

# **Resilience at Work**

## **Extending knowledge of resilience in the work context**

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**Abstract**

This dissertation deals with the concept of resilience in the workplace. Three research studies contribute to the work and organizational psychology literature on resilience at work. The first study deals with the validation of resilience measurement instruments in the work context and gives a recommendation on which scale best to use. The second study differentiates resilience from the seemingly similar concept of Core Self-Evaluations. Moreover, appraisal theory is integrated as a resilience mechanism. This study makes use of a daily diary design. The third study takes a look at regulatory foci as another mechanism explaining the relationship between resilience and positive work related outcomes. The final discussion holds theoretical and practical implications for resilience at work and proposes ideas for future research in that domain.

**Zusammenfassung**

Diese Dissertation beschäftigt sich mit dem Konzept der Resilienz im Arbeitsumfeld. Drei Forschungsarbeiten liefern einen Beitrag zur Literatur im Bereich der Arbeits- und Organisationspsychologie. In der ersten Studie werden Resilienzskalen miteinander verglichen und im Arbeitskontext validiert. Es wird eine Empfehlung ausgesprochen, welches Messinstrument sich am besten zur Erfassung von Resilienz im Arbeitskontext eignet. Die zweite Studie stellt die Unterschiede zwischen den beiden ähnlichen Konzepten Resilienz und Core Self-Evaluations dar. Zusätzlich wird die kognitive Bewertung von Situationen (Cognitive Appraisal) als Resilienzmechanismus in einem Tagebuchdesign betrachtet. In der dritten Studie wird der regulatorische Fokus von Personen als weiterer Resilienzmechanismus analysiert, um die Zusammenhänge zwischen Resilienz und positiven arbeitsbezogenen Ergebnissen zu erklären. Die Gesamtdiskussion baut auf den Erkenntnissen aus den drei Studien auf und fasst die theoretischen und praktischen Implikationen zusammen. Zusätzlich werden Ideen für die zukünftige Erforschung von Resilienz im Arbeitskontext diskutiert.

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## **Resilience at Work**

### **Extending knowledge of resilience in the work context**

“I have learned that success is to be measured not so much by the position that one has reached in life as by the obstacles overcome while trying to succeed” (Washington, 1901, p.23). Although resilience was not known as a psychological construct when this sentence was said, it describes its inner core. The essence of resilience can be described as the ability to bounce back from some form of disruption, stress, or change. It deals with the fact that some people are able to easily bounce back from adversity, while the same circumstances lead to disruptions and even psychological disorders in others (Rutter, 1995). Therefore, resilience can be seen as the positive opposite to vulnerability. However, resilience is not about being invulnerable. Rather, it describes a relative resistance against pathogenic events that can vary in time and situations. Resilience therefore describes flexible, adaptive reactions to situational challenges (Bonanno, 2005). The concept of resilience generally relates to the concept of salutogenesis (Antonovsky, 1987), which describes the focus on factors that support psychologically healthy development within the clinical psychology domain. Accordingly, it is linked with a focus on protective factors and resources, while pathogenic research traditionally focusses on risk factors and questions of vulnerability (Rutter, 1993).

In the 1970s, resilience was first introduced to psychological research. As described above, it was one of the first concepts that had its focus on the preventive measures instead of risk factors that would influence psychopathological behavior (Gore & Eckenrode, 1994). Highly regarded research studies on resilience were two longitudinal studies, one conducted with children in Hawaii (Werner & Smith, 1982; Werner & Smith, 1992) and the other one observing children of schizophrenic parents (Garmezy & Rutter, 1983). Werner and Smith (1982, 1992) observed 600 children over the course of 32 years. All those children grew up in difficult circumstance, including poverty, psychiatric disorders of the parents, and instability. Werner and Smith could observe that about 35% of the children developed positively and grew up to become stable, healthy adults. They defined characteristic and personality factors that would influence the positive development of those children. These are among others adaptability, robustness, tolerance, and achievement orientation.

Another influential study was conducted by Garmezy and Rutter (1983). They observed the development of children of schizophrenic parents. Other than expected, most of those children grew up to become normal functioning adults. The researchers again identified those factors that would mostly influence the positive development. Those were self-efficacy, positive

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outlook on the future, and discipline. Moreover, they defined a triad of resilience, consisting of personal disposition, supportive family surrounding and an external support system.

Since then, resilience has found much attention in scientific research. It has been identified as a factor of positive psychology, leading to better performance (Werner, 1986), health (Wagnild & Young, 1990), satisfaction (Cohn, Fredrickson, Brown, Mikels, & Conway, 2009) and flexibility (Kadner, 1989). To name just a few research studies that have been conducted, the relation of resilience with risk of suicide (Johnson, Wood, Gooding, Taylor, & Tarrier, 2011), healing processes (Mak, Ng, & Wong, 2011), and school performance (Nota, Soresi, & Zimmerman, 2004) have been investigated. Besides the research in other psychology domains (e.g., developmental psychology, social and personality psychology), it has found its way into work and organizational psychology through the higher order construct of psychological capital (Luthans, 2002). Within this research domain, a number of studies could identify positive relations between resilience and work performance (Luthans, Avey, Avolio, & Peterson, 2010), work satisfaction (Avey, Luthans, Smith, & Palmer, 2010), flexibility and positive work behaviors (Avey, Wernsing, & Luthans, 2008) and even organizational resilience (Mallak, 1998). However, despite this broad work of research, there is an ongoing debate concerning the definition and differentiation of the concept of resilience.

The concept of resilience brings a number of theoretical and methodological difficulties with it (Kaplan, 1999; Luthar, Cicchetti, & Becker, 2000). A central problem is the definition of resilience. While some authors understand it as a relatively stable personality characteristic (e.g., Block & Block, 1980), others speak of a flexible construct that only appears in adverse circumstances (e.g., Jessor, 1993; Staudinger et al., 1999). Next, resilience can also be seen as a process, describing the adaption to adversity, or finally, the result of this adaptation process (e.g., Kumpfer, 1999; Masten, Best, & Garmezy, 1990). The definitions range from: "Resilience refers to patterns of positive adaption in the context of significant risk or adversity" (Masten & Powell, 2003, p. 4) to "when beset by problems and adversity, sustaining and bouncing back and even beyond to attain success" (Luthans, Youssef, & Avolio, 2007, p. 3), highlighting the dividedness regarding resilience and its boundaries. When it comes to the work context, there is one specific definition by Barker Caza and Milton (2011, p. 896): "[Resilience is] a developmental trajectory, characterized by demonstrated competence in the face of, and professional growth after, experiences of adversity in the workplace". They incorporate in their definition the aspect of growth, therefore defining resilience not only as adaptive characteristic, but also as developmental factor for employees. Sutcliffe and Vogus (2003) agree with this notion, incorporating a developmental perspective for employees, teams, or even organizations when defining resilience. The developmental aspect is specific for resilience in the work context,

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emphasizing the importance for adaptive responses to challenging situations but also for the ability to learn and develop based on these situations.

Next to the issues with defining resilience itself, there is variation concerning the definition of risk factors and adversities. It is important to note that resilience can only be observed if there is a risky or challenging situation or circumstance. However, the way those risk factors and adversities are assumed to be influential for resilience, differs widely. While most people perceive adverse life circumstances (e.g., growing up in war zones) as threatening, others already struggle with daily hassles (e.g., negative feedback). As Howard, Dryden and Johnson (1999) argued, a potential problem is that researchers assume all participants to share the same understandings of risk and resilience. Similarly, Luthar, Cicchetti and Becker (2000) wrote, "some individuals may well see themselves as being relatively well off, even though scientists may define their life circumstances as being highly stressful" (p. 550). Generally speaking, in work and organizational psychology those risk factors tend to be weaker and include daily negative events (Barker Caza & Milton, 2011). Those can range from disagreements with colleagues or supervisors, negative performance feedbacks, or the termination of work contracts. It should be noted that resilience can only be inferred if the stressor or adversity would result in negative outcomes for the majority of the population (Roisman, 2005).

The issues concerning the definition of resilience and the severity of risk factors demonstrate the importance of agreement on those aspects. As Luthar and others (2000) point out, a common definition of those factors is crucial in order to bring research on the topic of resilience to a common and generalizable level.

The difficulties concerning a common definition for the construct of resilience lead to another problem, namely the measurement of resilience. With resilience being a latent construct, just as in other similar constructs (e.g., mindfulness) there is concern about the operationalization of the construct. These issues are mostly due to the discrepancy concerning the definition of the resilience construct. While some see it as a unidimensional construct (e.g., Sinclair & Wallston, 2004), others describe it as being multidimensional (e.g., Arrington & Wilson, 2000; Connor & Davidson, 2003). Accordingly, the items of the measurement instruments yield at different dimensions of resilience e.g., adaptivity (Leipold & Greve, 2009), positivity (Schwager & Rothermund, 2013), or self-esteem (Rutter, 1987). In order to deliver a contribution to the discussion of the measurement of resilience, the first paper of this dissertation systematically compares a number of resilience instruments. Moreover, it applies those instruments in the work context, where resilience is still a relatively new concept in need for further clarification. As Pangallo, Zibarras, Lewis and Flaxman (2015) point out the instruments measuring resilience are

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usually applied in a developmental and/or psychiatric context. In order to use those instruments in the work context, new validation studies need to be conducted.

Next, in order to further clarify the concept of resilience, it needs to be compared to and differentiated from similar concepts. This has already been done for a number of concepts, like hardiness (Kobasa, 1979) and optimism (Hewitt & Flett, 1996). Hardiness is defined as a dispositional tendency to find meaning in stressful events (Kobasa, 1979). It has been pointed out as contributing factor for the development of resilience. The main difference between hardiness and resilience is that resilience is supposed to promote growth after stressful events, while hardiness concentrates on finding meaning in such events. Next, optimism is defined as positive, relatively stable, favorable expectation and outcome for the future (Scheier & Carver, 1985). Just as hardiness, it has been listed as a contributing factor for resilience. It differs from resilience by including a positive outlook on the future but not focusing on dealing with stressful events.

However, especially in the work context there are other similar concepts which need to be focused on. One of them is the construct of Core Self-Evaluations (CSE). CSE are peoples' fundamental evaluations about their self-worthiness and their abilities (Judge, Locke, & Durham, 1997). Generally speaking, this evaluation is used to assess and judge situations. CSE consists of four factors: self-esteem, self-efficacy, locus of control and emotional stability. Self-esteem is the evaluation of the self as valuable (Rosenberg, 1965), self-efficacy is the assessment of the own performance and adaptation ability (Chen, Gully, & Eden, 2001), locus of control deals with the evaluation of events as deriving from one's own actions (Rotter, 1966), and emotional stability is the ability to feel calm and secure (Pervin & John, 1999). All of these constructs load on a higher order factor, which offers a shared explanation of variance above and beyond the single constructs (Judge, Erez, & Bono, 1998). Higher levels of CSE have shown positive relations with task performance and work satisfaction (Judge & Bono, 2001), as well as work engagement (Chang, Ferris, Johnson, Rosen, & Tan, 2012). Thus far, both resilience and CSE have been used to explain the buffering effects between stressors and strain reactions. The similarities and differences of resilience and CSE are further discussed in the second study of this dissertation.

Finally, there is need for research concerning the mechanisms explaining the relation of resilience and outcomes. On a theoretical basis, the broaden-and-build theory of positive emotions is often used to describe the underlying processes of resilience (Fredrickson, 2001). The theory holds that positive emotions broaden momentary thought-action repertoires and lead to building personal resources. These resources range from physical and intellectual to social and psychological resources. The broadened thought-action repertoires make it more likely for people to be successful, especially in difficult situations. This is due to the long term adaptive benefits of newly built personal resources. These resources can later be drawn on, especially when



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encountering future threats. Experiencing success then again leads to positive emotions, which can then describe an upward spiral within the theory. Therefore, the resilience-process is mostly reasoned by emotions (Aspinwall, 1998; Cohn et al., 2009). Accordingly, people with high levels of resilience experience the same amount of negative emotions as people with lower levels of resilience. However, they also experience significantly more positive emotions when facing stressors. This difference in the experience of positive emotions in turn leads to lower levels of perceived stress and higher levels of satisfaction. However, emotions may not be the only factor mediating the relationship of resilience and outcomes. In order to contribute to the literature, this dissertation answers the call for research concerning other possible mechanisms (Rutter, 1987; Tugade & Fredrickson, 2007). Due to the integration of resilience into the work context, the focus is put on two mechanisms that are already embedded in work and organizational psychology research: appraisal and regulatory focus.

Appraisal theory describes how situations are assessed in two steps (Lazarus & Folkman, 1984). During the first step, which is called primary appraisal, a situation is evaluated as being challenging or threatening. In the second step, the individual decides if he or she holds the abilities to deal with the situation. According to Folkman, Lazarus, Dunkel-Schetter, DeLongis and Gruen (1986), appraisal mechanisms enable individuals to deal with problems in a positive way. It is expected that resilience comes into play during primary appraisal, with problems being appraised as less threatening for individuals with a high resilience level. Thus, the impact of difficult situations can be mitigated (Mancini & Bonanno, 2006). It is important to note that a situation does not necessarily need to be appraised as challenging in order to receive a positive note. Rather, according to broaden-and-build theory, already the absence of threat leads to positive emotions (Garland, Gaylord, & Park, 2009) and, in turn, to the broadening of one's action repertoires. This mechanism leads individuals to be successful in difficult situations. Appraisal theory as resilience mechanism was tested in the second study of this dissertation.

The next mechanism, described by regulatory focus theory, was tested in the third study. According to regulatory focus theory, two foci exist within self-regulation systems: promotion focus and prevention focus. Promotion focus deals with the achievement of rewards and accomplishments. People within the promotion focus are sensitive to the presence or absence of rewards, use creative problem-solving strategies and are more willing to take risks (e.g., Brockner & Higgins, 2001; Crowe & Higgins, 1997; Friedman & Förster, 2001). In contrast, people who operate within the prevention focus are rather concerned with obligations and duties and are sensitive to the presence or absence of punishment. Generally speaking, it is assumed that resilience relates to promotion focus and shows only weak relations with prevention focus. These relations are further described and discussed in paper 3.

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Taken together, the objective of this dissertation is twofold. First, the main objective is to further clarify the concept of resilience. Study 1 extends knowledge on the resilience concept by systematically analyzing its measurement instruments. Study 2 differentiates resilience from another similar construct, namely CSE. Finally, both study 2 and study 3 take a look at underlying mechanisms that explain the resilience process. This answers the calls for mechanisms explaining the relation of resilience and work related behaviors.

Secondly, I want to extend research on resilience in the work context. This contributes to the resilience literature by moving the focus from children and young adults to employees. The first study of this dissertation therefore yields at applying resilience measurement instruments in the work context and validating those instruments accordingly. Next, the second study takes a look at daily resilience processes in the work context. The third study again analyzes resilience processes in the work context in a longitudinal research design.

The aim of the first study “Resilienzfragebögen – Vergleich und Validierung im arbeitsbezogenen Kontext”<sup>1</sup> was to further clarify the concept of resilience and enhance its knowledge in the work context. In order to do so, I applied four different measurement instruments of resilience to the work context. By systematically comparing those instruments and validating them, we answered the call for consistent operationalization of the resilience construct (Luthar, 2000). Because of the importance of short but valid instruments that can be applied in the work context, we chose four instruments that all assume unidimensionality of resilience and are no longer than 11 items. The scales used were the short version of the resilience scale (RS-11) (Schumacher, Leppert, Gunzelmann, Strauß, & Brähler, 2005), the brief resilient coping scale (BRCS) (Sinclair & Wallston, 2004), the brief resilient scale (BRS) (Smith et al., 2008) and the resilience scale taken from the PsyCap Questionnaire (Luthans, Avolio, Avey, & Norman, 2007). Of those scales, only the resilience scale from PsyCap has been validated in the work context, while the others were foremost used in developmental or psychiatric settings. In order to fill this gap, we conducted a two study design with 393 employees in the first study and 124 in the second study. In the first study, we took the dimensionality of all questionnaires into consideration. In order to do so, we conducted factor analyses, which revealed unidimensionality only for three of the four instruments. The fourth instrument, the RS-11, revealed a two-factorial structure. Next, we took the validity of all four questionnaires into consideration and analyzed them in terms of the relation with three different work-related outcomes: task performance, organizational citizenship behavior and personal initiative. Finally, we analyzed the similarities and differences of each instrument with constructs stemming from the nomological network of resilience. Those

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<sup>1</sup> The first study is written in German and planned to be published in a German paper. This is due to linguistic subtleties of the instrument items which are important to be captured in a validation study and rather difficult to translate.

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constructs included self-efficacy, self-esteem, locus of control, and positive and negative affectivity.

Results showed that each instrument focused on a different aspect of resilience, challenging the assumption of unidimensionality. For the first study, the two-dimensional RS-11 showed the best results in a work context.

In the second study, the retest reliability of all instruments was assessed by administering all four questionnaires to 124 participants at two measurement points. Both measurement points were 4 months apart from each other. The retest reliabilities were satisfactory for all instruments, revealing the best results for the BRS. However, all scales can be considered to have satisfactory retest reliability scores. We therefore concluded that depending on the aspect of resilience that one wants to investigate, it should be thoroughly considered, which scale represents this aspect best. We contributed to the theoretical discussion about the resilience construct by revealing that resilience cannot be assumed to be unidimensional. In general, for work related research, we recommend using the RS-11 compared to the other three instruments in our research study.

The aim of the second study “The relation of resilience and CSE with work-related behaviors: Investigating appraisal and affect as underlying mechanisms in a daily diary study” was to differentiate the concept of resilience from the similar concept of CSE. We did so by investigating the underlying mechanisms of emotions and appraisal for both CSE and resilience. We integrated appraisal theory into the resilience process described by broaden-and-build theory and into the CSE process described by the approach/avoidance model (Elliot & Thrash, 2002). Our hypotheses stated that resilience would show negative relations with threat appraisal and CSE would show positive relations with challenge appraisal. In order to test our hypotheses, we collected data in a daily diary study with 74 participants on five consecutive working days. While resilience and CSE were measured on the between level, the other variables (affect, appraisal, task performance, personal initiative) were measured daily on the within level. We chose a daily diary design in order to capture the daily fluctuations of affect and subsequent appraisal. This was expected to reveal a more realistic representation of the relation between daily hassles at work and its influence on work related outcomes. Data was analyzed according to a two-level mediation model. Results showed that the proposed appraisal mechanisms were only applicable for resilience, but not for CSE. While people high on resilience showed negative relations with threat appraisal, no relation of CSE and either threat or challenge appraisal could be found. Therefore, based on the differences in underlying mechanisms, we argue that the concepts differ from each other in such a way, that both should be treated individually. While appraisal theory can be integrated into the resilience process, other mechanisms need to be investigated for CSE.

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The aim of the third study “Resilience and Regulatory Focus: A distal-proximal approach to work related outcomes” was to investigate another possible mechanism of resilience, namely regulatory focus. Regulatory focus theory states that there are two motivational foci within each individual: promotion focus and prevention focus. Promotion focus is regarded as achievement oriented attitude with relations to risk taking behavior and speed. Prevention focus on the other hand relates to safety behaviors and avoidance of negative consequences. Employees within a promotion focus are likely to focus on quick benefits, while those within a prevention focus are more likely to avoid mistakes and keep to their designated work tasks. A second aim of our study was to extend regulatory focus theory by taking resilience as antecedent into account. In order to integrate resilience and regulatory focus theory into our proposed mediation model, we used a distal-proximal framework. While resilience can be seen as a rather distal personality factor, regulatory focus is a rather proximal motivational factor relating to work related outcomes. In this study, these outcomes included task performance, personal initiative and organizational citizenship behavior. We hypothesized stronger relationships of resilience and promotion focus than prevention focus. Similar to resilience, promotion states elicit a broad and global attentional scope and facilitate conceptual access to mental representations with lower accessibility. Prevention states in contrast elicit a narrow attentional scope, a focus on details, and a “choking off” of conceptual access to mental representations with lower accessibility (Derryberry & Tucker, 1994; Förster, Friedman, Özsel, & Denzler, 2006; Förster & Higgins, 2005; Friedman & Förster, 2005). Moreover, promotion focus is associated with activated positive affect, while deactivated affect is associated with prevention focus. In general, higher levels of task performance are more likely to be attributed to activated affect than deactivated affect (Kaplan, Bradley, Luchman, & Haynes, 2009).

Our results revealed that, other than expected, promotion focus did not play a role in the relationship between resilience and work related outcomes. Rather, prevention focus took the role as explaining mechanism. On the one hand, this could be explained with high relations of both prevention focus and resilience with the personality factor of conscientiousness. On the other hand, the specific characteristics of the study sample play an important role. Employees working at an organization caring for people with special needs are expected to provide a safe and stable environment. This can be associated to prevention states instead of promotion states.

To sum it up, the three studies of this dissertation aim at clarifying the concept of resilience and providing a clearer picture of resilience in the work context.

**Study 1:**

**Resilienz Fragebögen – Vergleich und Validierung im arbeitsbezogenen Kontext**

**Abstract**

Das Konzept der Resilienz steht hinsichtlich Definition und Messung unter Diskussion. In den vorliegenden Vergleichsstudien wurden vier gängige Resilienz-Messinstrumente (Resilienzskala (RS-11) von Schumacher et al. 2005; BRCS von Sinclair und Wallston, 2004, BRS von Smith et al., 2008; und Resilienzskala aus PsyCap von Luthans et al., 2007) systematisch miteinander verglichen, und deren Einsatz im arbeitsbezogenen Kontext evaluiert. Dazu wurden in einer ersten Studie (N=393) die Skalen faktoranalytisch betrachtet, und Zusammenhänge mit dem nomologischen Netz von Resilienz zur Validierung herangezogen. In einer zweiten längsschnittlichen Studie (N=124) wurde die Retest Reliabilität der Skalen bestimmt. Die Ergebnisse zeigen, dass jede der vier o.g. Skalen einen anderen Aspekt von Resilienz betrachtet und sich die RS-11 von Schumacher et al. aufgrund der gefundenen Validierungswerte am besten für den Einsatz im arbeitsbezogenen Kontext eignet. Dabei gilt es jedoch die faktorielle Struktur der RS-11 zu beachten, die anders als zunächst angegeben nicht einer eindimensionalen Messung von Resilienz entspricht, sondern eine zweifaktorielle Messung zugrunde legt.

## Vergleich von Resilienzskalen

In den vergangenen Jahren gab es in der psychologischen Forschung eine Bewegung, die sich von der Erforschung defizitärer Konzepte wegbewegte und sich stärker mit unterstützenden und stärkenden Faktoren beschäftigte. Diese Bewegung wurde stark von Seligman & Csikszentmihalyi (2000) geprägt, der den Begriff der positiven Psychologie eingeführt hat. Die Entstehung dieser Forschungsbewegung ist vor allem darin zu begründen, dass ein großes Interesse besteht, psychische Symptome und Erkrankungen gar nicht erst aufkommen zu lassen. Vielmehr geht es darum, die Faktoren zu stärken, die Menschen in stressigen und schwierigen Situationen stärken und deren psychologische Stabilität sichern können (Seligman & Csikszentmihalyi, 2000). In diesem Zusammenhang ist das Konzept der Resilienz immer mehr in den Fokus psychologischer Forschung gerückt.

Grundsätzlich beschreibt Resilienz, wie Menschen in kritischen Situationen ihre normale Leistungsfähigkeit behalten, oder sogar steigern können. Dabei wird gerne das Bild eines „Stehaufmännchens“ zur Verdeutlichung herangezogen. In der Literatur gibt es eine Reihe von Definitionen für Resilienz, die sich alle leicht unterscheiden. So wird auf der einen Seite von einem normalen Funktionieren im Angesicht von Schwierigkeiten gesprochen (Jessor, 1993), während auf der anderen Seite eine Leistungssteigerung bei Krisen erwartet wird (Bonanno, 2004). Des Weiteren wird Resilienz einmal als Sammlung von Eigenschaften (Block, J. H. & Block, J., 1980), als Prozess (Kumpfer, 1999), und dann wieder als Ergebnis (Masten, Best, & Garnezy, 1990) betrachtet. Gerade diese Uneinigkeit hinsichtlich der Definition von Resilienz hat dazu geführt, dass es auch in Bezug auf die Operationalisierung Unterschiede gibt. Seit 1990 wurden mehr als 20 Messinstrumente zur Erfassung von Resilienz entwickelt (Windle, Bennett, & Noyes, 2011; Ahern, Kiehl, Lou Sole, & Byers, 2006), deren Zielsetzungen sich vor allem aufgrund der Unterschiede in der Definition leicht unterscheiden. Demnach zeigen einige Instrumente einen starken Bezug zu Hardiness (z.B. Bartone et al., 1989), während andere sich eher auf Stress und Coping Aspekte beziehen (z.B. Connor & Davidson, 1993). Die Resilienzmessung erfolgt bisher ausschließlich mit Hilfe von Fragebögen. Dabei zeigen sich bei den jeweiligen Instrumenten Unterschiede vor allem hinsichtlich der Dimensionalität von Resilienz. Während einige Instrumente, beispielsweise der CD-RISK (Connor & Davidson, 2003) oder die Langversion der Resilienzskala (Wagnild & Young, 1993) von einer Mehrdimensionalität des Konstrukts ausgehen, legen andere Messinstrumente eine eindimensionale Erfassung von Resilienz zugrunde (z.B. Brief Resilient Coping Scale, Sinclair & Wallston, 2004; Brief Resilience Scale, Smith et al., 2008). Um herauszufinden, welcher der eindimensionalen Fragebögen bei Einsätzen in arbeitsbezogenen Befragungen ein besonders geeignetes Instrument darstellt, haben wir vier der meistverwendeten Fragebögen ausgewählt. Ziel der vorliegenden Studien ist es, die Validität der Instrumente im Arbeitskontext zu überprüfen. Dies werden wir mit Hilfe von Faktoranalysen, sowie der

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Betrachtung des nomologischen Netzes von Resilienz vornehmen. Zusätzlich analysieren wir die Kriteriumsvalidität der Messinstrumente, indem wir den Zusammenhang mit positiven arbeitsbezogenen Ergebnissen, Eigeninitiative, Arbeitsleistung und Organizational Citizenship Behavior, betrachten. Mit dieser Studie wollen wir einen Beitrag dazu leisten, die unterschiedlichen Fragebögen zur Erfassung von Resilienz systematisch miteinander zu vergleichen und eine Empfehlung zu geben, welcher Fragebogen sich für den Einsatz im Arbeitskontext am besten eignet.

### **Resilienz**

Das Resilienzkonzept fand seinen Ursprung in der Kinder- und Jugendpsychologie (Masten et al., 1990), ist im Laufe der Zeit aber auch bei Erwachsenen, und dabei vor allem in der Arbeitswelt betrachtet worden. Einen guten Überblick über Resilienz in der Arbeitswelt bieten die Kapitel von Sutcliffe und Vogus (2003), sowie Barker Caza und Milton (2011). Demnach äußert sich arbeitsbezogene Resilienz vor allem durch kompetentes Auftreten in schwierigen Situationen und anschließendem professionellen Wachstum. Generell wird Resilienz als “the maintenance of positive adjustment under challenging conditions” definiert (Masten & Reed, 2002, S.76). In anderen Worten werden Menschen allgemein als resilient bezeichnet, die sich trotz widriger Umstände nicht unterkriegen lassen. Dennoch gibt es eine Debatte darüber, ob Resilienz ein Prozess, eine Eigenschaft, oder ein Ergebnis ist. In der Forschung wird Resilienz am häufigsten als Eigenschaft oder Ressource betrachtet (z.B., Rutter, 2006; Tugade & Fredrickson, 2004). Eine Ressource trägt per Definition dazu bei, dass eine Person ihre Ziele erreichen kann (Halbesleben, Neveu, Paustian-Underdahl, & Westman, 2014). Im Zusammenhang von Resilienz kann darüber hinaus von Ressourceninvestment gesprochen werden (Halbesleben et al., 2014). Demnach investieren Menschen in Ressourcen, um sich so gegen den Verlust von anderen Ressourcen zu wappnen (Hobfoll, 2001). Indem in Resilienz Faktoren, wie z.B. ein stabiles soziales Umfeld oder eine Zukunftsorientierung investiert wird, kann einem Ressourcenverlust in stressigen Situationen durch eine gestärkte Resilienz vorgebeugt werden. Resilienz als Ressource oder Trait ist relativ stabil (Windle, 2011). Stabilität bedeutet hier, dass sich Resilienz zwar im Laufe des Lebens entwickeln kann, es aber zu keinen großen Schwankungen oder Sprüngen bei der Resilienzentwicklung kommt (Walsh, 2002; Werner & Smith, 1992; Higgins, 1994). Bei der Betrachtung von Resilienz als Ressource oder Eigenschaft spielt eine Reihe von Faktoren eine wichtige Rolle. So wird unter anderem berichtet, dass Resilienz im Zusammenhang mit Selbstwirksamkeit, Optimismus und einem stabilen sozialen Umfeld steht (Fröhlich-Gildhoff, Dörner, & Rönna, 2007; Reivich & Shatte, 2002).

Des Weiteren wird Resilienz auch als Prozess betrachtet (z.B., Luthar, Cicchetti, & Becker, 2000), bei dem es unter anderem um den Einfluss von Kontextfaktoren geht. Diese



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Herangehensweise beschreibt den positiven Umgang mit negativen Ereignissen als Resilienz. Es geht hierbei um Handlungsmuster und Stressbewältigungsstrategien, die es Menschen ermöglichen, stressige und herausfordernde Situationen gut zu meistern. Die Prozessbetrachtung von Resilienz erkennt an, dass die Effekte von Schutzfaktoren entsprechend dem Kontext, also von Situation zu Situation, und temporär, also während einer einzelnen Situation oder innerhalb einer Lebensspanne, variieren. Daher kann davon ausgegangen werden, dass, auch wenn eine Person zu einem bestimmten Zeitpunkt positiv auf eine schwierige Situation reagiert, dies nicht bedeutet, dass die Person zu einem anderen Zeitpunkt genauso auf Stressoren reagieren wird (z.B. Davydov, Stewart, Ritchie & Chaudieu, 2010; Rutter, 2006; Vanderbilt-Adriance & Shaw, 2008). Als Schutz- und Kontextfaktoren wurden in diesem Zusammenhang verschiedene Eigenschaften beschrieben, wie Einfallsreichtum, Charakterstärke, und Flexibilität für das Handeln in unterschiedlichen Situationen. Noch genauer beschreiben Block und Block (1980) diese Eigenschaften. Demnach werden Menschen mit einem hohen Resilienzlevel ausgezeichnet durch ein hohes Level an Energie, einem Sinn für Optimismus, Neugier und der Fähigkeit, Probleme losgelöst von den eigenen Gefühlen zu analysieren.

Zur Stabilität kann gesagt werden, dass es sich bei der Betrachtung von Resilienz als Prozess um ein weniger stabiles Konzept handelt. Die geringere Stabilität lässt sich darauf zurückführen, dass unterschiedliche Situationen unterschiedliche Resilienzreaktionen hervorrufen.

Zuletzt gibt es eine Forschungsbewegung, die Resilienz als Ergebnis des Zusammenspiels von Ressourcen, Kontextfaktoren und Prozessen betrachtet, und somit ein ganzheitlicheres Bild widerspiegelt (Sutcliffe & Vogus, 2003). Hierbei zählt nicht allein der Prozess bei der Bewältigung von schwierigen Situationen, sondern ebenso auch das Ergebnis.

Theoretisch schließt hier die Broaden-and-Build Theorie (Fredrickson, 2001) an. Die Theorie beschreibt ein Modell, nachdem Menschen durch positive Emotionen dazu befähigt werden, ihre Aufmerksamkeit und dadurch ihr Handlungsrepertoire zu erweitern. Resilienz wird demnach als personelle Ressource aufgefasst, die Menschen durch ein vermehrtes Empfinden von positiven Emotionen charakterisiert (Fredrickson, 2004). Demnach sind resiliente Personen in der Lage, ihr Handlungsrepertoire stärker zu erweitern und somit auch in emotional negativen Situationen in der Lage, ihre normale Leistungsfähigkeit aufrecht zu erhalten. Dies beschreibt den prozessorientierten Aspekt von Resilienz. Dadurch, dass sie auf ein erweitertes Handlungsrepertoire zurückgreifen können, sind negative Situationen und die damit verbundenen negativen Emotionen von kürzerer Dauer. Resiliente Menschen nutzen überdurchschnittlich oft problemorientiertes Coping, das sich aktiv mit der Lösung einer schwierigen Situation beschäftigt, oder positive Neubewertungen von Situationen, also der kognitiven Neubewertung einer

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schwierigen Situation zur Veränderung ihrer emotionalen Auswirkung (Lazarus & Folkman, 1984). So können negative Emotionen abgemildert und negative Situationen schneller bewältigt werden (Tugade & Fredrickson, 2004). Durch das erfolgreiche Bewältigen von negativen Situationen werden vermehrt positive Emotionen hervorgerufen (Folkman & Moskowitz, 2000). Daher kann das Broaden-and-Build Modell als Spirale beschrieben werden, in dem positive Emotionen das Handlungsrepertoire erweitern, dadurch negative Situationen schneller bewältigt werden, und die daraus resultierenden positiven Emotionen wiederum zu einer stetigen Erweiterung des Handlungsrepertoires führen (Fredrickson, 2004). Auch auf den Aspekt der Stabilität von Resilienz geht die Broaden-and-Build Theorie ein. Demnach sind positive Emotionen dafür verantwortlich, Unterschiede in der Entwicklung von Resilienz zu erklären. Das Erleben von positiven Emotionen ist nicht nur ein Bestandteil von Resilienz, sondern ermöglicht vielmehr auch die weitere Entwicklung und Stärkung von Resilienz. Dadurch, dass positive Emotionen das individuelle Handlungsrepertoire erweitern und flexible und kreative Denkmuster ermöglichen, verbessern sich auch die jeweiligen Stressbewältigungsstrategien (Isen, 1990; Aspinwall, 1998; Fredrickson & Joiner, 2002). Abschließend kann davon gesprochen werden, dass die Broaden-and-Build Theorie Resilienz als relativ stabile Eigenschaft betrachtet, die aber im Laufe der Zeit durch das Erleben von positiven Emotionen und den daraus resultierenden erweiterten Handlungsrepertoires gesteigert werden kann.

Besonders in der sich stetig verändernden Arbeitswelt wird sowohl von Arbeitgebern als auch von Forschern ein Fokus darauf gelegt, Ressourcen zu fördern, um die Auswirkungen von negativen Arbeitssituationen auf die Menschen zu reduzieren. In diesem Zusammenhang spielt Resilienz eine (zunehmend) wichtige Rolle. Barker Caza und Milton (2011) passen die bereits existierenden Definitionen von Resilienz auf die Arbeitswelt an: "Resilience is a developmental trajectory characterized by demonstrated competence in the face of, and professional growth after, experiences of adversity in the workplace" (S. 896). Die Autoren betonen, dass "adversity" oder arbeitsbezogene negative Situationen als subjektiv zu betrachten sind. Sobald ein Ereignis Stress auslöst, kann es als advers bezeichnet werden. Dabei wird jedoch nicht die Art des Ereignisses, z.B. ein Streitgespräch mit einem Vorgesetzten oder eine Kündigung, betrachtet, sondern die subjektive Bedeutung des Ereignisses für die betreffende Person.

Die Forschung konnte bereits einige wichtige Zusammenhänge von Resilienz und arbeitsbezogenen Ergebnissen aufweisen. Unter anderem wurden positive Zusammenhänge mit Arbeitsleistung (Luthans, Avey, Avolio, & Peterson, 2010), Arbeitszufriedenheit (Avey, Luthans, & Youssef, 2010), sowie Flexibilität und positivem Arbeitsverhalten (Avey, Wernsing, & Luthans, 2008) gezeigt. Um diese Forschungsergebnisse zu ergänzen, werden in der vorliegenden Studie nicht nur Arbeitsleistung als abhängige Variable betrachtet, sondern zusätzlich noch

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Eigeninitiative und Organizational Citizenship Behavior. Als Eigeninitiative wird konkretes, beobachtbares Verhalten bezeichnet, das sich durch drei Aspekte kennzeichnet: Es ist selbststartend, proaktiv und verlangt Beharrlichkeit und Ausdauer (Frese & Fay, 2001). Besonders wichtig ist Eigeninitiative in der Arbeitswelt im Zusammenhang mit Innovationen und der Veränderung von Prozessen und Abläufen. Darüber hinaus gibt es einen Zusammenhang zwischen Eigeninitiative und der aktiven Bewältigung von Arbeitsanforderungen sowie einem aktiveren Umgang mit Stressbedingungen. Daher erwarten wir einen positiven Zusammenhang von Resilienz und Eigeninitiative.

Organizational Citizenship Behavior (OCB) ist die Bezeichnung für individuelles Verhalten in der Arbeitsumgebung. Organ (1988) definiert OCB als ein freiwilliges Verhalten am Arbeitsplatz, das sich positiv auf die Funktionsfähigkeit der Organisation auswirkt. OCB kann über folgende Faktoren charakterisiert werden: (1) Altruismus: Hilfeleistungen für Kollegen, Kunden oder Vorgesetzte. (2) Gewissenhaftigkeit im Sinne besonders sorgfältiger Erfüllung der Aufgaben. (3) arbeitsrelevante Höflichkeit: sich zuerst mit anderen abstimmen, bevor Handlungen gezeigt werden, die deren Arbeitsbereich betreffen. (4) Sportsmanship: gelassenes Ertragen der Ärgernisse, die unweigerlich aus der Zusammenarbeit zwischen Menschen entstehen. (5) Bürgertugenden: die Teilhabe am öffentlichen Leben der Organisation (Podsakoff, MacKenzie, Moorman, & Fetter, 1990). Obwohl OCB in der Regel nicht direkt als Arbeitsleistung betrachtet wird, hat es einen Einfluss auf Team- und organisationalen Erfolg (Podsakoff & MacKenzie, 1997). Von Organ (1977, 1988, 1997) wurde argumentiert, dass zufriedenerer Arbeitnehmer eher OCB zeigen. Gleichzeitig gibt es einen positiven Zusammenhang zwischen Resilienz und Arbeitszufriedenheit (Luthans et al., 2007). Daher kann davon ausgegangen werden, dass resiliente Personen auch stärkeres OCB an den Tag legen.

Trotz der vielversprechenden positiven Ergebnisse von Resilienz im Arbeitskontext, gibt es jedoch auch eine ganze Reihe von Kritik am Resilienzkonzept. Die Kritik bezieht sich vor allem auf die Uneinigkeit hinsichtlich der Definition (z.B. Cicchetti & Garmezy, 1993; Luthar et al., 2000). Darüber hinaus wurde bereits 2000 von Luthar et al. darauf hingewiesen, dass eine einheitliche Operationalisierung des Konzepts die Forschung zu Resilienz voranbringen würde. Doch anstatt diesem Aufruf zu folgen, wurden bis heute lediglich weitere Instrumente entwickelt. Dies hat natürlich auch mit den unterschiedlichen Definitionen von Resilienz zu tun. Ein systematischer Vergleich der Instrumente wurde bisher nicht durchgeführt. Deskriptive Übersichten über die in der allgemeinen Resilienzforschung am häufigsten eingesetzten Instrumente werden u.a. in Ahern et al. (2006), Windle et al. (2011) und Pangallo et al. (2015) berichtet. Auch wenn sich die Definitionen hinsichtlich der situationsbezogenen Reichweite von Resilienz, also dem Umgang mit stressigen Situationen oder darüber hinaus eine höhere Leistungsfähigkeit nach erfolgreicher

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Bewältigung dieser Situation, und der Stabilität des Konzepts unterscheiden, wird von den meisten Autoren angenommen, dass es sich um ein eindimensionales Konstrukt handelt (Lee, Sudom, & McCreary, 2011). Demnach gehen wir davon aus, dass die einzelnen Resilienzfaktoren, die in der Forschung bisher identifiziert wurden, auf einem übergeordneten G-Faktor Resilienz laden. Unabhängig von der Erkenntnis, dass Resilienz ein eindimensionales Konstrukt ist, gibt es jedoch auch eine Reihe von Messinstrumenten, die eine mehrfaktorielle Messung von Resilienz verfolgen, so wie die häufig eingesetzten Resilienzskala von Wagnild und Young (1993).

Wir gehen davon aus, dass Resilienz zwar eine Sammlung von mehreren positiven Eigenschaften ist, diese aber zusammenspielen und gemeinsam einen Resilienzfaktor bilden. Dieser Resilienzfaktor kann als stabiler Trait bezeichnet werden, der jedoch einer gewissen Variabilität unterliegt. Wie schon von Werner und Smith (1992) gezeigt, bildet Resilienz sich über die Jahre hinweg aus, indem Menschen negative Ereignisse erfolgreich meistern und die gesammelten Erfahrungen für zukünftige negative Ereignisse zu Nutze machen können. Mittelfristig sollte Resilienz allerdings stabil sein.

In dieser Studie wollen wir Resilienzskalen miteinander vergleichen, die sich für den Einsatz im arbeitsbezogenen Umfeld eignen. Daher haben wir Skalen ausgewählt, die sich durch ihre Kürze (4 – 11 Items) und zusätzlich durch ihre Eindimensionalität kennzeichnen. Grundsätzlich, aber gerade auch im arbeitsbezogenen Umfeld ist es wichtig, Fragebögen unter anderem auch auf Basis von ökonomischen Aspekten auszuwählen. Daher besteht ein großes Forschungsinteresse an der Bestimmung von kurzen aber dennoch validen Messinstrumenten. In der vorliegenden Studie werden wir somit die Validität und Reliabilität von kurzen, eindimensionalen Resilienzskalen im arbeitsbezogenen Kontext betrachten.

Zur Bestimmung der Konstruktvalidität der verschiedenen Messinstrumente werden sowohl ähnliche (zur Bestimmung der konvergenten Validität) als auch sich unterscheidende Konstrukte (zur Bestimmung der diskriminanten Validität) herangezogen (Campbell & Fiske, 1959). Dieses nomologische Netz besteht für Resilienz unter anderem aus Selbstwirksamkeit, Selbstwertgefühl, Kontrollüberzeugung, positiver und negativer Affektivität, und soll im Folgenden näher beschrieben werden.

### *Selbstwirksamkeit*

Unter Selbstwirksamkeit versteht man die Erwartung, aufgrund von eigenen Kompetenzen erfolgreich zu sein (Bandura, 1977). Menschen mit einer hohen Selbstwirksamkeitserwartung können auch in schwierigen Situationen selbstständig handeln. Grundsätzlich ist Selbstwirksamkeit stark leistungsbezogen, da schon in der Definition von Erfolg die Sprache ist (Sitzman & Yeo, 2013). In einer Metaanalyse konnte zudem der positive Zusammenhang von Selbstwirksamkeit mit Arbeitsleistung gezeigt werden (Stajkovic & Luthans,

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1998). Die bisherige Forschung konnte zeigen, dass resiliente Menschen mit hoher Wahrscheinlichkeit eine starke Selbstwirksamkeitserwartung zeigen. (Rutter, 1987; Werner, 1997; Wright & Masten, 1997). Wir erwarten daher auch im arbeitsbezogenen Kontext einen hohen Zusammenhang zwischen Resilienz und Selbstwirksamkeit.

### *Selbstwertgefühl*

Das Selbstwertgefühl ist eine positive oder negative Bewertung des Selbst, und die damit verbundene emotionale Reaktion auf diese Bewertung (Smith, Mackie, & Claypool, 2014). Menschen mit einem hohen Selbstwertgefühl können in schwierigen Situationen ihren Optimismus beibehalten, und es besteht somit eine erhöhte Wahrscheinlichkeit, zukünftig Erfolg und Zufriedenheit zu erleben (Dodgson & Wood, 1998). Im Arbeitskontext erleben Menschen mit einem hohen Selbstwertgefühl eine herausfordernde Arbeitsstelle als Chance, aus der man lernen und profitieren kann. Auf der anderen Seite erleben Menschen mit niedrigem Selbstwertgefühl einen herausfordernden Job als unverdiente Möglichkeit oder die Chance zu scheitern (Locke, McClear, & Knight, 1996). Sowohl Resilienz als auch Selbstwertgefühl äußern sich vor allem durch eine andauernde positive Einstellung, auch in schwierigen Situationen, und eine Bewertung von Situationen als herausfordernd. Daher erwarten wir einen starken Zusammenhang zwischen den beiden Konstrukten.

### *Kontrollüberzeugung*

Unter Kontrollüberzeugung versteht man die „subjektive Vorstellung darüber, ob man sein Verhalten in bestimmten Situationen selbst kontrollieren kann (Internale Kontrollüberzeugung) oder ob es durch äußere Einwirkungen bestimmt wird (externale Kontrollüberzeugung)“ (Tewes & Wildgrube, 1992, S.189). Im Zusammenhang mit Resilienz konnte gezeigt werden, dass besonders die Entwicklung einer internalen Kontrollüberzeugung ein kritischer Punkt ist, um Resilienz zu fördern (Brooks, 1994; Cowen & Work, 1988; Luthar, 1991). So wurde beispielsweise festgestellt, dass eine internale Kontrollüberzeugung bei stressigen Lebensereignissen die Wahrscheinlichkeit reduziert, mentale Gesundheitsprobleme zu entwickeln. Dies wird dadurch erklärt, dass eine internale Kontrollüberzeugung einen geringen Zusammenhang mit der negativen Interpretation von Ereignissen gezeigt hat (Sandler, Kim-Bae, & MacKinnon, 2000). Wir erwarten daher einen positiven Zusammenhang von Resilienz und internaler Kontrollüberzeugung.

### *Positive Affektivität*

Positive Affektivität beschreibt die Tendenz, verstärkt angenehme Gefühle zu erleben. Das Konstrukt der positiven Affektivität ist bipolar, wonach Enthusiasmus und Begeisterung eine starke Ausprägung beschreiben. Bei einer schwachen Ausprägung sind diese Gefühle abwesend,

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aber negativer Affekt nicht unbedingt anwesend (George, 1991). Menschen mit einer hohen positiven Affektivität sind generell zufriedener und berichten häufiger von positiven und angenehmen Erlebnissen (Watson, Clark, & Tellegen, 1988). In Bezug auf Resilienz konnte die Forschung zeigen, dass ein starker Zusammenhang zwischen positiven Emotionen im Allgemeinen (Block & Kremen, 1996; Klohn, 1996) und während anspruchsvollen Situationen besteht (Ong, Bergeman, Bisconti, & Wallace, 2006; Tugade & Fredrickson, 2004). Daher erwarten wir einen positiven Zusammenhang von Resilienz und positiver Affektivität.

### *Negative Affektivität*

Negative Affektivität beschreibt die Tendenz, negative Emotionen wie Ängstlichkeit, Ärger oder Depressivität zu erleben. Menschen mit einer ausgeprägten negativen Affektivität sind zudem von einer pessimistischen Lebenseinstellung geprägt, und haben ein negatives Selbstbild (Watson & Pennebaker, 1989). Der wichtigste Unterschied zu Resilienz besteht darin, dass Menschen mit hoher negativer Affektivität über eine höhere Anzahl von belastenden Situationen als Personen mit niedriger negativer Affektivität berichten (Watson & Clark, 1984). Es kann davon ausgegangen werden, dass Menschen mit einer höheren negativen Affektivität über weniger Ressourcen in schwierigen Situationen verfügen und sich daher von resilienten Menschen unterscheiden. Wir erwarten daher einen negativen Zusammenhang von negativer Affektivität und Resilienz.

### *Wahrgenommene Unterstützung durch die Führungskraft und Bewertung des Arbeitsplatzes*

Bei diesen beiden Konstrukten erwarten wir keinen oder lediglich einen geringen Zusammenhang mit Resilienz, da sie keinen Bezug zu Resilienz haben sollten. Die wahrgenommene Unterstützung durch die Führungskraft ist ein Konstrukt aus der Organizational Support Theorie (Eisenberger, Fasolo & Davis-LaMastro, 1990), in der es darum geht, inwiefern eine Organisation den Beitrag seiner Mitarbeiter wertschätzt. Das Wertschätzungsgefühl einer Mitarbeiterin oder eines Mitarbeiters, hat einen direkten Einfluss darauf, wie positiv oder negativ die Unterstützung durch die Führungskraft wahrgenommen wird. Bei diesem Konstrukt geht es also eher um die Wahrnehmung der Organisation als wertschätzend, als um ein individuelles Resilienzlevel. Bei der Bewertung des Arbeitsplatzes stehen äußere Faktoren wie beispielsweise die Umgebungsfaktoren (Temperatur, Helligkeit) und die Ausstattung des Arbeitsplatzes im Vordergrund. Es geht also um die vergleichsweise objektive Bewertung des Arbeitsplatzes anhand genau definierter Kriterien, bei der das individuelle Resilienzlevel keine Rolle spielen sollte.

Der Fokus unserer Vergleichsstudie liegt auf vier verschiedenen Skalen: Der Kurzversion der Resilienzskala (RS-11) (Schumacher et al., 2005), der Brief Resilient Coping Scale (BRCS) (Sinclair & Wallston, 2004), der Brief Resilience Scale (BRS) (Smith et al., 2008) und der

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Resilienzskala aus dem PsyCap Messinstrument (Luthans et al., 2007). Wir haben diese Skalen gewählt, weil sie sich für die Verwendung im arbeitsbezogenen Kontext eignen. Dadurch konnten alle Skalen, die sich auf einen Einsatz im klinischen Kontext (z.B. Resilience Scale for Adults (RSA)) oder auf die Zielgruppe von Kindern und Jugendlichen (z.B. Child and Youth Resilience Measure) beziehen, ausgeschlossen werden. Ein weiteres Auswahlkriterium war die Bedingung, dass Resilienz als eindimensionales Konstrukt betrachtet wird. Dies unterscheidet die vorliegenden Skalen demnach von andern häufig eingesetzten Skalen, wie z.B. dem CD-RISC (Connor & Davidson, 2003) und der Resilienzskala (Wagnild & Young, 1993).

### *Resilienzskala – Kurzversion (RS-11)*

Die Resilienzskala (RS) wurde ursprünglich von Wagnild & Young (1993) entwickelt und ist das wohl am häufigsten eingesetzte Messinstrument zur Erfassung von Resilienz. Es basiert auf der Annahme, dass Resilienz ein Trait ist. Die Langversion enthält 25 Items, die sich faktoranalytisch auf zwei Skalen verteilen: Persönliche Kompetenz mit 17 Items und Akzeptanz des Selbst und des Lebens mit 8 Items. Eine deutsche Übersetzung und Validierung wurde von Schumacher et al. (2005) durchgeführt. Ähnlich wie in anderen Studien (z.B. Aroian, Schappler-Morris, Neary, Spitzer, & Tran, 1997) konnten die Autoren die zweidimensionale Struktur der ursprünglichen Skala nicht replizieren. Stattdessen gehen sie von einer eindimensionalen Struktur aus, und entwickelten basierend auf dieser Annahme eine Kurzversion der RS mit 11 Items (RS-11). Die Items sind kombiniert aus den beiden ursprünglichen Facetten und laden alle auf einen Faktor mit Faktorladungen zwischen 0,67 und 0,81. Zusätzlich besteht eine hohe Korrelation mit der RS-Langversion von  $r = 0,95$ . Für die RS-11 liegt Cronbachs  $\alpha$  bei 0,91. Zur Validierung wurde die Korrelation der beiden Skalen mit dem Konstrukt der Selbstwirksamkeitserwartung berechnet. Diese beträgt  $r = 0,70$  für die RS-11 und  $r = 0,68$  für die Langversion. Beide Korrelationen sind signifikant auf dem 1%-Niveau. Beispielitems für die RS-11 sind: „Wenn ich Pläne habe, verfolge ich sie auch.“, „Ich finde öfter etwas, worüber ich lachen kann.“, und „In mir steckt genügend Energie, um alles zu machen, was ich machen muss.“

### *Brief Resilient Coping Scale*

Die Brief Resilient Coping Scale (BRCS) von Sinclair und Wallston (2004) basiert auf der Annahme, dass Resilienz ein Prozess ist, der sich durch Copingmechanismen wie einen effektiven Gebrauch von kognitiven Bewertungsstrategien und adaptiven Verhaltensmustern zeigt. Der Gebrauch von diesen resilienten Copingmechanismen unterstützt eine positive Anpassung bei Schwierigkeiten und negativen Erlebnissen (Sinclair & Wallston, 2004). Entsprechend dieser Annahmen wurden 4 Items formuliert, die auf einer Skala von 1 bis 5 beantwortet werden. Cronbachs  $\alpha$  liegt bei 0,68 und die Faktorladungen der Items liegen zwischen 0,62 und 0,68. Die

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Test-Retest Reliabilität kann mit 0,71 als zufriedenstellend bezeichnet werden. Zur Bestimmung der Validität wurden unter anderem Korrelationen mit Optimismus ( $r = 0,50$ ), Selbstwirksamkeit ( $r = 0,48$ ), positiver Affektivität ( $r = 0,50$ ) und negativer Affektivität ( $r = -0,28$ ) herangezogen. Alle Korrelationen sind signifikant auf dem 1% Niveau. Beispielitems für die BRCS sind: „Ich suche kreative Wege, um schwierige Situationen zu ändern“ und „Unabhängig davon, was mir passiert, kann ich meine Reaktion darauf kontrollieren“.

### *Brief Resilience Scale*

Die Brief Resilience Scale (BRS) von Smith et al. (2008) legt die Resilienzdefinition zugrunde, dass resiliente Menschen die Fähigkeit besitzen, sich bei Stress nicht unterkriegen zu lassen und sich davon zu erholen. Die Skala besteht aus 6 Items, von denen 3 positiv und 3 negativ formuliert sind. Alle Items laden auf einen Faktor mit Faktorladungen zwischen 0,68 und 0,91. Cronbachs  $\alpha$  liegt bei 0,84 und die Test-Retest Reliabilität bei 0,62. Zur Bestimmung der konvergenten Validität wurden Korrelationen mit Optimismus, Bedeutung im Leben, Positive Affektivität, Pessimismus und Gefühlsblindheit (Alexithymie) berechnet. Erwartungsgemäß zeigten sich signifikant positive Korrelationen für Optimismus ( $r = 0,45$ ), Bedeutung im Leben ( $r = 0,46$ ) und positive Affektivität ( $r = 0,46$ ), sowie signifikant negative Korrelationen für Pessimismus ( $r = -0,40$ ) und Gefühlsblindheit ( $r = -0,46$ ). Beispielitems für die BRS sind „Ich neige dazu, nach harten Zeiten schnell wieder auf die Beine zu kommen“ und „Mir fällt es schwer mit stressigen Ereignissen umzugehen“.

### *Resilienzskala aus PsyCap*

Die Resilienzskala aus dem PsyCap-Fragebogen von Luthans, Avolio, Avey und Norman (2007) ist die einzige der vier Skalen, deren Items explizit arbeitsbezogen formuliert wurden. Die Items wurden basierend auf der Resilienzdefinition ausgewählt, dass resiliente Menschen bei negative Ereignissen, Unsicherheit, Konflikten oder Misserfolg die Fähigkeit besitzen, sich zu erholen oder sogar sich zum positiven zu verändern und zu wachsen. Die Skala besteht aus sechs Items, die auf Basis der Resilienzskala von Wagnild und Young (1993) von Experten ausgewählt und arbeitsbezogen umformuliert wurden. Cronbachs  $\alpha$  liegt bei 0,68 und ist somit eher nicht zufriedenstellend. Die Faktorenstruktur und Faktorladungen werden in der Validierungsstudie nicht im Einzelnen berichtet, deuten aber zusammengefasst auf ein einfaktorielles Modell hin (Luthans et al., 2007). Zur Validierung wurden Korrelationen mit Core Self-Evaluations ( $r = 0,44$ ), Gewissenhaftigkeit ( $r = 0,35$ ) und Extraversion ( $r = 0,20$ ) betrachtet. Beispielitems für die Resilienzskala lauten: „Normalerweise bewältige ich stressvolle Dinge im Job spielend“ und „Ich kann im Job schwierige Zeiten durchstehen, da ich solche auch schon vorher gemeistert habe“.



## Vergleich von Resilienzskalen

Um die vier Resilienzskalen miteinander zu vergleichen, wurden zwei Studien durchgeführt. In der ersten Studie werden die Skalen hinsichtlich der faktoriellen Validität und der Konstruktvalidität überprüft. In der zweiten Studie wurde die Stabilität der Skalen mit Hilfe der Retest Reliabilität bestimmt.

### **Studie 1**

Um die Resilienzskala mit den besten Kennwerten im arbeitsbezogenen Kontext zu bestimmen, wurden die 4 oben genannten Skalen hinsichtlich Reliabilität und faktorieller Validität miteinander verglichen. Ebenso wurde die Konstruktvalidität durch die jeweiligen Zusammenhänge mit dem nomologischen Netz betrachtet. Zusätzlich wurden zur Bestimmung der diskriminanten Validität die Zusammenhänge der Skalen mit der wahrgenommenen Unterstützung durch die Führungskraft und der Bewertung des Arbeitsplatzes betrachtet. Abschließend wurde zur Bestimmung der Kriteriumsvalidität im arbeitsbezogenen Kontext der Zusammenhang mit Arbeitsleistung, Eigeninitiative und Organizational Citizenship Behavior betrachtet.

### **Methoden**

#### **Stichprobe**

Stichprobe 1 umfasst 393 Arbeitnehmer, die in unterschiedlichen beruflichen Feldern tätig sind. Das Durchschnittsalter beträgt 34 Jahre (SD 11,2 Jahre) und der Frauenanteil lag bei 53 %. Der Ausbildungsstand ist sehr ausgeglichen, mit einem Anteil von 51% mit abgeschlossener Ausbildung und 49% mit akademischem Abschluss. Durchschnittlich sind die Teilnehmer bereits 17 Jahre berufstätig (SD 15,1 Jahre).

#### **Messverfahren**

Die Teilnehmer wurden gebeten, alle vier oben beschriebenen Resilienzskalen zu bearbeiten. Die BRCS und BRS wurden mittels Übersetzung und Rückübersetzung vom Englischen ins Deutsche übertragen. Für die RS-11 von Schumacher und die Resilienzskala aus PsyCap konnten validierte deutsche Übersetzungen genutzt werden. Zusätzlich wurden folgende weitere Konstrukte erfasst:

*Selbstwirksamkeit* wurde mit 10 Items von Schwarzer und Jerusalem, (1999) erfasst. Beispielitems sind „Ich kann es immer schaffen, schwierige Probleme zu lösen, wenn ich es versuche“ und „Ich kann Probleme lösen, wenn ich den nötigen Einsatz investiere“. Alle Items werden auf einer 4-Punkte Likert Skala beantwortet. Cronbachs  $\alpha$  liegt bei 0,79.

*Selbstwertgefühl* wurde mit den 10 Items der Rosenberg-Skala erfasst, die von Collani und Herzberg (2003) übersetzt und validiert wurden. Beispielitems sind „Alles in allem bin ich mit mir

## Vergleich von Resilienzskalen

selbst zufrieden“ und „Hin und wieder denke ich, dass ich gar nichts taue“. Die Items werden auf einer 4-Punkte Likert Skala beantwortet. Cronbachs  $\alpha$  liegt bei 0,84.

*Kontrollüberzeugung* wurde mit der deutschen Version der Locus of Control Scale von Rotter (1966) erfasst. Sie besteht aus 4 Items, die auf einer 5-Punkte Likert Skala beantwortet werden. Beispielitems sind „Wenn ich hart arbeite, werde ich Erfolg haben“ und „Das Schicksal steht mir und meinen Plänen häufig im Weg“. Cronbachs  $\alpha$  zeigt einen Wert von 0,71.

*Positive und negative Affektivität* wurde mit der deutschen Version des Positive and Negative Affect Schedule (PANAS) (Krohne, Egloff, Kohlmann & Tausch, 1996) gemessen. Das Messinstrument besteht aus 16 Items, die auf einer 5-Punkte Likert Skala beantwortet werden. Cronbachs  $\alpha$  zeigt mit 0,90 für positive Affektivität und 0,87 für negative Affektivität gute Werte. Die Teilnehmer sollen ihre Stimmung in den letzten Wochen anhand der beispielhaften Items nennen: „Begeistert“ und „Entspannt“ für positiven Affekt und „Ängstlich“ und „Erschrocken“ für negativen Affekt.

*Arbeitsleistung* wurde mit einer 3 Item Skala (Williams & Anderson, 1991) gemessen. Die Items werden auf einer 5-Punkte Likert Skala beantwortet. Ein Beispielitem ist „Ich erfülle meine Aufgaben auf adäquate Art und Weise“. Es konnte eine gute Interne Konsistenz gefunden werden, mit Cronbachs  $\alpha = 0,83$ . Bei dem Messinstrument handelt es sich um eine Selbsteinschätzung, bei der tendenziell von einem egozentrischen Fehler ausgegangen werden kann. Dieser kann sich jedoch sowohl als positive verzerrte Überschätzung als auch als negativ verzerrte Unterschätzung äußern. Grundsätzlich wurden in entsprechenden Metaanalysen Korrelationen der selbst- und fremdeingeschätzten Arbeitsleistung von 0,22 bis 0,33 gefunden (Conway & Huffcutt, 1997; Heidemeier & Moser, 2009). Dies spricht für eine tendenzielle Übereinstimmung der selbst- und fremdeingeschätzten Arbeitsleistung mit jeweils zusätzlichen Informationen, die von der Bewertungsquelle stammen.

Die generelle *Eigeninitiative* wurde mit 7 Items gemessen, die von Frese und Kollegen (Frese, Kring, Soose, & Zempel, 1996) entwickelt wurden. Die Items werden auf einer 5-Punkte Likert Skala beantwortet. Beispielitems sind „Ich gehe Probleme aktiv an“ und „Ich nutze Chancen und Möglichkeiten, um meine Ziele zu erreichen“. Die Interne Konsistenz ist zufriedenstellend mit Cronbachs  $\alpha = 0,74$ .

Allgemeines *Organizational Citizenship Behavior (OCB)* wurde mit einer deutschen Skala von Staufenbiel und Hartz (2000) erfasst. Es handelt sich um 25 Items, die auf einer 7-Punkte Likert Skala beantwortet werden. Cronbachs  $\alpha$  liegt bei 0,79. Zwei Beispielitems lauten: „Ich

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ermuntere Kollegen/Kolleginnen, wenn diese niedergeschlagen sind“ und „Ich ergreife freiwillig die Initiative, neuen Kollegen/Kolleginnen bei der Einarbeitung zu helfen“.

*Wahrgenommene Unterstützung durch die Führungskraft* wurde ebenso wie die Bewertung des Arbeitsplatzes bei einer Substichprobe mit  $N = 221$  Teilnehmern mit 8 Items angelehnt an Eisenberger et al (1985) gemessen. Die Items werden auf einer 5-Punkte Likert Skala bewertet. Beispielitems sind „Ich kann mich voll auf meinen Vorgesetzten verlassen, wenn es in der Arbeit schwierig wird“ und „Ich fühle mich von meinem Vorgesetzten persönlich anerkannt“. Cronbachs  $\alpha$  liegt bei 0,95.

Die *Bewertung des Arbeitsplatzes* wurde mit 12 Items erfasst, die sich auf die räumliche Umgebung des Arbeitsplatzes beziehen (Nübling et al., 2006). Alle Items werden auf einer 5-Punkte Likert Skala bewertet, die von „Trifft völlig zu“ bis „Trifft überhaupt nicht zu“ überschrieben ist. Beispielitems sind „Ich fühle mich durch einen hohen Lärmpegel belastet“ und „Die Verfügbarkeit/ Unterstützung durch die EDV ist unzureichend“. Cronbachs  $\alpha$  liegt bei 0,92.

## Statistische Verfahren

Alle Berechnungen wurden mittels SPSS 22 oder AMOS 23 durchgeführt. Die faktorielle Validität der Resilienzskalen wurde mit Hilfe von konfirmatorischen Faktorenanalysen bestimmt. Dazu wurde zunächst für jede Skala einzeln ein einfaktorielles Modell getestet. Bei schlechten Modellfitindizes wurde im zweiten Schritt eine explorative Faktorenanalyse durchgeführt, um die Faktorenstruktur der Skala bestimmen zu können. Trotz der andauernden Diskussion dazu, ob mit einem Datensatz sowohl explorative als auch konfirmatorische Faktorenanalysen gerechnet werden dürfen (z.B. Fabrigar, Wegener, MacCallum & Strahan, 1999; Hurley et al., 2007), haben wir uns aufgrund der vergleichsweise kleinen Stichprobe für dieses Vorgehen entschieden. Nur durch das explorative Vorgehen konnten wir die Items eindeutig den zwei Faktoren zuordnen. Fitindizes werden als gut bewertet, wenn der Wert für den Root Mean Square Error of Approximation (RMSEA) unter 0,08 liegt (MacCallum, Browne, & Sugawara, 1996), sowie der Tucker Lewis Index (TLI) und der Comparative Fit Index (CFI) über 0,9 liegen (Hu & Bentler, 1999). Im nächsten Schritt wurden alle Items von allen Skalen gemeinsam betrachtet und deren Ladung auf einen G-Faktor Resilienz bestimmt. Da wir von einem gemeinsamen Resilienzfaktor ausgehen, auf dem alle Resilienzfaktoren laden, kann bei gemeinsamer Betrachtung aller Items von einem besseren Modellfit ausgegangen werden. Als dritter Schritt wurde ein Modell entwickelt, in dem alle Items zunächst auf ihren jeweiligen Skalenfaktor laden und diese Skalenfaktoren wiederum auf den G-Faktor Resilienz laden. Hierbei wird berücksichtigt, dass Personen eine unterschiedlich starke Ausprägung der einzelnen Resilienzfaktoren besitzen, die durch die einzelnen Skalen repräsentiert werden. Die Modelle wurden so spezifiziert, dass alle Items jeweils nur auf einen

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zugeordneten Faktor laden, die Kovarianzen zwischen den Messfehlern der Items auf null fixiert sind, und die Kovarianzen zwischen den latenten Variablen frei variieren.

### **Ergebnisse**

Für die RS-11 von Schumacher et al. (2005) ergibt sich bei der konfirmatorischen Faktorenanalyse mit einem Faktor ein Modellfit mit RMSEA von 0,10, TLI von 0,76 und CFI von 0,84. Somit weist das einfaktorielle Modell keinen guten Fit auf und die Annahme, dass die RS-11 Resilienz als einen Faktor erfasst, kann verworfen werden.

Im nächsten Schritt wurde mittels explorativer Faktorenanalyse mit Varimax Rotation bestimmt, auf wie viele Faktoren sich die RS-11 aufteilt. Die rotierte Faktorenlösung beschreibt ein zweifaktorielles Modell, deren Items sich inhaltlich auf einen Faktor „Positives Selbstkonzept“ und einen Faktor „Neugier und Offenheit“ aufteilen. Die Aufteilung der Items, sowie die Faktorladungen für die einfaktorielle und zweifaktorielle Lösung, sind in Tabelle 1 zu sehen. Beispielitems für den Faktor „Positives Selbstkonzept“ lauten: „Ich mag mich“ und „In mir steckt genügend Energie, um alles zu machen, was ich machen muss“. Für den Faktor „Neugier und Offenheit“ lauten Beispielitems: „Ich behalte an vielen Dingen Interesse“ und „Normalerweise kann ich eine Situation aus mehreren Perspektiven betrachten“. Um die Modellfitmaße für das zweifaktorielle Modell zu bestimmen, wurde wieder eine konfirmatorische Faktorenanalyse berechnet. Die Fitindizes sind zufriedenstellend, mit RMSEA = 0,07, TLI = 0,86 und CFI = 0,91.

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*Tabelle 1.* Faktorenladungen für die RS-11 (Schumacher et al., 2005) mit 1-faktorieller und 2-faktorieller Lösung

		Einfaktorielle Lösung		Zweifaktorielle Lösung	
		$\lambda$	P	$\lambda$	P
<b>Faktor 1: Positives Selbstkonzept, Energie</b>					
RS-11_1	Wenn ich Pläne habe, verfolge ich sie auch.	0,619	***	0,619	***
RS-11_2	Normalerweise schaffe ich alles irgendwie.	0,471	***	0,431	***
RS-11_4	Ich mag mich.	0,802	***	0,738	***
RS-11_5	Ich kann mehrere Dinge gleichzeitig bewältigen.	0,826	***	0,788	***
RS-11_6	Ich bin entschlossen.	1,000		1,000	
RS-11_11	In mir steckt genügend Energie, um alles zu machen, was ich machen muss.	0,965	***	0,872	***
<b>Faktor 2: Neugier, Offenheit</b>					
RS-11_3	Es ist wichtig, an vielen Dingen interessiert zu bleiben.	0,550	***	0,755	***
RS-11_7	Ich behalte an vielen Dingen Interesse.	0,749	***	1,000	
RS-11_8	Ich finde öfter etwas, worüber ich lachen kann.	0,619	***	0,664	***
RS-11_9	Normalerweise kann ich eine Situation aus mehreren Perspektiven betrachten.	0,496	***	0,559	***
RS-11_10	Ich kann mich auch überwinden, Dinge zu tun, die ich eigentlich nicht machen will.	0,475	***	0,498	***

\*\*\*  $p < 0,01$

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Für die Brief Resilient Coping Scale von Sinclair und Wallston (2004) ergeben sich Modellfit Werte von RMSEA = 0,00, TLI = 1 und CFI = 1 auf. Die sehr guten Fitindizes müssen mit Vorsicht betrachtet werden. Zum einen kann es bei der niedrigen Anzahl von Freiheitsgraden zu Verzerrungen der Fitindizes kommen, zum anderen hängt ein übermäßig guter Fit häufig mit niedrigen Korrelationen der einzelnen Variablen untereinander zusammen (Browne, MacCallum, Kim, Andersen & Glaser, 2002). Dies bestätigt sich bei Betrachtung von Cronbachs Alpha mit einem Wert von 0,68. Aufgrund der mangelnden Kontraevidenz für das vorliegende Modell kann die einfaktorielle Messung von Resilienz in diesem Fall bestätigt werden (Steinmetz, 2015). Die Faktorladungen sind in Tabelle 2 aufgeführt.

*Tabelle 2.* Faktorenladungen für die BRCS (Sinclair & Wallston, 2004)

		$\lambda$	P
BRCS 1	Ich suche kreative Wege, um schwierige Situationen zu ändern.	0,840	***
BRCS 2	Unabhängig davon, was mir passiert, kann ich meine Reaktion darauf kontrollieren.	0,929	***
BRCS 3	Ich glaube, ich kann in positive Weise durch den Umgang mit schwierigen Situationen wachsen.	1,000	
BRCS 4	Ich suche aktiv nach Wegen, die Verluste, die ich in meinem Leben erfahren habe, zu ersetzen.	0,762	***

\*\*\*  $p < 0,01$

Die Brief Resilient Scale von Smith et al. (2008) weist einen Modellfit von RMSEA = 0,13, TLI = 0,74 und CFI = 0,89. Hier ist der Modellfit zunächst nicht ausreichend, um das einfaktorielle Messmodell von Resilienz zu bestätigen. Die Faktorladungen sind in Tabelle 3 aufgeführt.

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Tabelle 3. Faktorenladungen für die BRS (Smith et al., 2008)

		$\lambda$	P
BRS 1	Ich neige dazu, nach harten Zeiten schnell wieder auf die Beine zu kommen.	0,715	***
BRS 2 (r)	Mir fällt es schwer mit stressigen Ereignissen umzugehen.	0,939	***
BRS 3	Es dauert nicht lange, bis ich mich von einem stressigen Ereignis erhole.	0,708	***
BRS 4 (r)	Es ist schwer für mich wieder anzufangen, wenn etwas Schlimmes passiert.	0,962	***
BRS 5	In der Regel komme ich mit wenig Mühe durch schwierige Zeiten.	0,691	***
BRS 6 (r)	Ich neige dazu, eine lange Zeit zu benötigen um über Rückschläge in meinem Leben hinwegzukommen.	1,000	

\*\*\*  $p < 0,01$

Die explorative Faktorenanalyse mit Varimax Rotation ergibt eine Aufteilung der Items auf zwei Faktoren. Inhaltlich sind die Items so geteilt, dass die positiv formulierten auf einen Faktor laden und die negativ formulierten auf einen zweiten Faktor. Da sich die Items jedoch von der inhaltlichen Bedeutung nicht unterscheiden, kann die zweifaktorielle Lösung unter theoretischen und inhaltlichen Gesichtspunkten nicht bestätigt werden. Die einzelnen Items sind ebenfalls in Tabelle 3 aufgeführt.

Die Resilienzskala aus PsyCap (Luthans et al., 2009) kann Modellfitmaße von RMSE = 0,08, TLI = 0,92 und CFI = 0,96 aufweisen. Somit kann von einem gutem Modellfit gesprochen werden und die einfaktorielle Resilienzmessung angenommen werden. Die Faktorladungen sind in Tabelle 4 aufgeführt.

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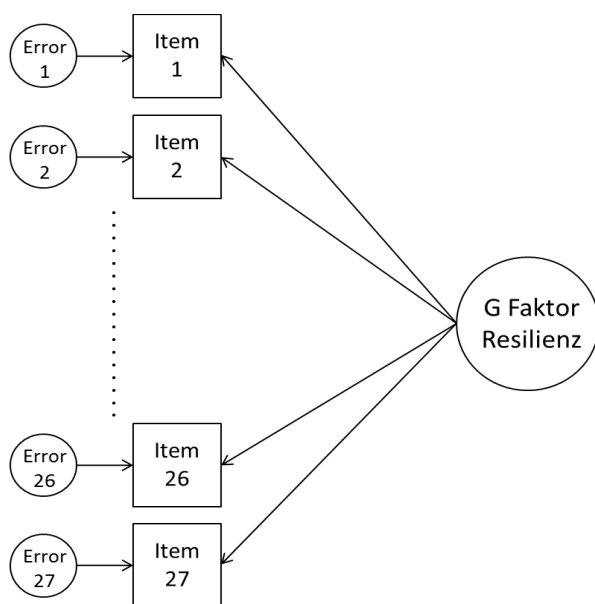
Tabelle 4. Faktorenladungen für die Resilienzskala aus PsyCap (Luthans et al., 2007)

		$\lambda$	P
PsyC 1 (r)	Wenn ich berufliche Probleme habe, kann ich diese nur schwer überwinden.	0,402	***
PsyC 2	Irgendwie finde ich immer eine Lösung, wenn berufliche Probleme auftreten.	0,773	***
PsyC 3	Ich kann, wenn es sein muss, auch auf mich alleine gestellt gute Arbeit leisten.	0,723	***
PsyC 4	Normalerweise bewältige ich stressvolle Dinge im Job spielend.	1,000	
PsyC 5	Ich kann im Job schwierige Zeiten durchstehen, da ich solche auch schon vorher gemeistert habe.	0,960	***
PsyC 6	Ich denke, dass ich in meinem aktuellen Job viele Dinge gleichzeitig bewältigen kann.	0,887	***

\*\*\*  $p < 0,01$

Im nächsten Schritt wurde ein Modell entwickelt, in dem jedes Item direkt auf einen G-Faktor Resilienz lädt. Das Modell ist schematisch in Abbildung 1 dargestellt.

Abbildung 1. Items laden auf G-Faktor Resilienz



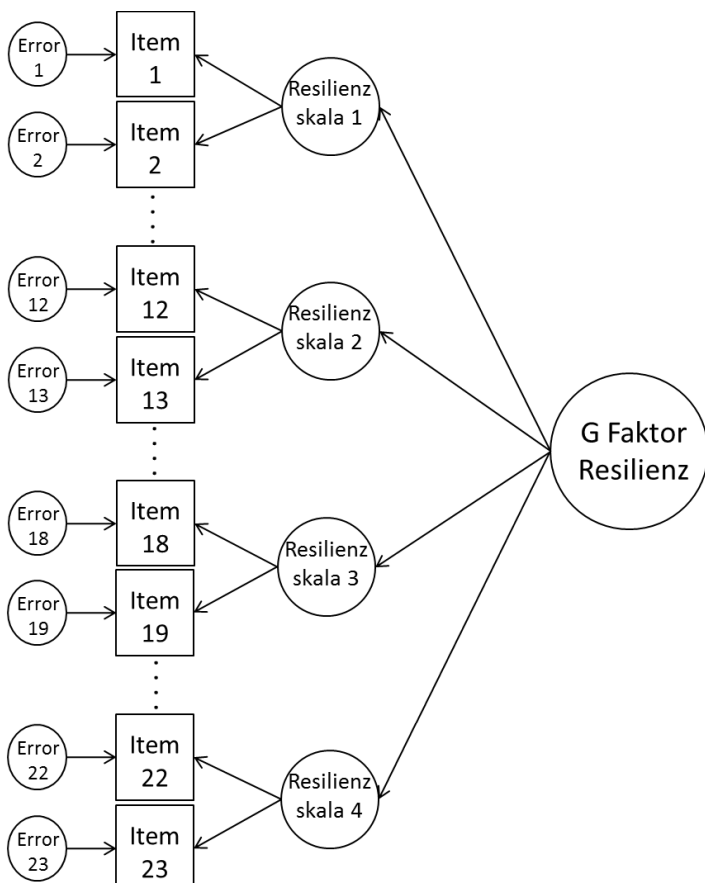
Die Modellfitmaße für dieses Modell sind nicht zufriedenstellend, mit RMSEA = 0,09, TLI = 0,58 und CFI = 0,64. Daher werden die einzelnen Faktorladungen hier nicht weiter dargestellt.



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Im letzten Schritt wurde ein Modell überprüft, in dem jedes Item zunächst auf seine jeweilige Skala, bzw. im Fall der RS-11 auf den vorher bestimmten Faktor lädt, und die jeweiligen Skalenfaktoren wiederum auf einen G-Faktor Resilienz laden. Das Modell ist schematisch in Abbildung 2 dargestellt.

Abbildung 2. Itemladung auf Skalenfaktoren



Die Modellfitmaße für dieses Modell sind teilweise zufriedenstellend, mit RMSEA = 0,07, TLI = 0,79 und CFI = 0,82. Die jeweiligen Skalen laden unterschiedlich stark auf den G-Faktor Resilienz, wonach der Faktor „Positives Selbstkonzept“ aus der RS-11 die höchste Ladung aufweist ( $\lambda = 0,74$ ), gefolgt vom Faktor „Neugier und Offenheit“ aus der RS-11 ( $\lambda = 0,52$ ), sowie der BRS ( $\lambda = 0,46$ ), der Resilienzskala aus PsyCap ( $\lambda = 0,42$ ), und der BRCS ( $\lambda = 0,36$ ). Zusammenfassend kann daher davon ausgegangen werden, dass die RS-11 das Resilienzkonzept, hier dargestellt durch den G-Faktor Resilienz, am besten darstellt. Dabei ist der Faktor „Positives Selbstkonzept“ mit der höchsten Faktorladung dem Faktor „Neugier und Offenheit“ überlegen.

Abschließend wurde die Konstruktvalidität der einzelnen Skalen mit Hilfe von Korrelationen bestimmt. Dazu wurden die Konstrukte, die nach dem nomologischen Netz mit Resilienz verwandt sind betrachtet. Im Einzelnen geht es um Selbstwirksamkeit, Selbstwertgefühl, Kontrollüberzeugung, Emotionale Stabilität und Positive Affektivität. Als sich unterscheidendes

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Konstrukt wurde Negative Affektivität herangezogen. Die jeweiligen Korrelationen der Konstrukte mit den einzelnen Skalen sind in Tabelle 5 aufgeführt.

Tabelle 5. Korrelationen

	RS-11		BRS (Sinclair & Wallston)	BRCs (Smith et al.)	Resilienz PsyCap
	Positives Selbstbild	Neugier und Offenheit			
Selbstwirksamkeit	0,627**	0,396**	0,418**	0,558**	0,528**
Selbstwertgefühl	0,448**	0,295**	0,406**	0,432**	0,344**
Kontrollüberzeugung	0,589**	0,282**	0,454**	0,329**	0,404**
Emotionale Stabilität	0,482**	0,171	0,608**	0,420**	0,284**
Positive Affektivität	0,426**	0,398**	0,456**	0,132	0,251*
Negative Affektivität	-0,393**	-0,346**	-0,454**	-0,257*	-0,309**
Arbeitsleistung	0,536**	0,493**	0,363**	0,322**	0,547**
OCB	0,537**	0,530**	0,432**	0,446**	0,504**
Eigeninitiative	0,417**	0,427**	0,376**	0,373**	0,538**
Unterstützung FK	0,308**	0,279**	0,239**	0,159*	0,206**
Arbeitsplatz	-0,217**	-0,211**	-0,177**	-0,108	-0,125
RS-11 – Positives Selbstbild		0,673**	0,483**	0,251**	0,377**
RS-11 – Neugier, Offenheit			0,298**	0,427**	0,266**
BRS				0,362**	0,543**
BRCs					0,379**

\*\* p<0,01; \* p<0,05

Insgesamt zeigt sich, dass die Skalen unterschiedlich stark mit den jeweiligen Konstrukten korrelieren. So findet sich bei Selbstwirksamkeit und Kontrollüberzeugung die stärkste Korrelation mit dem ersten Faktor (positives Selbstbild) der RS-11, bei Emotionaler Stabilität und Positiver Affektivität die stärkste Korrelation mit der BRCs von Smith et al. (2008). Negative Affektivität weist ebenfalls die stärkste negative Korrelation mit der BRCs auf. Lediglich das Selbstwertgefühl weist ähnlich starke Korrelationen mit dem ersten Faktor der RS-11 von Schumacher und der BRS von Sinclair und Wallston auf. Zusammengefasst weisen die Ergebnisse darauf hin, dass jede Skala einen unterschiedlichen Aspekt von Resilienz betrachtet und unterschiedliche Schwerpunkte gesetzt werden. Dies bestätigen auch die Ergebnisse aus der Analyse der Skalenfaktoren, die auf einen gemeinsamen G-Faktor Resilienz laden.

Zur Bestimmung der diskriminanten Validität wurden die 4 Resilienzskalen mit den Faktoren „Wahrgenommene Unterstützung durch die Führungskraft“ und „Bewertung des Arbeitsplatzes“ korreliert. Die Korrelationen sind erwartungsgemäß niedrig, wobei sie für den

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Faktor der wahrgenommenen Unterstützung durch die Führungskraft leicht höher (0,16 bis 0,31) liegen.

Um die Kriteriumsvalidität zu bestimmen, wurde mittels konkurrierender Validierung der Zusammenhang zwischen den einzelnen Skalen und Angaben zur Arbeitsleistung, Eigeninitiative und Organizational Citizenship Behavior betrachtet. Die Ergebnisse sind ebenfalls in Tabelle 5 zu finden. Demnach weisen die beiden Faktoren der RS-11 von Schumacher et al. (2005) und die Resilienzskala aus PsyCap die höchste Kriteriumsvalidität mit den arbeitsbezogenen Ergebnissen auf, gefolgt von der BRS.

### **Diskussion Studie 1**

Die Analyse der Skalen auf deren Faktorenstruktur konnte zeigen, dass nur für drei der vier untersuchten Resilienzskalen die einfaktorielle Messung von Resilienz bestätigt werden kann. Die besten Modellfitmaße zeigt dabei die Brief Resilience Scale von Smith et al. (2008), gefolgt von der Resilienzskala aus PsyCap von Luthans et al. (2007). Für die Brief Resilient Coping Scale lassen die eher schlechten Fitindizes beim einfaktoriellen Messmodell eine mehrfaktorielle Lösung vermuten. Nach Durchführung einer explorativen Faktorenanalyse ergibt sich jedoch, dass sich die Items lediglich aufgrund ihrer positiven und negativen Formulierung aufteilen. Auch eine inhaltliche Betrachtung der Items ergibt, dass sich alle Items, egal ob positiv oder negativ formuliert, mit dem Coping-Aspekt von Resilienz beschäftigen und inhaltlich auf Stressbewältigung abzielen. Daher wird trotz der methodisch implizierten zweifaktoriellen Lösung für die BRCS eine einfaktorielle Interpretation empfohlen.

Bei der RS-11 von Schumacher et al. (2005) jedoch kann die einfaktorielle Struktur aufgrund der schlechten Modellfitmaße in der konfirmatorischen Faktorenanalyse nicht bestätigt werden. Vielmehr muss aufgrund von explorativen und konfirmatorischen Faktorenanalysen eine zweifaktorielle Struktur der Skala angenommen werden. Auch inhaltlich bestätigt sich diese Struktur und die Items teilen sich auf die Faktoren „Positives Selbstkonzept“ und „Neugier und Offenheit“ auf. Diese beiden Faktoren wurden bereits in unterschiedlichen Studien als Resilienzfaktoren identifiziert (Block & Kremen, 1986; Olsson, Bond, Burns, Vella-Brodrick & Sawyer 2003; Southwick, Litz, Charney & Friedman, 2011).

Im nächsten Schritt wurde überprüft, ob die Items der einzelnen Skalen zusammengefasst auf einen gemeinsamen Resilienzfaktor laden. Diese Annahme konnte nicht bestätigt werden. Stattdessen zeigten die Analysen, dass die Items zunächst auf ihren jeweiligen Skalenfaktor laden, und diese wiederum auf einen gemeinsamen Resilienzfaktor laden. Aufgrund der Ergebnisse kann davon ausgegangen werden, dass jede der hier getesteten Resilienzskalen einen leicht unterschiedlichen Aspekt von Resilienz erfasst. Da die Faktoren der RS-11 die stärkste Ladung mit dem gemeinsamen Resilienzfaktor aufweisen, kann dies als erster Indikator gesehen werden, dass

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diese Skala verglichen mit den drei anderen Skalen das beste Resilienzmessinstrument ist. Auch wenn ursprünglich eine einfaktorielle Messung von Resilienz angestrebt wurde, zeigen die Ergebnisse jedoch, dass eine mehrfaktorielle Messung bessere Ergebnisse liefert. Dies hat auch damit zu tun, dass Resilienz aus mehreren unterschiedlichen Aspekten besteht (Luthar, Cicchetti & Becker, 2000). Auch die weiteren Ergebnisse bestätigen diese Überlegung.

Die Annahme, dass jede Skala einen leicht unterschiedlichen Aspekt von Resilienz betrachtet, bestätigt sich auch bei der Bestimmung der Konstruktvalidität der einzelnen Skalen. Dazu wurde das nomologische Netz von Resilienz herangezogen und die Korrelationen mit verwandten und sich unterscheidenden Konstrukten betrachtet. Jede Skala weist unterschiedliche starke Korrelationen mit den einzelnen Konstrukten auf. Daher kann davon ausgegangen werden, dass jede Skala ihren Fokus auf einen anderen Aspekt von Resilienz legt. Beispielsweise zeigen sich für Selbstwirksamkeit, Selbstwertgefühl und Kontrollüberzeugung die stärksten Korrelationen mit dem ersten Faktor der RS-11. Gleiches gilt für Arbeitsleistung und OCB. Für Emotionale Stabilität, Positive und Negative Affektivität zeigen sich die stärksten Korrelationen mit der BRCS. Auch wenn sich die stärksten Korrelationen mit dem ersten Faktor der RS-11 zeigen, fallen besonders die relativ schwachen Korrelationen der verwandten Konstrukte mit dem zweiten Faktor der RS-11 auf. Dies impliziert für diesen Teil des Messinstruments die Messung eines anderen, sich von Resilienz unterscheidenden Konstrukts. Die Korrelation der beiden Faktoren untereinander beträgt 0,67 und zeugt somit von sich unterscheidenden Aspekten, die mit den jeweiligen Faktoren erfasst werden. Zusätzlich bestätigen auch die relativ schwachen Korrelationen der weiteren Skalen untereinander (zwischen 0,27 und 0,54), dass jede Skala einen anderen Aspekt von Resilienz beleuchtet.

Die Bestimmung der Kriteriumsvalidität zeigt, dass sich die einzelnen Skalen wiederum unterschiedlich gut zur Vorhersage von arbeitsbezogenen Ergebnissen eignen. Demnach ist die RS-11 von Schumacher et al. (2005) die bestgeeignetste Skala im arbeitsbezogenen Kontext, gefolgt von der Resilienzskala aus PsyCap.

Bei Betrachtung der Korrelation der Skalen untereinander fällt auf, dass die Korrelation der BRS mit allen anderen Skalen vergleichsweise gering ausfällt. Dies wirft die Frage auf, inwiefern sich die BRS von den anderen Skalen unterscheidet. Die vier Items der BRS lauten: „Ich suche kreative Wege, um schwierige Situationen zu ändern“, „Unabhängig davon, was mir passiert, kann ich meine Reaktion darauf kontrollieren“, „Ich glaube, ich kann in positiver Weise durch den Umgang mit schwierigen Situationen wachsen“, und „Ich suche aktiv nach Wegen, die Verluste, die ich in meinem Leben erfahren habe, zu ersetzen“. Die Items beinhalten Aspekte von Kreativität, Emotionskontrolle, Wachstum und Eigeninitiative. Der Aspekt der Kreativität ist theoretisch bei einer Resilienzskala nicht zu erwarten. Dies zeigt auch der Vergleich mit den Items

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der anderen Skalen. Bei Betrachtung der anderen Skalen, finden sich dort lediglich Emotionskontrolle und Eigeninitiative wieder, jedoch keine Kreativität oder Wachstum. Daher unterscheidet sich die Skala mit zwei von vier Items von den anderen getesteten Skalen, wodurch die vergleichsweise niedrige Korrelation mit den anderen Skalen erklärt werden kann.

Zusammenfassend ergibt sich aus der ersten Studie, dass die meisten Indikatoren für die zweifaktorielle Lösung der RS-11 von Schumacher als bestgeeignetstes Messinstrument im arbeitsbezogenen Kontext sprechen. Mit den Aspekten des positiven Selbstbilds und der Offenheit und Neugier werden zwei wesentliche Resilienzfaktoren erfasst, die im arbeitsbezogenen Umfeld eine wichtige Rolle einnehmen (Olsson et al., 2003; Southwick et al., 2011). Demnach dient ein positives Selbstbild als motivationaler Faktor und steht im Zusammenhang mit einer hohen Arbeitsleistung (Judge, Erez & Bono, 1998). Darüber hinaus bieten Neugier und Offenheit die Möglichkeit zur individuellen und beruflichen Weiterentwicklung (z.B. Kashdan, Rose & Finsham, 2004; Ronnestad & Skovholt, 2003). Diese beiden Faktoren wurden als Resilienzfaktoren bereits bei der Entwicklung von Kindern identifiziert (Fayombo, 2010), und die oben genannten Forschungsergebnisse zeigen deren Relevanz im beruflichen Kontext.

Die Ergebnisse der ersten Studie sprechen daher gegen eine einfaktorielle Messung von Resilienz und befürworten eher die Erfassung mehrere Resilienzfaktoren. In Studie zwei soll nun die Retest Reliabilität der vier Resilienzskalen betrachtet werden und somit die Stabilität der einzelnen Messinstrumente bestimmt werden.

## Studie 2

Um die Test-Retest Reliabilität der einzelnen Resilienzskalen zu bestimmen, wurden in einer Unterstichprobe aus Studie 1 die Skalen im Abstand von 4 Monaten zweimal erhoben.

### Methoden

#### Stichprobe

Die Unterstichprobe besteht aus 124 Arbeitnehmern mit einem Durchschnittsalter von 38 Jahren und einem Frauenanteil von 53,7 %. Der Ausbildungsstand ist mit 15,4% akademischen Abschlüssen etwas niedriger als in der Stichprobe aus der ersten Studie.

#### Statistische Verfahren

Die Test-Retest Reliabilität wurde anhand von Korrelationen der einzelnen Skalen zwischen den Messzeitpunkten in SPSS 22 bestimmt. Da von einer positiven Korrelation ausgegangen wird, erfolgt die Berechnung mit einer einseitigen Testung der Korrelation.

### Ergebnisse

Die Korrelationen der einzelnen Skalen zum ersten Messzeitpunkt (T1) und zum zweiten Messzeitpunkt (T2) sind in Tabelle 6 aufgeführt.

Tabelle 6. Retest Reliabilitäten

	RS-11, Positives Selbstkonzept T1	RS-11, Neugier und Offenheit T1	BRS (Smith et al.) T1	BRCs (Sinclair & Wallston) T1	Resilienz PsyCap T1
T2	0,660**	0,545**	0,687**	0,622**	0,659**

\*\* p < 0,01; \*p < 0,05

Die BRCs von Sinclair und Wallston zeigt die höchste Retest-Reliabilität. Jedoch unterscheiden sich die Werte der drei weiteren Skalen nur minimal, so dass bei allen Instrumenten von einer akzeptablen Stabilität ausgegangen werden kann.

### Diskussion Studie 2

Die Ergebnisse der Retest Reliabilitäten bieten zufriedenstellende Werte für alle vier Messinstrumente, mit den besten Werten für die BRS. Die Retest Reliabilitäten aller Skalen mit Werten zwischen 0,55 und 0,69 sind nicht herausragend, aber aufgrund der Annahme, dass Resilienz zwar über die Zeit hinweg stabil aber durchaus abhängig von aktuellen Situationen ist, akzeptabel. Bei Betrachtung des positiven und negativen Affekts in der Stichprobe zu den beiden Zeitpunkten T1 und T2 lässt sich erkennen, dass sich die Stimmung insgesamt verschlechtert hat. Die Mittelwerte für positiven Affekt zu T1 liegen bei M=3,27, für T2 bei M=2,59. Das gleiche gilt für negativen Affekt mit einem Mittelwert von M=2,40 zu T1 und M=3,74 zu T2. Diese Verschlechterung der allgemeinen Stimmung geht vermutlich einher mit der individuell wahrgenommenen Resilienz.

### Gesamtdiskussion

Ziel der vorliegenden Studien war es, Messinstrumente von Resilienz systematisch miteinander zu vergleichen und das Messinstrument mit den besten Kennwerten im arbeitsbezogenen Kontext zu bestimmen. Zunächst wird in der Vergleichsstudie ein Licht auf die Unterschiede geworfen, die die vier geprüften Messinstrumente von Resilienz mit sich bringen. Beginnend bei der Betrachtung der Dimensionen der einzelnen Skalen zeigt sich, dass die angenommene Eindimensionalität sich nur für drei der vier Skalen bestätigen lässt, nicht jedoch für die RS-11. Bei näherer Betrachtung der Items lässt sich jedoch für alle Skalen feststellen, dass die einzelnen Items auf unterschiedliche Aspekte von Resilienz abzielen und daher die Frage im

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Raum steht, ob eine eindimensionale Messung tatsächlich die richtige Wahl bei der Erfassung von Resilienz ist. Diese Annahme wird auch von den Korrelationsergebnissen mit dem nomologischen Netzwerk bestätigt. So scheint jede der hier getesteten Resilienzskalen den Fokus auf einen anderen Aspekt der Resilienz zu legen und es konnten unterschiedlich starke Korrelationen mit den Konzepten des nomologischen Netzes gezeigt werden. Diese Ergebnisse unterstützen die bisherige Forschungsrichtung hinsichtlich einer Vielzahl von Resilienzfaktoren, die zu einer Entwicklung und Stärkung von Resilienz beitragen. Hierzu zählen unter anderem eine positive Selbstwahrnehmung, Selbstwirksamkeitsüberzeugung, soziale Kompetenzen, angemessener Umgang mit Stress und Problemlösekompetenzen (Fröhlich-Gildhoff et al., 2007). Basierend auf unseren Ergebnissen können wir daher sagen, dass Resilienz anders als zu Beginn erwartet, nicht als eindimensionales für sich stehendes Konstrukt betrachtet werden sollte, sondern eine Vielzahl von Resilienzfaktoren zusammen das übergeordnete Resilienzkonstrukt bilden. Aus diesem Grund sollten in zukünftigen Studien auch mehrdimensionale Instrumente zur Erfassung von Resilienz berücksichtigt werden.

Ebenfalls führen theoretische Überlegungen dazu, Resilienz als Zusammenspiel von Ressourcen und Kontextfaktoren zu betrachten (Sutcliff & Vogues, 2003), und das Konstrukt daher als mehrdimensional zu betrachten. Ähnlich wie das Modell der Persönlichen Stärken, das aus einer Reihe unterschiedlicher Faktoren zusammengestellt ist (Peterson & Seligman, 2004), kann also auch Resilienz als Sammlung positiver Eigenschaften betrachtet werden, die jede für sich das übergeordnete Konstrukt der individuellen Resilienz stärkt. Anstelle einer allgemeinen Empfehlung für ein bestes Messinstrument möchten wir daher basierend auf unseren Ergebnissen dazu aufrufen, vor Einsatz eines Resilienz-Messinstruments genau zu definieren, welchen Aspekt von Resilienz man betrachten möchte. Für den Einsatz im arbeitsbezogenen Kontext konnten unsere Ergebnisse jedoch zeigen, dass die RS-11 von Schumacher die zuverlässigsten Ergebnisse liefert.

Als Limitation der vorliegenden Studie ist anzusprechen, dass bei der Betrachtung des nomologischen Netzes nicht alle bekannten und verwandten Konstrukte von Resilienz getestet wurden. So wird beispielsweise das Konzept „Hardiness“ in der Literatur als wichtiger verwandter Faktor von Resilienz genannt. Hardiness beschreibt einen Persönlichkeitsfaktor, der Menschen trotz großer Belastungen und kritischer Lebensereignisse vor Krankheit schützt. Dabei steht der individuelle Umgang mit Stressoren im Vordergrund (Kobasa, 1979). Im Kontext von Resilienz wird von einem starken Zusammenhang mit Hardiness ausgegangen.

Auch das Optimismus-Konzept wurde in dieser Studie nicht berücksichtigt. Optimismus bezeichnet allgemein eine heitere, zuversichtliche und lebensbejahende Grundhaltung sowie eine zuversichtliche, durch positive Erwartung bestimmte Haltung. Optimisten sind zudem von einer

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positiven Zukunftserwartung geprägt (Scheier & Carver, 1985, 1992). Um eine umfassendere Betrachtung des Resilienzkonzepts zu erfüllen, sollten diese Faktoren in weiteren Studien berücksichtigt werden.

Eine weitere Limitation ist die relativ begrenzte Auswahl der Resilienzskalen, die hier betrachtet wurden. Es existieren zurzeit über 25 Messinstrumente zur Erfassung von Resilienz (Ahern et al., 2006; Windle et al., 2011). Da hier die Resilienzmessung im Arbeitskontext im Fokus stand, konnten eine Reihe von Messinstrumenten, z.B. mit Fokus auf Kinder und Jugendliche, ausgeschlossen werden. Aktuell wurden jedoch weitere arbeitsbezogene Resilienzskalen entwickelt (z.B. Workplace Resilience Inventory von McLarnon und Rothstein, 2013), die hier zunächst keine Berücksichtigung fanden. In weiteren Validierungsstudien sollten diese Skalen ebenfalls mit betrachtet werden.

Abschließend konnte in den vorliegenden Vergleichsstudien gezeigt werden, dass verschiedene Messinstrumente für Resilienz verschiedene Aspekte von Resilienz erfassen. Für den Einsatz im arbeitsbezogenen Kontext stellte sich die RS-11 als gut geeignet dar. Dennoch sind auch die anderen hier untersuchten Skalen für den Einsatz zur Erfassung von Resilienz geeignet. Dem jeweiligen Einsatz sollten jedoch theoretische Überlegungen vorangehen, die benennen können, welcher Aspekt von Resilienz verstärkt betrachtet werden soll. So eignet sich beispielsweise die RS-11 für die Erfassung der Resilienzfaktoren „Positives Selbstkonzept, Energie“ sowie „Neugier, Offenheit“, die BRCS hingegen für die Resilienzfaktoren Coping und emotionale Stabilität. Für die BRS kann auf Basis der Iteminhalte davon ausgegangen werden, dass kreative Problemlösung und emotionale Kontrolle erfasst werden. Dies muss jedoch in weiteren Studien näher beleuchtet werden. Die Resilienzskala aus PsyCap zeigt den größten Zusammenhang mit der BRCS. Auch eine inhaltliche Betrachtung der Items spricht für die Erfassung von copingbezogenen Aspekten der Resilienz. Obwohl die Korrelationen mit den arbeitsbezogenen Ergebnissen ähnlich hoch bzw. sogar höher sind, als bei der RS-11, muss hier Vorsicht walten. Da die Items alle arbeitsbezogen formuliert sind, kann bei den vorliegenden Stichproben von einer Methodenverzerrung ausgegangen werden. Dies wird besonders bei den hohen Zusammenhängen mit Arbeitsleistung und Eigeninitiative deutlich. In weiteren Studien sollte daher zur Verhinderung von Methodenverzerrungen zumindest ein zeitlicher Abstand zwischen der Erfassung des Resilienzkonstrukts und der Erfassung der abhängigen Variablen eingehalten werden.

Insgesamt kann daher aufgrund der Ergebnisse gesagt werden, dass eine umfassende Erfassung von Resilienz mit den hier untersuchten vier Instrumenten nicht unbedingt möglich ist. Vielmehr können je nach Instrument, das zum Einsatz kommt, eine Anzahl von Resilienzaspekten



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beleuchtet werden. Diese Resilienz Aspekte lassen zumindest einen Rückschluss auf das Level an Resilienz zu, das ein Individuum kennzeichnet.

Insgesamt unterstützen unsere Forschungsergebnisse die Annahme, dass Resilienz ein multidimensionales Konstrukt ist (z.B., Cicchetti & Garmezy, 1993; Garmezy, 1993; Luthar, Doernberger & Zigler, 1993). Dabei wird explizit davon ausgegangen, dass Resilienz das Ergebnis eines Zusammenspiels mehrerer Faktoren ist. Zu diesen Faktoren zählen beispielsweise Sozialkompetenz, Problemlösefähigkeiten, Autonomie und Zukunftsorientierung (z.B., Garmezy, 1992; Benard, 1995). Aus diesem Grund sollten in weiteren Validierungsstudien zu Resilienz im Arbeitskontext auch mehrdimensionale Erfassungsinstrumente berücksichtigt werden, die sich unter anderem auf die oben genannten Faktoren beziehen.

## **Study 2:**

**The relation of resilience and CSE with work-related behaviors: Investigating appraisal and affect as underlying mechanisms in a daily diary study**

**Abstract**

Resilience is an emerging topic of research in organizational psychology. In order to define differences and similarities with the close construct of core self-evaluations (CSE), and to get insight into the mechanisms resilience and CSE are based on, the influence of resilience and CSE on task performance and personal initiative is examined. We proposed a mediation model integrating broaden-and-build theory of positive emotions and appraisal theory. Results from a daily diary study (N = 74) revealed that the influence of resilience on performance measures relied partly on the proposed mechanisms, while CSE did not. In face of problems at work, resilience is negatively related to threat appraisal. For CSE, neither challenge nor threat appraisal showed significant relations. Different from expectations, challenge appraisal showed no significant effect on positive affect. For threat appraisal, the results supported the expected pattern with weaker positive and more negative affect. Based on these results, we emphasize the theoretical differences between resilience and CSE with appraisal theory being only applicable for resilience but not for CSE.

**The relation of resilience and CSE with work-related behaviors: Investigating appraisal and affect as underlying mechanisms in a daily diary study**

Work life has undergone major changes in recent years, leading to increasingly challenging and complex jobs. When it comes to finding the right employees that are successful in these kinds of jobs, the organizational consultant Joanie Connell points out: “No matter how you define success, you will need to be resilient, empowered, authentic, and limber to get there.” The question is: What are the differences for resilient people that allow them to better deal with difficult and challenging situations than others.

Dealing with difficult situations at work in a positive way has a lot to do with how these situations are appraised. While some employees rate them as threatening, others perceive them as challenging. The way in which situations are appraised however, depends on personal resources (Holahan & Moos, 1987). These resources have been described as positive self-evaluations and an individuals’ sense of the ability to control and impact the environment, especially in problematic situations (Hobfoll, Johnson, Ennis & Jackson, 2003).

Resilience can be seen as one personal resource, equipping employees with the ability to deal with difficult work situations. It is related to fewer strain reactions and higher levels of positive emotions (Ong, Bergeman, Bisconti & Wallace, 2006). However, there is some criticism about resilience, mainly about its similarities to other well established constructs. One of these constructs are Core Self-Evaluations (CSE), which have also been shown to influence the number of perceived stressors thereby leading to situations evaluated as less challenging (Kammeyer-Mueller, Judge & Scott, 2009). Moreover, the buffering effects of CSE on job demands have been related to lower strain reactions (e.g., Harris, Harvey & Kacmar, 2009; Judge, Erez, Bono & Thoresen, 2002). Recently the moderating effect of CSE on the relationship between job demands and strain reactions has even been named “resilience” (van Doorn & Hülshager, 2015), demonstrating the closeness of the two constructs. However, due to different theoretical backgrounds, we doubt that using the same name for two different constructs is appropriate. While resilience is based on the broaden-and-build theory with a strong focus on positive emotions and the building of personal resources (Fredrickson, 2001), CSE has its theoretical basis in the approach/avoidance model dealing with the treatment of positive and negative information in challenging situations (Elliot & Trash, 2002). As such, previous research has not taken these theoretical differences into account (e.g., Di Fabio & Saklofske, 2014; van Doorn & Hülshager, 2015). However, we consider these differences to be important for finding out the underlying mechanisms of both constructs and how those mechanisms might differ. Therefore, the purpose of the present study is to point out the differences and similarities between resilience and CSE by taking the theoretical differences into closer consideration and emphasizing the underlying

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mechanisms. By this, we answer the call for research asking for more detailed investigation of the mechanisms of CSE and resilience (Chang, Ferris, Johnson, Rosen & Tan, 2012; Rutter, 1987; Tugade & Fredrickson, 2007). We want to answer these calls by taking appraisal processes and affect into account. In our research study, we want to investigate if the appraisal process and the resulting affect can take the role of underlying mechanisms for both resilience and CSE. In order to represent the time sensitive nature of difficult work situations and resulting reactions, we apply a daily diary design.

### ***Resilience***

Resilience is the “the positive psychological capacity to rebound, to ‘bounce back’ from adversity, uncertainty, conflict, failure or even positive change, progress and increased responsibility” (Luthans, 2002, p.702), and has been identified as one factor of positive psychology. It is supposed to lead to positive work related outcomes (Luthans, Avolio, Avey, & Norman, 2007). Originally, resilience has been a construct mostly researched in developmental psychology. Through the positive psychology movement (Seligman & Csikszentmihalyi, 2000), it has found its way to the field of work and organizational psychology. Research has shown positive relations between resilience and task performance (Luthans, Avey, Avolio & Peterson, 2010), work satisfaction (Avey, Luthans, Smith, & Palmer, 2010), flexibility and positive work behavior (Avey, Wernsing, & Luthans, 2008). As stated above, the effect of resilience can be explained by the broaden-and-build theory (Fredrickson, 2001). This theory states that positive emotions lead to broader action repertoires, which then again lead to the building of new resources. The mechanisms can be explained by personal control. Control has been identified as a resilience factor (e.g., Gillespie, Chaboyer, Wallis & Grimbeek, 2007). According to the control-process view by Carver and Scheier (1990), control diminishes the distance to personal goals. A feedback loop then senses and regulates the functionality of this control process, which then again influences affective outcomes. One can say by applying control people are likely reach their goals and experience positive affect. The control-process view was applied to the resilience context by previous research. More specifically, it was shown that perceived daily control as a factor of resilience is directly related to daily positive affect (Diehl & Hay, 2010). Thus, based on the control-process view and on previous research it can be concluded that resilience is associated with higher levels of positive affect (Philippe, Lecours & Beaulieu-Pelletier, 2009). In turn, positive affect can lead to increasing levels of self-efficacy, task persistence and helping behavior (Tsai, Chen & Liu, 2007). These broadened action repertoires than lead to better task performance in the face of difficult situations at work (Erez & Isen, 2002).

***Core Self-Evaluations***

Core self-evaluations are peoples' fundamental evaluations about their self-worthiness and their abilities (Judge, Locke, & Durham, 1997). This evaluation is used to assess and judge situations. CSE consists of four factors: self-esteem, self-efficacy, locus of control and emotional stability. Self-esteem is the evaluation of the self as valuable (Rosenberg, 1965), self-efficacy is the assessment of the own performance and adaptation ability (Chen, Gully, & Eden, 2001), locus of control deals with the evaluation of events as deriving from one's own actions (Rotter, 1966), and emotional stability is the ability to feel calm and secure (Pervin, 1990). All of these constructs load on a higher order factor, which offers a shared explanation of variance above and beyond the single constructs (Judge, Erez, & Bono, 1998). CSE can be based on the approach/avoidance model (Elliot & Thrash, 2002). By using this model to explain CSE, people with higher levels of CSE tend to perceive more positive information in difficult situations than others. By using this positive information, people tend to be more satisfied with their work and are willing to show higher levels of performance. Research has supported this notion. For instance, a higher level of CSE has shown positive relations with task performance and work satisfaction (Judge & Bono, 2001), as well as work engagement (Chang et al., 2012).

When looking at the similarities of resilience and CSE, most importantly, both concepts have been used to explain buffering effects between perceived stressors and strain reactions (van Doorn & Hülshager, 2015; Kammeyer-Mueller, Judge & Scott, 2009; Ong et al., 2006). This might be due to the fact, that both concepts apply a notion of control. While locus of control is a composite of CSE, resilience is also known to include a feeling of personal control (Diehl & Hay, 2010). Feelings of internal control, defined as being able to control a large number of factors in ones live, has been associated with fewer negative feelings (Hahn, 2000) and lower reactivity to stressors (Hahn, 2000; Ong, Bergemann & Bisconti, 2005). When it comes to job-related stressors, the extent to which the stressors are controllable by the person experiencing them has a strong influence on the resulting strain reaction (Kahn & Byosiere, 1992). Moreover, control in ones' job, also named autonomy, fosters higher levels of performance (Bakker, Demerouti & Verbeke, 2004). Therefore, feelings of control are a similarity that resilience and CSE both share, potentially underlining the commonalities of the two constructs.

Secondly, both concepts are multidimensional. While CSE is named a higher-order factor, consisting of self-esteem, self-efficacy, locus of control, and emotional stability (Judge, Locke, & Durham, 1997), previous research has also demonstrated the multidimensional nature of resilience (Block & Block, 1980). To just name a few of those factors contributing to resilience, there are for instance a high level of energy, optimism, curiosity, self-efficacy, and a stable social

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environment (Block & Block, 1980; Reivich & Shatte, 2002) Therefore, comparable to CSE, there are a number of facets that all contribute to resilience.

Finally, both resilience and CSE lead to the same positive work related outcomes. Research has shown positive relationships of resilience and task performance (Luthans et al., 2010) as well as CSE and task performance (Chang et al., 2012). On one side, this relation might be due to the similarities pointed out above with (a) fewer strain reactions and (b) notions of control in stressful situations. On the other side, the relation of resilience and CSE and positive work related outcomes might be explained by other underlying mechanisms. When taking a closer look at these mechanisms, the differences of the two concepts become prominent.

Although both resilience and CSE are concepts dealing with people that are equipped with the abilities to function well at work, even if situations are getting difficult, the two concepts differ in a number of points. First of all, both concepts deal with emotions and affect in different ways. While CSE includes emotional stability, resilience is related to emotional control. One could say, that people high on CSE focus on the outcome of being emotional stable, people high on resilience focus on the process of regulating their emotions – either positive or negative. Therefore, being able to reduce negative effects of problematic situations for people high on CSE is easier because their emotions show fewer alternations. Moreover, emotional stability is characterized by the ability to quickly overcome negative emotions and experience more positive than negative emotions (Hay & Ashman, 2003). If a person has high levels of positive emotions, it is less likely that these emotions will drop substantially to a negative level. On the other hand, people high on resilience are better able to regulate their emotions. Other than people high on CSE, who show less reactivity to everyday occurrences (Johnson, Rosen & Levy, 2008), resilient people experience the full range of emotions (Cohn, Fredrickson, Brown, Mikels, & Conway, 2009). Although resilient individuals may experience short-term dysregulation in their emotional and physical well-being (Carver, 1998; Ong, Bisconti, Bergman, & Wallace, 2006), their reactions to a potential traumatic event tend to be relatively brief and usually do not affect their functioning to a significant degree (Westphal & Bonanno, 2007). In situations when negative emotions are experienced, these individuals are able to apply the appropriate strategies to down-regulate unpleasant feelings and therefore maintain a normal level of functioning (Tugade & Fredrickson, 2004). Moreover, the ability to experience positive as well as negative emotions seems to be independent of a current situation. That is, even in highly stressful events, resilient individuals have the capacity to experience positive emotions (Coifman, Bonanno & Rafaeli, 2007).

However, emotional control and emotional regulation are only partly explaining the way through which resilience and CSE affect work-related behaviors. One step before experiencing

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emotions, appraisal comes into play. Appraisal theory states that situations are assessed in two steps (Lazarus & Folkman, 1984). First, in the so-called primary appraisal, a situation is evaluated as being challenging or threatening. Secondly, the individual decides if he or she holds the abilities to deal with the situation. According to Folkman et al. (1986), appraisal mechanisms enable individuals to deal with problems in a positive way. On a theoretical basis, primary appraisal is assumed to play an important role for both resilience's (Mancini & Bonanno, 2006) and CSE's effects on outcomes (Chang et al., 2012). However, the way in which primary appraisal plays a role in resilience and CSE differs slightly. These differences are pointed out next.

For resilience, during primary appraisal, problems should be appraised as less threatening. Thus, the impact of difficult situations can be mitigated (Mancini & Bonanno, 2006). It is important to note that a situation does not necessarily need to be appraised as challenging in order to receive a positive note. Rather, according to broaden-and-build theory, already the absence of threat leads to positive emotions (Garland, Gaylord & Park, 2009) and, in turn, to the broadening of one's action repertoires. This mechanism leads individuals to be successful in difficult situations. However, for CSE previous research showed slightly different mechanisms. Each component of CSE could be linked to higher levels of challenge appraisal (Deary et al., 1996; Lazarus & Folkman, 1984; Lee-Flynn et al., 2011). Thus, we expect the same to be true for the higher-order factor. As stated by the approach/avoidance model (Elliot & Trash, 2002), people high on CSE tend to approach positive information in stressful situations. Therefore, positive information gathered in a specific situation can lead to that situation being evaluated as challenging rather than threatening. To sum it up, we expect resilient individuals to show lower patterns of threat appraisal but no specific increase in challenge appraisal, while on the other hand individuals high on CSE show high patterns of challenge appraisal.

In order to take similarities and differences of resilience and CSE into consideration, we will first look at work-related outcomes. First of all, we will investigate the relationship of CSE and task performance, which has also been studied in previous research (e.g., Erez & Judge, 2001; Judge & Bono, 2001). According to Judge, Erez and Bono (1998), people high on CSE are more motivated to perform their jobs, resulting in higher levels of task performance. Moreover, we want to integrate another stream of research dealing with behaviors beneficial in times of change: proactivity or, more specifically, personal initiative. The model of proactive motivation processes and antecedents (Parker, Bindl & Strauss, 2010) describes individual differences and contextual variables that influence proactive motivational states and goal processes. Personal initiative can be seen as one form of proactive work performance. It includes behaviors that are active and self-starting (Frese, Fay, Hilburger, Leng, & Tag, 1997) and is related to positive affect (Fritz & Sonnentag, 2007). In the context of flexible work environments, it gives employees the ability to



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proactively deal with difficult and varying situations at work (Frese & Fay, 2001). Personal initiative is positively related to task performance, since employees that show initiative are characterized by a more proactive approach to work (Hacker, 1992; Klemp & McClelland, 1986). Because of this positive relationship with task performance, it is expected that both CSE and resilience also show positive relations with personal initiative. We expect CSE and resilience to indirectly affect these outcomes through cognitive appraisals that people make about situations. Here, both the approach/avoidance framework and the broaden-and-build theory can serve as theoretical basis for this relation. Thus, people high on CSE are more sensitive to positive (approach) than negative (avoidance) information, leading to a stronger focus on positive information when evaluating situations, which results in adopting strategies towards approaching positive outcomes. According to broaden-and-build theory, people high on resilience have the capacity to adopt appropriate strategies depending on the appraisal of a certain situation. The possibility of adopting different strategies in turn results in more positive outcomes. Based on these assumptions, the first hypotheses are:

*Hypothesis 1: Higher levels of resilience lead to better task performance and higher levels of personal initiative.*

*Hypothesis 2: Higher levels of CSE will lead to higher levels of task performance and personal initiative.*

Next, we address the underlying mechanisms of resilience and CSE by taking appraisal theory into account. Appraisal mechanisms are supposed to enhance the ability to deal with stressful situations in a positive way (Folkman et al., 1986). During primary appraisal, when a situation is either evaluated as challenging or threatening, emotions play an important role. When appraising a stressful situation as challenging rather than threatening, as a result a higher level of positive affect can be expected. This signals the possibility of mastery or gain and is characterized by positively toned emotions such as eagerness, excitement, and confidence (Folkman & Moskowitz, 2000). Positive affect is also discussed in relation to the appraisal of the resolution of a stressful encounter as favorable or successful, leading to emotions such as happiness and pride (Folkman & Lazarus, 1985). In turn, these positive emotional experiences can provide people with the ability to bounce back and continue with work and life (Folkman & Moskowitz, 2000). The importance of positive affect for resilience is further described by the broaden-and-build theory (Fredrickson, 1998, 2001). Positive affect can momentarily broaden people's way of thinking and allow for flexible attention. This may lead to enhanced well-being and the experience of more positive emotions. Over time, and with repeated experiences of positive emotions, this broadened mindset might become habitual. By consequence, recurrent experiences of positive

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emotions can increase one's personal resources, including coping resources. The personal resources produced by positive emotions are saved and can be triggered in times of need (Fredrickson, 2000).

As stated in appraisal theory, evaluating a difficult situation as challenging can lead to positive affect in the face of obstacles. Seeing a problem as challenging means being confident about one's own abilities to accept and master the challenge. On the other hand, feeling threatened by a problem leads to more negative feelings. Experiencing threat also means to be unable to regulate a problem with one's own abilities. Moreover, according to previous research, challenge appraisal can have positive consequences. For example, job stressors can have a positive influence on work related outcomes when they are appraised as challenge (Ohly & Fritz, 2010).

In turn, experiencing more positive emotions at work has a positive influence on work related outcomes such as performance (Staw & Barsade, 1993) and personal initiative (Hartog & Belschak, 2007). This is again explained with the broaden-and-build theory of positive emotions. Therefore, we hypothesize a model which integrates the appraisal process and affect in order to explain the relationship between resilience and positive work-related outcomes (task performance and personal initiative). As stated earlier, people high on resilience tend to appraise problems as less threatening and not necessarily as challenging. Therefore, we expect people high on resilience to show significantly lower levels of threat appraisal.

*Hypothesis 3: The effect of resilience on task performance and personal initiative will be mediated by appraisal processes (the absence of threat appraisal) and resulting lower levels of negative affect and higher levels of positive affect. More positive affect after experiencing a problem will lead to higher levels of task performance and personal initiative.*

Next, as stated earlier, people high on CSE tend to experience problems as challenging. Therefore, we expect people high on CSE to show significantly higher levels of challenge appraisal as compared to those low on CSE:

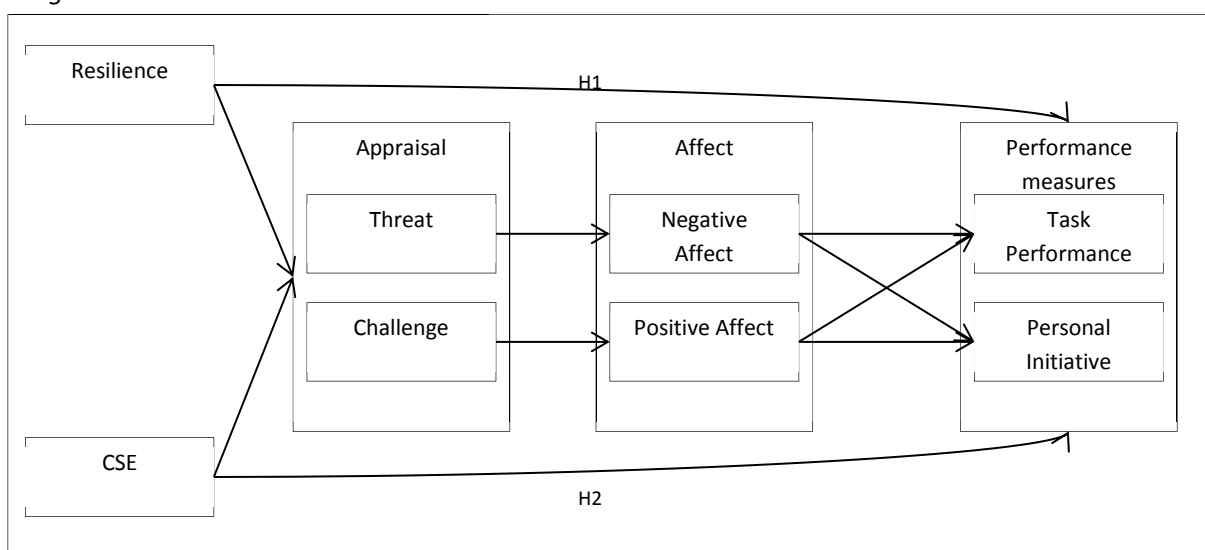
*Hypothesis 4: The effect of CSE on task performance and personal initiative will be mediated by appraisal processes (higher levels of challenge appraisal) and resulting affect. Appraising a problem as challenging will lead to higher levels of positive affect and therefore results in higher levels of task performance and personal initiative.*

**Present study**

In the present study, we conducted a daily diary study to investigate the mechanisms for resilience and CSE. As outcomes we take task performance and personal initiative into account. The relationship of these constructs is expected to be mediated by appraisal and affect. Because of the time-sensitive nature of events and resulting appraisal/affect processes, we chose the daily diary design.

In order to give an overview of the hypothesis and illustrate the details of this study, the research model as shown in Figure 1 is proposed.

Figure 1. Research model

**Method****Sample**

The sample of this diary study was comprised of 74 working adults from a wide range of German organizations and occupations who volunteered to take part in this study. The participants were recruited by the snowball principle. All of them were contacted by email and provided with a link to the first part of the survey. One week later, they were contacted again and asked to fill in the daily surveys twice a day.

The age of the participants ranged from 22 to 60, with a mean age of 36.3 years. They reported a mean of 13.5 years of work experience with on average 6.2 years in the current organization. There were 32 women and 42 men, most of them having 8 to 9 hour work days. Seven part-time workers with an average working time of 5.6 hours took part in the study. While

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43% of the participants had a university degree, the other 57% had finished a college degree or vocational training. 37.6% of the sample had a leadership position.

### Study Procedure

The data was collected by using a daily diary focusing on dealing with problematic situations. Both CSE and resilience are not expected to change significantly over the course of one week. Therefore, they were measured only once at the beginning. The dependent variables on the other hand are expected to vary from day to day. To keep this variability in mind and give a close reflection of reality, these variables are measured on a daily basis. First, the participants completed the general questionnaire, consisting of measures for resilience, CSE, trait affectivity and demographic variables. Secondly, participants were asked to fill in daily surveys twice a day, at lunchtime and shortly before finishing the working day. There was a one-week time gap between the general questionnaire and the daily measures. The daily surveys were provided on 5 consecutive working days. On average, participants provided three daily measures, leading to a total of 319 daily measurements. They consisted of measures for daily affectivity, the experience of negative events, appraisal (all measured twice daily) and personal initiative and task performance (measured once in the evening).

### Measures

#### *General Questionnaire*

*Resilience* was measured using a German translation of the scale by Wagnild and Young (1993) (Schumacher, Leppert, Gunzelmann, Strauß & Brähler 2005). It includes 11 items, measured on a 7-point Likert scale. Sample items are 'Usually, I can look at a situation from different perspectives' and 'Normally, I am able to manage everything'. Reliability measures showed a Cronbach's  $\alpha$  of .91. Concerning the measurement of resilience, most previous research has relied on the resilience scale by Wagnild & Young (1993) (e.g., Avey et al., 2010; Youssef & Luthans, 2007). Although the instrument validated by Schumacher et al. (2005) assumes unidimensionality, previous research could not confirm this assumption (see Study 1; Leppert, Koch, Brähler & Strauß, 2008). Accordingly, the scale consists of two factors, representing a positive self-concept and curiosity. Therefore, the following analysis was conducted with resilience as a latent factor made up of two components.

CSE was measured by using its components rather than a single CSE scale.

*Self-efficacy* was measured with 10 items by Schwarzer and Jerusalem (1999). Item examples are 'I can always manage to solve difficult problems if I try hard enough' and 'I can solve most problems if I invest the necessary effort'. They are answered on a 4-point Likert scale. Cronbach's

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$\alpha$  was .79. *Self-esteem* was measured with a German adaptation of Rosenberg's self-esteem scale (Rosenberg, 1965). It consists of 10 items rated on a 4-point Likert scale. Examples are 'All in all I am satisfied with myself' and 'I have a positive attitude about myself'. Cronbach's  $\alpha$  reveals an internal consistency of .84. *Locus of control* was measured by a German version of Rotter's Locus of control scale (Rotter, 1966). It consists of 4 items rated on a 5-point Likert scale. Items are 'If I work hard, I will succeed' and 'Fate often gets in the way of my plans'. Cronbach's  $\alpha$  reveals a reliability score of .71. Finally, *emotional stability* was measured with a German adaptation of the Big-Five Inventory (Lang & Lüdtke, 2001). It consists of 7 items rated on a 5-point Likert scale. Reliability scores show a Cronbach's  $\alpha$  of .82. Items are 'I am someone who worries a lot' and 'I am not easily disturbed'.

*Trait Affectivity* was included as a control variable. We expected trait affectivity to level out the influence of state affect to a certain extent, such that it makes people more or less prone to the experience of positive or negative moods (Thoresen, Kaplan, Barsky, Warren, & de Chermont, 2003). By controlling for trait affectivity, we leave only the situational positive and negative affect to be analyzed. Trait affectivity was measured with the German version of the Positive and Negative Affect Schedule (PANAS) (Krohne, Egloff, Kohlmann & Tausch, 1996). It consists of 16 items rated on a 5-point Likert scale. The items are terms describing positive and negative affect, such as 'interested', 'excited' for positive affect and 'afraid', 'nervous' for negative affect. The alpha reliabilities are all high, with .90 for positive affect and .87 for negative affect.

### *Daily questionnaire*

Twice a day, participants were provided with the daily measures. First, participants were asked if they had experienced a difficult situation at work during the morning. Also, they were asked to describe the situation with an open question.

If participants indicated to have experienced a difficult situation, *appraisal* was measured. Participants were provided with the primary and secondary appraisal scale (PASA) (Gaab, Rohleder, Nater & Ehlert, 2005). The PASA consists of 8 items rated on a 6-point Likert scale to measure primary appraisal, which consists of threat and challenge appraisal. Examples are 'I do not feel threatened by the situation' and 'I find this situation very unpleasant'. Reliability estimates show reasonable to good internal consistencies, ranging from .63 to .81.

Finally, by using the PANAS again, participants were asked to indicate how they felt after experiencing the difficult situation. Respondents were instructed to imagine being in the situation and to report the emotions felt after the difficult situation.

Once a day in the evening, participants were also asked to indicate their daily task performance and personal initiative. *Task performance* was measured with a 3 item scale

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(Williams & Anderson, 1991). All items are rated on a 5-point Likert scale. One example is 'today, I adequately completed assigned duties'. The reliability score shows a good internal consistency with Cronbach's  $\alpha = .83$ .

*Personal initiative* was measured with 7 items rated on a 5-point Likert scale (Frese, Kring, Soose & Zempel, 1996). Examples are 'today, I actively tackled problems' and 'today, I took opportunities to reach my goals'. The internal consistency is reasonable with Cronbach's  $\alpha = .74$ .

## Analysis

Integrating the multilevel path model as proposed in Model 1, we examined separate models for CSE and resilience. This was done in order to be able to analyze the effects of CSE and resilience independently. These models were further separated for the outcomes personal initiative and task performance, in order to analyze the unique effects for each outcome independently. This method results in a total number of 4 different models. All models were analyzed with MPlus 7.11. While CSE and resilience were analyzed on the between level and grand mean centered in order to reduce the correlation between intercepts and slopes (Hofmann & Gavin, 1998), all other variables were analyzed on the within level for each model respectively. For this purpose, the appraisal and affect measures were aggregated onto the day-level. In order to evaluate fit indices of the model fit, we relied on the rule of thumb provided by Hu & Bentler (1999). According to them, the following criteria must be met to have good fit indices: RMSEA < 0.5 and CFI close to .95.

## Results

Means, standard deviations and correlations for the variables are provided in Table 1. Hypothesis 1 assumed that higher levels of resilience will be associated with better task performance and higher levels of personal initiative. Results show significant relationships for personal initiative but not for task performance. Therefore, hypothesis 1 was partly supported.

For hypothesis 2, CSE was expected to be linked to task performance and personal initiative. In this case both relationships were significant. Therefore, hypothesis 2 can be supported. All results are presented in Table 2.

Table 1. Descriptive Statistics and correlations

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Resilience – Positive Self-Concept	5.78	.65												
2. Resilience – Curiosity	5.99	.51	.47*											
3. self-efficacy	3.16	.40	.65*	.42*										
4. self-esteem	3.57	.35	.50*	.28*	.46*									
5. emotional stability	3.59	.64	.41*	.06	.39*	.45*								
6. locus of control	4.09	.51	.54*	.23*	.42*	.51*	.47*							
7. CSE	3.60	.36	.67*	.29*	.70*	.74*	.81*	.79*						
8. Threat Appraisal	2.69	1.09	-.25*	.06	-.30*	.02	-.37*	-.14	-.30*					
9. Challenge Appraisal	4.24	.80	-.10	.05	-.07	.05	.06	-.05	.01	.12				
10. Positive Affect	2.35	.91	.33*	.20*	.23*	.23*	.30*	.40*	.39*	.06	-.11			
11. Negative Affect	1.99	.76	-.50*	-.26*	-.37*	-.33*	-.40*	-.22*	-.43*	-.07	.16	-.36*		
12. Task Performance	4.22	.54	.19*	.13*	.20*	.14*	.09	.06	.15*	.09	.04	.08	-.31*	
13. Personal Initiative	3.41	.74	.35*	.26*	.27*	.23*	.32*	.15*	.32*	-.30*	.18	.11	-.34	.44*

\* Correlation significant at the .05 level (two-tailed)

All correlations at the aggregated level. N = 74

Table 2. Direct Effects of Resilience and CSE on Task Performance and Personal Initiative

	Resilience				CSE			
	Parameter estimate	S.E.	95% BC CI		Parameter estimate	SE	95% BC CI	
			Lower	Upper			Lower	Upper
<b>Task Performance</b>	0.356	0.299 (n.s.)	-0.135	0.847	0.211*	0.112	0.027	0.395
<b>Personal Initiative</b>	0.632*	0.317	0.111	1.154	0.591*	0.274	0.141	1.042

BC CI=Bias corrected Confidence Interval

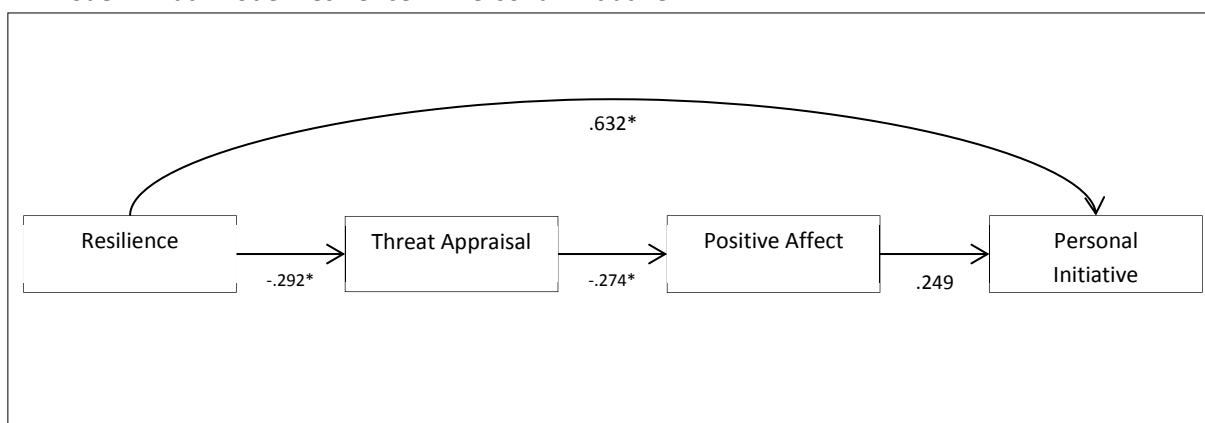
\*p &lt; .05 (significant direct effect)



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Hypothesis 3 proposes a path model integrating appraisal processes and affect in the resilience process. In order to analyze the path model, we conducted a multilevel path analysis with MPlus as described above. For resilience, there was no significant direct effect on task performance. Therefore, we only analyzed the model for personal initiative as outcome. Fit indices revealed satisfactory fit, with RMSEA = 0.038 and CFI = 0.85. All paths in the hypothesized model were significant. Results are presented in Model 2. Accordingly, hypothesis 3 was supported for personal initiative as outcome.

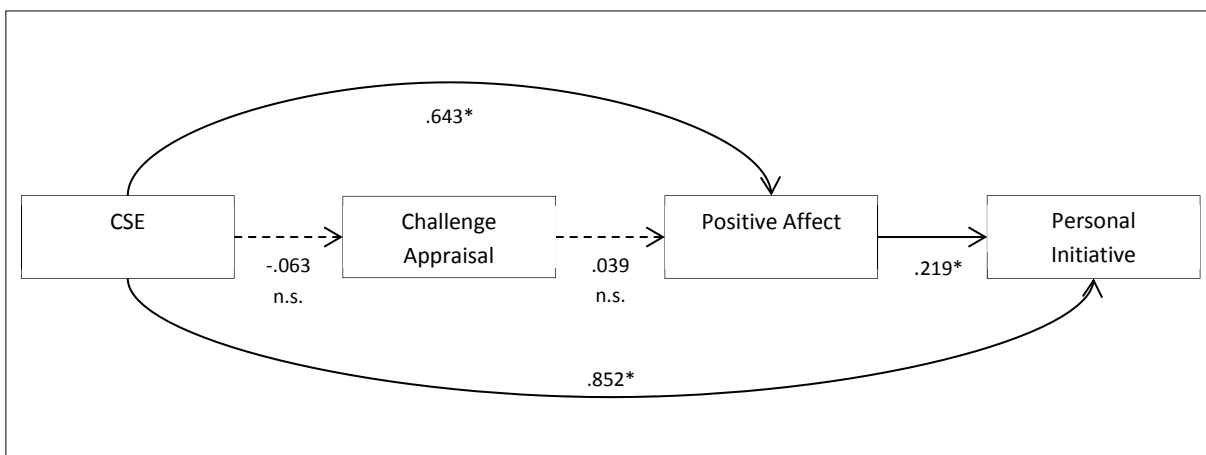
*Model 2. Pathmodel Resilience → Personal Initiative*



\* path coefficients significant at the .05 level

For CSE, we calculated separate path models for task performance and personal initiative respectively. Both models showed similar significant relations. The fit indices for the model with task performance as outcome revealed good fit, with RMSEA = 0.00 and CFI = 0.98. Similar, the fit indices for the model with personal initiative as outcome showed good fit, with RMSEA = 0.00 and CFI = 0.99. The results for the task performance model are as follows: there were no significant direct effects for CSE on challenge appraisal. Also, no significant effect of challenge appraisal and positive affect was revealed. However, there was a significant direct effect of CSE on positive affect. The direct effects between positive affect and task performance also showed significant results. Results are presented in model 3.

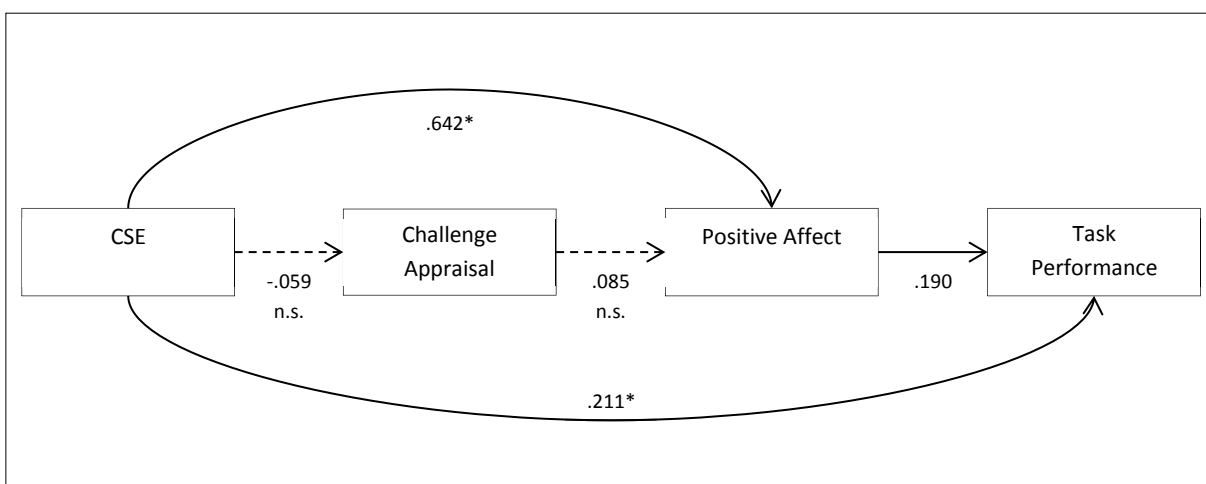
Model 3. Pathmodel CSE → Personal Initiative



\* path coefficients significant at the .05 level

The same pattern of results can be found for the path model with personal initiative as outcome. Again, there was no significant effect of CSE on challenge appraisal or of challenge appraisal on positive affect. As in the model described above, the effect of CSE on positive affect was significant, as well as the direct effect of positive affect on personal initiative. Taking these results together, for CSE the appraisal process does not seem to apply as underlying mechanism, since there is no significant direct effect between CSE and challenge appraisal. Results are presented in model 4 for personal initiative.

Model 4. Pathmodel CSE → Task Performance



\* path coefficients significant at the .05 level

Taking all these results together, hypothesis 4 with the proposed path model can only be partly supported. Especially the appraisal process does not seem to apply as explanation for the CSE-Task performance relationship.

### **Discussion**

The present study adds to the literature on resilience by further clarifying the concept of resilience and differentiating it from the CSE construct. By integrating broaden-and-build theory and appraisal theory, we focused on the mechanisms leading to positive work-related outcomes. Although both constructs seem similar on a conceptual basis, our results revealed how resilience and CSE are operating through different mechanisms. While for resilience the hypothesized appraisal-affect mechanism seems to be a reasonable way to explain its effect on positive work-related outcomes, for CSE it is not.

### ***Theoretical Implications***

The main purpose of the present study was to point out the differences and similarities between resilience and CSE. We could show that resilience and CSE differ on a theoretical basis, supported by empirical findings. These findings differ from previous research, which regarded resilience and CSE as interchangeable (e.g., Di Fabio & Saklofske, 2014; van Doorn & Hülshager, 2015). On the one hand, our results could show that resilience and CSE have different relations with work related outcomes. While resilience shows strong relations only with personal initiative on a daily basis, for CSE also a significant relation with daily task performance could be observed.

On the other hand, our results suggest that resilience's and CSE's effects rely on different underlying mechanisms. Resilience can be explained by appraisal mechanisms: Less threat appraisal and more challenge appraisal and experiencing positive emotions in the face of difficulties. According to broaden-and-build theory, these positive emotions are then again used to build up new resources (Fredrickson, 2001). These resources can be used on a daily basis to have a positive impact on work related outcomes like task performance and personal initiative. According to broaden-and-build theory, positive emotions lead to a broader range of action repertoires which in turn enhance the building of new resources. By integrating appraisal theory into this process, we proposed that the absence of threat appraisal leads to positive emotions. Our results partly support this approach. The resilience process can be based on appraisal and emotions, which is according to the broadening and building of action repertoires. In turn, this leads to higher levels of personal initiative. However, only the effect of resilience on personal initiative can be explained by this approach. For task-performance, results were not as expected. Considering the same process based on emotions and appraisal, task performance was not

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significantly related, although previous studies could show significant relations of resilience and task performance (Luthans et al., 2010). One explanation might be that while task performance is a rather passive measure of doing the work one is expected to do, personal initiative is a more active concept, including proactive and self-starting behaviors. Personal initiative can be seen in line with people taking personal control for what they do and how they do it, therefore being closely related to the definition of resilience.

Another explanation might be that this study measured daily task performance, while previous studies focused on long-term performance. A fundamental benefit of diary methods, and in this case the examination of daily performance, is that they permit the examination of reported events and experiences in their natural context, providing information complementary to that obtainable by more traditional designs (Reis, 1994). Daily performance is strongly dependent on momentary conditions and circumstances and context factors are taken into account (Reis & Gable, 2000). On the other hand, long-term performance is a more global indicator for the general performance capacity. However, long-term performance measures are based on retrospection and therefore prone to hindsight bias (e.g., Bower, 1981). Participants' limited ability to recall often results in 'aggregate' responses that reflect faulty reconstruction of the phenomena of interest (Bolger, Davis & Rafaeli, 2003).

For CSE, even though being a very similar construct on a conceptual basis, broaden-and-build theory as well as appraisal theory cannot explain the mechanisms leading to positive work-related outcomes. When looking at the mechanisms operating in the background, appraisal mechanisms only showed significant relations with resilience. There were no significant relations of appraisal with CSE. While this is one step towards answering the call for explanatory mechanisms in the resilience process (Tugade & Fredrickson, 2007; Rutter, 1987), for CSE other mechanisms need to be taken into account. Although previous studies could show positive relations of each factor of CSE with challenge appraisal, our results reveal, this is not true for the higher order factor.

Instead, we found a significant direct effect of CSE on positive affect. One explanation might be the fact, that one facet of CSE is emotional stability. Emotional stability is related to high levels of positive affect (e.g., Hills & Argyle, 2001; Vittersø, 2001). The approach/avoidance framework serves as an explanation for this relation, with emotionally stable individuals being more likely to approach positive information in specific situations. This is further supported by findings about the opposite construct, namely neuroticism. Neuroticism has been shown to have an influence on the experience of negative affect in individuals. For example, research indicates that neurotic individuals are more likely to choose situations in which they experience negative affect (Diener, Larsen, & Emmons, 1984; Magnus, Diener, Fujita, & Pavot, 1993). Our results

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support the theoretical assumption of emotional stability and neuroticism operating through different ends of the approach/avoidance framework. The positive relation of emotional stability and positive affect is complemented by significant negative correlations of CSE and negative affect, especially the negative correlation of emotional stability and negative affect as can be seen in our results. To further support the theoretical assumptions associated with the approach/avoidance framework, the influence of the other CSE-traits on both positive and negative affect needs more investigation.

Research also shows that individuals prone to the experience of positive emotions respond favorably to situations designed to induce positive affect, whereas individuals predisposed to experience negative emotions and negative self-appraisals are less likely to respond positively to such situations (Larsen & Ketelaar, 1991). Therefore, different mechanisms than for resilience seem to play a role in this process. For CSE, testing other mechanisms than appraisal processes needs to be done in future research. As indicated by the approach/avoidance model (Elliot & Trash, 2002), information gathering could be one mechanism that is different for people with higher levels of CSE: positive information is gathered and negative information avoided in face of difficulties. In place of accepting a situation as difficult but challenging, people high on CSE seem to prefer a way of “avoiding” difficulties and selectively turning to positive information instead. This can be seen as a different aspect of control: high levels of CSE leads to a controlled information search regarding positive emotions. For resilience, in turn, avoidance is not an option. Researchers agree that resilience is only developed when people are exposed to adversity instead of avoiding it (Rutter, 1987; Pellegrini, 1990) and successful engagement with problems strengthens individuals. Therefore, although resilience and CSE both include notions of control, exercising control differs when put into practice. Taken together, although the moderating effect of CSE on job demands has previously be named ‘resilient’ (van Doorn & Hülshager, 2015), the different mechanisms imply a more cautious handling of the two constructs, even when it comes to naming processes. In future research, different mechanisms for the CSE processes need to be taken into consideration, with the approach/avoidance model being a promising alternative.

Regarding the changeability of the two constructs, CSE is characterized as rather trait-like (Judge & Bono, 2001), while most researchers expect resilience to be somewhat variable and thus having a state-like notion to it (e.g.; Bonnano, Westphal & Mancini, 2011; Harms, Herian, Krasikova, Vanhove & Lester, 2013). Therefore, broaden-and-build theory might be rather applicable for resilience, because of the variability included in the theory, while the theoretical mechanisms for CSE are different. In this regard, the idea of resilience being a rather trait-like personality variable (Block & Block, 1980), cannot be supported by our results.

When it comes to measuring resilience, we used a two-factor structure for interpreting the results. The scale used was originally introduced as an instrument replicating the unidimensionality of resilience, defined as a personal characteristic (Schumacher et al., 2005). However, previous research questioned the factorial structure of the resilience scale (e.g., see Study 1; Leppert et al., 2008). In this research study, our results again support a rather multidimensional approach to measuring resilience, which is in line with other research (e.g., Leppert et al., 2008; Pangallo, Zibarras, Lewis & Flaxman, 2015). According to this view, resilience is comprised of a number of facets, including curiosity and a positive self-concept, the factors identified in our research, as well as for example openness (Pangallo et al., 2015), personal strength, social competence, and a positive expectation of the future (Friborg, Barlaug, Martinussen, Rosenvinge & Hjemdal, 2005). There are a number of further facets named in other research studies (e.g.; Block & Block, 1980; Luthar, Doernberger & Ziegler, 1993; Reivich & Shatte, 2002), which need to be evaluated systematically in future research. Taken together, these results deal with the debate of resilience being a unidimensional or multidimensional construct. Therefore, future research should put a focus on the dimensionality of resilience.

### ***Practical Implications***

For practitioners in the human resources department, this study underlines the importance of finding resilient employees. These employees not only show higher levels of personal initiative, they are also able to deal with arising difficulties of a constantly changing workplace in a more positive way than others. Instead of ignoring impeding problems, resilient employees are equipped with the ability to appraise those problems as less threatening. This leads to higher levels of positive emotions, which is associated with better functioning at work. Therefore, the focus on resilience in terms of personnel selection and training seems to be reasonable.

### ***Limitations***

There are several limitations to this research study. First of all, all measures were self-reported, creating potential problems with common method variance. However, resilience and CSE were measured at a different point in time than the other measures, and thus, the relationship to affect and performance outcomes is less likely to be inflated because of common-method variance (Podsakoff, MacKenzie, Lee & Podsakoff, 2003).

Secondly, self-ratings of task performance and personal initiative could be positively inflated. Because of the heterogeneous sample consisting of participants from various employers recruited by the snowball principle, gathering supervisor ratings was not possible. Moreover, the

## Resilience and CSE

use of self-reports is necessary in order to gather short-term performance measures. Supervisors are more likely to indicate long-term performance ratings (Binnewies, Sonnentag & Mojza, 2010). Therefore, in daily diary studies, besides objective performance measures (e.g., production rate, time needed), self-reported performance measures are the easiest and most promising way to gather data of daily performance levels.

Finally, the results are based on only 74 participants who completed the daily questionnaires. Nevertheless, it is a common practice in daily diary studies to rely on a small number of participants. This is because not only the number of participants, but also the number of daily measurements is important in this kind of study design (Ohly, Sonnentag, Niessen, & Zapf, 2010). However, because the independent variable is on the person level, a higher number of participants would be desirable.

### ***Future Research***

In future research, the processes explaining the relationship between CSE and positive work related outcomes need further investigation. If people high on CSE tend to avoid problematic situations, they are less likely to appraise them as either challenging or threatening. As described previously, the approach/avoidance model might be better able to explain the relationship between CSE and positive work related outcomes and should therefore be taken into consideration in future research.

Moreover, building on the approach/avoidance model, emotion regulation strategies that focus on the avoidance of negative emotions might come into play. Previous research has already indicated the use of emotion regulation for people with high levels of CSE (Grant & Sonnentag, 2010). However, a more specific look at which strategies are used is still to be made. Therefore, the investigation of emotion regulation strategies as mediator might also give new insight into the proposed mechanism applicable for CSE.

Taken together, our research reveals insight into the mechanisms behind the relation of resilience and positive work-related outcomes with appraisal theory coming into play. Moreover, it differentiates the seemingly similar construct of CSE from resilience, by showing that appraisal mechanisms do not play a role in the same relation for CSE.

**Study 3:**

**Resilience and Regulatory Focus: A distal-proximal approach to work related outcomes**



**Abstract**

In this research study, we answered two calls for research: first, the call for mechanisms linking resilience and work related outcomes, and second, the call for antecedents of regulatory focus. By applying a distal-proximal approach, we investigated if the two regulatory foci - promotion and prevention focus - can serve as mediating mechanism explain the relation of resilience and positive work-related outcomes. We calculated a mediation model with two-wave longitudinal data. Our results show that, other than expected, promotion focuses did not serve as mediator in the proposed relationship while prevention focus could take this role. This might partially be due to the sample used in this study, which consisted of employees in an organization caring for people with special needs. Taken together, resilience can be seen as antecedent of regulatory focus and regulatory focus, especially prevention focus, can be regarded as mechanism explaining the relationship between resilience and work related outcomes at the strategic level.

**Resilience and Regulatory Focus:****A distal-proximal approach to work related outcomes**

Being resilient means having the ability to perform well in times of crisis. There is sufficient evidence that resilience is related to positive work related behaviors (e.g., task performance, positive work behavior) (e.g., Avey, Wernsing, & Luthans, 2008; Luthans et al., 2010). However, it is still in question how this relationship can be explained. A number of researchers have issued the question of what mechanisms are able to explain the effects of resilience on positive outcomes (e.g., Gillespie, Chaboyer, & Wallis, 2007; Rutter, 1987; Tugade & Fredrickson, 2007). More specifically, since the research of resilience has become of great interest for work and organizational professionals, we take a closer look at positive work related behaviors. On a theoretical basis, we will use a distal-proximal approach to the relationship between resilience and positive work related behaviors. While resilience can be seen as a rather distal concept referring to work-related outcomes, the mechanisms explaining the relation are rather proximal.

When taking a look at possible mechanisms, self-regulation comes into focus. Self-regulation is not only important for children to master complex tasks, but also for adults, to act in their own best interest. Self-regulation is important for shaping peoples' motivations and behavior. This aspect was further described by Higgins (1997) with the regulatory focus theory. The theory describes the processes through which people approach pleasure and avoid pain.

In general, self-regulation describes how people adjust themselves and their behaviors to their implicit goals and standards (Brockner & Higgins, 2001). More specifically, according to the regulatory focus theory, two foci exist within self-regulation systems: promotion focus and prevention focus. Promotion focus deals with the achievement of rewards and accomplishments. People within the promotion focus are sensitive to the presence or absence of rewards, use creative problem-solving strategies and are more willing to take risks (e.g., Brockner & Higgins, 2001; Crowe & Higgins, 1997; Friedman & Förster, 2001). In contrast, people who operate within the prevention focus are rather concerned with obligations and duties and are sensitive to the presence or absence of punishment. In the work context, regulatory focus could be shown to have an influence on task performance as well as contextual performance (Lanaj, Chang & Johnson, 2012). While promotion focus is positively related to both task performance and contextual performance, prevention focus shows contradictory results. While it is negatively related to contextual performance, it is positively related to task performance (Lanaj et al., 2012). These relations will be further discussed below.

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Theoretically, regulatory focus can be a stable disposition, influenced by other variables like early life experiences (Higgins, 1997, 1998) or personality (Wallace & Chen, 2006). On the other hand, it can also be under situational influences, like leadership and work climate (Förster, Higgins & Bianco, 2003). However, work-specific regulatory focus is known to be moderately stable (Brockner & Higgins, 2001), similar to other work-related characteristics (e.g. work goal orientation (VandeWalle, 1997)). Therefore, in this research study we treat regulatory focus as a trait variable.

Theoretical integration of resilience with motivational research, and more specifically regulatory focus theory, is particularly important, considering that self-regulatory processes are partly a reflection of stable individual differences (Hoyle, 2010; Scholer & Higgins, 2010). Such integration would be beneficial for understanding self-regulatory processes as an expression of resilience as well as for describing processes through which resilience affects work behavior, because self-regulation is proposed to be of primary importance to resilience (e.g., Dishion & Connell, 2006; Luthar & Zelazo, 2003; Masten, 2002).

Taken together, regulatory focus might be a good explanation for how employees differ in allocating resources towards task performance, organizational citizenship behavior and personal initiative. Within the distal-proximal framework, it can serve as proximal, motivational factor mediating the distal relation of resilience and positive work-related behaviors.

### ***Goal of study***

A number of work motivation researchers have proposed that stable individual differences relate to performance outcomes through more proximal motivational processes (e.g., Chen, Gully, Whiteman, & Kilcullen, 2000; Kanfer, 1990). In line with the motivation literature, the present article considers regulatory focus theory as a motivational factor to enhance our understanding of the mechanisms through which individual differences influence positive work-related outcomes. Indeed, initial work on regulatory focus at work by Wallace et al. (2005) has shown that employees' regulatory focus can explain the relationships of motivational traits (general self-efficacy and trait anxiety) and work goal orientations with productivity. Extending their research, we examine how regulatory focus mechanisms explain the relationships between the broader personality trait of resilience and the positive work-related outcomes of task performance, personal initiative and organizational citizenship behavior.

In general, previous work related research has investigated the relationship of resilience and task performance, personal initiative (see Study 1 and 2; Luthans et al., 2010), as well as work satisfaction (Avey, Luthans, & Youssef, 2010) and flexibility (Avey, Wernsing, & Luthans, 2008). However, the positive relation of resilience and performance outcomes has not yet been further

investigated with taking motivational mechanisms into account. Therefore, our first goal of this research study is to take insight into the mechanism of resilience shaping motivational mindsets of people within a work context.

As pointed out above, the theoretical integration of resilience with regulatory focus theory would be beneficial for understanding how resilience affects work behavior. However, all research on self-regulatory processes in relation to resilience has been conducted in developmental settings, with children and adolescence as participants. As Pangallo, Zibarras, Lewis, and Flaxman (2015) point out, these findings cannot be generalized to adult populations. Therefore, our next goal is to take a closer look at self-regulatory processes as mechanisms explaining resilience in an adult population. More specifically, we focus on the mechanisms that might help to explain the relationship between resilience and positive work related behaviors.

Finally, up to date, knowledge concerning the antecedents of regulatory focus is somewhat limited. There is some agreement about personality variables serving as antecedent for both promotion and prevention focus (Lanaj et al., 2012). For example, there is research concerning the big five personality characteristics (Crowe & Higgins, 1997; Lanaj et al., 2012), as well as positive and negative affectivity (Summerville & Roese, 2008) and self-esteem (Ferris et al., 2011). However, there are expected to be further antecedents, which still need to be investigated. Therefore, with this research study we answer the call for more work on antecedents of regular focus theory (e.g., Brockner & Higgins, 2001; Hoyle, 2010), especially concerning personal characteristics. We offer theoretical and empirical contributions to research on regulatory focus theory by integrating a distal-proximal approach and investigating resilience as antecedent of regulatory foci.

### ***Regulatory Focus Theory***

Regulatory focus theory presumes that the process of self-regulation works through two self-regulatory motivational systems: promotion focus and prevention focus (Higgins, 1997, 1998). Promotion focus is sensitive to the presence and absence of positive outcomes and deals with ideal goals (e.g., hopes, wishes, and aspirations) that enable people to grow and reach accomplishments. A promotion focus leads people to self-regulate by approaching matches to desired end-states and has direct effects on their decision making and behavior. In the work context, promotion focus is associated with a strategy that emphasizes speed and achieving maximal levels of performance (Förster et al., 2003).

In contrast, prevention focus is a motivational condition that is sensitive to the presence or absence of negative outcomes (Higgins, 1998). This focus deals with security needs and obligatory tasks (e.g., duties and responsibilities) and is concerned with protection, safety, and

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responsibility. A prevention focus motivates people to avoid mismatches to desired end-states, causing them to adopt a strategy centered on accuracy and meeting minimal standards of performance (Förster, Higgins, & Idson, 1998; Higgins, 1998).

In the work context, promotion and prevention focus operate independently. For instance, an employee can either fulfill his or her work obligations by concentrating on finishing one task (e.g., finalizing a presentation) or avoid behaviors that are unrelated to the task (e.g., avoiding to answer emails before the presentation is finalized). Therefore, promotion and prevention focus use different strategies to approach work related goals. Basically, it depends on people's needs and goals, which focus is more present within an individual (Higgins, 1997, 1998). However, it is important to note that both foci do not operate opposed to each other. Rather, both foci can be present within one individual, usually with one focus operating more dominantly than the other (Förster et al., 2003; Scholer & Higgins, 2008). Taking a look at the motivational motives associated with both foci, it can be said that for promotion focus individuals are motivated by eagerness, while for prevention focus individuals are motivated by vigilance (Gorman et al., 2012).

Besides the work context, researchers have used regulatory focus theory to study goal attainment (e.g., Förster, Higgins, & Idson, 1998; Shah, Higgins, & Friedman, 1998), decision making (e.g., Crowe & Higgins, 1997), creativity (Friedman & Förster, 2001), information processing and persuasion (Aaker & Lee, 2001), and feedback and motivation (Förster, Grant, Idson, & Higgins, 2001; Van Dijk & Kluger, 2004). Moreover, regulatory focus is particularly important in performance domains because promotion and prevention foci influence the strategies that are used to accomplish achievement goals and to circumvent obstacles that inhibit accomplishment of those goals.

### ***Resilience and regulatory focus***

Resilience at work is defined as 'a developmental trajectory, characterized by demonstrated competence in the face of, and professional growth after, experiences of adversity in the workplace' (Barker-Caza & Milton, 2011, p. 896). This definition reflects the notion that resilience is a phenomenon resulting from the interaction between people and situations. To date, most researchers agree about the nature of resilience, being more than just an individual trait (e.g., Luthar, Cicchetti & Becker, 2000; Rutter, 2006; Tarter & Vanyukov, 2002). Rather, it is a dynamic concept developing over the course of an individual's development (e.g., Lepore & Revenson, 2006; Pangallo et al., 2015). Generally speaking, resilient people show patterns of positive adaptation, which is directly associated with the eagerness to perform well (Motowildo, Borman & Schmit, 1997). Moreover, as stated in the broaden-and-build theory, by experiencing

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positive emotions people build up resources and capacities to perform well. If we take a look at how resilience and regulatory focus are related to each other, one can say that resilience operates at the system level, while regulatory focus operates at the strategic level. The system level generally describes how behavior is stimulated by positive or negative stimuli (Higgins, 1997). In our case, positive stimuli would be desired end states while negative stimuli are undesirable end states. The system level depicts how individuals regulate in regards to end states. However, it does not explain the strategic ways in which systems' directional motivation might be playing out. Thus, resilience might offer triggers for behavior, but it does not offer for how motives are pursued. At this point, regulatory focus comes into play. At the strategic level, regulatory focus translates the behavioral triggers of resilience into motivations to act. The way resilience relates to promotion and prevention focus differs and needs further consideration.

Similar to resilience, promotion focus is concerned with the achievement of maximal levels of performance. Resilience operates at the system level, drawing strength out of the experience of positive emotions. These positive emotions lead to a broadened action repertoire, resulting in the ability to perform well. Likewise, promotion focus is related to positive emotions associated with an approach motivation (e.g., happiness) (Lee, Aaker & Gardner, 2000). Similar to resilience, promotion states elicit a broad and global attentional scope and facilitate conceptual access to mental representations with lower accessibility. Prevention states, in contrast, elicit a narrow attentional scope, a focus on details, and a "choking off" of conceptual access to mental representations with lower accessibility (Derryberry & Tucker, 1994; Förster, Friedman, Özelsel, & Denzler, 2006; Förster & Higgins, 2005; Friedman & Förster, 2005). Moreover, promotion focus is associated with activated positive affect, while deactivated affect is associated with prevention focus. In general, higher levels of task performance are more likely to be attributed to activated than deactivated affect (Kaplan, Bradley, Luchman, & Haynes, 2009). Therefore, based on the findings about attentional scope and affect, we expect resilience to be positively related to promotion focus. These expectations are supported by meta-analytic findings (Gorman et al., 2012). According to the meta-analysis, a number of antecedents of regulatory focus could be identified. Among them are optimism, positive affectivity and self-esteem. All of these constructs are also associated with a high level of resilience (e.g., Block & Block, 1980; Ong et al. 2006; Reivich & Shatté, 2002). Again, these antecedents operate on the system level. In order to explain their relation with work-related outcomes, a more proximal, strategic level needs to be taken into account. Here, promotion focus serves as the strategic factor, being influenced by optimism, positive affectivity, self-esteem, and in turn, resilience.

Next, the results of the meta-analysis by Gorman et al. (2012) reveal different relations of the antecedents with promotion and prevention focus respectively. While optimism and positive

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affectivity are only related to promotion focus, self-esteem shows a positive relationship with promotion focus and a negative relationship with prevention focus. Based on the conceptual similarities of resilience and self-esteem, we expect resilience to show a positive relationship with promotion focus and a weak negative relationship with prevention focus. We thus conclude that resilient people are more likely to adopt a 'chronic' (trait) promotion focus instead of a 'chronic' prevention focus.

### ***Regulatory Focus and performance outcomes***

While resilience can be seen as a rather distal factor influencing positive work-related outcomes, we want to test whether regulatory focus as a proximal factor can serve as a mediator explaining the relationship. Therefore, we use a distal – proximal approach to explain the effect of the personality characteristic resilience on the motivational aspect of regulatory focus. Theoretically, it is rather unlikely that personality traits or dispositions, like in this case resilience, directly influence work-related outcomes. The relationship is most likely to be indirect, mediated by motivational factors.

In a work context, employees with a promotion focus tend to engage in work activities because of the desirable economic and growth outcomes it offers (Johnson & Chang, 2008). A promotion focus strategy at work may be to accomplish a greater quantity of work more quickly (Wallace & Chen, 2006). However, a promotion focus is also associated with more mistakes (Förster, Grant, Idson, & Higgins, 2001). This is due to the fact that employees within a promotion focus tend to work quickly to reach desired achievements, but do so in spite of risking safety and making more mistakes. In contrast, employees with a prevention focus tend to complete their work out of a sense of obligation as well as fear of letting others down, avoiding mistakes, and other negative outcomes (Johnson & Chang, 2008). A prevention focus strategy at work may be to adhere to work-related rules, responsibilities, and regulations (Wallace & Chen, 2006). Thus, promotion and prevention focus have different relations with work-related outcomes. To give an overview, we will discuss the influence of both foci on the positive work-related outcomes observed in our study. These are task performance, personal initiative and regulatory focus. We decided on investigating these three outcomes, in order to represent different aspects of performance, namely task-specific performance (task performance), contextual performance (OCB) and proactivity (personal initiative).

Task performance describes all behaviors that are formally associated with a particular job. It is expected that promotion focus is positively related to task performance, as employees with a strong promotion focus are motivated to fulfill their tasks quickly in order to gain recognition. In contrast, it is expected that high levels of prevention focus are related to

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decreased levels of task performance because employees are focused on avoiding mistakes instead of fast, achievement-oriented work performance. Rather, by sticking to previously defined procedures at work, employees with high levels of prevention focus feel safe to avoid undesired mistakes.

Organizational citizenship behavior (OCB) generally refers to behaviors that are not explicitly required by job descriptions. However, they do contribute to overall organizational performance (Organ, 1988). Generally speaking, OCB behaviors are voluntary commitments of employees, performed by personal choice. OCB is a multidimensional construct, consisting of five dimensions: altruism, courtesy, conscientiousness, civic virtue, and sportsmanship (Organ, 1997). All these dimensions yield to improve the work environment and help colleagues. A high level of promotion focus is associated with the will to improve ones' environment. Therefore, it is expected that a high level of promotion focus is related to high levels of OCB. In contrast, rather than focusing on improvements, individuals with a high prevention focus are expected to seek out ways to avoid failure. Their focus lies on assigned work tasks and avoiding any behavior that might bring failure with it. With OCB consisting of additional behaviors, undefined by the work contract, it is expected that prevention focus will be negatively related to OCB.

The model of proactive motivation processes and antecedents (Parker, Bindl & Strauss, 2010) describes individual differences and contextual variables that influence proactive motivational states and goal processes. Personal initiative can be seen as one form of proactive work performance. It includes behaviors that are active and self-starting (Frese, Fay, Hilburger, Leng, & Tag, 1997) and is related to positive affect (Fritz & Sonnentag, 2007). In the context of flexible work environments, it gives employees the ability to proactively deal with difficult and varying situations at work (Frese & Fay, 2001). Personal initiative is positively related to task performance, since employees that show initiative are characterized by a more proactive approach to work (Hacker, 1992; Klemp & McClelland, 1986).

By taking these three performance outcomes into account (task performance, OCB, personal initiative), we want to investigate if regulatory focus as a proximal factor at the strategic level mediates the relationship of the distal factor resilience, operating at the system level, on all three outcomes.

### ***Hypotheses***

According to broaden-and-build theory, as well as previous research, we propose that resilience will be positively related to the positive work related outcomes (Personal Initiative, Task performance and OCB). Resilience can help employees in times of crisis to bounce back and beyond through more effective coping mechanisms and more strategic behaviors that can be



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conducive to growth, development, and future advancement. Thus, we expect a positive relationship of resilience and task performance.

Similar, resilient employees have the capacities to not only fulfill their duties and obligations according to their job description, but to show extra-role behavior, help colleagues and behave altruistically. Furthermore, previous research has demonstrated the positive relationship of resilience with OCB (Avey, Reichard, Luthans, & Mhatre, 2011; Sharma & Sharma, 2015). Therefore, we expect a positive relationship of resilience and OCB.

Finally, because of a broadened action repertoire, resilient employees are able to look at work situations from different perspectives. This enables them to find ways to improve their work tasks by finding alternative ways to fulfill those. Thus, resilient employees are able to show high levels of personal initiative and we expect a positive relationship of the two constructs. To conclude, our first hypothesis states:

*Hypothesis 1: Resilience shows positive relations with task performance, OCB, and personal initiative.*

Resilience is associated with reaching goals and performing well even in times of difficulties. As indicated above, resilient people demonstrate positive adaptation, resulting in eagerness to perform well (Motowildo, Borman & Schmit, 1997). This eagerness can be associated with the achievement orientation of promotion focus (e.g., Crowe & Higgins, 1997; Higgins et al., 2001). Accordingly, people high on promotion focus use eagerness means to approach task goals. Therefore, a positive relation of resilience with promotion focus can be expected. On the other hand, people with a strong prevention focus are trying to avoid mistakes and only do what they are required to do. According to Higgins et al. (2001) they behave rather cautious. However, these kinds of behaviors might not be very helpful in times of crisis. In difficult situations, doing only what is required to do, can be counterproductive. Rather, people are required to quickly adapt to changing situations and adjust work behaviors accordingly. Thus, we expect a negative relationship of resilience and prevention focus. The second hypothesis therefore proposes:

*Hypothesis 2: Resilience shows positive relations with promotion focus and negative relations with prevention focus.*

Workplace strategies and goals pertaining to task performance typically represent ideals and maximal standards (Senge, 1990). Employees in manufacturing and retail settings, for example, are encouraged to produce and sell high volumes of products in short periods. Desirable work outcomes, such as bonuses, pay raises, and promotions, are rewards for employees who achieve high levels of productivity. Reaching or exceeding high performance standards and

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earning these rewards are ways that employees achieve their job-related aspirations (Wallace, Edwards, Arnold, Frazier, & Finch, 2009). Taken together, high task performance is an ideal goal that serves as a cue for positive outcomes, which parallels the motivations underlying a promotion focus (Neubert, Kacmar, Carlson, Chonko, & Roberts, 2008; Stam, van Knippenberg, & Wisse, 2010a, 2010b; Wallace et al., 2009; Wallace, Little, Hill, & Ridge, 2010). In addition, promotion focus is associated with setting more challenging goals and greater persistence (Higgins & Spiegel, 2004), which also contribute to task performance.

Like promotion focus, prevention focus is relevant for task performance, but for different reasons. Task performance includes the required duties and responsibilities for jobs, which are defined to be fulfilled in order to perform well in a specific position. Employees are obligated to meet these defined standards in order to avoid the negative consequences associated with failure (e.g., poor performance evaluations, layoffs). Although it is not expected that every employee will achieve outstanding levels of productivity on the job, everyone must exhibit at least acceptable levels. Thus, task performance also includes security needs, and avoiding negative outcomes, which parallel the motivations of a prevention focus (Shah & Higgins, 1997; Wallace et al., 2009; Wallace, Little, Hill, & Ridge, 2010). We therefore expect a positive relationship between prevention focus and task performance. Our third hypothesis thus states:

*Hypothesis 3: Promotion focus and prevention focus are positively related to task performance.*

Employees' decisions to engage in OCB are often motivated by the self-oriented functions of attaining career-related benefits and enhancing their self-concept (Lavelle, 2010). Thus, employees may perform OCB to manage their work impressions in attempts to acquire rewards and procure better career prospects (Bolino, 1999; Rioux & Penner, 2001). Seeking out rewards and career opportunities and improving one's self-concept is consistent with a promotion focus because the latter is driven by needs for advancement and growth. In line with these arguments and with empirical work showing a positive association between promotion focus and OCB (e.g., De Cremer, Mayer, van Dijke, Schouten, & Bardes, 2009; Wallace et al., 2009), we expect that the two will be positively related. Prevention focus, on the other hand, is concerned with duties, obligations, and anxiety-based emotions, which are incompatible with the performance of extra-role behaviors such as OCB. Thus, we expect that relations between prevention focus and OCB will be negative. Therefore, our fourth hypothesis postulates:

*Hypothesis 4: OCB will be positively related to promotion focus and negatively to prevention focus.*

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Personal Initiative is a behavior defined as taking a self-starting and active approach to work goals and persisting in overcoming barriers (Frese et al., 1997). Resulting from this active approach is an environment that is changed by an individual high on personal initiative. Personal Initiative can be seen as opposite to a more passive approach, where one only does what he or she is told to do. Accordingly, promotion focus is related to more active behaviors leading to fulfilling ones' need for achievement. We thus expect a positive relation of promotion focus and personal initiative, while the contrary is expected for prevention focus. This focus is related to more passive behaviors, being opposite to the behaviors associated with personal initiative. Therefore, our fifth hypothesis states:

*Hypothesis 5: Personal Initiative will be positively related to promotion focus and negatively to prevention focus.*

According to the socioeconomic theory of work behavior (Hogan, 1983), work behaviors can be explained by distal and proximal factors. While distal factors refer to personality characteristics, or factors that influence not only work behaviors but also other domains, proximal factors are rather work-related, motivational elements. In our research model, resilience can be defined as a distal factor, taking the role of a personal characteristic that not only influences work behavior but also other situations outside the work environment. However, a more proximal factor influencing work related behaviors is the regulatory focus, a person holds. While on the one hand an employee can be motivated by needs for achievement, thus applying a promotion focus, on the other hand, he or she can also be motivated by the needs for security, thus applying a prevention focus. Because resilient people are characterized by high levels of functioning in times of difficulties, and therefore being driven by needs for achievement, we expect that the influence of resilience on work-related outcomes will be mediated positively by promotion focus and negatively by prevention focus. Our last hypothesis therefore describes the following mediation model:

*Hypothesis 6: Regulatory focus mediates the relationship of resilience and the work-related outcomes, such that there is a positive relationship between resilience and promotion focus and a negative relationship between resilience and prevention focus.*

## Method

### Sample

The research study was conducted in a company specialized on providing sheltered workshops, sheltered housing and childcare for people/children with special needs. All employees of the company were asked to take part in an employee survey, which consisted of two waves. The survey will be explained in more detail in the next section. Of the 497 employees, 124 took part in both waves of the survey<sup>2</sup>, yielding at a response rate of 25 %. The sample consisted of 72 females (62 %) and 44 males (38 %). The age was indicated in clusters. The first age-group ranged from 20 to 29 years of age (10 %). The second group (30 – 39 years) was slightly larger with 24 %. The largest group ranged from 40 to 49 years of age, with 32 %. Only slightly smaller was the age group ranging from 50 to 59 years of age, with 30 % of the participants. Finally, 3 % indicated to be 60 or older. On average, the employees worked about 16 years for the company (SD = 11.92). About half of the employees worked full-time (>35 hours per week), compared to 44 % working part-time.

### Procedure

Data was collected in a two-wave design. The first wave was collected by providing all employees with an employee survey and had a response rate of 45 %. The participants were asked to indicate a personal code on the survey, in order to be able to match the data with the second wave of data collection. The second survey, which generally held the same questions as the first one, was administered 3 months after the first wave, again to all employees. In total, 161 employees returned the second questionnaire. However, only 124 codes could be matched to the data of the first survey, resulting in the final sample. All variables were collected at both time points.

### Measures

#### *Resilience*

Resilience was measured using a German translation of the scale by Wagnild and Young (1993) (Schumacher, Leppert, Gunzelmann, Strauß, & Brähler, 2005). It includes 11 items, measured on a 7-point Likert scale. Sample items are 'Usually, I can look at a situation from different perspectives' and 'Normally, I am able to manage everything'. Reliability measures showed a Cronbach's  $\alpha$  of .87. Concerning the measurement of Resilience, most previous research has relied on the resilience scale by Wagnild & Young (1993) (i.e. Youssef & Luthans, 2007; Avey et al., 2010). Although the instrument validated by Schumacher et al. (2005) assumes unidimensionality, previous research could not confirm this assumption (see Study 1).

<sup>2</sup> The sample partly overlaps with the sample in Study 1.

## Resilience and Regulatory Focus

Accordingly, the scale consists of two factors, representing positive self-concept and curiosity. Therefore, the following analysis was conducted with resilience as a latent factor made up of two components.

### *Regulatory Focus*

Regulatory Focus was measured with the work regulatory focus scale by Neubert et al. (2008). It consists of 18 items, measured on a 5-point Likert Scale. Sample items are 'At work, I am often focused on accomplishing tasks that will support my need for security' for prevention focus and 'I focus on accomplishing job tasks that will further my advancement' for promotion focus. Cronbach's Alpha was .87 for prevention focus and .78 for promotion focus.

### *Task Performance*

Task performance was measured with a 3 item scale (Williams & Anderson, 1991). All items are rated on a 5-point Likert scale. One example is 'today, I adequately completed assigned duties'. The reliability score shows a good internal consistency with Cronbach's  $\alpha = .85$ .

### *Organizational Citizenship Behavior*

Organizational Citizenship Behavior (OCB) was assessed with 25 items by Staufenbiel and Hartz (2000). Item examples are 'I help colleagues to improve their work,' 'If colleagues are feeling blue, I try to cheer them up'. Cronbach's  $\alpha$  showed a good internal consistency ( $\alpha=.85$ ).

### *Personal Initiative*

Personal initiative was measured with 7 items rated on a 5-point Likert scale (Frese, Kring, Soose & Zempel, 1996). Examples are 'today, I actively tackled problems' and 'today, I took opportunities to reach my goals'. The internal consistency is good with Cronbach's  $\alpha = .82$ .

## **Analysis**

Mediation is a causal process and variables need to be temporarily separated. That is, measurement of variables involved in causal processes must be separated by enough time to permit the causal effect to unfold. Cole and Maxwell (2003) point out that mediation hypothesis need to be tested by panel designs with at best three waves of data collection. However, they also suggested a method to test mediation hypothesis with at least two data collection waves. In order to do so, they proposed the following steps (Cole & Maxwell, 2003, p. 562):

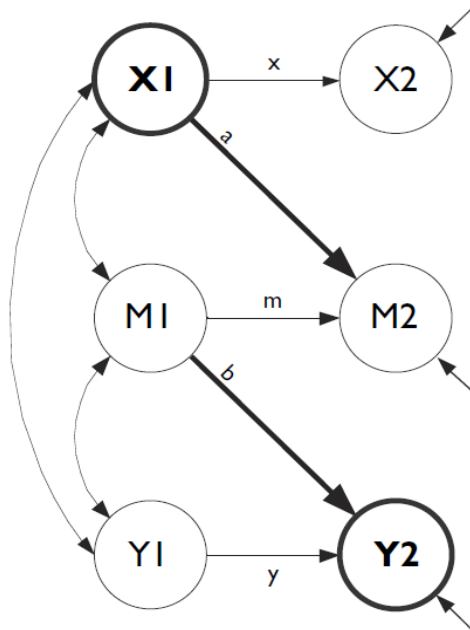


Figure 1. Two-wave panel design for testing mediation

'(1) Estimate Path a in the regression of M2 onto X1 controlling for M1 and (2) estimate Path b in the regression of Y2 onto M1 controlling for Y1. If we can assume stationarity (time independence), Path b between M1 and Y2 would be equal to Path b between M2 and Y3. Under this assumption, the Product  $ab$  provides an estimate of the mediational effect of X on Y through M.'

We calculated the research model accordingly with SPSS AMOS 23 with a cross-lagged panel design. For the mediation models, we applied the model fit values according to MacCallum, Browne and Sugawara (1996) with RMSEA between .1 and .08 for mediocre fit and below .08 for good fit. For the CFI, a cut-off value equal to or above .95 is considered as indicator for good fit (Hu & Bentler, 1999).

## Results

In order to test for differences between the participants that only took part in the first wave of the study and those that completed both data collection waves, independent sample t-tests were conducted for all relevant variables. Since there were no significant differences between those two groups, the analysis could be conducted as planned.

Descriptive statistics and correlations among the variables of interest in our research study are presented in table 1.

Table 1. Descriptive Statistics and correlations

	M	SD	1	2	3	4	5	6	7	8
1. Resilience T1 – Positive Self-Concept	5.73	.72								
2. Resilience T1 – Curiosity	5.89	.55	.54*							
3. Promotion Focus T1	3.19	.35	.19*	.06						
4. Prevention Focus T1	4.20	.60	.22*	.17	.32*					
5. Promotion Focus T2	3.23	.56	.22*	.08	.66*	.19*				
6. Prevention Focus T2	4.18	.52	.26*	.20*	.19*	.59*	.25*			
7. Task Performance T2	4.48	.46	.19*	.19*	.04	.19*	-.05	.22*		
8. Personal Initiative T2	3.85	.47	.32*	.13	.50*	.31*	.36*	.25*	.22*	
9. OCB T2	4.13	.30	.48*	.37*	.21*	.40*	.14	.22*	.42*	.50*

\* Correlation significant at the .05 level (two-tailed)

There is a weak positive relationship of promotion and prevention focus ( $r = .32$ ), underlining the theoretical assumption that both foci are independent strategies rather than opposite ends of a continuum (Förster et al., 2003; Scholer & Higgins, 2008). Moreover, our results can show relative stability of both foci, with correlations of  $r = .66$  for prevention focus at T1 and T2 and  $r = .59$  for promotion focus for both measurement points.

Hypothesis 1 proposed direct effects of resilience on task performance, OCB and personal initiative. We calculated cross-lagged panels for each outcome respectively, with resilience measured at time 1 and the outcomes measured at time 2. The direct effect of resilience (T1) on task performance (T2) and personal initiative were only marginally significant with  $b = .154$  ( $p = .09$ ) for task performance and  $b = .143$  ( $p = .06$ ) for personal initiative. The direct effect of resilience (T1) on OCB (T2) was significant, with  $b = .264$  ( $p < .01$ ). Therefore, hypothesis 1 can be partly supported with significant results for OCB only.

The relationship between resilience (T1) and regulatory focus (T2) was expected to be positive for promotion focus and negative for prevention focus according to hypothesis 2. However, the results show a different pattern of relation. For promotion focus, the relationship with resilience is positive but only marginally significant ( $b = .198$ ,  $p = .07$ ). For prevention focus, the relationship is also positive and significant ( $b = .227$ ,  $p = .03$ ). Therefore, hypothesis 2 cannot be supported.

According to hypothesis 3, both promotion focus and prevention focus are positively related to task performance. Results show a somewhat different pattern. While prevention focus

## Resilience and Regulatory Focus

(T1) revealed no significant relation with task performance (T2) ( $b = .114$ ,  $p = .23$ ), promotion focus showed a marginally significant negative relation ( $b = -.159$ ,  $p = .08$ ). These results do not support hypothesis 3.

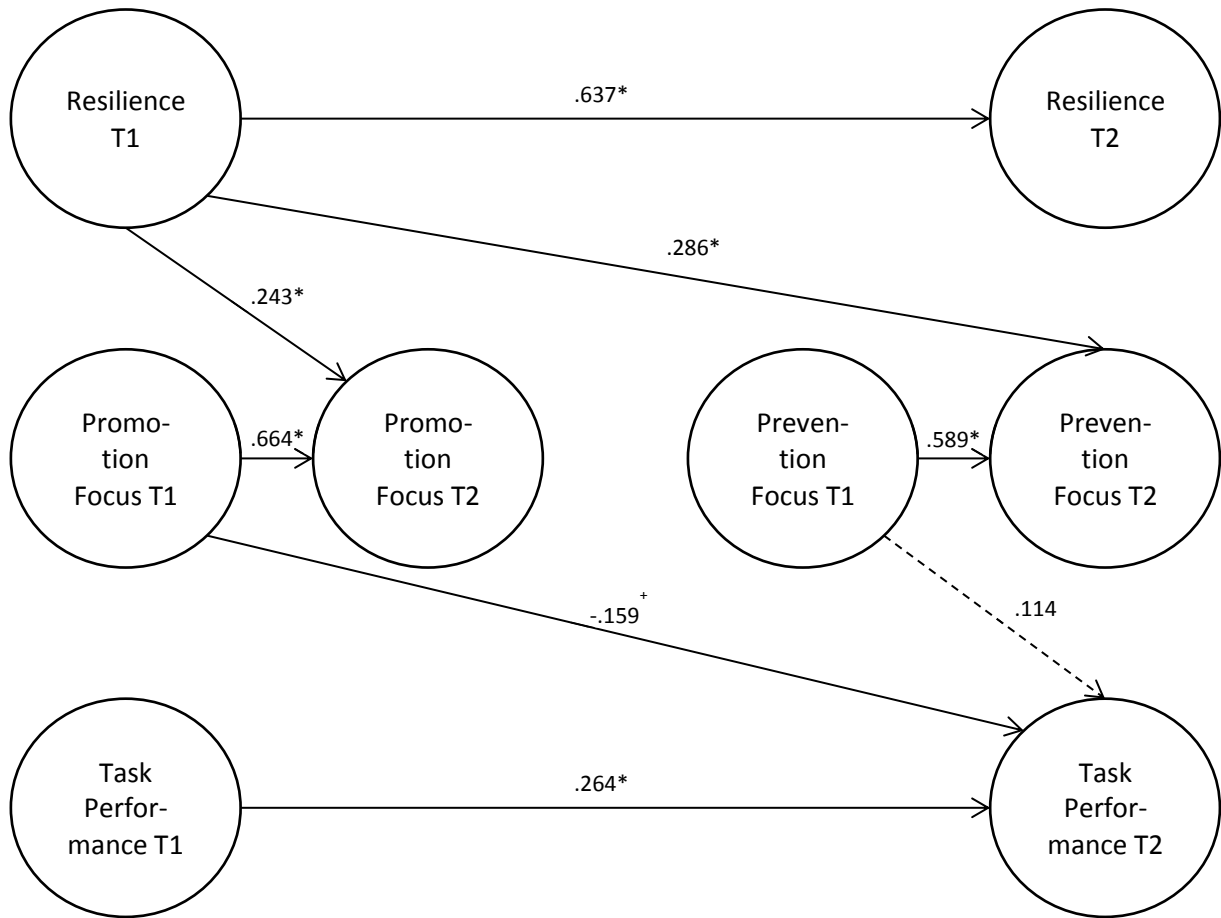
For OCB, hypothesis 4 expects positive relations with promotion focus and negative relations with prevention focus. Again, the results are different than expected. Promotion focus (T1) showed no significant relation with OCB (T2) ( $b = .051$ ,  $p = .373$ ), while prevention focus (T1) revealed a marginally significant relation with OCB (T2) ( $b = .105$ ,  $p = .07$ ). Thus, hypothesis 4 cannot be supported.

Hypothesis 5 expects a similar pattern of results for personal initiative as for OCB, with a positive relation for promotion focus and personal initiative and a negative relation for prevention focus and personal initiative. For promotion focus, these expectations can be met. Results show a significant positive relation of promotion focus (T1) and personal initiative (T2) ( $b = .298$ ,  $p < .01$ ). However, the relation of prevention focus (T1) and personal initiative (T2) is also positive and significant, with  $b = .218$  ( $p = .01$ ). Therefore, hypothesis 5 can be partly supported.

According to hypothesis 6, we propose a mediation model with regulatory focus mediating the relationship of resilience and task performance, OCB and personal initiative. In order to test the mediation hypothesis, we calculated a model for each outcome respectively. For task performance, the results are as follows. Path a1 (resilience to promotion focus) and path a2 (resilience to prevention focus) are both significant. For path a1 the regression weight equals  $b = .243$ , for path a2 the regression weight equals  $b = .286$ . While path b1 (promotion focus to task performance) shows negative relations ( $b = -.159$ ) and is marginally significant, path b2 (prevention focus to task performance) is not significant, with  $b = .114$ . Therefore, the product of a1 and b1 reveals a mediating effect of promotion focus on the relation of resilience and task performance of  $-.038$ . The mediating effect of prevention focus is not significant, with path b2 being not significant. The overall fit of the model is sufficient with RMSEA = .09 and CFI = .948.



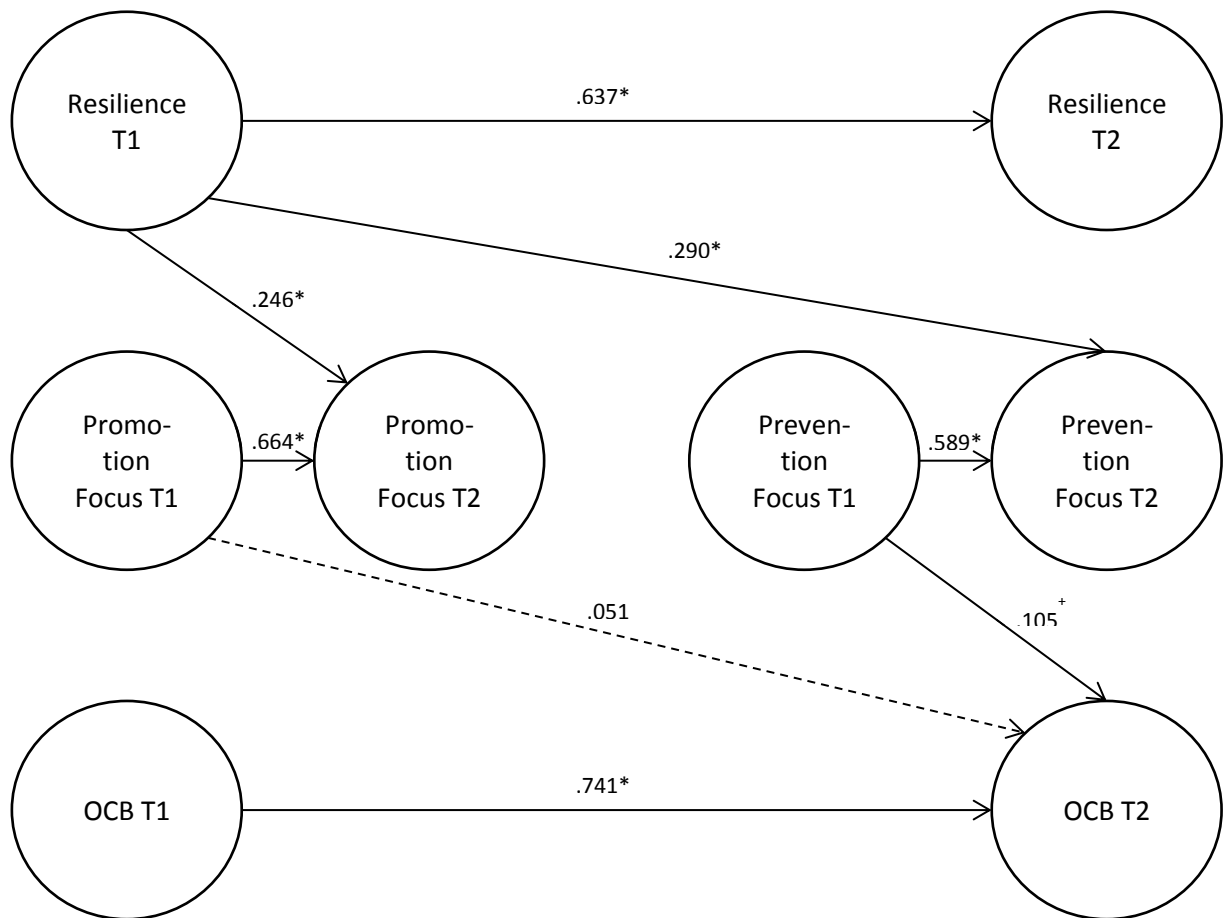
Model 1. Mediating Model for Resilience – Regulatory Focus – Task performance



\*Coefficients significant at the .05 level

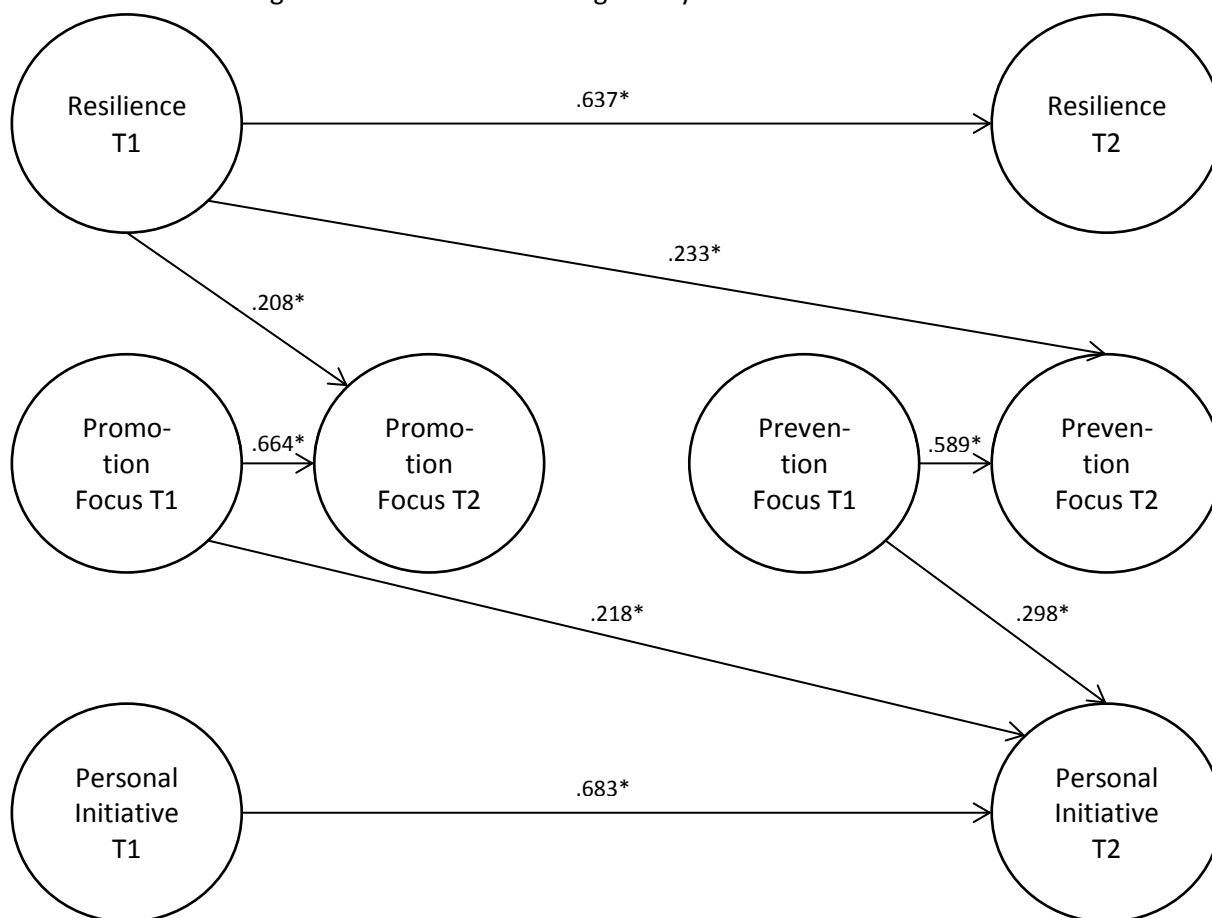
With OCB as outcome, the mediation model reveals somewhat different results. Both path a1 (resilience to promotion focus) ( $b = .246$ ,  $p = .022$ ) and path a2 (resilience to prevention focus) ( $b = .290$ ,  $p = .004$ ) are significant. Path b1 (promotion focus to OCB) is not significant, with  $b = .051$  ( $p = .373$ ), and path b2 (prevention focus to OCB) is only marginally significant with  $b = .105$  ( $p = .07$ ). The mediating effect for promotion focus is therefore not significant, while for prevention focus it is  $.026$ . The fit indices of the model reveal sufficient fit with  $RMSEA = .09$  and  $CFI = .956$ .

Model 2. Mediating Model for Resilience – Regulatory Focus – OCB



\*Coefficients significant at the .05 level

Finally, the results for personal initiative as outcome are as follows. Again, path a1 (resilience to promotion focus) is significant with  $b = .208$  ( $p = .04$ ), as well as path a2 (resilience to prevention focus) with  $b = .233$  ( $p = .02$ ). For path b1 (promotion focus to personal initiative) results are significant with  $b = .218$  ( $p = .01$ ). The same pattern of results can be seen for path b2 (prevention focus to personal initiative) with  $b = .298$  ( $p < 0.01$ ). Therefore, we can find significant mediating effects for both promotion and prevention focus, with the effect for promotion focus ( $a1*b1 = .045$ ) being smaller than the effect for prevention focus ( $a2*b2 = .069$ ). The fit indices again show sufficient fit with  $RMSEA = .09$  and  $CFI = .955$ .

*Model 3. Mediating Model for Resilience – Regulatory Focus – Personal Initiative*

\*Coefficients significant at the .05 level

Overall speaking, the mediating effect of regulatory focus seems to be strongest for personal initiative as outcome, compared to both task performance and OCB. In general, the results give partial support for hypothesis 6. However, the mediating effect of prevention focus was stronger for all outcomes than that of promotion focus. Other than expected, the effects of prevention focus on the relationship of resilience and outcomes were not negative. For promotion focus, only the relationship of resilience and personal initiative was mediated in the expected direction. For the other two outcomes, no significant mediating effect of promotion focus could be found.

### Discussion

In our research study, we tested if regulatory focus mediates the relationship of resilience and positive work related outcomes. As theoretical framework we used a distal – proximal approach, with resilience being a distal factor effecting work related outcomes and regulatory

## Resilience and Regulatory Focus

focus being a more proximal factor, working through motivational mechanisms. According to our hypothesis, we expected promotion focus to mediate the relationship in a positive way, while prevention focus would show negative relationships. However, our results showed a different pattern of effect. Rather, prevention focus was a significant mediator influencing the relationship of resilience and OCB, as well as resilience and personal initiative positively. For task performance as outcome, prevention focus was not significant as mediator. Moreover, in this case, we unexpectedly found a negative effect of promotion focus. We therefore need to discuss, how these rather surprising patterns of results can be explained.

First of all, both promotion focus and prevention focus are taken into closer consideration. Promotion focus is defined as risk-taking, engaging factor. People with a strong promotion focus are known to be achievement oriented and willing to take risks (Higgins et al., 2001). When taking a look at the personality of risk-taking individuals, they show high relations with extraversion and low relations with conscientiousness (Gullone & Moore, 2000). However, conscientiousness is a strong predictor of task performance (Barrick & Mount, 1991), as well as OCB (Hatrup, O'Connell & Wingate, 1998; LePine & Van Dyne, 2001). Moreover, conscientiousness is also closely related to resilience (Friborg, Barlaug, Martinussen, Rosenvinge, & Hjemdal, 2005). On the other hand, resilient individuals show low relations with extraversion (Fayombo, 2010). Meta-analytic findings have shown that extraversion only shows relations with job performance for specific occupations, for example managers and police officers (Salgado, 1997). Our results reveal no significant relation of resilience and promotions focus, which might be explained by those differences in the underlying personality variables of conscientiousness and extraversion. Moreover, there is no significant relation of promotion focus and performance outcomes, which might also be traced back to those differences.

Prevention focus might generally be more closely related to conscientious behaviors, with people applying a strong prevention focus being rather dutiful and reliable. A positive relationship of conscientiousness and prevention focus is reported in a meta-analysis by Gorman et al. (2012). Therefore, our assumption can be supported. Moreover, as resilience is related to high levels of conscientiousness, a strong prevention focus might lead to better functioning in times of crisis because people are focused on fulfilling their duties. In turn, this leads to keeping a normal functioning upright, while the effects of difficulties at work are minimized. Taken together, the relationship of promotion and prevention focus with conscientiousness can therefore explain the surprising relation of resilience and regulatory focus. However, in order to support this assumption, future studies should consider the relationship of personality variables and promotion focus.

Next, we need to discuss the role of promotion focus in predicting work related behaviors. For example, Gorman et al. (2012) report a stronger relationship of promotion focus and positive work related outcomes than can be seen in our research study. In order to explain our rather unexpected results, we need to take a closer look at the participants in this research study. The entire sample consisted of employees working in an organization providing sheltered workshops and sheltered housing. The main focus in these positions is not to achieve outstandingly, but to provide safe and secure working and living surroundings for people with special needs. Therefore, the employees are expected to show good task performance by having a focus on fulfilling their duties in a safe and reasonable way, which in turn is closer related to prevention focus. In this case, we can therefore expect higher levels of task performance when employees show higher levels of prevention focus. This is in line with previous research, which differentiates between the role of regulatory focus in accomplishment-oriented and discipline-oriented positions (Wallace & Chen, 2006; Lanaj et al., 2012). In case of the former, a typical employee is required to perform a variety of tasks while at work, such as selling products and services, minimizing error and waste, developing new processes, and adhering to safety regulations and rules of conduct. Usually, these tasks have the goal to accomplish a specific goal, such as selling a large number of products in a specific period of time. The latter, on the other hand, is more focused on avoiding undesirable goals, such as preventing accidents. In support of this idea, empirical findings suggest that promotion and prevention foci are uniquely related to work behaviors such as task productivity, innovation, and safety adherence (e.g., De Cremer et al., 2009; Neubert et al., 2008; Wallace et al., 2009). For example, prevention focus has a strong positive relationship with safety behavior, whereas promotion focus has a weak negative relationship with safety behavior (Wallace & Chen, 2006).

Then, there were only marginally significant direct effects of resilience on task performance as well as resilience on personal initiative. Only OCB was significantly influenced by resilience. These results can be explained by the fact that the different facets of resilience are likely to be associated with contextual performance. For example, resilient people are known to have a stable social network (Rutter, 1985), which is closely related to good social skills. Therefore, resilient people can be expected to engage in citizenship behaviors such as helping others and showing sportsmanship. In general, resilience is more likely to influence contextual behaviors than task behaviors, which can also explain the weak relationship of resilience and task performance. In case of personal initiative, the results are somewhat surprising. Although previous research has shown positive relations of resilience and personal initiative (see Study 2) we could not replicate these findings. One explanation might be the research setting in which the study took place. As mentioned previously, participants were employees at an organization caring

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for disabled people. It might be questionable, to what extent personal initiative is required in such a work setting. Self-starting behaviors of employees, who want to change well established procedures or surroundings, might be irritable to people with disabilities. Therefore, personal initiative is probably not considered to be beneficial in this special research setting.

Another unexpected result is the relationship of resilience with regulatory focus. On the one hand, resilience is unrelated to promotion focus, and on the other hand it shows significant positive relations with prevention focus. One explanation might be that resilient people are not very achievement-oriented, and thus show less promotion focus. This is in line with the previous finding, that resilience is only marginally related to task performance, with task performance being an indicator for achievements. Rather, they put a focus on social contacts, optimism and acceptance of unchangeable things (Thompson, Arnkoff & Glass, 2011). Especially the acceptance aspect is in line with rather adaptive behavior, instead of proactive, achievement oriented attitudes. This might also explain the positive relation with prevention focus, where adaptive behaviors play a major role.

In line with the remarks above is the result, that there is no influence of prevention focus on task performance and OCB. However, being an even more interesting result is the fact that there is a negative relationship of promotion focus and task performance. Again, the research setting might play an important role in this finding, with task performance being defined differently than in achievement oriented positions.

Next, results show that OCB is only marginally related to prevention focus and unrelated to promotion focus. OCB being unrelated to promotion focus is not very surprising. Reaching personal goals and being achievement oriented might not be in the interest of others. Therefore, promotion focus does not aim attention at contextual behavior. Contextual behavior as defined by OCB deals with helping others, showing sportsmanship and behaving as a citizen in ones' organization. These behaviors are usually unrelated to reaching specific work goals. Thus, on a theoretical basis, promotion focus and OCB are unrelated. Closely, OCB being only marginally related to prevention focus can be explained in a similar way. Employees with a strong prevention focus are trying to avoid mistakes and focus on the tasks, they are required to do. These tasks usually do not involve any contextual behaviors. Moreover, performing contextual behaviors might lead to mistakes, which are otherwise avoided. Therefore, a strong prevention focus is not in favor of OCB. Previous research also found contradictory results for the relation of regulatory focus and OCB. For example, Neubert et al. (2008) reported a positive relation between promotion focus and prosocial behaviors, whereas these variables were found to be unrelated by De Cremer et al. (2009). Similarly, prevention focus is unrelated to citizenship behaviors in some

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cases (e.g., De Cremer et al., 2009) and negatively related in other cases (e.g., Wallace et al., 2009)

Finally, a rather surprising result is the fact that personal initiative is related to both promotion and prevention focus. Being related to promotion focus is just as we expected in the hypothesis. However, we also expected no relationship with prevention focus. Prevention focus is related to doing what is expected to be done and keeping to previously defined work tasks. Contrary, personal initiative is a self-starting and rather proactive approach to work (Frese & Fay, 2001). Therefore, personal initiative being related to prevention focus is rather counter-intuitive. However, our results show a different pattern. The most likely explanation for the positive relationship of prevention focus and personal initiative is again the research setting, in which this study took place. Employees in sheltered workshops and sheltered housing might possibly count those behaviors as personal initiative that enhance safety and avoid mistakes. For example, one idea given by an employee of the organization was to implement more interventions concerning occupational safety. By giving this idea, the employee shows personal initiative which is concerned with safety behaviors and thus related to prevention focus. Therefore, in these special positions, a positive relationship of prevention focus and personal initiative is not as unusual as it might seem.

In summary, our results show that regulatory focus can serve as a proximal factor influencing work related outcomes, while resilience is a rather distal antecedent of those behaviors. The mediating effects of the two regulatory foci support this theoretical assumption. However, the motivational aspects of promotion and prevention focus depend on the nature of job that is being studied. In our case, there is obviously a strong focus on safety behaviors and maintaining a secure environment for people with special needs. Therefore, employees with a strong prevention focus are best for fulfilling the requirements in these positions.

Our results extend regulatory focus theory by considering resilience as antecedent of regulatory focus. Other than expected, resilience shows a stronger relationship with prevention focus than promotion focus. Moreover, it describes the relation of regulatory focus and work related outcomes as being dependent on the nature of jobs that is investigated.

In addition, the call for mechanisms explaining the relationship of resilience and work related behaviors is answered, by considering regulatory foci as mediators of that relationship. We could show that regulatory foci can serve as proximal factors at the strategic level to explain the distal relationship of resilience and work related outcomes.

***Practical implications***

Our findings are not only interesting on a theoretical basis, but hold some practical implications as well. First of all, when searching for employees for positions which have a strong focus on safety behaviors (i.e., employees in power plants, occupational safety specialists) the levels of promotion and prevention focus give indications if a person is suitable for the job. As in the research setting we applied for this study, prevention focus is associated with a stronger focus on avoiding mistakes and adopting safety behaviors. Contrary to previous research, which indicates higher levels of task performance for employees with a strong promotion focus, we could show that high levels of prevention focus can also be related to high levels of task performance. It all depends, however, on the position in question. On the other hand, these employees might be somewhat less proactive, showing lower levels of personal initiative. Therefore, an employer needs to define precisely which tasks have to be fulfilled on the job and which characteristics a future employee should hold in order to sufficiently engage in those tasks. If proactive behaviors are beneficial for the position, a more balanced profile of promotion and prevention focus should be considered. In summary, determining the regulatory focus of applicants might help finding the right person in personnel selection.

***Limitations and Future Research***

Our research study holds a number of limitations. First of all, in order to test a mediating model, a three wave data collection design would have been best (Selig & Preacher, 2009). However, as indicated by Cole and Maxwell (2003), the analysis can also be performed with a two wave design, assuming stationarity. In our case, we can assume stationarity because a third wave of data collection with a temporal offset of another couple of months would not substantially change the situation of the organization or the variables measured in this study. Moreover, since the dropout rate of participants was already quite high (only 25% of all employees participated in both data collection waves), applying a third wave would decrease this number even further. However, with a larger number of participants, this study should be replicated by using a three wave data collection design.

Secondly, the organization where this research took place was quite special. With employees mainly caring for people with special needs, it is questionable, to what extent our results can be generalized to a wider population. Therefore, our results need to be replicated in other organizations with different specializations. However, we expect the results to be somewhat restricted to organizations such as care units, nursing wards or no- profit organizations. For most commercial organizations, focusing on selling products or services, we expect results to



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differentiate. Nevertheless, these assumptions should be tested in corresponding research settings.

Finally, our results implicate that resilient employees might be less proactive by showing low levels of personal initiative. However, as these results are contradictory to previous research (see Study 2), these findings needs to be replicated in order to get more insight into the relationship of resilience and personal initiative. If resilience is in fact associated with lower levels of personal initiative, this again has practical implications for personnel selection. Accordingly, organizations have to decide, if they rather want to hire employees who are resilient to difficulties and crisis, or if they want to recruit employees who show proactive behaviors and display personal initiative.

### General Discussion

In this dissertation, three papers help to contribute to the literature on resilience by different theoretical and methodological methods. Theoretically, integrating appraisal theory and regulatory focus theory into the broaden-and-build theory of positive emotions helps to extend knowledge on the theoretical background of resilience. Moreover, the concept of resilience is further clarified by analyzing its dimensionality according to existing measurement instruments. Finally, all research in this dissertation is done in work contexts, in order to integrate the concept of resilience into the work and organizational psychology literature.

The first study of this dissertation helps to advance knowledge by considering the dimensionality of resilience and validating well-known measurement instruments of resilience in the work context. The dimensionality of resilience was assessed by means of factor analysis when analyzing those measurement instruments for resilience. Although all measurement instruments used assumed unidimensionality, the results could not support this assumption. Rather, according to the results of validation analyses, each instrument had a focus on different aspects of resilience. The imminent conclusion therefore holds that resilience cannot be considered a unidimensional concept. Since all instruments were applied in a work context, a recommendation about the best measurement instrument in this context could be made. The most promising results were found to be provided by the RS-11 (Schumacher et al., 2005). However, instead of the previously assumed factorial structure with all items loading on just one factor, the results of study 1 speak for a two-factor solution. Therefore, since all following research was done in work contexts, the RS-11 was used respecting its factorial structure with two factors. By validating resilience scales in the work context, I contribute to the literature in the work and organizational psychology domain and extend knowledge on adult resilience, which is a further step towards clarifying the concept. This is in line with other research which applies resilience to the work context (e.g., Barker Caza & Milton, 2011; Pangallo et al., 2015)

The second study of this dissertation helps to extend knowledge on resilience by differentiating resilience from other similar constructs, in this case CSE. Both CSE and resilience have been used previously as buffering factors in the stressor-strain relationship (e.g., van Doorn & Hülshager, 2015). The question therefore arises, if resilience differs enough from CSE to be regarded as self-standing concept. By applying the same underlying mechanism for both concepts, namely appraisal theory, a comparison of both concepts could be made. Results demonstrated differences for both resilience and CSE when it comes to underlying mechanisms. While appraisal theory can be regarded as mechanisms for resilience, with difficult situations being appraised as less threatening, for CSE it does not play a role. Therefore, the contribution to the literature is a further clarification of the resilience concept by differentiating it from another

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concept well-known in the work and organizational psychology literature. At the same time, the knowledge on mechanisms explaining the resilience process is extended. Both Rutter (1987) as well as Tugade and Fredrickson (2007) point out, those mechanisms are in need of further investigation in order to understand the concept of resilience better. This is not only done with study 2 and appraisal theory, but also with study 3 of this dissertation.

When investigating resilience mechanisms, a focus should be placed on different work contexts, as the third study shows. This study investigates the role of regulatory focus theory as underlying mechanism explaining the relation between resilience and work related outcomes. Although both theoretically and according to previous research, regulatory focus theory was supposed to follow the pattern of high relations of resilience with promotion focus and low relations with prevention focus, our results did not support these assumptions. The weak relation of resilience with promotion focus can be explained with the specific work setting in which the research took place. All subjects were employees at an organization caring for people with special needs. Their work obligations can be defined as providing a safe and secure environment for those people. However, safety behaviors are more likely to be demonstrated by people within the prevention focus. Therefore, the relation of resilience and regulatory focus seems to depend to a large extent on the nature of a job. In order to substantiate this assumption, further research regarding resilience and regulatory focus with subjects holding other positions (e.g., sales representatives, employees in customer relations) needs to be carried out. This research study not only adds to the literature by integrating a new resilience mechanism, it also points out the importance of taking the positions that are being studied into closer consideration. In line with other research on regulatory focus theory (e.g., Gorman, 2012) this research study reveals differences between specific job positions and the application of promotion focus or prevention focus in relation to resilience.

Finally, knowledge on the work related outcomes integrated in the research studies is extended by relating them to resilience. There is already some research on two of the used work related outcomes, namely task performance and OCB (e.g., Sadegh, 2015; Youssef & Luthans, 2007). However, I can extend the knowledge on those outcomes in relation to resilience by using different methods (e.g., daily diary design in study 2) and specific work contexts (e.g., organization caring for people with special needs in study 3). Results revealed relations of task performance and resilience on a daily level to be positive but rather weak. For OCB, results show a strong positive relationship with resilience. This can be explained by the social and psychological factors influencing resilience, which can also be associated with OCB. For example, just as resilient people maintain a stable social network, organizational citizenship behaviors are related to demonstrations of social competence in the workplace (Organ, 1988). Generally speaking, the

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results show stronger relations of resilience with extra-role behavior or contextual performance compared to work performance.

However, the third work related outcome analyzed in all three studies, namely personal initiative has not been included in resilience research thus far. The results of all studies reveal a positive but weaker relation of personal initiative with resilience compared to task performance and OCB. Personal initiative is one form of proactive behavior, characterized by being active and self-starting (Frese & Fay, 2001). However, resilient individuals are more likely to show adaptive instead of proactive behaviors, which might explain the weaker relationship of resilience and personal initiative. Nonetheless, the relation is positive and significant, emphasizing the need for self-starting and active behaviors in difficult situations. Therefore, resilient employees can be expected to demonstrate initiative when being beset by problems, in order to more easily overcome challenging situations. This notion is also reflected by the results of the daily diary design in study 2. In daily situations, resilience has stronger relations with personal initiative than with task performance. Again, this can be explained by personal initiative being an immediate behavioral response to challenging situations, while task performance is a more general demonstration of behaviors related to duties and obligations associated with an employee's position. Taken together, personal initiative is positively related to resilience, but the strength of the relation is different for daily measures compared to cross-sectional research. While research on resilience in the work place has already pointed out a number of positive relations, for instance with task performance (Youssef & Luthans, 2007) and organizational citizenship behavior (Sadegh, 2015), I contribute to the literature by emphasizing the importance of different levels of analysis (daily vs. cross-sectional) for those outcomes.

This dissertation holds a number of theoretical and practical implications. First, on a theoretical basis, the concept of resilience is further clarified by analyzing its dimensionality and differentiating it from other similar constructs. The notion that resilience is a multidimensional concept is supported (e.g., Campbell-Sills, Cohan, & Stein, 2006; Luthar et al., 2000). Another seemingly alike concept, namely CSE, showed different underlying mechanisms than resilience. This supports the notion that resilience is not just old wine in new bottles. Rather, the concept seems to differ from other similar concepts enough to justify its own stream of research.

Next, knowledge on the broaden-and-build theory of positive emotions is extended by integrating other possible mechanisms besides emotions into the theory. More specifically, appraisal theory as well as regulatory focus theory was incorporated within this dissertation. Both theories are able to explain the resilience mechanisms to some extent. Results for appraisal theory could show that resilient people are less likely to appraise a problem as threatening. This again leads to the experience of fewer negative and more positive emotions. The more positive

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emotions a person experiences, the more likely he or she is to broaden one's thought-action repertoires. This again leads to success despite encountering problematic situations. For regulatory focus theory, results showed that resilient individuals are more likely to act within a prevention focus. This allows for fewer mistakes to be made and fulfillment of work duties and obligations, which then again leads to the experience of positive emotions for people within a prevention focus. Therefore, in times of crisis, resilient people are able to work successfully by acting within a prevention focus.

### **Practical Implications**

The practical implications of this dissertation foremost aim at providing employees with the abilities to face a fast pacing and changing work environment. We work in an increasingly uncertain and globally influenced environment, which leads to concerns about job security. Feelings of job insecurity show negative relations with employees' work attitudes and behaviors (Sverke, Hellgren & Näswall, 2002). Therefore, it might be about time to add resilience to the core skills required by employees and managers to better cope with the new state of work. More specifically, knowledge on resilience in the workplace helps those responsible in the human resources sector to decide to what extent resilience is beneficial for their employees as well as the organization. As could be shown in all three studies, resilience has a positive relation with a number of work related behaviors, namely task performance, organizational citizenship behavior, and personal initiative. Employees that have high resilience levels can be expected to show positive work related behaviors. These behaviors then again contribute to the overall goal of an organization. Therefore, when recruiting new employees, a focus should be put on the resilience levels of applicants. This supports the workforce of an organization to be equipped with the ability to perform well, especially in turbulent and uncertain work conditions.

Secondly, the research on resilience mechanisms helps to understand the way resilient people act. As has been pointed out by Barker Caza and Milton (2011), resilience at work should be viewed as developmental process. It is therefore important to understand the underlying mechanisms that help to cultivate resilience at work and its consequences. By understanding resilience mechanisms, underlying strategic and motivational concepts of employees can be taken into consideration. For example, training of appraisal strategies might be helpful to develop strategies to deal with difficult situations in positive ways. This in turn is associated with higher performance levels, as could be shown in Study 2. Therefore, by taking the motivational concepts and strategies of resilience employees into consideration when developing trainings for the general workforce, a stable level of performance might be promoted.

**Future Research**

The results of all three studies hold some implications for future research. Firstly, the differences between daily measurements of resilience outcomes and cross-sectional measurements of those outcomes need to be investigated more thoroughly. As could be shown for personal initiative and task performance, which were both measured at a daily and a cross-sectional level in this dissertation, the results differed to some extent. OCB however was only measured at a cross-sectional level. It can be expected that daily levels of OCB might differ from the cross-sectional levels such that employees report lower levels of daily OCB when reporting more difficult situations for that day. In order to test this assumption, OCB should be included as daily measure, analyzing the possible differences that could be seen for personal initiative and task performance. This also applies for other outcomes, both in the work and organizational psychology context but also other research domains dealing with resilience. For instance, next to OCB those outcomes might include work satisfaction, organizational commitment, or counterproductive work behaviors. Although there already is substantial research on those outcomes, investigating them on a daily level might help gaining a more realistic picture of the constructs. Daily measures allow for studying those constructs in a more natural work context, helping to understand the fluctuating short term dynamics of daily work experiences (Ohly, Sonnentag, Niessen & Zapf, 2010). Cross-sectional and longitudinal measures can be influenced by hindsight bias and this bias can be mostly circumvented when applying day level measures.

Next, previous research demonstrated that the way people perceive risks differs substantially (Luthar et al., 2000). In order to further extend the research on resilience, these differences need to be taken in account. Therefore, in resilience research, subjects should indicate the perceived severity of risks they experience. This dissertation already contributes to this notion by applying appraisal theory into resilience research with a daily diary design. In order to further extend this research, a strong focus on experience sampling methods within resilience studies should be placed. By applying these methods, subjects are able to answer questions in immediate relation to a difficult situation. Researchers are then able to investigate dwelling questions about how severe a problem or risk needs to be in order to be perceived as stressful for resilient individuals. This is of particular importance in work related resilience studies, since researchers thus far agreed on 'weaker' risks for subjects in work contexts compared to resilience studies in developmental or psychopathological research contexts (Barker Caza & Milton, 2011). Taken together, the assessment of risks and how they are perceived should be a focus of future resilience research.

Additionally, the resilience mechanisms explaining the relationship between resilience and outcomes are in need for further clarification. This dissertation includes appraisal theory and

## General Discussion

regulatory focus theory as mechanisms in the resilience process. However, there are a number of other possible mechanisms that need to be analyzed in future studies. To name just one, emotion regulation might be a promising indicator for demonstrating differences between resilient and less resilient people. According to broaden-and-build-theory, resilient individuals experience significantly more positive emotions when beset by problems than less resilient individuals (Fredrickson, 2001). However, in order to experience those positive emotions, resilient people are in need for efficient strategies to see positivity in situations where others experience negative emotions. Those strategies are described in emotion regulation research (Gross, 1998). The evaluation of functional and dysfunctional emotion regulation strategies in relation to resilience would further clarify the concept by bringing insight into underlying mechanisms.

Finally, previous research has put a strong focus on factors beneficial for resilience (e.g., Masten et al., 1990; Rutter, 1987). These factors include among others social success, educational achievements and family cohesion. However, the previously named factors are mostly assessed in developmental settings, with children and young adults as subjects. In order to adopt the concept of resilience into work life, the factors most influential for employees need to be analyzed. Other than educational success or family cohesion, factors beneficial for resilience in work contexts might be a positive work climate or a sense of achievements. By identifying the most important factors, another step towards developing resilience in the workplace can be made. Employers are then able to put a focus on providing a resilient environment and implement personnel development practices that foster resilience in their employees.

Generally speaking, with this dissertation the concept of resilience could be clarified to some extent. Moreover, resilience could be further integrated into the work and organizational psychology literature by giving theoretical and practical implications.

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### Erklärung zu Konferenzbeiträgen und Veröffentlichungen

Teile der vorliegenden Dissertation wurden bereits auf deutschen und internationalen Konferenzen vorgestellt und/oder zur Veröffentlichung eingereicht.

Titel	Konferenz/Zeitschrift	Art des Beitrags
Resilienz Fragebögen – Vergleich und Validierung im arbeitsbezogenen Kontext	Diagnostica	Zeitschriftenartikel, Revise and Resubmit
	9. Fachgruppentagung der Arbeits-, Organisations- und Wirtschaftspsychologie, 24.-16.09.2015 in Mainz	Vortrag
The relation of resilience and CSE with work-related behaviors: Investigating appraisal and affect as underlying mechanisms in a daily diary study	49. Kongress der deutschen Gesellschaft für Psychologie, 21.-25.09.2014, Bochum	Vortrag
Resilience and Regulatory Focus: A distal-proximal approach to work related outcomes	12. European Academy of Health and Occupational Psychology, 11.-13.04.2016, Athen	Vortrag

### **Eidesstattliche Erklärung**

Hiermit versichere ich, dass ich die vorliegende Dissertation selbstständig, ohne unerlaubte Hilfe Dritter angefertigt und andere als die in der Dissertation angegebenen Hilfsmittel nicht benutzt habe. Alle Stellen, die wörtlich oder sinn-gemäß aus veröffentlichten oder unveröffentlichten Schriften entnommen sind, habe ich als solche kenntlich gemacht. Dritte waren an der inhaltlich-materiellen Erstellung der Dissertation nicht beteiligt; insbesondere habe ich hierfür nicht die Hilfe eines Promotionsberaters in Anspruch genommen. Kein Teil dieser Arbeit ist in einem anderen Promotions- oder Habilitationsverfahren verwendet worden.

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