine Notizen, sondern schreibt nur etwas auf Papier auf, wenn ihr explizit dazu aufgefordert werdet.

Und eine letzte, wichtige Bitte: Es gibt ja mehrere Termine für diese Studie und viele von euren Kommilitonen machen später noch mit. Es ist ganz wichtig, dass ihr mit euren Kommilitonen bitte nicht darüber spricht, was ihr hier gemacht habt! Wenn sie vorher schon wissen, was sie hier erwartet, dann werden ihre Daten ziemlich sicher verfälscht. Deshalb erzählt bitte möglichst gar nichts davon, was ihr hier macht. Gibt es noch Fragen?

Eigentlich sollte das meiste selbsterklärend sein, aber wenn ihr später noch Fragen habt, meldet euch einfach, dann komme ich zu euch an den Platz.
Gut, dann dürft ihr jetzt loslegen.

C.2 Sample picture of the motto goal condition and corresponding ideas



Ideen zu "Ihrem" Bild

Bitte kennzeichnen Sie alle Ideen, die bei Ihnen spontan ein gutes Gefühl auslösen:

- | | | | |
|-------------------------------------|-------------------------------------|-------------------------------------|-----------------------------------|
| <input type="checkbox"/> | Fette Beute | <input type="checkbox"/> | Abenteuer erleben |
| <input type="checkbox"/> | Huckleberry Finn | <input checked="" type="checkbox"/> | Seine Schätze zeigen |
| <input type="checkbox"/> | Sich zeigen | <input type="checkbox"/> | Barfuß auf dem Steg |
| <input type="checkbox"/> | Angeln | <input type="checkbox"/> | In den Himmel wachsen |
| <input type="checkbox"/> | Freude am eigenen Erfolg | <input type="checkbox"/> | Freudenschrei |
| <input type="checkbox"/> | Lachen | <input type="checkbox"/> | Ausdauer wird belohnt |
| <input type="checkbox"/> | Yeahhh, ich hab's geschafft! | <input type="checkbox"/> | Größter Fang des Lebens |
| <input type="checkbox"/> | Seht her, was ich kann! | <input checked="" type="checkbox"/> | Stolz sein dürfen |
| <input type="checkbox"/> | Du gehörst mir! | <input type="checkbox"/> | Kindliche Freude |
| <input type="checkbox"/> | Die Welt mit Kinderaugen betrachten | <input type="checkbox"/> | Ganz oben stehen |
| <input type="checkbox"/> | Stolz sein | <input type="checkbox"/> | Erfolge präsentieren und genießen |
| <input type="checkbox"/> | Den Moment genießen | <input type="checkbox"/> | Selbstversorger |
| <input checked="" type="checkbox"/> | Ich bin der Größte! | <input type="checkbox"/> | Belohnung für Geduld und Ausdauer |
| <input type="checkbox"/> | Ich kann alles | <input type="checkbox"/> | Strahlen |

Weiter

Figure C.2 Sample picture of the motto goal induction (boy with fish) and corresponding idea basket.

C.3 Sample item of the global-local figure task

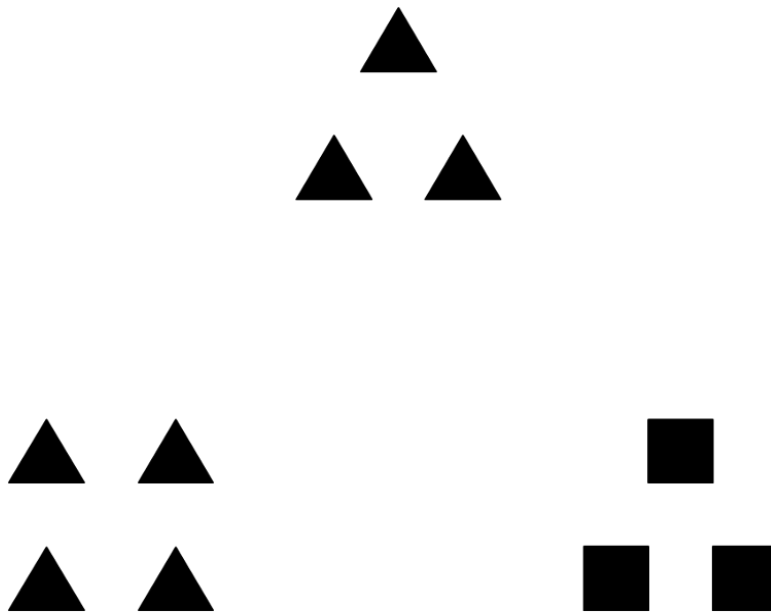


Figure C.3 Sample item of the global-local figure task (Kimchi & Palmer, 1982). Participants who perceive the lower left item as more similar to the upper item are assumed to process information locally. Participants who perceive the lower right item as more similar to the upper item are assumed to process information globally.

C.4 Informed consent



RUPRECHT-KARLS-
UNIVERSITÄT
HEIDELBERG

Fakultät für Verhaltens- und Empirische
Kulturwissenschaften
Institut für Psychologie
Lehrstuhl für Allgemeine und Theoretische Psychologie
Lehrstuhlinhaber: Prof. Dr. Joachim Funke

EINVERSTÄNDNISERKLÄRUNG

Die Richtlinien der Deutschen Forschungsgemeinschaft (DFG) sehen vor, dass sich die Teilnehmer/innen an empirischen Studien mit ihrer Unterschrift explizit einverstanden erklären, freiwillig an unserer Forschung teilzunehmen.

Aus diesem Grund möchten wir Sie bitten, die vorliegende Einverständniserklärung zu unterzeichnen, bevor Sie an unserer Studie teilnehmen.

Zu Ihrer Information sind nachfolgend Hinweise zu unserem Forschungsvorhaben aufgeführt.

Versuchsleitung: Miriam Rohe (Psychologiestudentin), E-Mail: Miriam.Rohe@gmx.de

Dauer und Belohnung: Die Dauer der Studie beträgt ca. eine Stunde. Die Teilnahme wird damit belohnt, dass Sie – wenn Sie möchten – an einer Verlosung von 5 Amazon-Gutscheinen im Wert von jeweils 20€ teilnehmen können. Außerdem erhalten Sie für die Teilnahme an der Studie Versuchspersonenstunden in dem entsprechenden zeitlichen Umfang.

Vertraulichkeit: Ihre Daten sind selbstverständlich vertraulich und werden nur in anonymisierter Form genutzt. Zu keinem Zeitpunkt im Rahmen der Untersuchung werden wir Sie bitten, Ihren Namen zu nennen. Von dieser Regelung ausgeschlossen sind lediglich die vorliegende Einverständniserklärung und die Angabe Ihrer Mailadresse, falls Sie an der Verlosung der Amazon-Gutscheine teilnehmen möchten. Da jedoch sowohl die Einverständniserklärung als auch ggf. Ihre Mailadresse getrennt von den Untersuchungsdaten gesammelt und verwahrt werden, ist die Anonymität Ihrer Untersuchungsdaten zu jedem Zeitpunkt gesichert.

Freiwilligkeit: Ihre Teilnahme an dieser Studie ist freiwillig. Es steht Ihnen zu jedem Zeitpunkt frei, Ihre Teilnahme ohne Angabe von Gründen abzubrechen, ohne dass Ihnen daraus Nachteile entstehen.

Einverständniserklärung: Hiermit bestätige ich, dass ich sämtliche obigen Angaben gelesen und vollständig verstanden habe.

Vorname und Nachname
(Druckbuchstaben)

Datum

Unterschrift

C.5 Print version of the online questionnaire

C.5.1 Part of the questionnaire prior to goal induction (all conditions)

Introduction

Liebe/r Teilnehmer/in,

vielen Dank, dass Sie an dieser Studie teilnehmen! Es geht in der Studie darum, wie Ziele dabei helfen, ein Problem zu lösen. Sie werden deshalb ein Ziel entwickeln, eine Problem-Aufgabe bearbeiten und einige Fragen beantworten.

Die Studie ist selbstverständlich vollständig anonym, es sind also keinerlei Rückschlüsse auf Ihre Person möglich. Außerdem werden Ihre Angaben ausschließlich für wissenschaftliche Zwecke verwendet und nicht an Dritte weitergegeben.

Die Studie wird etwa 60 Minuten dauern.

Los geht's!

Participant code 1

Geben Sie bitte hier Ihren Teilnehmer-Code ein, den Sie auf dem Papier mit der Überschrift "Teilnehmer-Code" notiert haben.

Verwenden Sie bitte pro Buchstabe und Zahl jeweils ein Textfeld.

Participant code 2

Auf dem Papier mit der Überschrift "Teilnehmer-Code" finden Sie eine handschriftlich notierte **Nummer**. Tragen Sie diese Nummer bitte hier ein:

Nummer:

Big Five measure via BFI-10 (Rammstedt & John, 2007)

Bevor Sie mit der Entwicklung des Ziels und der Bearbeitung der Aufgabe beginnen, möchten wir Sie bitten, ein paar Fragen zu beantworten. Es gibt dabei kein „richtig“ oder „falsch“, sondern es geht um Ihre ganz persönliche Einschätzung. Bitte beantworten Sie alle Fragen **ehrlich** und füllen Sie den Fragebogen **vollständig** aus, auch wenn Ihnen die Einschätzung einmal schwer fallen sollte.

Inwieweit treffen die folgenden Aussagen auf Sie zu?

	trifft überhaupt nicht zu	trifft eher nicht zu	weder noch	trifft eher zu	trifft voll und ganz zu
Ich...					
...bin eher zurückhaltend, reserviert.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...schenke anderen leicht Vertrauen, glaube an das Gute im Menschen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...bin bequem, neige zur Faulheit.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...bin entspannt, lasse mich durch Stress nicht aus der Ruhe bringen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...habe nur wenig künstlerisches Interesse.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...gehe aus mir heraus, bin gesellig.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...neige dazu, andere zu kritisieren.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...erledige Aufgaben gründlich.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...werde leicht nervös und unsicher.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...habe eine aktive Vorstellungskraft, bin phantasievoll.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Affect measure 1 via PANAS (Krohne et al., 1996)**Wie fühlen Sie sich im Moment?**

	gar nicht	ein bisschen	einigermaßen	erheblich	äußerst
interessiert	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
bekümmert	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
freudig erregt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
verärgert	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
stark	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
schuldig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
erschrocken	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
feindselig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
begeistert	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
stolz	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
gereizt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
wach	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
beschämt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
angeregt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
nervös	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
entschlossen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
aufmerksam	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
durcheinander	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
aktiv	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ängstlich	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Introduction to Tailorshop 1

Nun werden Sie gleich das Unternehmensplanspiel **Tailorshop** bearbeiten. Zuerst erklären wir Ihnen genau, worum es beim Tailorshop geht. Anschließend werden wir Sie zu einem persönlichen Ziel für den Tailorshop hinführen.

Lesen Sie sich also nun bitte zuerst einmal sorgfältig die Anleitung für den Tailorshop durch. Falls Sie Fragen haben, melden Sie sich bitte. Die Versuchsleiterin wird dann auf Sie zukommen.

Introduction to Tailorshop 2

Willkommen im Tailorshop!

Stellen Sie sich vor, Sie sind der/die Manager/in einer kleinen Firma, die Shirts produziert. Im Folgenden wird diese Firma auf dem Computer simuliert werden. Ihre Aufgabe wird es sein, die Firma für 12 simulierte Monate erfolgreich zu führen, indem Sie Entscheidungen über die Maschinen, die Arbeiter, die Preise, die Werbung und andere Firmenvariablen treffen.

Das Bild zeigt Ihnen, wie die Firmenvariablen in der Simulation dargestellt werden.

Tailorshop

Monat 2 von 12

Kennzahl	Wert	Planung		Kennzahl	Wert	Planung	
Kontostand	168075	↑	(i)	Unternehmenswert	247077	↓	(i)
Hemden verkauft	347	↓	(i)	Kundeninteresse	703	↓	(i)
Preis Rohmaterial	8.27	↑	(i)	Rohmaterial auf Lager	0	↓	(i)
Hemden auf Lager	0	↓	(i)	Rohmaterial Bestellung	250	<input type="text"/> + -	(i)
Arbeiter 50	8	<input type="text"/> + -	(i)	50er Maschinen	10	<input type="text"/> + -	(i)
Arbeiter 100	0	<input type="text"/> + -	(i)	100er Maschinen	0	<input type="text"/> + -	(i)
Lohn	1080	<input type="text"/> + -	(i)	Reparatur & Service	1200	<input type="text"/> + -	(i)
Hemdenpreis	52	<input type="text"/> + -	(i)	Sozialkosten pro Arb.	50	<input type="text"/> + -	(i)
Verkaufsstellen	1	<input type="text"/> + -	(i)	Werbeausgaben	2800	<input type="text"/> + -	(i)
Arbeitszufriedenheit %	57.7	↓	(i)	Geschäftslage	Stadtrand	Stadtrand	(i)
Produktionsausfall %	26		(i)	Maschinenschäden %	11.2	↓	(i)

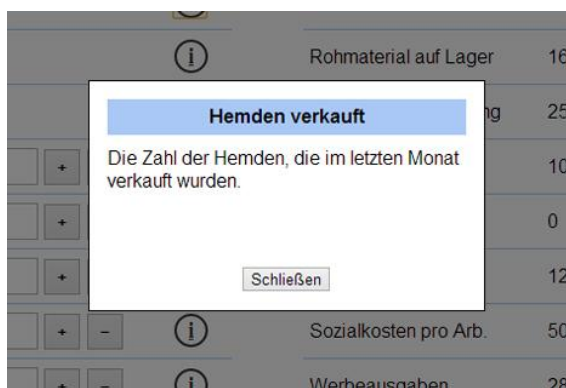
Weiter

In der Spalte unter der Überschrift „Kennzahl“ finden Sie eine Liste von Faktoren, die die Firma beschreiben. In der Spalte daneben („Wert“) können Sie den entsprechenden Wert jeder Variable ablesen. Die auf- bzw. abwärts gerichteten Pfeile hinter den Werten zeigen Ihnen an, ob sich ein Wert im vergangenen Monat entweder erhöht oder verringert hat.

Die Werte einiger Variablen können Sie selbst verändern. Dazu geben Sie entweder über die Tastatur oder über die „+“ und „-“ Zeichen einen Wert in die leeren Kästchen in der Spalte „Planung“ ein. Die von Ihnen eingegebenen Werte wirken sich im nächsten simulierten Monat auf das Firmenergebnis aus.

Sobald Sie Ihre Planung abgeschlossen und alle Werte, die Sie verändern möchten, eingegeben haben, klicken Sie auf den Button „Nächster Monat“, um den Ablauf eines Monats zu simulieren und in den nächsten Monat weitergeleitet zu werden. Dort bekommen Sie erneut die Firmenvariablen und die Veränderungen darin angezeigt.

Am Ende jeder Zeile finden Sie für jede Variable einen „Informationsbutton“, der Ihnen eine kurze Information über die entsprechende Variable anzeigt, wenn Sie darauf klicken.



Introduction to Tailorshop 3

Aufgabe

Die Simulation besteht aus zwei Teilen mit unterschiedlichen Anforderungen.

Teil 1: Übungsphase

Im ersten Teil haben Sie sechs Runden Zeit herauszufinden, wie die Firma funktioniert und welche Effekte Ihre Eingaben auf die Firmenvariablen haben. Nach sechs Runden werden alle Werte wieder auf den Ausgangszustand zurückgesetzt und die Arbeitsphase beginnt.

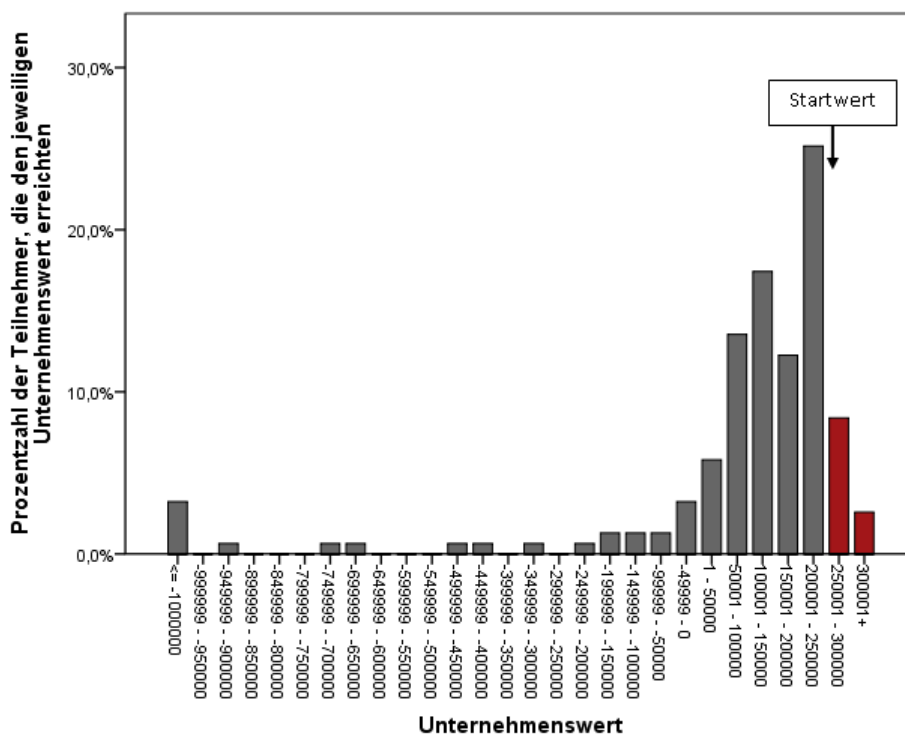
Teil 2: Arbeitsphase

Im zweiten Teil haben Sie die Aufgabe, den Wert der Firma über 12 simulierte Monate hinweg zu maximieren.

Introduction to Tailorshop 4

Sie haben nun gesehen, wie der Tailorshop aufgebaut ist. Bald wird es Ihre Aufgabe sein, den Tailorshop in der Übungs- und Arbeitsphase selbst zu bearbeiten. Wie in der Anleitung bereits angedeutet wurde, geht es beim Tailorshop darum, einen **möglichst hohen Unternehmenswert** zu erreichen. Die folgende Graphik zeigt Ihnen, wie die Teilnehmer einer vorherigen Studie abgeschnitten haben.

Hieraus können Sie auch gut erkennen, welcher Endbetrag zu einem möglichst hohen Unternehmenswert zu zählen ist. Bitte beachten Sie dabei, dass der **Start-Unternehmenswert bei 250'685** liegt, so dass es bereits eine **sehr gute Leistung ist, keinen oder nur wenig Verlust zu machen!**



Wir werden Ihnen nun erst einmal erläutern, wie Sie an den Tailorshop herangehen sollen, um einen möglichst hohen Unternehmenswert zu erreichen. Anschließend bekommen Sie die Gelegenheit, ein persönliches Ziel für den Tailorshop zu formulieren.

C.5.2 Goal induction (reported for each goal condition separately)

Motto goal condition

Manipulation of goal orientation

Wie Sie am besten an den Tailorshop herangehen

Der Tailorshop ist eine komplexe Aufgabe, deshalb wird es nötig sein, dass Sie versuchen, **Ihre eigenen Ressourcen zu mobilisieren**, mit denen Sie optimal an die Aufgabe herangehen können. In Aufgaben wie dem Tailorshop ist es sehr wichtig, dass Sie eine Herangehensweise haben, die zur Aufgabe passt und für Sie persönlich angenehm ist, so dass Sie durch Ihre innere Haltung und Ihre eigenen Ressourcen den Unternehmenswert steigern und maximieren können. Seien Sie dazu bereit, Ihre eigene Herangehensweise an den Tailorshop zu entwickeln und versuchen Sie, die Aufgabe als Möglichkeit zu sehen, Ihre eigenen Ressourcen zu nutzen.

All diese Hinweise können Sie am besten umsetzen, wenn Sie ein Ziel zur Bearbeitung des Tailorshops formulieren. Wir werden Sie deshalb nun Schritt für Schritt an Ihr ganz persönliches Ziel heranführen, das Ihnen dabei helfen wird, Ihre Ressourcen im Tailorshop möglichst gut einsetzen zu können.

Goal induction 1

Herzlich willkommen zum Zielbildungs-Tool!

Eine wirksame, also effektive Zielplanung erfordert mehr als gute Vorsätze, sie verlangt nach echten Zielen.

Gut formulierte Ziele helfen dabei, die richtigen Dinge zu tun. In diesem Online-Tool werden Sie durch einen Prozess geführt, um sich ein solches Ziel zu formulieren.

Zu Beginn sehen Sie hier noch einmal das Thema, zu dem Sie ihr Ziel formulieren werden:

Hoher Unternehmenswert im Tailorshop

Goal induction 2

Ressourcenaktivierender Einstieg

Wie ist Ihr Befinden, wenn Sie an das Thema "Hoher Unternehmenswert im Tailorshop" denken?

Goal induction 3**Bitte wählen Sie ein Bild mit dem Gefühl**

Gleich werden Sie verschiedene Bilder sehen. Das Bild Ihrer Wahl wird Ihnen als Ressource für den Tailorshop dienen. Schicken Sie nun bitte Ihren Verstand in die Ferien, den brauchen Sie für den nächsten Arbeitsschritt nicht.

Vergegenwärtigen Sie sich kurz, dass Sie gleich den Tailorshop bearbeiten werden. Wählen Sie dann das Bild, das ein starkes positives Gefühl in Ihnen auslöst (fröhlich, beruhigend, lässt Sie lächeln,...). Sie müssen nicht verstehen, warum das Bild ein solch starkes gutes Gefühl in Ihnen auslöst.

Sie bekommen jetzt in einem Durchlauf ein Bild nach dem anderen gezeigt. Achten Sie bitte einfach darauf, welches Bild ein besonders schönes Gefühl in Ihnen auslöst. Im Anschluss an den Durchlauf werden alle Bilder im Überblick gezeigt. Hier können Sie noch einmal vergleichen, welches Ihr Favorit ist.

- Vergegenwärtigen Sie sich kurz den Tailorshop.
- Wählen Sie dasjenige Bild, welches ein positives Gefühl bei ihnen auslöst.

Goal induction 4 (before, all pictures were shown separately on single pages)**Bitte klicken Sie nun auf das Bild, das bei ihnen ein positives Gefühl auslöst und dann auf "weiter"**

Falls mehrere Bilder ein gutes Gefühl auslösen, dann wählen Sie bitte das Bild, das das stärkste gute Gefühl auslöst.

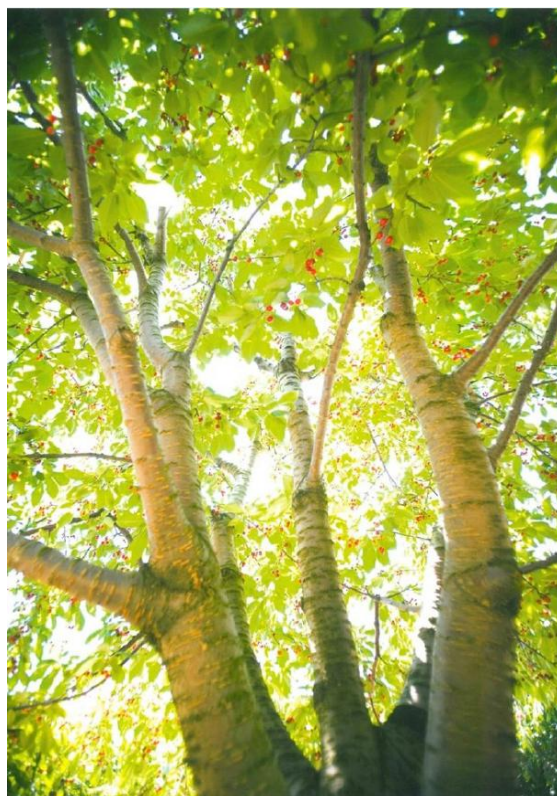
Goal induction 5**Ideen zu „Ihrem“ Bild**

- Sie sehen nun gleich mehrere positive Ideen zu Ihrem gewählten Bild. Bitte kennzeichnen Sie alle Ideen, die bei Ihnen spontan ein gutes Gefühl auslösen.
- Sie müssen nicht verstehen, warum die Ideen ein gutes Gefühl auslösen.

Goal induction 6 (participants who had chosen the eagle)**Ideen zu "Ihrem" Bild**

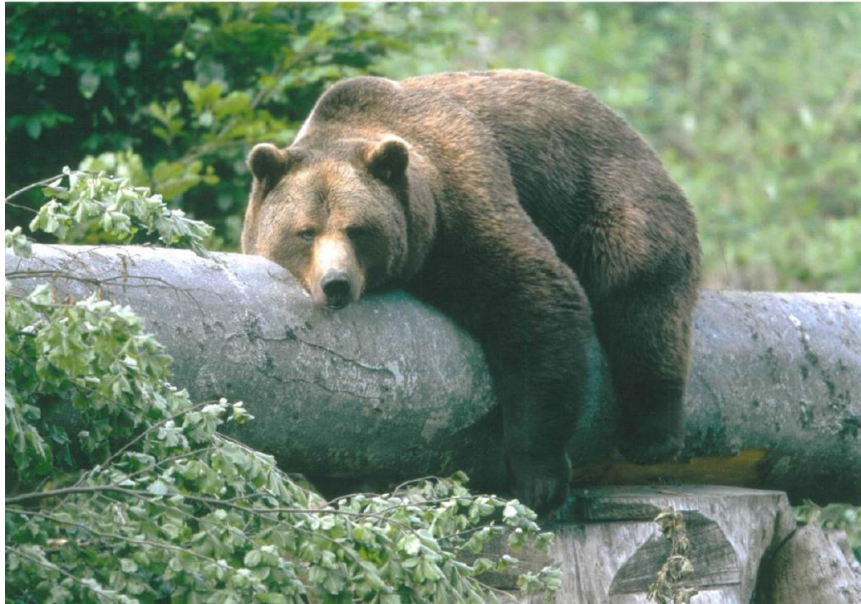
Bitte kennzeichnen Sie alle Ideen, die bei Ihnen spontan ein gutes Gefühl auslösen:

- | | | | |
|-----------------------|---------------------------------|-----------------------|-------------------------|
| <input type="radio"/> | Sich aufschwingen | <input type="radio"/> | Einzelgänger |
| <input type="radio"/> | In die Lüfte hinauf | <input type="radio"/> | Alleinsein genießen |
| <input type="radio"/> | Fliegen | <input type="radio"/> | Zufriedenheit |
| <input type="radio"/> | Überblick haben | <input type="radio"/> | Naturverbunden |
| <input type="radio"/> | Sich die Beute schnappen | <input type="radio"/> | Adlerhorst |
| <input type="radio"/> | Königlich | <input type="radio"/> | Selbstständig |
| <input type="radio"/> | Frei | <input type="radio"/> | König der Lüfte |
| <input type="radio"/> | Auf der Thermik gleiten | <input type="radio"/> | Über den Wolken |
| <input type="radio"/> | Leichtigkeit | <input type="radio"/> | Strahlendes Blau |
| <input type="radio"/> | Freiheit | <input type="radio"/> | Erhabenes Kreisen |
| <input type="radio"/> | Frische Luft atmen | <input type="radio"/> | Stark |
| <input type="radio"/> | Im Gleitflug | <input type="radio"/> | Pfeilschneller Flug |
| <input type="radio"/> | Fokussiertes sehen (Adlerblick) | <input type="radio"/> | Spürt seine Bedürfnisse |
| <input type="radio"/> | Die Schwingen ausbreiten | <input type="radio"/> | Guter Jäger |
| <input type="radio"/> | Vom Wind getragen | | |
| <input type="radio"/> | Die Thermik nutzen | | |

Goal induction 6 (participants who had chosen the tree)**Ideen zu "Ihrem" Bild**

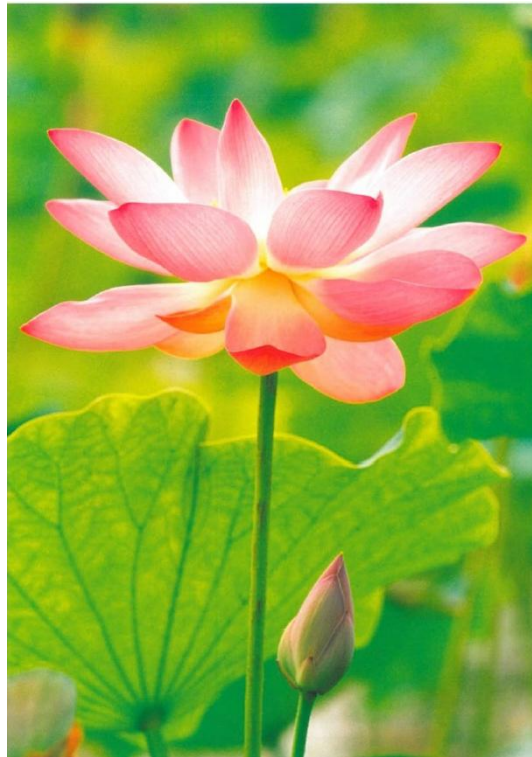
Bitte kennzeichnen Sie alle Ideen, die bei Ihnen spontan ein gutes Gefühl auslösen:

- | | | | |
|-----------------------|---------------------------|-----------------------|--------------------------------|
| <input type="radio"/> | Lichtdurchflutet | <input type="radio"/> | Frühlingsfrisches Grün |
| <input type="radio"/> | Die Bäume tragen Früchte | <input type="radio"/> | Gedeiht in grüner Gemeinschaft |
| <input type="radio"/> | Man kann den Himmel sehen | <input type="radio"/> | Symbiose |
| <input type="radio"/> | Alles ist saftig und Grün | <input type="radio"/> | Altes Baumwissen |
| <input type="radio"/> | Starke Wurzeln | <input type="radio"/> | Langsamkeit |
| <input type="radio"/> | Nach oben wachsen | <input type="radio"/> | Wächst in seinem Tempo |
| <input type="radio"/> | Verästelung | <input type="radio"/> | Präsentiert seine Früchte |
| <input type="radio"/> | Energie aus dem Boden | <input type="radio"/> | Wachstum und Erneuerung |
| <input type="radio"/> | Fest verwurzelt | <input type="radio"/> | Kreislauf des Lebens |
| <input type="radio"/> | Biegsam | <input type="radio"/> | Starker Stamm |
| <input type="radio"/> | Beweglich | <input type="radio"/> | Waldgeruch |
| <input type="radio"/> | Helle Leichtigkeit | <input type="radio"/> | Wind rauscht durch Blätter |
| <input type="radio"/> | Süße Früchte | <input type="radio"/> | Schattenspender |
| <input type="radio"/> | Warmes Licht | <input type="radio"/> | Nutzt seine Ressourcen |

Goal induction 6 (participants who had chosen the bear)**Ideen zu "Ihrem" Bild**

Bitte kennzeichnen Sie alle Ideen, die bei Ihnen spontan ein gutes Gefühl auslösen:

- | | | | |
|-----------------------|---|-----------------------|---------------------------------------|
| <input type="radio"/> | Bärenruhe | <input type="radio"/> | Honig schlecken |
| <input type="radio"/> | Hat ein dickes Fell | <input type="radio"/> | Ich ruhe auf meinem Thron |
| <input type="radio"/> | Nimmt sich die Zeit, die er braucht | <input type="radio"/> | Hat den Überblick in seinem Bärenwald |
| <input type="radio"/> | „In meinem Territorium fühle ich mich sicher“ | <input type="radio"/> | Bewegt sich nur wenn's nötig ist |
| <input type="radio"/> | Probier's mal mit Gemütlichkeit... | <input type="radio"/> | Sicherer Halt |
| <input type="radio"/> | Gelassenheit | <input type="radio"/> | Fängt sich dicke Lachse |
| <input type="radio"/> | Groß und stark | <input type="radio"/> | Bäreninstinkt |
| <input type="radio"/> | Kann flink und schnell sein | <input type="radio"/> | Teilt sich seine Energien ein |
| <input type="radio"/> | Verteidigt sein Reich | <input type="radio"/> | Pure Kraft |
| <input type="radio"/> | Klettern für Honig in lichte Höhen | <input type="radio"/> | Bärenschlau |
| <input type="radio"/> | Baumstamm trägt den Bär | <input type="radio"/> | Freundlich und bestimmt |
| <input type="radio"/> | Waldgeruch | | |

Goal induction 6 (participants who had chosen the lotus)**Ideen zu "Ihrem" Bild**

Bitte kennzeichnen Sie alle Ideen, die bei Ihnen spontan ein gutes Gefühl auslösen:

- | | |
|--|--|
| <input type="radio"/> Strahlen | <input type="radio"/> Wachstum |
| <input type="radio"/> Im Zentrum stehen | <input type="radio"/> Transparenz |
| <input type="radio"/> Ich zeige meine Pracht | <input type="radio"/> Inmitten von Vielen |
| <input type="radio"/> Aufblühen | <input type="radio"/> Erstrahlt in voller Blüte |
| <input type="radio"/> Im Licht wachsen | <input type="radio"/> Verströmt verlockenden Duft |
| <input type="radio"/> Stark und zart zugleich | <input type="radio"/> Zeigt ihre Strahlkraft |
| <input type="radio"/> Die Schönste weit und breit | <input type="radio"/> Schließt und schützt nachts ihre Blüte |
| <input type="radio"/> Fest verwurzelt auf der Oberfläche schwimmen | <input type="radio"/> Wiegt sich sanft auf den Wellen |
| <input type="radio"/> Neue Triebe | <input type="radio"/> Attraktiver Blickfänger |
| <input type="radio"/> Blatt als Schutz für die Knospe | <input type="radio"/> Sattes Grün |
| <input type="radio"/> Duftet süß | <input type="radio"/> Natürlich |
| <input type="radio"/> Lustvolles Öffnen zur Sonne | <input type="radio"/> Feine, weiche Blütenblätter |
| <input type="radio"/> Lotusfreundliche Gewässer | <input type="radio"/> Leuchtet |

Goal induction 6 (participants who had chosen the vespa)**Ideen zu "Ihrem" Bild**

Bitte kennzeichnen Sie alle Ideen, die bei Ihnen spontan ein gutes Gefühl auslösen:

- | | | | |
|-----------------------|---|-----------------------|-----------------------------------|
| <input type="radio"/> | Gas geben | <input type="radio"/> | Wind im Haar |
| <input type="radio"/> | Lebensfreude | <input type="radio"/> | Genießen |
| <input type="radio"/> | Volldampf voraus! | <input type="radio"/> | Bremsbereit |
| <input type="radio"/> | Voll Energie | <input type="radio"/> | Auf zum Strand |
| <input type="radio"/> | Verrückte Dinge tun | <input type="radio"/> | Das Leben genießen |
| <input type="radio"/> | Ausbrechen | <input type="radio"/> | Flirten mit der Welt |
| <input type="radio"/> | Frech | <input type="radio"/> | Genuss und Spaß |
| <input type="radio"/> | Die Richtung kennen | <input type="radio"/> | Zielgerichtet fahren |
| <input type="radio"/> | Nur so zum Spaß fahren | <input type="radio"/> | Ein klares Ziel vor Augen |
| <input type="radio"/> | Die Umgebung im Blick behalten | <input type="radio"/> | Fokussierter Blick |
| <input type="radio"/> | Vespagefühl | <input type="radio"/> | Gelassen und fröhlich vorankommen |
| <input type="radio"/> | Motorkraft | <input type="radio"/> | Freude an der Fahrt |
| <input type="radio"/> | Flotte Fahrt | <input type="radio"/> | Vertraut auf ihr Können |
| <input type="radio"/> | Hintergrund verwischt, sie ist im Zentrum | <input type="radio"/> | Selbstsicher |

Goal induction 6 (participants who had chosen the raspberries)**Ideen zu "Ihrem" Bild**

Bitte kennzeichnen Sie alle Ideen, die bei Ihnen spontan ein gutes Gefühl auslösen:

- | | | | |
|-----------------------|--------------------------------|-----------------------|-------------------------|
| <input type="radio"/> | Köstlich | <input type="radio"/> | Edle Früchte |
| <input type="radio"/> | Verführerisch | <input type="radio"/> | Große, üppige Ernte |
| <input type="radio"/> | Den Sommer genießen | <input type="radio"/> | Süße Reife |
| <input type="radio"/> | Reiche Ernte | <input type="radio"/> | Genuss |
| <input type="radio"/> | Himbeersaft | <input type="radio"/> | Strahlen |
| <input type="radio"/> | Kräftig rot | <input type="radio"/> | Geschmacksexplosion |
| <input type="radio"/> | Himbeereis | <input type="radio"/> | «Heisse Himbeeren» |
| <input type="radio"/> | Erntezeit | <input type="radio"/> | Verführerisches Rot |
| <input type="radio"/> | Prächtig | <input type="radio"/> | Himbeermarmelade kochen |
| <input type="radio"/> | Das Beste vom Besten | <input type="radio"/> | Liebe zum Detail |
| <input type="radio"/> | Die Ernte genießen | <input type="radio"/> | Kreative Ordnung |
| <input type="radio"/> | Aus den Vollen schöpfen | <input type="radio"/> | Himbeeren pflücken |
| <input type="radio"/> | Eine Himbeere nach der anderen | <input type="radio"/> | Glanz, glänzend |
| <input type="radio"/> | Sommerreife | <input type="radio"/> | Lustvoll |
| <input type="radio"/> | Auf der Zunge zergehen lassen | <input type="radio"/> | Sich etwas gönnen |
| <input type="radio"/> | Vielfalt | <input type="radio"/> | Süße Belohnung |

Goal induction 6 (participants who had chosen the boy with the fish)**Ideen zu "Ihrem" Bild**

Bitte kennzeichnen Sie alle Ideen, die bei Ihnen spontan ein gutes Gefühl auslösen:

- | | | | |
|-----------------------|--------------------------|-----------------------|-------------------------------------|
| <input type="radio"/> | Fette Beute | <input type="radio"/> | Belohnung für Geduld und Ausdauer |
| <input type="radio"/> | Du gehörst mir! | <input type="radio"/> | Kindliche Freude |
| <input type="radio"/> | Seht her, was ich kann! | <input type="radio"/> | Größter Fang des Lebens |
| <input type="radio"/> | Stolz sein dürfen | <input type="radio"/> | Ich kann alles |
| <input type="radio"/> | Sich zeigen | <input type="radio"/> | Stolz sein |
| <input type="radio"/> | Freudenschrei | <input type="radio"/> | Seine Schätze zeigen |
| <input type="radio"/> | Ausdauer wird belohnt | <input type="radio"/> | Yeahhh, ich hab's geschafft! |
| <input type="radio"/> | Freude am eigenen Erfolg | <input type="radio"/> | Lachen |
| <input type="radio"/> | Ich bin der Größte! | <input type="radio"/> | In den Himmel wachsen |
| <input type="radio"/> | Strahlen | <input type="radio"/> | Erfolge präsentieren und genießen |
| <input type="radio"/> | Angeln | <input type="radio"/> | Abenteuer erleben |
| <input type="radio"/> | Ganz oben stehen | <input type="radio"/> | Die Welt mit Kinderaugen betrachten |
| <input type="radio"/> | Huckleberry Finn | <input type="radio"/> | Den Moment genießen |
| <input type="radio"/> | Selbstversorger | <input type="radio"/> | Barfuß auf dem Steg |

Goal induction 6 (participants who had chosen the wolf)**Ideen zu "Ihrem" Bild**

Bitte kennzeichnen Sie alle Ideen, die bei Ihnen spontan ein gutes Gefühl auslösen:

- | | | | |
|-----------------------|---------------------------------------|-----------------------|---------------------------------|
| <input type="radio"/> | Fokussiert | <input type="radio"/> | Wolfsinstinkt |
| <input type="radio"/> | Instinktsicher | <input type="radio"/> | Geht seinen Weg |
| <input type="radio"/> | Das Ziel im Visier | <input type="radio"/> | Einzelgänger |
| <input type="radio"/> | Findet sich im Rudel zurecht | <input type="radio"/> | Nimmt sich was er braucht |
| <input type="radio"/> | Überlebenskünstler | <input type="radio"/> | Auf leisen Pfoten |
| <input type="radio"/> | Freiheitsliebend | <input type="radio"/> | Wacher Blick |
| <input type="radio"/> | Beute aufspüren | <input type="radio"/> | Schützendes Fell |
| <input type="radio"/> | Schlau | <input type="radio"/> | Klarer Blick |
| <input type="radio"/> | Spur verfolgen | <input type="radio"/> | Findet Geborgenheit im Wolfsbau |
| <input type="radio"/> | Guter Jäger | <input type="radio"/> | Robust |
| <input type="radio"/> | Urinstinkte | <input type="radio"/> | Wandert große Strecken |
| <input type="radio"/> | Vertraut auf sein Wissen | <input type="radio"/> | Guter Orientierungssinn |
| <input type="radio"/> | Schnappt sich seine Beute | <input type="radio"/> | Schützt sein Revier |
| <input type="radio"/> | Hört auf seine Bedürfnisse | <input type="radio"/> | Treuer Begleiter und Beschützer |
| <input type="radio"/> | Langstreckenläufer und guter Sprinter | <input type="radio"/> | Gutes Gehör |

Goal induction 6 (participants who had chosen the palmtree)**Ideen zu "Ihrem" Bild**

Bitte kennzeichnen Sie alle Ideen, die bei Ihnen spontan ein gutes Gefühl auslösen:

- | | | | |
|-----------------------|--------------------------------------|-----------------------|--|
| <input type="radio"/> | Relaxen | <input type="radio"/> | Piña Colada schlürfen |
| <input type="radio"/> | Sich im Winde wiegen | <input type="radio"/> | Sanftes Schaukeln im Abendwind |
| <input type="radio"/> | Abenteuer an neuen Ufern | <input type="radio"/> | Palmen und Kokosnüsse |
| <input type="radio"/> | Sonne und Meer | <input type="radio"/> | Inselkönig |
| <input type="radio"/> | Abschalten | <input type="radio"/> | Robinson Crusoe |
| <input type="radio"/> | Friedlich | <input type="radio"/> | Der Duft des Meeres |
| <input type="radio"/> | Gemütlichkeit | <input type="radio"/> | Salzige Haut |
| <input type="radio"/> | Muscheln | <input type="radio"/> | Reichtum des Meeres |
| <input type="radio"/> | Unterwasserwelten entdecken | <input type="radio"/> | Hängematte |
| <input type="radio"/> | Schätze vom Meeresgrund bergen | <input type="radio"/> | Auf der Palme Überblick über Insel haben |
| <input type="radio"/> | Abtauchen in blaue Ruhe | <input type="radio"/> | Die Seele baumeln lassen |
| <input type="radio"/> | Schwebende Leichtigkeit unter Wasser | <input type="radio"/> | Unter freiem Himmel |
| <input type="radio"/> | Schattenspenden | | |
| <input type="radio"/> | Sand | | |

Goal induction 6 (participants who had chosen the hiker)**Ideen zu "Ihrem" Bild**

Bitte kennzeichnen Sie alle Ideen, die bei Ihnen spontan ein gutes Gefühl auslösen:

- | | |
|---|---|
| <input type="radio"/> Ich gehe meinen Weg | <input type="radio"/> Die Steine unter den Sohlen knirschen |
| <input type="radio"/> Schritt für Schritt voran | <input type="radio"/> Guten Mutes unterwegs sein |
| <input type="radio"/> Im eigenen Tempo | <input type="radio"/> Kräuterduft am Wegesrand |
| <input type="radio"/> Gut gerüstet | <input type="radio"/> Wandern |
| <input type="radio"/> Der Berg ruft! | <input type="radio"/> Bergpanorama |
| <input type="radio"/> Herausforderungen machen Spaß | <input type="radio"/> Die eigene Kraft spüren |
| <input type="radio"/> Im Vertrauen auf die Stärke des Körpers | <input type="radio"/> Die Freude am Laufen |
| <input type="radio"/> Frische Bergluft | <input type="radio"/> Auf zum Gipfel |
| <input type="radio"/> Orientierung haben | <input type="radio"/> Durch blühende Täler |
| <input type="radio"/> Rhythmische Schritte | <input type="radio"/> Mit festem Schritt |
| <input type="radio"/> Über Berg und Tal | <input type="radio"/> Los geht's |
| <input type="radio"/> Neuen Zielen entgegen | <input type="radio"/> Bergführer |
| <input type="radio"/> Aufbruch | <input type="radio"/> Unter freiem Himmel |

Goal induction 7

(Hier wurde das zuvor gewählte Bild eingeblendet)

Eine neue Herangehensweise an den Tailorshop

Bitte formulieren Sie **mit Ihren Lieblingsideen eine neue Herangehensweise an den Tailorshop**. Sie können dabei die folgenden Satzanfänge benutzen oder einen eigenen Satz bilden.

- Ich will mich fühlen wie...
- Ich will handeln wie...
- Ich will sein wie...

Beispiele für neue Herangehensweisen:

Ich will mich fühlen wie ein Bär, der ein dickes Fell hat.

Ich will handeln wie die junge Frau auf der Vespa, frech und Vollgas voraus.

Ich will sein wie der Lotus und wachsen in meinem Tempo.

Ich will Schritt für Schritt in meinem Tempo vorangehen.

Meine neue Herangehensweise:

Bitte formulieren Sie **mit Ihren Lieblingsideen** eine neue Herangehensweise an den Tailorshop.

Meine Lieblingsideen:

*(Hier wurden zuvor als
Lieblingsideen gekennzeichnete
Ideen eingeblendet)*

Goal induction 8**Mein bisheriges Befinden**

Mein bisheriges Befinden zum Thema "hoher Unternehmenswert im Tailorshop":

(Hier wurde das in Goal induction 2 eingetragene Befinden eingeblendet)

Goal induction 9**Änderung des Befindens**

Überlegen Sie sich: Was wird sich an Ihrem bisherigen Befinden ändern, wenn Sie nun den Tailorshop mit Ihrer neuen Herangehensweise angehen?

(Hier wurde die zuvor entwickelte Herangehensweise (=Mottoziel) sowie das gewählte Bild eingeblendet)

Folgen der neuen Herangehensweise

Bitte notieren Sie hier die Ergebnisse Ihrer Überlegungen

Goal induction 10**Gratulation!**

Sie haben sich nun zu dem Thema: **Hoher Unternehmenswert im Tailorshop**

Das folgende Ziel formuliert:

(Hier wurde das zuvor entwickelte Mottoziel und das gewählte Bild eingeblendet)

Damit Sie Ihr Ziel im Hinterkopf behalten, während Sie den Tailorshop bearbeiten, **notieren Sie sich das Ziel bitte auf dem Blatt Papier mit der Überschrift "Mein Ziel"**, das auf Ihrem Platz liegt!

Learning goal condition

Manipulation of goal orientation

Wie Sie am besten an den Tailorshop herangehen

Der Tailorshop ist eine komplexe Aufgabe, deshalb wird es nötig sein, dass Sie versuchen, **einen maximalen Lernerfolg zu erreichen**. In Aufgaben wie dem Tailorshop ist es sehr wichtig, dass Sie über Strategien nachdenken, wie Sie den Unternehmenswert steigern können und sich ständig bemühen, die Zusammenhänge innerhalb des Systems so gut wie möglich zu verstehen. Seien Sie so offen wie möglich für neue Lernerfahrungen und versuchen Sie, die Aufgabe als Möglichkeit zu sehen, Ihre eigenen Fähigkeiten zu erweitern.

Es ist sehr wichtig, dass Sie von Anfang an versuchen, **Fehler als Lerngelegenheit** zu sehen, denn jeder Fehler verrät Ihnen, wo Sie sich noch verbessern können. Achten Sie außerdem darauf, dass Sie den Unternehmenswert ständig überwachen. Jeden Monat sehen Sie, wie sich der Wert entwickelt hat – nutzen Sie diese Information, um Ihren bisherigen Lernerfolg zu beurteilen. Der Tailorshop ist eine Aufgabe, die eine Lernbereitschaft im Umgang mit komplexen Systemen erfordert – versuchen Sie, uns diesen Lernwillen zu zeigen und viele Zusammenhänge zu entdecken!

All diese Hinweise können Sie am besten umsetzen, wenn Sie ein Ziel zur Bearbeitung des Tailorshops formulieren. Wir werden Sie deshalb nun Schritt für Schritt an Ihr ganz persönliches Ziel heranführen, das Ihnen dabei helfen wird, im Tailorshop einen möglichst hohen Lernerfolg zu erreichen.

Goal induction 1

Herzlich willkommen zum Zielbildungs-Tool!

Eine wirksame, also effektive Zielplanung erfordert mehr als gute Vorsätze, sie verlangt nach echten Zielen.

Gut formulierte Ziele helfen dabei, die richtigen Dinge zu tun. In diesem Online-Tool werden Sie durch einen Prozess geführt, um sich ein solches Ziel zu formulieren.

Zu Beginn sehen Sie hier noch einmal das Thema, zu dem Sie ihr Ziel formulieren werden:

Hoher Unternehmenswert im Tailorshop

Goal induction 2

Es ist äußerst wichtig, sich Ziele zu setzen, wenn man positive Veränderungen erleben möchte. Ziele setzen bedeutet, Verantwortung für sein Leben zu übernehmen und eine gewisse Kontrolle darauf auszuüben.

Jeder Mensch, der sich Ziele setzt, wird natürlich versuchen sie anzustreben. Doch leider erreichen nicht viele ihre festgesetzten Ziele aus einem einfachen Grund: Sie besitzen nicht die Fähigkeit, Ziele in konkreter Art und Weise zu setzen beziehungsweise zu bestimmen.

Goal induction 3

In diesem Online-Tool werden Sie dabei unterstützt, ein hohes und spezifisches Ziel zu formulieren. Mit diesem Zieltyp kann verhindert werden, dass unsere angestrebten Ziele ein Produkt unserer Fantasie sind. Die Formulierung eines hohen und spezifischen Zieles erfolgt in mehreren Teilschritten, die aufeinander aufbauen.

Sie werden im Folgenden durch diese Teilschritte geführt und am Ende des Prozesses haben Sie Ihr persönliches Ziel.

Goal induction 4

Hohes Ziel

Die Vornahme schwer zu erreichender Ziele schlägt sich in einer höheren Leistung nieder als die Vornahme leichter Ziele.

Wissenschaftliche Studien haben ergeben, dass hohe (im Sinne von anspruchsvolle) Ziele die Aussicht auf Erfolg maßgeblich steigern. Anspruchsvolle Zielsetzungen wirken auf die Motivation der Person.

Goal induction 5

Schritt 1

Für einen ersten Schritt ist es daher wichtig, sich ein **hohes und anspruchsvolles Ziel** zu dem Thema zu setzen. Wir haben aus diesem Grund ausgewertet, wie viele Zusammenhänge zwischen den verschiedenen Faktoren Versuchspersonen einer früheren Studie im Tailorshop gelernt haben. Mit „Zusammenhang“ ist gemeint, dass die Personen richtig erkannt haben, dass ein Faktor X einen Faktor Y positiv oder negativ beeinflusst.

Es hat sich gezeigt, dass das **Lernen von 15 Zusammenhängen** anspruchsvoll, aber machbar ist. Ihr Ziel wird daher sein, mindestens 15 Zusammenhänge herauszufinden.

Goal induction 6

Schritt 2

Nun ist es sehr wichtig, dass Sie sich selbst einige Gedanken machen und Ihr Ziel **ganz individuell spezifizieren**.

Deshalb sind Sie jetzt gefragt: Im 2. Schritt erfolgt Ihre persönliche Spezifizierung des Ziels, das wir Ihnen gerade genannt haben. Hierzu ist es wichtig, dass Sie sich bezogen auf dieses Ziel verschiedene Fragen stellen, um so Ihr Ziel möglichst spezifisch formulieren zu können. Die folgenden Fragen beziehen sich auf das soeben genannte hohe Ziel.

Mindestens 15 Zusammenhänge

Goal induction 7**Spezifisches Ziel**

Ein Ziel muss konkret, eindeutig und präzise formuliert sein. Spezifisch wird ein Ziel erst, wenn präzise festgelegt ist:

Wer involviert ist

Bis wann das Ziel erreicht werden soll

Welche Methoden Sie dazu benutzen wollen

Warum Sie dieses Ziel erreichen wollen

Je nach Ziel haben einzelne Fragen eine größere Wichtigkeit als andere. Es ist jedoch unerlässlich, dass Sie sich zu jeder W-Frage Gedanken machen, damit Sie auch sicher sein können, dass nichts Wichtiges vergessen wird. Und los geht's!

Goal induction 8**Wer?**

Oftmals sind andere Personen Teil eines Zieles oder das Ziel bezieht sich teilweise auf andere Personen.

Den Tailorshop werden Sie allerdings allein bearbeiten. Deshalb ist es wichtig, dass Ihr Ziel in **Ich-Form** steht. Formulieren Sie deshalb bitte nun Ihr Ziel in Ich-Form um.

Ihr bisheriges Ziel: **Mindestens 15 Zusammenhänge**

Umformuliert in Ich-Form:

Goal induction 9**Bis wann?**

Bis zu welchem Zeitpunkt wollen Sie Ihr Ziel erreichen? Etablieren Sie einen Zeitraum für Ihr Ziel.

Ihr bisheriges Ziel lautet: **(Hier wurde das im letzten Schritt entwickelte Ziel eingeblendet)**

Bitte schreiben Sie Ihr Ziel noch einmal in das leere Feld und arbeiten Sie den Zeitraum zusätzlich mit ein.

Ergänzttes Ziel:

Goal induction 10**Womit?**

Welche **Methoden** wollen Sie benutzen oder einsetzen um Ihr Ziel zu erreichen? Was kann Sie bei der Zielerreichung unterstützen?

Ihr bisheriges Ziel lautet: **(Hier wurde das im letzten Schritt entwickelte Ziel eingeblendet)**

Bitte schreiben Sie Ihr Ziel noch einmal in das leere Feld und arbeiten Sie die Methoden zusätzlich mit ein.

Ergänzttes Ziel:

Goal induction 11**Warum?**

Warum wollen Sie Ihr Ziel erreichen? Welches sind die spezifischen **Gründe, Zweck oder Nutzen**, das Ziel zu erreichen?

Ihr bisheriges Ziel lautet: **(Hier wurde das im letzten Schritt entwickelte Ziel eingeblendet)**

Bitte schreiben Sie Ihr Ziel noch einmal in das leere Feld und arbeiten Sie die Gründe, den Zweck oder Nutzen zusätzlich mit ein.

Ergänzttes Ziel:

Goal induction 12**Gratulation!**

Sie haben sich nun zu dem Thema: **Hoher Unternehmenswert im Tailorshop**

Das folgende hohe spezifische Ziel formuliert:

(Hier wurde das im letzten Schritt entwickelte Ziel eingeblendet)

Durch dieses hohe spezifische Ziel sind Sie nun in der Lage, Ihr Ziel konkret vor Augen zu haben, dieses klar zu verfolgen und die Erreichung Ihres Zieles exakt zu überprüfen.

Damit Sie Ihr Ziel im Hinterkopf behalten, während Sie den Tailorshop bearbeiten, **notieren Sie sich das Ziel bitte auf dem Blatt Papier mit der Überschrift "Mein Ziel"**, das auf Ihrem Platz liegt!

Wir wünschen Ihnen **viel Erfolg** mit Ihrem Ziel!

Performance goal condition

Manipulation of goal orientation

Wie Sie am besten an den Tailorshop herangehen

Der Tailorshop ist eine komplexe Aufgabe, deshalb wird es nötig sein, dass Sie versuchen, **Ihre maximale Leistung zu bringen**. In Aufgaben wie dem Tailorshop ist es sehr wichtig, dass Sie Ihr Bestes geben und sich ständig bemühen, den Unternehmenswert nach oben zu treiben. Strengen Sie sich an, so gut Sie können und bemühen Sie sich, Ihre Kompetenz unter Beweis zu stellen, bei dieser Art von Aufgaben ein maximal hohes Ergebnis zu erreichen.

Es ist sehr wichtig, dass Sie von Anfang an versuchen, **Fehler zu vermeiden**, denn jeder Fehler verursacht einen unnötigen Verlust. Achten Sie außerdem darauf, dass Sie den Unternehmenswert ständig überwachen. Jeden Monat sehen Sie, wie sich der Wert entwickelt hat – nutzen Sie diese Information, um Ihre bisherige Leistung zu beurteilen und zu verbessern. Der Tailorshop ist eine Aufgabe, die Ihre Kompetenz im Umgang mit komplexen Systemen erfordert – versuchen Sie, uns diese Kompetenz zu zeigen und eine hohe Leistung zu bringen!

All diese Hinweise können Sie am besten umsetzen, wenn Sie ein Ziel zur Bearbeitung des Tailorshops formulieren. Wir werden Sie deshalb nun Schritt für Schritt an Ihr ganz persönliches Ziel heranführen, das Ihnen dabei helfen wird, im Tailorshop eine möglichst hohe Leistung zu erreichen.

Goal induction 1

Herzlich willkommen zum Zielbildungs-Tool!

Eine wirksame, also effektive Zielplanung erfordert mehr als gute Vorsätze, sie verlangt nach echten Zielen.

Gut formulierte Ziele helfen dabei, die richtigen Dinge zu tun. In diesem Online-Tool werden Sie durch einen Prozess geführt, um sich ein solches Ziel zu formulieren.

Zu Beginn sehen Sie hier noch einmal das Thema, zu dem Sie ihr Ziel formulieren werden:

Hoher Unternehmenswert im Tailorshop

Goal induction 2

Es ist äußerst wichtig, sich Ziele zu setzen, wenn man positive Veränderungen erleben möchte. Ziele setzen bedeutet, Verantwortung für sein Leben zu übernehmen und eine gewisse Kontrolle darauf auszuüben.

Jeder Mensch, der sich Ziele setzt, wird natürlich versuchen sie anzustreben. Doch leider erreichen nicht viele ihre festgesetzten Ziele aus einem einfachen Grund: Sie besitzen nicht die Fähigkeit, Ziele in konkreter Art und Weise zu setzen beziehungsweise zu bestimmen.

Goal induction 3

In diesem Online-Tool werden Sie dabei unterstützt, ein hohes und spezifisches Ziel zu formulieren. Mit diesem Zieltyp kann verhindert werden, dass unsere angestrebten Ziele ein Produkt unserer Fantasie sind. Die Formulierung eines hohen und spezifischen Zieles erfolgt in mehreren Teilschritten, die aufeinander aufbauen.

Sie werden im Folgenden durch diese Teilschritte geführt und am Ende des Prozesses haben Sie Ihr persönliches Ziel.

Goal induction 4

Hohes Ziel

Die Vornahme schwer zu erreichender Ziele schlägt sich in einer höheren Leistung nieder als die Vornahme leichter Ziele.

Wissenschaftliche Studien haben ergeben, dass hohe (im Sinne von anspruchsvolle) Ziele die Aussicht auf Erfolg maßgeblich steigern. Anspruchsvolle Zielsetzungen wirken auf die Motivation der Person.

Goal induction 5

Schritt 1

Für einen ersten Schritt ist es daher wichtig, sich ein **hohes und anspruchsvolles Ziel** zu dem Thema zu setzen. Wir haben aus diesem Grund ausgewertet, was für einen Unternehmenswert Versuchspersonen einer früheren Studie im Tailorshop erzielt haben.

Es hat sich gezeigt, dass es anspruchsvoll, aber machbar ist, einen **Unternehmenswert von 250'000** beizubehalten. Ihr Ziel wird daher sein, einen Unternehmenswert von mindestens 250'000 zu erreichen.

Goal induction 6

Schritt 2

Nun ist es sehr wichtig, dass Sie sich selbst einige Gedanken machen und Ihr Ziel **ganz individuell spezifizieren**.

Deshalb sind Sie jetzt gefragt: Im 2. Schritt erfolgt Ihre persönliche Spezifizierung des Ziels, das wir Ihnen gerade genannt haben. Hierzu ist es wichtig, dass Sie sich bezogen auf dieses Ziel verschiedene Fragen stellen, um so Ihr Ziel möglichst spezifisch formulieren zu können. Die folgenden Fragen beziehen sich auf das soeben genannte hohe Ziel.

Unternehmenswert von mindestens 250'000

Goal induction 7**Spezifisches Ziel**

Ein Ziel muss konkret, eindeutig und präzise formuliert sein. Spezifisch wird ein Ziel erst, wenn präzise festgelegt ist:

Wer involviert ist

Bis wann das Ziel erreicht werden soll

Welche Methoden Sie dazu benutzen wollen

Warum Sie dieses Ziel erreichen wollen

Je nach Ziel haben einzelne Fragen eine größere Wichtigkeit als andere. Es ist jedoch unerlässlich, dass Sie sich zu jeder W-Frage Gedanken machen, damit Sie auch sicher sein können, dass nichts Wichtiges vergessen wird. Und los geht's!

Goal induction 8**Wer?**

Oftmals sind andere Personen Teil eines Zieles oder das Ziel bezieht sich teilweise auf andere Personen.

Den Tailorshop werden Sie allerdings allein bearbeiten. Deshalb ist es wichtig, dass Ihr Ziel in **Ich-Form** steht. Formulieren Sie deshalb bitte nun Ihr Ziel in Ich-Form um.

Ihr bisheriges Ziel: **Unternehmenswert von mindestens 250'000**

Umformuliert in Ich-Form:

Goal induction 9**Bis wann?**

Bis zu welchem Zeitpunkt wollen Sie Ihr Ziel erreichen? Etablieren Sie einen Zeitraum für Ihr Ziel.

Ihr bisheriges Ziel lautet: **(Hier wurde das im letzten Schritt entwickelte Ziel eingeblendet)**

Bitte schreiben Sie Ihr Ziel noch einmal in das leere Feld und arbeiten Sie den Zeitraum zusätzlich mit ein.

Ergänzttes Ziel:

Goal induction 10**Womit?**

Welche **Methoden** wollen Sie benutzen oder einsetzen um Ihr Ziel zu erreichen? Was kann Sie bei der Zielerreichung unterstützen?

Ihr bisheriges Ziel lautet: *(Hier wurde das im letzten Schritt entwickelte Ziel eingeblendet)*

Bitte schreiben Sie Ihr Ziel noch einmal in das leere Feld und arbeiten Sie die Methoden zusätzlich mit ein.

Ergänzt Ziel:

Goal induction 11**Warum?**

Warum wollen Sie Ihr Ziel erreichen? Welches sind die spezifischen **Gründe, Zweck oder Nutzen**, das Ziel zu erreichen?

Ihr bisheriges Ziel lautet: *(Hier wurde das im letzten Schritt entwickelte Ziel eingeblendet)*

Bitte schreiben Sie Ihr Ziel noch einmal in das leere Feld und arbeiten Sie die Gründe, den Zweck oder Nutzen zusätzlich mit ein.

Ergänzt Ziel:

Goal induction 12**Gratulation!**

Sie haben sich nun zu dem Thema: **Hoher Unternehmenswert im Tailorshop**

Das folgende hohe spezifische Ziel formuliert:

(Hier wurde das im letzten Schritt entwickelte Ziel eingeblendet)

Durch dieses hohe spezifische Ziel sind Sie nun in der Lage, Ihr Ziel konkret vor Augen zu haben, dieses klar zu verfolgen und die Erreichung Ihres Zieles exakt zu überprüfen.

Damit Sie Ihr Ziel im Hinterkopf behalten, während Sie den Tailorshop bearbeiten, **notieren Sie sich das Ziel bitte auf dem Blatt Papier mit der Überschrift "Mein Ziel"**, das auf Ihrem Platz liegt!

Wir wünschen Ihnen **viel Erfolg** mit Ihrem Ziel!

C.5.3 Part of the questionnaire after goal induction (all conditions)

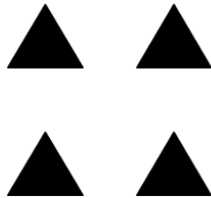
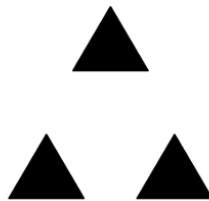
Introduction to global-local task

Bevor Sie mit dem Tailorshop starten, möchten wir Sie bitten, einige Figuren zu beurteilen. Sie sehen auf den folgenden Seiten jeweils drei Figuren abgebildet. Die obere Figur ist dabei die Modellfigur. Bitte entscheiden Sie, welcher der beiden unteren Figuren die Modellfigur ähnlicher sieht. Es gibt dabei keine richtigen oder falschen Antworten, sondern es geht lediglich um Ihre **persönliche Einschätzung**.

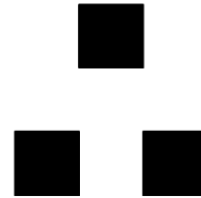
Treffen Sie Ihre Entscheidung bitte so schnell wie möglich und ohne darüber nachzudenken!

Processing style measure via global-local task (Kimchi & Palmer, 1982) – item 1

Sieht die obere Modellfigur eher aus wie die Figur unten rechts oder wie die Figur unten links?



Linke Figur

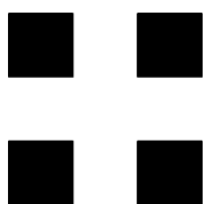
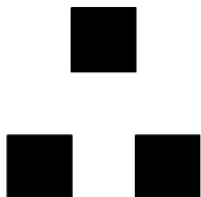


Rechte Figur

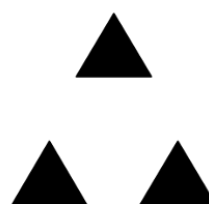


Processing style measure via global-local task (Kimchi & Palmer, 1982) – item 2

Sieht die obere Modellfigur eher aus wie die Figur unten rechts oder wie die Figur unten links?



Linke Figur

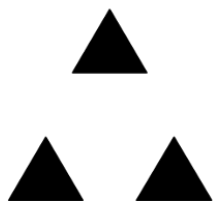
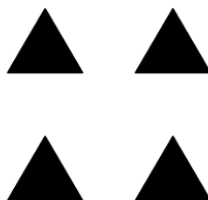


Rechte Figur

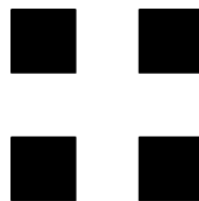


Processing style measure via global-local task (Kimchi & Palmer, 1982) – item 3

Sieht die obere Modellfigur eher aus wie die Figur unten rechts oder wie die Figur unten links?



Linke Figur

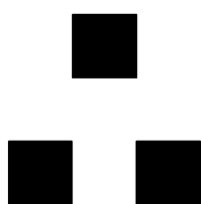
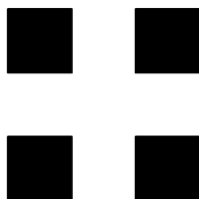


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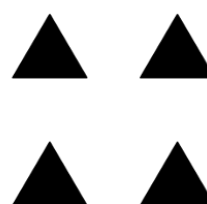


Processing style measure via global-local task (Kimchi & Palmer, 1982) – item 4

Sieht die obere Modellfigur eher aus wie die Figur unten rechts oder wie die Figur unten links?



Linke Figur

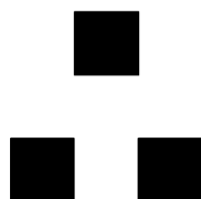
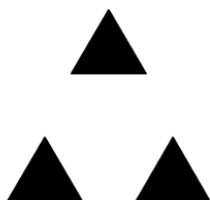


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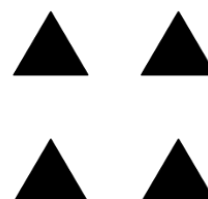


Processing style measure via global-local task (Kimchi & Palmer, 1982) – item 5

Sieht die obere Modellfigur eher aus wie die Figur unten rechts oder wie die Figur unten links?



Linke Figur

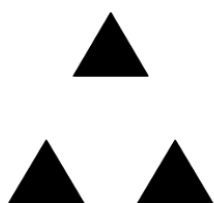
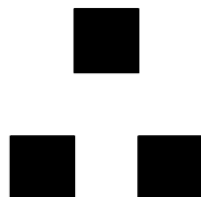


Rechte Figur

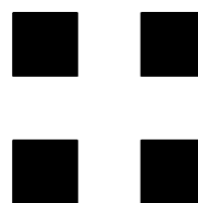


Processing style measure via global-local task (Kimchi & Palmer, 1982) – item 6

Sieht die obere Modellfigur eher aus wie die Figur unten rechts oder wie die Figur unten links?



Linke Figur

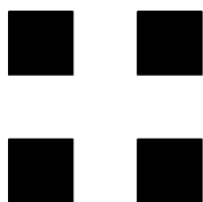
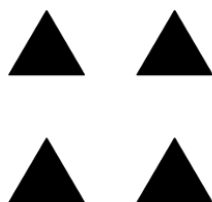


Rechte Figur



Processing style measure via global-local task (Kimchi & Palmer, 1982) – item 7

Sieht die obere Modellfigur eher aus wie die Figur unten rechts oder wie die Figur unten links?



Linke Figur

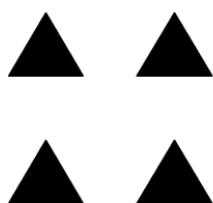
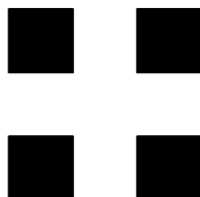


Rechte Figur

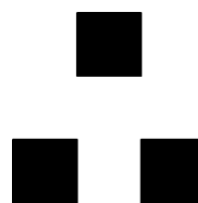


Processing style measure via global-local task (Kimchi & Palmer, 1982) – item 8

Sieht die obere Modellfigur eher aus wie die Figur unten rechts oder wie die Figur unten links?



Linke Figur



Rechte Figur



Affect measure 2 via PANAS (Krohne et al., 1996)

Bevor Sie nun gleich mit der Bearbeitung des Tailorshops beginnen, möchten wir Sie bitten, ein paar Fragen zu beantworten. Es gibt dabei wieder kein „richtig“ oder „falsch“. Bitte beantworten Sie alle Fragen ehrlich und vollständig.

Wie fühlen Sie sich im Moment?

	gar nicht	ein bisschen	einigermaßen	erheblich	äußerst
interessiert	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
bekümmert	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
freudig erregt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
verärgert	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
stark	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
schuldig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
erschrocken	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
feindselig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
begeistert	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
stolz	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
gereizt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
wach	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
beschämt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
angeregt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
nervös	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
entschlossen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
aufmerksam	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
durcheinander	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
aktiv	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ängstlich	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Intrinsic motivation measure 1 via 5 items (cf. e.g., Elliot & Harackiewicz, 1994)

Wie stehen Sie zu folgenden Aussagen, wenn Sie daran denken, dass Sie gleich den Tailorshop bearbeiten?

	stimme gar nicht zu	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	stimme voll und ganz zu
Die Bearbeitung des Tailorshops wird interessant.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Die Bearbeitung des Tailorshops wird Zeitverschwendung sein.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ich werde den Tailorshop gern bearbeiten.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Die Bearbeitung des Tailorshops wird langweilig.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Die Bearbeitung des Tailorshops wird Spaß machen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

[Link to the Tailorshop scenario](#)

Nun werden Sie den Tailorshop bearbeiten. Klicken Sie dazu bitte auf den unten stehenden Link. Es wird sich ein neues Tab öffnen.

2 Dinge sind wichtig:

- Nach dem Tailorshop werden Sie hier fortfahren. **Schließen Sie dieses Tab also auf keinen Fall, da sonst Ihre bisherigen Daten verloren gehen!** Bearbeiten Sie einfach den Tailorshop in dem anderen Tab und lassen Sie das aktuelle Tab so lang geöffnet. Wenn Sie mit dem Tailorshop fertig sind, wählen Sie wieder das Tab für diesen Fragebogen aus und klicken Sie auf "weiter".
- Auf der 1. Seite des Tailorshops finden Sie 2 leere Felder:
In das obere Feld, das mit "**Code**" beschriftet ist, tragen Sie bitte Ihren **Teilnehmer-Code** ein, den Sie zu Beginn der Studie auf dem Papier mit der Überschrift "Teilnehmer-Code" notiert haben.
In das untere Feld, das mit "**Kommentar**" beschriftet ist, tragen Sie bitte die **Nummer** ein, die unten auf Ihrem Papier mit der Überschrift "Teilnehmer-Code" steht.

Setup

Teilnehmer-Code (siehe Papier)	→	Code: <input type="text"/>
Nummer (siehe Papier)	→	Kommentar: <input type="text"/>

Link zum Tailorshop: [Hier klicken, um zum Tailorshop zu gelangen](#)

Questions on goal attainment

Auf einer Skala von 1 bis 10, wie gut haben Sie Ihr Ziel, das Sie vor der Bearbeitung des Tailorshops entwickelt haben, erreicht?

Klicken Sie einfach auf den Schieberegler und ziehen Sie den Regler mit der Maus an die Stelle, die Ihrer Antwort entspricht. *(Ein Button erschien, wenn auf den Regler geklickt wurde.)*

überhaupt nicht
erreicht

vollkommen
erreicht

Wie zufrieden sind Sie mit diesem Grad der Zielerreichung?

überhaupt nicht
zufrieden

vollkommen
zufrieden

Wie schwierig fanden Sie es, Ihr Ziel zu erreichen?

überhaupt nicht
schwierig

äußerst
schwierig

Questions on goal over time

Inwieweit hatten Sie Ihr Ziel im Kopf, während Sie den Tailorshop bearbeitet haben?

Ich hatte mein Ziel zu
keiner Zeit im Kopf

Ich hatte mein Ziel
ständig im Kopf



Hat sich Ihr Ziel über die Zeit hinweg verändert? Falls ja: Inwiefern und warum?

Sociodemographic data**Was ist Ihr Geschlecht?**

- Weiblich
 Männlich

Wie alt sind Sie?**Was machen Sie beruflich?**

- Student/in (bitte tragen Sie Ihr Studienfach ein)
- Berufstätig
- Schüler/in
- ohne Beschäftigung
- Sonstiges (bitte tragen Sie Ihre Beschäftigung ein)

Comments**Haben Sie schon einmal an einer Studie teilgenommen, in der Sie den Tailorshop bearbeitet haben?**

- Nein
- Ja, und zwar (bitte ungefähres Datum eintragen)

Haben Sie noch Anmerkungen?Lottery**Vielen Dank für Ihre Teilnahme an der Studie!**

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Ort, Datum

Unterschrift