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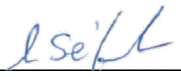

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Mediator or Moderator: The Influence of Flow on the Relationship Between Resources and Organizational Outcomes

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ABSTRACT

Within the scope of positive psychology one main construct is optimal experience or flow. Flow is a state in which people are so involved in an activity that nothing else seems to matter. Although Maslow introduced the term `positive psychology` more than 70 years ago the research in this field is still sparse and conceptualizations as well as implications of flow are fragmentary and inconsistent. Therefore the present study among 117 white-collar employees investigates the relationships between flow at work, job resources (feedback, task variety, social support, autonomy and self-efficacy) and organizational outcomes (subjective well-being, work performance and health). In this concept it was assumed that resources and flow are predictors of organizational outcomes and that resources are also predictors of flow. Additionally, flow was studied as a mediator of the resources–outcomes relationship. Subjects completed online and paper-pencil-surveys including resources, flow and organizational outcomes. Analyses revealed that higher levels of job resources lead to higher levels of flow at work, as well as predicting well-being and work performance. In addition, employees who report frequent flow experience also report high levels of well-being and work performance. Furthermore, flow was found to be a mediator in the relationship of resources with subjective well-being and work performance. It is recommended that organizations should care more about resources and flow, since they predict well-being and work performance.

Keywords: Flow at work, job resources, work performance, well-being, health

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* The form of the reference selected shall apply to both genders.

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1. INTRODUCTION

In recent decades, psychologists have almost exclusively focused on problems and mental illnesses. This exclusive attention to pathology concentrates on repairing damage and removal of negative states (Seligman & Csikszentmihalyi, 2000). Doing a web research Luthans (2002b) found about 375 000 articles on negative concepts like mental illness or depression but only about 1000 articles on positive concepts and capabilities of people. This shows a publication ratio of 375 to 1 between negatively and positively connoted publications.

Maslow (1954) introduced the term 'positive psychology' more than 70 years ago and stated that the behavior of a healthy person is less determined by negative emotions like anxiety or fear, and more by positive constructs like truth and fairness (Wright, 2003). However, the turn to a science of human strengths and optimal functioning gained no increasing interest until Martin Seligman's call for a positive psychology (Luthans, 2002b; Seligman & Csikszentmihalyi, 2000). The so-called father of positive psychology stated that the major tasks of psychotherapy are less the fixing of negative states but rather the reinforcement of positive properties (Flowinstitute, n.d.). "Psychology is not just the study of pathology, weakness and damage; it is also the study of strength and virtue" (Seligman & Csikszentmihalyi, 2000, p. 7). He stated that the field of positive psychology is more about subjective experiences like well-being, contentment and satisfaction (relating to the past); hope and optimism (relating to the future); and flow and happiness (relating to the present) (Seligman & Csikszentmihalyi, 2000).

Even researchers in the field of occupational psychology have become increasingly more interested in optimizing positive emotions and experiences and therefore the study of positive psychology has drawn attention in many organizations (Llorens, Salanova, & Rodríguez, 2013; Luthans, 2002b; Schaufeli & Bakker, 2004). The 'Continentale Studie 2013' (Eng. *Continentale study 2013*) inspected the expectations and requests of employees in Germany and found that well-being and satisfaction move to the center of attention. Physical and mental health at work, as well as work-life-balance are getting more important and gain

increasing influence in a person's decision for a workplace. Employees want to be supported in balancing their private and working lives, the working day should be flexible and relievingly designed and the health of the employees moves into focus (Continentale Krankenversicherung a.G., 2013). In addition, another trend forces the companies to be active. The term 'war of talents' is a prevalent topic in the media regarding the current labor market situation. Companies face a major challenge to find and keep qualified employees. For them, non-monetary incentives and soft factors are gaining importance (Bartscher & Stöckl, 2011). As a result, companies turn to occupational health management to address potential candidates or to keep qualified employees (Continentale Krankenversicherung a.G., 2013).

These trends are not solely prevalent in practice and are expanding into scientific theory. Luthans (2002a, 2002b) noted the need for a more concrete approach to positive psychology in organizational research, which he termed positive organizational behavior (POB). He defined POB as "the study and application of positively oriented human resource strengths and psychological capacities that can be measured, developed and effectively managed for performance improvement in today's workplace". (Luthans, 2002a, p. 59). The focus of positive organizational behavior is on strengths and values that are measurable and contribute to better performance. Constructs that are able to contribute to POB should be positive, measurable, capable of being developed, and associated with optimal performance. He identified five variables that fulfil the criteria for POB: self-efficacy, hope, optimism, subjective well-being, and emotional intelligence (Luthans, 2002a).

One of the positive phenomena receiving increasing attention is flow (Seligman & Csikszentmihalyi, 2000). Flow is a term first coined by Csikszentmihalyi (1975), and defined as a state in which people are so involved in an activity, that nothing else seems to matter. The experience is so enjoyable, that people will do it even at great costs. The concept of flow also seems to be in line with the earlier mentioned criteria for constructs that are able to contribute to POB. Flow is positive, measurable, capable of being developed as well as associated to

optimal performance (Fullagar & Kelloway, 2009). Researchers have identified this optimal experience in a wide range of activities, including sports (Jackson, Thomas, Marsh, & Smethurst, 1998, 2001), school (M. M. Wong & Csikszentmihalyi, 1991) or work settings (Bakker, 2005; Demerouti, 2006; Salanova, Bakker, & Llorens, 2006). For the organizational setting the Psychologist Arnold Bakker defined flow at work as a short-term peak experience that is characterized by absorption, work enjoyment and intrinsic motivation (Bakker, 2005, 2008). Previous research with regard to flow at work focused, among other things, on the influence of resources. Several empirical studies showed, that flow has a connection to resources like autonomy, social support, self-efficacy, clarity of goals, task variety or to the motivational potential score from Hackman and Oldham (1980) (Bakker, 2005; Demerouti, 2006; Fullagar & Kelloway, 2009; Salanova et al., 2006) as well as to organizational resources like well-being, satisfaction, work performance, health-related life quality or physical health (Bakker, 2008; Bryce & Haworth, 2002; Csikszentmihalyi & LeFevre, 1989; Fave & Massimini, 1988; Haworth & Hill, 1992; Hirao, Kobayashi, Okishima, & Tomokuni, 2012; Kobayashi et al., 2008).

Although organizational psychologists did a lot of research on resources, aspiring work outcomes and their effect in one's working life, they did not reveal the influence of flow or other psychological states on this connection (Behson, Eddy, & Lorenzet, 2000). Studies that tried to combine the resource-outcome relation with flow are rare. Only one study tried to explain why and how the connection between resources and outputs is influenced by flow (Fullagar & Kelloway, 2009). Nevertheless, knowledge of its predictors and outcomes at work is important for the flow concept and its' added value in a work setting (Demerouti, 2006).

To support further research of the concept and the connections of flow, the present study primarily aims to describe how the connection between resources and organizational outcomes is influenced by flow at work. In addition this paper will evaluate the direct relations between flow, resources and outcomes, as there already has been some research but with contrary

findings. Despite the advances in the research of flow, more empirical research is needed in order to clarify the influence of resources on flow at work. Existing studies already examined these connection but most of them only report correlations between flow and resources, which do not allow to tell if resources predict flow. In addition the relation of flow to organizational outcomes needs to be evaluated due to the fact that the work context needs more attention and to see if flow predicts these outcomes. The main objective of this study is to clarify if flow at work influences the relation between job resources and organizational outcomes in the role of a moderator or a mediator.

2. THEORETICAL BACKGROUND

2.1. The Flow Phenomenon in the Working Context: A Short-Term Peak Experience

The study of flow is a relatively new trend evolved from research in the field of positive psychology. Originally studied with artists, athletes, composers or dancers studies of the experience of flow have also been extended to the work context (Catley & Duda, 1997; Csikszentmihalyi, 1990, 1997; Csikszentmihalyi & LeFevre, 1989).

Csikszentmihalyi (1975) introduced the concept of flow and defined it as a state of mind or experience in which people are so involved in an activity that nothing else seems to matter. The experience itself is so enjoyable that people will do it even at great cost, for the sheer sake of doing it. It is a condition people feel in moments they describe as the best of their life, a condition where time flies by (Csikszentmihalyi, 1997; Flowinstitute, n.d.). According to Csikszentmihalyi (2001) some conditions need to be met to achieve flow. Nine core elements have been proposed in literature. The most important element that has been proposed is the balance between perceived high challenges for action and high personal skills. Other core elements are: a) the clarity of goals; b) a direct and unambitious feedback; c) a merging of action and awareness; d) an intense and focused concentration on action; e) a sense of control; f) the loss of reflective self-consciousness; g) a distortion of temporal experience and h) an autotelic

experience (Bryce & Haworth, 2002; Ceja & Navarro, 2012; Csikszentmihalyi, 1990; Jackson & Marsh, 1996; Llorens et al., 2013). This definition shows that the flow experience itself and its prerequisites are mixed together (Llorens et al., 2013). Additionally, Csikszentmihalyi's studies have shown that people experience flow more often in their work than during their free time, where they spend most of the time with passive activities like watching TV or listening to music (Csikszentmihalyi, 2001).

In Csikszentmihalyi's (1975) *original flow model of optimal experience* or *three channel model* flow occurs when the actor perceives a balance between challenge and skill, regardless of whether the context was one of high or of low perceived challenge and skill. Experiences outside this channel are characterized by anxiety, when challenges exceed skills, or boredom, when skills exceed challenges (Clarke & Haworth, 1994; Ellis, Voelkl, & Morris, 1994; Engeser & Rheinberg, 2008). Figure 1 shows the *original flow model of optimal experience*. Based on

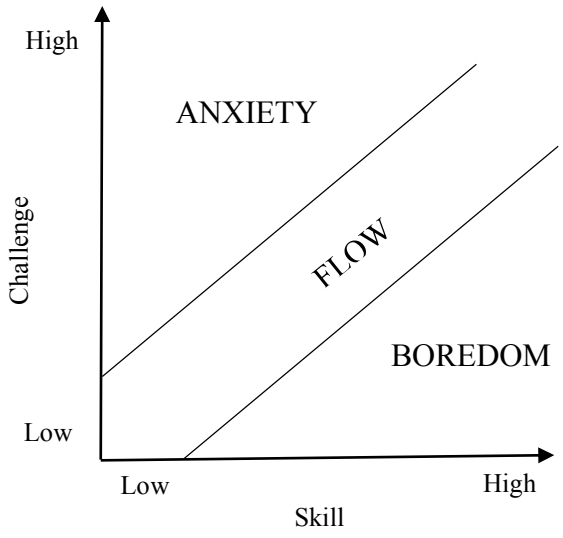

Figure 1. Csikszentmihalyi's (1975) original flow model of optimal experience

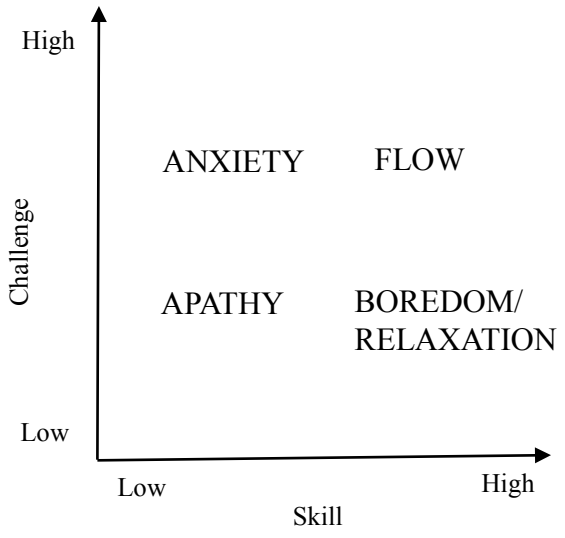

Figure 2. Csikszentmihalyi and Csikszentmihalyi's (1988) reformulated flow model of optimal experience

(Engeser & Rheinberg, 2008)

many experience sampling reports this model was reformulated by Csikszentmihalyi and Csikszentmihalyi (1988). The revised four channel model proposes, that flow is experienced only when challenge and skills are high and when they exceed the level that is typical for the day to day experiences of the individual (Ellis et al., 1994; Engeser & Rheinberg, 2008). Figure 2 shows the reformulated flow model of optimal experience.

Other theoretical models of flow, like the *experience fluctuation* or *16 channel model* by Massimini and Carli (1988), the *nine channel model* by Clarke and Haworth (1994) or the *eight channel model* by Llorens, Salanova, and Rodriguez (2013) exist, too. While differing in some aspects they all have the common assumption that flow is experienced in the channel where challenge and skill are both high (Clarke & Haworth, 1994; Delle Fave & Bassi, 2000; Ellis et al., 1994; Engeser & Rheinberg, 2008; Llorens et al., 2013; Massimini & Carli, 1988).

Some researchers postulated slightly different definitions of flow. Ellis, Voelkl, and Morris (1994) defined flow as an optimal experience that is the consequence of a situation in which challenges and skills are equal. Such a situation also facilitates the occurrence of phenomena associated with flow-like positive affect, arousal and intrinsic motivation. Ghani and Deshpande (1994) focus on the total concentration in an activity and the enjoyment which one derives from an activity during flow. They postulated an optimum level of challenge in relation to a certain skill level that is important for the flow experience. Strongly inspired by Csikszentmihalyi, Lutz and Guiry (1994, cited by Bakker, 2005, p. 27) stated that flow is a state of mind experienced by people who are deeply involved in an event, object, or activity. They are totally immersed in this activity, time seems to stand still and nothing else seems to matter. These definitions indicate that the central aspects of flow might be enjoyment, intrinsic motivation and total involvement (Mäkikangas, Bakker, Aunola, & Demerouti, 2010).

Bakker (2005, 2008) took these three aspects into account and applied them to the work situation. He defined flow at work as a "short-term peak experience at work that is characterized by absorption, work enjoyment and intrinsic work motivation. Absorption refers to a state of

total concentration in which employees are totally immersed in their work. Time flies, and they forget everything else around them (Csikszentmihalyi, 1990, cited by Bakker, 2008, p. 401). Employees who enjoy their work and feel happy give a positive judgment about the quality of their working life (Veenhoven, 1984, cited by Bakker, 2008, p. 401).(…) Finally, intrinsic work motivation refers to the need to perform a certain work-related activity with the aim of experiencing the inherent pleasure and satisfaction in the activity (Deci & Ryan, 1985, cited by Bakker, 2008, p. 401). Intrinsically motivated employees are continuously interested in the work they are involved in (Harackiewicz & Elliot, 1998, cited by Bakker, 2008, p. 401)" (Bakker, 2008, p. 401).

As mentioned previously, one of Csikszentmihalyi's core elements of flow is the balance between high challenges and high personal skills. Applied to the work situation this means that employees should experience flow particularly when their job demands match their professional skills (Bakker, 2005).

2.2. Job Resources and the Job Demands–Resources Model

One of the models used in this study is the *job demands-resources (JD-R) model*. The JD-R model has gained high popularity and can be used as a framework in research of employee well-being and performance in different types of occupations and organizations. Along with Karasek's (1979) job demand-control model and Siegrist's (1996, 2002) effort-reward imbalance model, it is one of the leading job stress models (Schaufeli & Taris, 2014). Initially applied to burnout (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001), Schaufeli and Bakker (2004) presented an extended version of the JD-R model that includes work engagement as the positive counterpart of burnout.

At the heart of the original JD-R model lies the assumption that conditions at work can be classified into two broad categories: job demands and job resources (Demerouti et al., 2001). These work characteristics evoke two different processes. High job demands exhaust mental

and physical resources and hence may lead to health problems and burnout (exhaustion). Poorness or a lack of job resources prevent the accomplishment of goals, which may result in failure and frustration. The employee is not able to meet and reduce the negative influence of high job demands. This could lead to withdrawal from work, reduced motivation or reduced commitment (Disengagement) (Bakker, Demerouti, de Boer, & Schaufeli, 2003a; Demerouti et al., 2001). Demerouti et al. (2001) defined job demands as physical, psychological, social, or organizational aspects of a job that require sustained physical or psychological effort and therefore stand in connection with physical and psychological costs. Examples are high work pressure, role overload or time pressure. Job resources refer to those physical, psychological, social, or organizational aspects of a job that help to achieve work goals, reduce job demands and associated costs, stimulate personal growth or development. Resources can be located at different levels. For example at the level of the organization, the personal level or the task level (Bakker et al., 2003a). Examples of job resources are social support from colleagues and supervisors, performance feedback, skill variety or job control (Demerouti et al., 2001).

As illustrated in figure 3, the *revised job demands-resources model* includes work engagement in addition to burnout and considers burnout as a mediator of the relation between job demands and health problems, and work engagement as a mediator of the relation between job resources and turnover intention (Schaufeli & Taris, 2014). Schaufeli and Bakker (2004) added a positive psychological state in the model. Similar to the earlier model, the revised model assumes that burnout results from high job demands and low job resources, but now burnout is treated as uni- instead of two-dimensional. The revised model emphasizes the motivational character of job resources. Following the *effort-recovery theory* from Meijman and Mulder (1998), job resources play an extrinsic motivational role, because they initiate the willingness to spend compensatory effort and thereby reduce job demands and foster goal attainment. Job resources also play an intrinsic motivational role, because they satisfy basic human needs for autonomy, relatedness and competence (Deci & Ryan, 2000). Through the

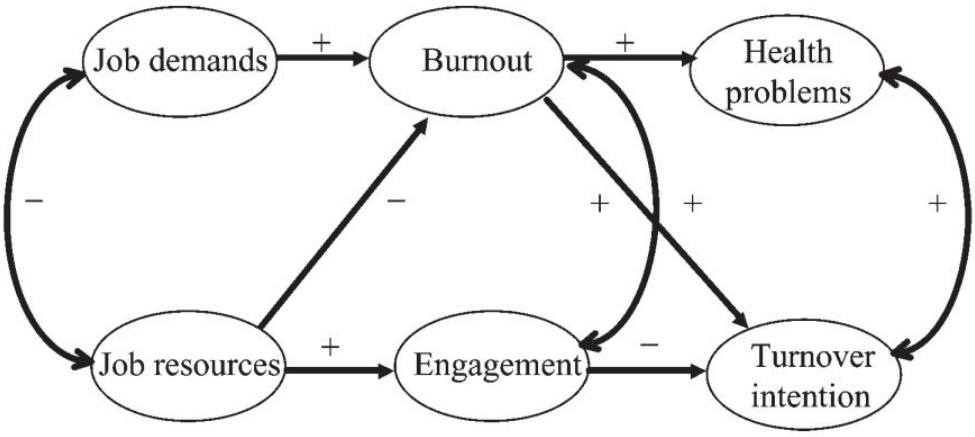

Figure 3. The revised Job Demands-Resources (JD-R) model (Schaufeli & Bakker, 2004)

achievement of goals or the satisfaction of basic needs job resources stimulate a positive work-related state of mind. This state fosters positive organizational outcomes like organizational commitment and performance. Therefore engagement is assumed to mediate the relation between job resources and organizational outcomes (Schaufeli & Taris, 2014).

The present study uses the motivational part of the job demands-resources model to explain the connection between job resources and organizational outcomes. According to Schaufeli and Bakker (2004) the availability of job resources stimulates a positive state of mind independently of job demands. In their reformulated JD-R model this positive state is work engagement. The present study explores if another positive state of mind such as flow can be evoked by job resources and foster positive organizational outcomes, too.

The next chapters will give an overview over the connection between job resources and organizational outcomes and the influence of flow in this connection.

2.3. The Influence of Job Resources on Work Processes and Outcomes

Researchers have long been interested in the preconditions of work motivation (Hackman & Oldham, 1980). Likewise, in the scope of positive psychology appears a renewed interest in the role of job resources in an employees work motivation process. As mentioned

before, it is assumed that job resources have a motivational role. A considerable amount of studies have provided evidence for this motivational potential and showed the positive relationship between job resources and aspired positive work outcomes, like work engagement, well-being, health, or performance.

As already mentioned Demerouti et al. (2001) argued that according to the JD-R model high work resources increase motivation and lead to positive well-being and better performance at work. In their study with employees from three different occupations (human services, industry and transport workers) they could show this connection. Salanova, Llorens, Cifre, MartÍNez, and Schaufeli (2003) and Salanova, Agut, and Peiró (2005) also reported that organizational resources are important antecedents of work engagement, which in turn predict service climate, subjective well-being and group performance.

In their study among human service professionals, Bakker, Demerouti, and Verbeke (2004) showed that resources foster work engagement. On the one hand organizational demands are an important predictor of in-role performance, on the other hand organizational resources are an important predictor of extra-role performances. Similarly, Tierney and Farmer (2002) stated that organizational resources like task variety and supervisor support induce better working performance. Other researchers demonstrated the positive connection between organizational resources and performance at work. So Hackman and Oldham (1980) as well as De Jonge and Schaufeli (1998) revealed that job resources have a positive influence on performance and buffer the effect of job demands in stress situations.

In contrast, a lack of organizational resources has the opposite effect on motivation and performance (Wong, Hui, & Law, 1998) and impairs goal accomplishment and learning (Kelly, 1992). The absence of organizational resources also has some effects on health. Low social support (Leiter, 1991), low work control (De Jonge & Schaufeli, 1998) and poor performance feedback (Maslach & Jackson, 1986) result in burnout.

The last studies are in line with Hobfoll's (1989) *Conversation of Resources (COR) theory*. The model's basic principle tells that people seek to obtain, retain, and protect resources. Stress occurs when resources that are threatened with loss, are lost, or when individuals fail to gain resources after resource investment. A central aspect of this theory is that individuals desire to acquire and sustain resources. In his surveys around COR-theory, Hobfoll, Johnson, Ennis & Jackson (2003) examined two types of resources: personal and psychosocial resources.

The present study will, in addition to organizational resources, focus on the personal resource self-efficacy. Personal resources are aspects of oneself that are linked to resilience. Self-efficacy showed his power as buffer against stress situations in many studies (Salanova et al., 2006). It has also a connection to better health, self-development, positive well-being and work performance (Bandura, 1999, 2001; Grau, Salanova, & Peiró, 2001; Tierney & Farmer, 2002). Tierney and Farmer (2002) showed in their study, that not only organizational resources like task variety and supervisor support result in better work performance but also that high self-efficacy beliefs lead to better performance at work. Another example that self-efficacy stands in connection to work outcomes is presented by Grau et al. (2001). In their study they showed that high levels of efficacy beliefs have a positive correlation with the employee's well-being.

The connection between resources, especially organizational resources and health, are not quite clear. To take into account the *job demands-resources model* a second time (figure 3), it can be seen that the model does not support the connection between job resources, engagement and health. Empirical studies also focused on the effect of job demands on health and burnout. Demerouti, Bakker, Nachreiner, and Schaufeli (2000) explained that according to the JD-R model high job demands result in burnout and health problems.

But there also are some results that reveal that resources may play their part in health. Some researchers postulated that high job demands exhaust mental and physical resources which in turn leads to health problems and burnout (Demerouti et al., 2001). As mentioned

above, the absence of organizational resources has an effect on burnout (De Jonge & Schaufeli, 1998; Leiter, 1991; Maslach & Jackson, 1986). Bakker et al. (2003a) revealed that the organizational resources job control and participation are predictors of commitment and show a negative correlation to absence duration.

Nevertheless, the most promising results were published by Väänänen and his team. In their study they could prove that the organizational resources job autonomy, job complexity and coworkers' support predicted sickness absenteeism. Job autonomy was found to be associated with long (4-21 days) and very long (>21 days) episodes of absence. Low job complexity was associated with long sickness absences and a lack of coworkers' support increased the frequency of long sickness absenteeism (Väänänen et al., 2003).

2.4. Do Resources Lead to Flow?

Although the research on resources in connection with flow is limited, a couple of studies already pointed out that a positive association between work-related resources and flow does exist and that they strongly correlate with each other. Bakker (2008) showed that autonomy, social support and opportunities for professional development are positively associated with work-related flow. According to these findings, Demerouti (2006) revealed that motivating job characteristics are positively related to flow at work. In their study, motivating job characteristics were operationalized by the motivational potential score, a combined index including skill variety, task identity, task significance autonomy and feedback (Hackman & Oldham, 1980). A recent study from Mäkikangas et al. (2010) found a strong correlation between work resources and flow. In their longitudinal study they found a positive association between resources like autonomy, feedback, social support, opportunity for professional development, and coaching by the supervisor with flow.

Some researchers also stated that organizational and personal resources are significant antecedents of flow. Support for this assumption is shown by Bakker (2005). In his study among

music teachers, organizational resources like autonomy, performance feedback, social support and supervisory coaching are important antecedents of flow experiences among teachers and their students. He found that teachers with high levels of autonomy, social support, supervisory coaching, and feedback at their workplace were most likely to experience flow. Fullagar and Kelloway (2009) postulated that task variety and autonomy are significant predictors of flow. An example that personal resources have an influence on flow was demonstrated by Salanova et al. (2006). Flow is facilitated over time when resources are sufficiently available. In their study personal resources like self-efficacy and organizational resources like social support and clear goals resulted in flow. In addition Salanova and her team hypothesized a reversed causal relationship between resources and work-related flow. They also stated that flow would predict future resources. Their data confirmed the reciprocal relationship between resources and flow and based on this the authors postulated an upward spiral of resources and flow.

2.5. The Influence of Flow on Work Processes and Outcomes

Considering that flow at work is a relatively new construct, only a limited number of studies have investigated the relationship with organizational outcomes. Existing studies have shown that flow and outcomes like health, performance and well-being are positively related.

There is constrained evidence that flow leads to better performance in domains like school or sports. Flow presented itself as a predictor of perceived success after competing in a match in a sample of older athletes (Jackson et al., 1998). Jackson et al. (2001) have shown a positive association between flow and perceived self-reported performance and an objective measurement of performance after a competitive event among athletes. In the school context Wong and Csikszentmihalyi (1991) published that flow is a predictor of progress in the school curriculum and intrinsic motivation has a positive impact on academic achievement with high school students.

Within the work context flow has been found to be positively related to in-role and extra-role performance (Bakker, 2008; Demerouti, 2006). According to Demerouti (2006) frequent flow experiences are beneficial for in-role and extra-role performances for employees high in conscientiousness. This is consistent with the later research of Bakker (2008). He showed that work-related flow is an important predictor for job performance. Accordingly, work enjoyment was significantly positively related to in-role performance, whereas intrinsic work motivation has significant correlations with extra-role performance. Studies of Eisenberger and his team published that positive moods are associated with better in-role performance of employees (Eisenberger, Armeli, Rexwinkel, Lynch, & Rhoades, 2001). In his later empirical study he could show that the balance between high skills and high challenges is related to positive mood, task interest and performance. Specifically, high skill and challenge were strongly associated to organizational spontaneity among achievement-oriented employees (Eisenberger, Jones, Stinglhamber, Shanock, & Randall, 2005).

In his papers about flow and positive psychology Csikszentmihalyi posted the assumption that flow leads to subjective well-being (Csikszentmihalyi, 1975, 1997). In fact several studies presented that the frequency of flow is associated with positive arousal in general. The more time people spend in the flow state, the more positive affect they experience (Fave & Massimini, 1988; LeFevre, 1988; Seongyeul, 1988). More specifically, Csikszentmihalyi and LeFevre (1989) postulated that people are happier and more satisfied when their skills match their demands. Positive affect and satisfaction are higher in persons who experience flow than in persons who do not. This is consistent with previous research that found flow to be associated with hedonic well-being, positive mood (Fullagar & Kelloway, 2009; Nakamura & Csikszentmihalyi, 2002) and long-term psychological well-being (Bryce & Haworth, 2002; Clarke & Haworth, 1994). In addition, Haworth and Hill (1992) showed that work enjoyment as a dimension of flow correlates with life satisfaction and enjoyment increases as the perceived skill-challenge-level increases.

Although literature of the influence of flow on health is sparse there are some studies, especially in Japanese surveys. Hirao, Kobayashi, Okishima, and Tomokuni (2011) discovered the relationship between flow experience and health-related quality of life. They demonstrated a significant correlation between the frequency of flow experience and both general health perception and social functioning. One year later Hirao and his team conducted a second study with elderly people at a nursing home and found that physical health was significantly higher in persons who experience flow while performing important daily activities. They suggested that 'high-challenge-skill' situations have a positive influence on physical health (Hirao et al., 2012). In addition, Kobayashi et al. (2008) reported a positive correlation of the frequency of absorption experience as a dimension of flow and the physical aspect of health-related quality of life.

Some European researchers explored the association between flow and health, too. By introducing the concept of flow, Csikszentmihalyi (1975) postulated that the withdrawal of flow enhances fatigue, somnolence, headaches and general reduced health. Accordingly, Young-Dal (2001) postulated an existing negative correlation between flow and indications of somatization like headaches, fainting and dizziness, spinal pain, sickness and shortness of breath. Pastor-Ruiz and his team (2012) also stated that flow has negative correlations with negative physical symptoms and positive associations to general health, emotional role functioning and vitality (Pastor-Ruiz, Benavides-Gil, Martinez-Zaragoza, Martin-del-Rio, & Solanes-Puchol, 2012).

Furthermore, the influence of positive states and emotions on health were examined. Salovey, Rothman, Detweiler, and Steward (2000) postulated that positive emotional states are associated with healthy patterns of response in cardiovascular activity and the immune system. They connote a direct relation between positive emotions and positive physiological states. In line with these findings Richman et al. (2005) found that frequent expression of positive emotions like hope and curiosity is associated with decreasing occurrence of diseases like high blood pressure, diabetes, or colds. Their results imply that positive emotions buffer illness.

2.6. The Role of Flow: Mediator or Moderator?

The main objective in this study is to examine the influence of flow in the complex cause-effect relationship between flow, resources and organizational outcomes. Is flow a mediator or moderator of the resource-outcome connection or does it have a different role? Before I start with a literature review of already conducted studies about the mediating or moderating effect of flow I want to precise the difference between a moderator and a mediator. This distinction is important to understand the applied analysis methods.

The properties of moderator and mediator variables are quite close but also distinguishable on many levels. A mediator variable accounts for the relation between a predictor or independent variable and a criterion or dependent variable. A mediator specifies how and why an effect or relation occurs and describes the psychological process that occurs to create the relation between two variables. Figure 4 shows the mediation model. A mediator analysis examines if the relation between a predictor and criterion variable is mediated by a third variable (Baron & Kenny, 1986).

A moderator variable is a qualitative or quantitative variable that has an influence on the direction or strength of the relation between two variables. So a moderator is a third variable that affects the correlation between an independent variable and a dependent variable. Figure 5 shows the model of an independent and dependent variable moderated by a third variable. Another characteristic of a moderator variable is that, unlike the predictor-mediator relation where the predictor is an antecedent of the mediator, moderators and predictors are on the same level. So moderating variables are independent variables, whereas mediator variables can be effects or causes, depending on the focus of the analysis. A moderator analysis examines the relationship between the predictor and the criterion variable affected by a third variable (Baron & Kenny, 1986).

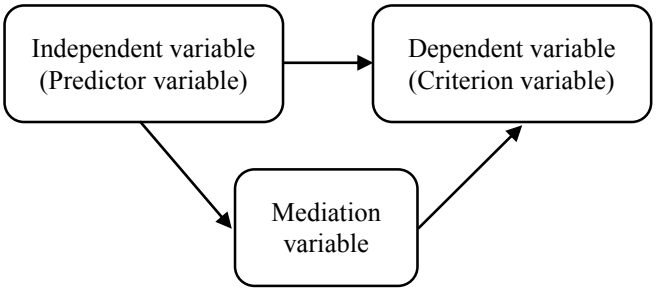

Figure 4. Mediation model.

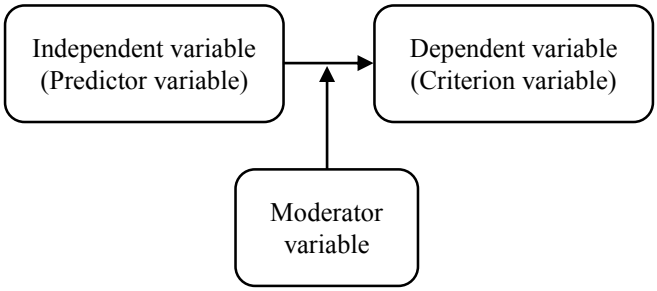

Figure 5. Moderator model.

(Hayes, 2013)

Although the majority of studies found that resources like self-efficacy, feedback or autonomy lead to work-related flow (Bakker, 2008; Demerouti, 2006; Mäkikangas et al., 2010; Salanova et al., 2006) as well as work-related flow positively correlating to organizational outcomes like well-being and performance (Bakker, 2008; Demerouti, 2006; Haworth & Hill, 1992; Nakamura & Csikszentmihalyi, 2002), most studies have not tested the full three-staged model, taking into account flow as mediator or moderator. The original *Job Characteristics Theory* of Hackman and Oldham (1976) presents a three-step model, in which the core job characteristics influence relevant psychological states, which, in turn, change affective and motivational outcomes. Most research on this connection focused only on the direct impact of core job characteristics on outcomes, neglecting the mediating effect of psychological states (Behson et al., 2000).

The literature on flow, as a psychological state mediating or moderating the relation between resources and outcomes, is sparse. There is only one empirical study that aims to examine the validity of flow mediating the relationship between core job characteristics and well-being. Fullagar and Kelloway (2009) could show that certain job characteristics like autonomy and task variety lead to flow and that flow, in turn, leads to subjective well-being.

Other analyses in the context of flow do not research flow as mediator or moderator, but other psychological states. Mäkikangas et al. (2010) examined the association between job resources and flow at work moderated by exhaustion. In this study among employees of an employment agency the moderation role of exhaustion could not gain empirical support, which means exhaustion did not affect the relationship between job resources and flow. A study from Demerouti (2006) hypothesized that the relationship between flow, in-role and extra-role performance is moderated by conscientiousness. She could show that frequent flow experience is beneficial for in-role and extra-role performance, but only for employees high in conscientiousness. For employees low in conscientiousness, the experience of flow makes no difference in their performance. Eisenberger et al. (2005) revealed that the connection between flow and work performance is partially mediated by positive mood.

To the best of my knowledge no other previous study examined the relation of resources, flow and outcomes in the context of a moderation or mediation analysis. Studies that examined the mediator role of flow in general do exist, though. Godoy-Izquierdo, Molina, Velez, and Godoy (2010) stated that flow is a possible mediator by showing flow as the mediator in the relation of motivation and exercise adherence. Mustafa, Elias, Noah, and Roslan (2010) highlighted the need to integrate the constructs of different motivational theories in the motivational path resulting in academic performances. They stated that flow can appear as a mediator in the relation between motivation, as a group of forces including self-efficacy that drive students to work hard, and academic work performance. Another study on the mediating role of flow investigated the relation between attentional control, study-related flow and students' approaches to studying when preparing for academic examinations. Their research supported their hypothesis that study-related dispositional flow acts as a partial mediator between attentional control and their approaches to studying (Cermakova, Moneta, & Spada, 2010).

3. HYPOTHESES

In the following section I illustrate the questions and hypotheses examined in the present study following the earlier mentioned literature review and my own deductions. I also present the model of causes and effects assumed in this research.

In the light of before-mentioned studies, in addition to self-efficacy as a personal resource, autonomy, feedback, social support and task variety are considered organizational resources in the present study. I included organizational resources in the study for different reasons. Firstly, the resources selected meet different levels of organizational resources: The interpersonal level with supervisor and co-worker support and the task level with the resources task variety, autonomy and feedback (Bakker, Demerouti, de Boer, & Schaufeli, 2003b). Secondly, a theory influenced by Turner and Lawrence (1965) and Hackman and Lawler (1971) proposes that personal and work outcomes are achieved by an employee only when three critical psychological states are available: Experienced meaningfulness of work, experienced responsibility for outcomes at work, and knowledge of the results of work activities. These states are created by five core job dimensions. Experienced meaningfulness of work is obtained by skill variety, task identity, and task significance; Experienced responsibility for outcomes at work is enhanced by autonomy; Knowledge of the results of work activities is increased by feedback (Hackman & Oldham, 1975). Three of the selected organizational resources task variety, autonomy and feedback meet the three required psychological states.

In addition to organizational resources I focus on self-efficacy. Self-efficacy is the perception of one's own ability to carry out certain behaviors that help reaching goals. Self-efficacy is a learned competence expectation resulting from learning experiences, verbal convictions and the perception of physiological and affective states (Abele, Stief, & Andrä, 2000). All these resources have a strong connection to flow and organizational outcomes in previous studies.

As presented before there exists a renewed interest in the relationship between resources

and organizational outcomes. Nevertheless, the reported studies and theories are not always in line with each other, especially with the focus on health. Additionally, they often only focus on occasional resources and outcomes. To evaluate existing results and to show a comprehensive approach with different resources and job outcomes, I assume that personal and organizational resources show a positive relation to the organizational outcomes task performance, well-being and health.

Hypotheses 1.1a-e: Employees who get high levels of feedback (a), task variety (b), social support (c), autonomy (d), and self-efficacy (e) will also report high levels of subjective well-being.

Hypotheses 1.2a-e: Employees who get high levels of feedback (a), task variety (b), social support (c), autonomy (d), and self-efficacy (e) will also report high levels of work performance.

Hypotheses 1.3a-e: Employees who get high levels of feedback (a), task variety (b), social support (c), autonomy (d), and self-efficacy (e) will also report high levels of health.

Some studies, especially the research teams around Bakker and Demerouti, found a positive relation between resources and flow (Bakker, 2008; Demerouti, 2006; Mäkikangas et al., 2010). They were also able to show that resources are significant antecedents of flow (Bakker, 2005; Salanova et al., 2006). Based on these results I suggest that there is a positive relation between resources and flow at work.

Hypotheses 2a-e: Employees who get high levels of feedback (a), task variety (b), social support (c), autonomy (d), and self-efficacy (e) will also report high levels of flow at work.

Existing studies have shown that not just resources but also flow is related to outcomes like health, performance and well-being (Bakker, 2008; Demerouti, 2006; Fullagar & Kelloway, 2009; Hirao et al., 2012; Nakamura & Csikszentmihalyi, 2002). Unlike well-being, the relationship between work performance and flow has little empirical evidence in the work context. Studies to explain the effect of flow on health are sparse and contradictory. Most of existing studies come from Japan (Hirao et al., 2011, 2012; Kobayashi et al., 2008). In line with earlier reported studies to bring more clarity in the connection between flow and organizational outcomes I assume that flow shows positive relations to work performance, well-being and health.

Hypotheses 3a-c: Employees who report frequent flow experiences will also report high levels of subjective well-being (a), work performance (b), and health (c).

The most important question of the present study is if flow, as a psychological state, can take the role of a mediator or moderator in the relation between resources and outcomes. Only one empirical study analyzed this relation and found flow mediating the relation between core job characteristics and well-being (Fullagar & Kelloway, 2009). Due to the fact that other studies found flow to be mediator between different variables and constructs (Cermakova et al., 2010; Godoy-Izquierdo et al., 2010) it makes sense to suggest, that flow operates as a mediator between organizational and personal resources and the work outcomes work performance, well-being, and health.

Hypotheses 4.1a-e: Work-related flow mediates the relation between feedback (a), task variety (b), social support (c), autonomy (d), and self-efficacy (e) and subjective well-being.

Hypotheses 4.2a-e: Work-related flow mediates the relation between feedback (a), task variety (b), social support (c), autonomy (d), and self-efficacy (e) and work performance.

Hypotheses 4.3a-e: Work-related flow mediates the relation between feedback (a), task variety (b), social support (c), autonomy (d), and self-efficacy (e) and health.

Figure 6 shows the constituted relations and hypotheses in a model of causes and effects. The model as a whole states that the resources task variety, autonomy, feedback, social support, and self-efficacy are predictors of flow and that both resources and flow are predictors of the organizational outcomes subjective well-being, health, and work performance. Flow acts as a mediator between resources and outcomes.

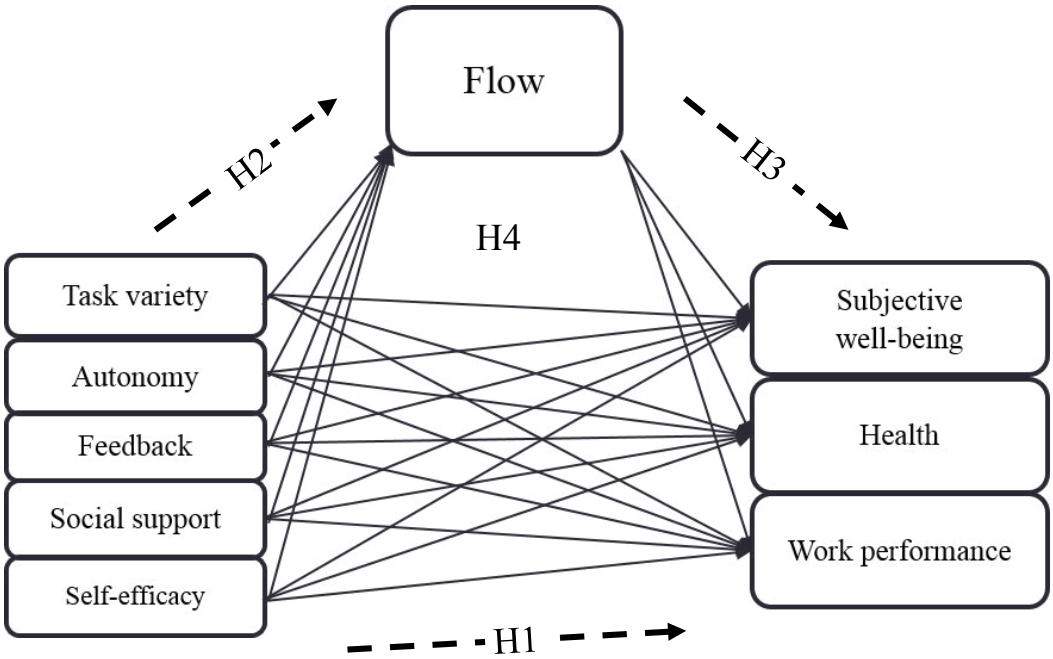

Figure 6. Hypothesized relationships between resources, work-related flow and organizational outcomes

4. METHODS

4.1. Participants and Sampling Procedure

The data collection took place with white-collar employees at a German company for analysis research and testing services in April and May 2015. This sample was chosen because the departments do creative and conceptional work, and therefore it was assumed that most of the employees experience flow more often at work than other occupational groups. A total amount of 140 participants returned the questionnaire either in form of an online survey or in form of a paper-pencil questionnaire. 23 persons were excluded from the calculations because they filled out less than half of the questionnaire. So the final sample consisted of 117 employees. 67.5% (*n* = 79) of the participants are male, 32.5% (n = 38) are female. 38.5% (n = 45) are below 35 years, 48.7% (n = 57) are between 35 years and 55 years and 12.8% (n = 15) are over 55 years. Almost all participants are from Germany (98.3%, n = 115), only 1.7% (n = 2) are from other countries. Additionally, most participants included in this sample have a master degree or diploma (63.25%, n = 74), some have other educations like PhD, bachelor degree, high school diploma (Abitur) or an apprenticeship (Lehre) (26.5%, n = 31) and 10.3% (n = 12) stated to have a different education. The mean contractual weekly working hours are 40.17 (SD = 7.77).

4.2. Measures

For collecting and analyzing the relevant data, a questionnaire with 82 questions was used. To gather the data the questionnaire was sent as an online version to more than 400 employees of the company. The online survey software "Unipark" was used for this purpose. About 200 paper-pencil versions of the questionnaire were distributed in the company. The online questionnaire was online for about two months and included eight questionnaires next to demographical information.

4.2.1. Demographical Information. The first part of the questionnaire dealt with personal information. Information about age, gender, nationality and education were requested. In addition, inquiries about the actual professional occupation, contractual weekly working hours, years of experience in the actual job and in total were conducted.

4.2.2. Flow at Work. Work-related flow was assessed with the Work-Related Flow Inventory (WoLF) developed by Bakker (2008). Three main factors absorption (4 items), work enjoyment (4 items) and intrinsic work motivation (5 items) were included. Altogether the questionnaire has 13 items. An example for absorption would be 'When I am working, I forget everything else around me'. The response format ranges on a 7-point Likert-scale from 1 (=*never*) to 7 (=*always*). Reliability analysis can be seen as good. Cronbach's alpha is high for work enjoyment (α = .88-.96), acceptable for absorption (α = .75-.86), and satisfactory for intrinsic work motivation (α = .63-.82). The instrument has good factorial, convergent, construct and predictive validity. Because the present study was conducted with a German-speaking sample the translated version of the questionnaire from Landsgesell (2010) was used.

4.2.3. Task Variety. Task variety was measured with a three-item-scale of the questionnaire 'Salutogenetische Subjektive Arbeitsanalyse' (SALSA) (Eng.: salutogenetic subjective work analysis) from Rimann & Udris (1997). The instrument assesses the subjective perception of work characteristics and takes job resources and job demands into account. An example for task variety is 'Diese Arbeit ist abwechslungsreich' (Eng.: This work is full of variety). The response format ranges on a 5-point Likert-scale from 1 (=*hardly ever*) to 5 (=*nearly always*). The questionnaire in total shows good validity and a Cronbach's alpha of α = .50-.90.

4.2.4. Social Support from Colleagues & Social Support from Supervisors. Both of these resources were also measured with the salutogenetic subjective work analysis (SALSA) from Rimann & Udris (1997). The scales are similar to each other and can be collected together. Each dimension was assessed with three items. An example for social support from colleagues

and supervisors is

’Wie sehr können Sie sich auf die folgenden Personen verlassen, wenn in der Arbeit Probleme auftauchen?

- Auf Ihre Vorgesetzten
- Auf Ihre Arbeitskollegen und –Kolleginnen’

(Eng.: ‘If you experience problems at work, how much can you rely on following persons?

- your supervisor
- your colleagues‘)

In this dimension all items were anchored on a 5-point-likert-scales from 1 (=*hardly ever*) to 5 (=*nearly always*).

4.2.5. Autonomy. Autonomy was assessed with a dimension of the job diagnostic survey (JDS) from Hackman and Oldham (1975). The JDS is an instrument for the diagnosis of jobs to determine if they need to be redesigned to improve motivation and productivity and to evaluate the effects of job changes on employees. It is based on the job characteristics model from Hackman and Oldham. Autonomy was measured with 3 items. A sample item for autonomy is ‘The job gives me considerable opportunity for independence and freedom in how I do the work’. Scores are obtained from items in two sections. In Section One, a single item is provided, on a 7-point Likert-scale ranging from 1 (=*very little*) to 7 (=*very much*). Section Two shows a response format ranging on a 7-point Likert-scale from 1 (=*disagree strongly*) to 7 (=*agree strongly*). Because the study was conducted with a German-speaking sample the translated version of the questionnaire from Schmidt & Kleinbeck (1999) was used. Objectivity and construct validity can be rated as moderate and the Cronbach’s alpha for autonomy is acceptable (α = .64-.74) (Hackman & Oldham, 1975; Schmidt & Kleinbeck, 1999).

4.2.6. Feedback (from the Job itself). Feedback by the work itself was also measured with the German version of the job diagnostic survey from Hackman & Oldham (1975) (Schmidt & Kleinbeck, 1999). Feedback was measured with three items and the response

format is similar to the one at the autonomy dimension. An example for feedback from the job itself is 'The job itself provides very few clues about whether or not I am performing well' (reversed scoring). The Cronbach's alpha for feedback from the job itself is acceptable (α = .66-.72) (Hackman & Oldham, 1975; Schmidt & Kleinbeck, 1999).

4.2.7. Feedback (from Agents). Feedback from agents was measured with a three-item-scale of the German version of the job diagnostic survey from Hackman & Oldham (1975) (Schmidt & Kleinbeck, 1999). The response format is similar to the one from the dimension autonomy. An example for feedback from agents is 'Supervisors often let me know how well they think I am performing the job.' The Cronbach's alpha for feedback from agents is good (α = .78) (Hackman & Oldham, 1975).

4.2.8. Occupational Self-efficacy. Self-efficacy was assessed with the 'Skala zur beruflichen Selbstwirksamkeit (BSW-Skala)' (Eng.: occupational self-efficacy scale) from Abele et al. (2000). This six item scale ascertains general occupational self-efficacy beliefs on one factor. A sample item is 'Ich weiß genau, dass ich die an meinen Beruf gestellten Anforderungen erfüllen kann, wenn ich nur will' (Eng.: I know exactly that I can fulfill the set requirements for my position). The response format ranges on a 5-point Likert-scale from 1 (=*not at all*) to 5 (=*exactly*). Convergent and discriminant validity are satisfying and Cronbach's alpha is good (α = .78) (Abele et al., 2000).

4.2.9. Subjective Well-being. Subjective well-being was measured with the 'WHO-5 Well-Being Index' (WHO-5) from the Psychiatric Research Unit at the Mental Health Centre North Zealand (n.d.). The WHO-5 is a five item questionnaire that measures current mental well-being of the last two weeks in one factor. An example for subjective well-being is 'Over the past two weeks I have felt cheerful and in good spirits'. All items were anchored on a 6-point-Likert-scale from 1 (=*at no time*) to 6 (=*all of the time*) (Psychiatric Research Unit at the Mental Health Centre North Zealand, n.d.). The WHO-5 shows high internal consistency and high convergent associations with other measures of well-being (Bech, Olsen, Kjoller, &

Rasmussen, 2003). Cronbach's alpha is excellent (α = .83-.95) (Krieger et al., 2014).

4.2.10. Health. Health was measured with the self-assessment version of the SF-12, the short version of the 'Fragebogen zum Gesundheitszustand (SF-36)' (Eng.: health survey) from Bullinger & Kirchberger (1998). The standardized survey uses 12 questions to measure functional health and quality of life. The questionnaire covers eight dimensions of subjective health: physical functioning, pain, general perception of health, energy and vitality, social functioning, mental health, role limitations due to physical problems, role limitations due to emotional problems. A sample item is 'Wie häufig haben Ihre körperliche Gesundheit oder seelischen Probleme in den vergangenen 4 Wochen Ihre Kontakte zu anderen Menschen (Besuche bei Freunden, Verwandten usw.) beeinträchtigt?' (Eng.: During the past 4 weeks, how much of the time have your physical health or emotional problems interfered with your social activities (like visiting friends, relatives, etc.)?). The response format differs depending on the question. Some range on a 5-point Likert-scale from 1 (=*excellent*) to 5 (=*poor*) or 1 (=*not at all*) to 5 (=*extremely*) or on a 6-point-Likert-scale from 1 (=*all of the time*) to 6 (=*none of the time*). Others have a simple dichotomous answer format with two (1=*yes* or 2=*no*) or three (1=*yes, limited a lot*, 2= *yes, limited a little* or 3= *no, not limited at all*) steps. The health survey shows good convergent and discriminant validity and good sensitivity. Cronbach´s alpha is good with $\alpha > .70$. Only the sub dimensions general perception of health and social functioning show a Cronbach´s alpha between α = .57 and .69 in some studies (Bullinger & Kirchberger, 1998).

4.2.11. Work Performance. To measure extra-role and in-role work performance a combination of the scales 'Fragebogen zur Erfassung des leistungsbezogenen Arbeitsverhalten (FELA-S)' (Eng. *Organizational citizenship behavior (OCB) questionnaire*) from Staufenbiel and Hartz (2000) and a scale for the measurement of required work behavior from Williams and Anderson (1991) was used. The organizational citizenship behavior questionnaire measures extra-role performance with 20 questions in four factors: OCB-helpfulness, OCB-

conscientiousness, OCB-simplicity, and OCB-personal initiative. A sample item of the dimension OCB-helpfulness is 'Ich helfe anderen, wenn diese mit Ihrer Arbeit überlastet sind' (Eng. I help others when they have too much work). The response format ranges on a 7-point Likert-scale from 1 (=*I totally agree*) to 7 (=*I do not agree at all*). The OCB questionnaire shows good discriminant and construct validity. The questionnaire of Williams and Anderson measures in-role performance on one factor with 6 questions. An example is 'Ich erfülle übertragene Arbeitspflichten in angemessener Weise' (I adequately complete assigned duties). The response format ranges on a 7-point Likert-scale from 1 (=*I totally agree*) to 7 (=*I do not agree at all*). The questionnaire has a good internal reliability (α = .91) (Staufenbiel & Hartz, 2000).

5. RESULTS

All calculations were conducted with IBM SPSS Statistics 21. For the path analyses, moderation and mediation analyses the mediation macro PROCESS was used (Hayes, 2013). In order to reduce statistical limitations of regression analyses, the bootstrapping method with 1000 samples was used. The path and the mediation analyses were tested with simple mediation model analyses (PROCESS model 4), moderation analyses were conducted with simple moderation model analyses (PROCESS model 1). SPSS Amos 21 was used to analyze the factor structure of the used questionnaires.

5.1. Descriptive Analyses

Table 1 displays the means, standard deviations, internal consistencies (Cronbach's alpha) and the Spearman correlations of the variables. Most of the alpha values meet the $\alpha > .70$ criterion (George & Mallery, 2010), as they range from .73 to .91. Only the scale for autonomy is questionable (α = .65). The Cronbach's alpha value for health was not calculable because of the differing answer format in the questionnaire. The pattern of the correlations shows, as

expected, that flow has positive and significant correlations to the resources task variety, social support, autonomy, feedback and self-efficacy as well as to the outcomes well-being, in-role work performance and organizational citizenship behavior. There is no significant correlation between flow and health. Most of the resources report positive and significant correlations to the outcome variables well-being, in-role work performance and organizational citizenship behavior. One exception is the resource variable task variety. This one shows only positive correlations to organizational citizenship behavior (r = .33). Furthermore, the relation between the outcome variables and health has no significant correlation except for feedback. Feedback indicates a positive and significant correlation to health (r = .20). Some of the resources and outcomes also have significant intercorrelations with one another. While checking the requirements for a regression analyses, calculations revealed, that there is no problem for multicollinearity, so the intercorrelations can be neglected. Moreover, the sociodemographic variables age ($F(2,114) = .60$, $p = .552$), gender ($t(115) = -.87$, $p = .385$), education ($F(5,111) = 1.03$, $p = .402$), and contractual weekly working hours ($F(24,90) = .94$, $p = .551$) were not significantly related to flow at work.

5.2. Construct Validity of the Measurements

Prior to hypotheses testing, the factor structure of the measurements was verified to see, if the underlying structure of the items corresponds to the given dimensions of the questionnaires. For this reason confirmatory factor analysis (CFA) using default estimation method – maximum likelihood estimation was conducted. Chi-square divided by the df (CMIN/DF), goodness of fit index (GFI), comparative fit index (CFI) and root mean square error of approximation (RMSEA) determine the quality of a model. A good model fit is indicated by CMIN/DF values under 5, GFI and CFI values above .90, as well as RMSEA values under .05.

The flow model reports good model fit indices with CFI above .90 and CMIN/DF under

Table 1

Means, standard deviations, Cronbach's alpha and correlations

Variables	M	SD	Cronbach's alpha	1	2	3	4	5	6	7	8	9
1. Flow	4.24	.94	.91	.								
2. Task variety	3.92	.87	.83	.30**	.							
3. Autonomy	5.71	.92	.65	.39**	.40**	.						
4. Feedback	4.80	1.09	.81	.33**	.17*	.36**	.					
5. Social support	3.83	.71	.84	.38**	.09	.02	.46**	.				
6. Self-efficacy	4.16	.58	.77	.41**	.29**	.38**	.46**	.30**	.			
7. Subjective well-being	3.70	.96	.82	.51**	-.03	.22**	.25**	.31**	.24**	.		
8. Health	51.95	7.55	.	.11	.06	.12	.20*	.10	.01	.00	.	
9. Work performance – in-role	6.15	.64	.81	.29**	.10	.22**	.35**	.27**	.54**	.24**	.10	.
10. Work performance – OCB	5.45	.61	.73	.39**	.33**	.19*	.37**	.35**	.45**	.23**	.11	.42**

Note: *p<.05, ** p < .01
M = mean; SD = standard deviation; OCB = organizational citizenship behavior

5. The values of GFI with .86 and RMSEA with .10 are not in the tolerated range. So the flow model does not show a good model fit. This means that the three dimensionality of flow, as assumed by Bakker (2008), does not fit the present data best. This finding goes in line with studies from Rodriguez et al. (2008), Ghani & Deshpande (1994) and Llorens et al. (2013). They discussed the dimensionality of flow and stated that flow consists of only two dimensions enjoyment and absorption (Ghani & Deshpande, 1994; Llorens et al., 2013).

The one factor well-being model presents the best model fit in comparison to the other outcome models with a CMIN/DF under 5 and values for GFI and CFI above .90. Only the RMSEA value is critical. Neither the performance model with values for GFI and CFI under .90 and a RMSEA of .08 nor the health model with a RMSEA value of .20 and GFI and CFI values under .70 show a good model fit. In both models the CMIN/DF is under 5 and hence in the tolerated range. The factor structure of the SF-12 assumed by Bullinger and Kirchberger and the factor structure of work performance questionnaire postulated by Staufenbiel and Williams is regarding the present data questionable. According to this finding, the assumed dimensionality of the questionnaires could not be reproduced in the present study.

Given the intercorrelations between the resource variables it was also explored, whether they could be distinguished from one another. The 7-factor model of resources shows no good model fit indices with GFI and CFI values under .80 and a RMSEA of .10. Considering the model size this result is not surprising. An additional conducted analysis to test the sub models of resources subject to disclose problematic scales. Also the sub models SALSA, BSW and JDS do not report good model fit indices. The SALSA model with the resources social support and task variety has good indices with a CMIN/DF under 5 and values of GFI and CFI over .90. The RMSEA with a value of .10 is not in tolerated range. The BSW model imaging the resource self-efficacy also has good CMIN/DF with a value under 5, GFI and CFI with values over .90. Only the RMSEA value with .12 is not good. The JDS model with the resources autonomy and feedback seems to be the most problematic scale. The model does not report good model fit

indices in all relevant values. The CMIN/DF with a value of 7.10 exceeds the limiting value of 5, GFI and CFI are lesser than .80 and the RMSEA value with .23 is not good.

Altogether, considering the present data the structure of none of the used questionnaires could be confirmed. The best model fit indices report the models of the well-being measurement WHO-5 and the resources questionnaires SALSA and BSW but also in this models the RMSEA value is not in tolerated range. The problem of factor structure needs to keep in mind when interpreting the results of the study. The model fit indices of all models can be seen in table 2.

5.3. Resources and Organizational Outcomes (F_1)

Simple mediation analysis was conducted to examine the relationship between resources and organizational outcomes. It was hypothesized that employees with high levels of feedback (a), task variety (b), social support (c), autonomy (d), and self-efficacy (e) will report high levels of subjective well-being (H. 1.1), task performance (H.1.2) and health (H. 1.3). Feedback (b=.22, p<.01), social support (b=.38, p<.01), autonomy (b=.30, p<.01) and self-efficacy (b=.39, p<.05) predict subjective well-being significantly. This relation shows a positive connection, the higher the resources are the higher the subjective well-being. No significant results were found for task variety. Further calculations displayed that task variety also has no significant effect to in-role work performance. All other resources, feedback (b=.17, p<.01), social support (b=.26, p<.01), autonomy (b=.13, p<.05) and self-efficacy (b=.60, p<.001) predict in-role work performance significantly. This connection is also a positive one. The relation between resources and OCB reveals that feedback (b=.23, p<.001), task variety (b=.18, p<.01), social support (b=.30, p<.05), autonomy (b=.14, p<.05) and self-efficacy (b=.43, p<.001) predict organizational citizenship behavior positively and significantly. Contrary to expectations health only has one significant path. The only resource able to predict health is social support (b=.2.47, p<.05). All other resources have no significant connection to health. Summarizing the above, it can be emphasized that hypotheses *1.1* and *1.2* can be confirmed

Table 2

Fit indices for measurement models

Model	χ^2	df	CMIN/DF	GFI	CFI	RMSEA [90% CI]
Flow model (3-factor model)	133.56	62	2.15	.86	.91	.10 [.078-.126]
Well-being model (1-factor model)	11.13	5	2.23	.97	.97	.11 [.007-.189]
Health model (1-factor model)	283.86	54	5.26	.65	.63	.20 [.174-.219]
Performance model (5-factor model)	177.05	109	1.62	.85	.86	.08 [.054-.095]
Resources model (7-factor model)	491.84	231	2.13	.74	.80	.10 [.089-.113]
SALSA model (3-factor model)	49.80	24	2.08	.92	.94	.10[.059-.137]
JDS model (3-factor model)	170.37	24	7.10	.76	.71	.23 [.202-.268]
BSW model (1-factor model)	22.77	9	2.53	.94	.91	.12 [.058-.179]

Note. χ^2 = chi-square fit index; df = degrees of freedom; CMIN/DF = Chi-square divided by the df; GFI = goodness of fit index; CFI = comparative fit index; RMSEA = root mean square of approximation; CI = confidence interval. n = 112

except for hypothesis *1.1b and 1.2b*. Employees who get high levels of feedback, social support, autonomy, and self-efficacy report also high levels of subjective well-being and work performance. Employees who get high levels of task variety do not report high levels of subjective well-being and work performance. In addition, only hypothesis *1.3c* could be confirmed. Employees who get high levels of social support report also high levels of health. Hypotheses *1.3a, b, d* and *e* need to be rejected. Employees who get high levels of feedback, task variety, autonomy, and self-efficacy do not report high levels of health. All effects and significance values can be seen in table 3.

5.4. Resources and Flow (F_2)

The second path analysis examined if employees who get high levels of feedback (a), task variety (b), social support (c), autonomy (d), and self-efficacy (e) will report high levels of flow. The calculations revealed that feedback (b=.27, p<.001), task variety (b=.38, p<.001), social support (b=.49, p<.001), autonomy (b=.44, p<.001) and self-efficacy (b=.49, p<.001) predict flow at work significantly. In summary, hypotheses *2a-e* could be confirmed. Employees who get high levels of feedback, task variety, social support, autonomy, and self-efficacy report high levels of flow at work. All effects and significance values can be seen in table 3.

5.5. Flow and Organizational Outcomes (F_3)

To examine the third path analyses and to demonstrate the predicting effect of flow on the outcome variables well-being, work performance and health, the mediation analysis was conducted several times with respect to every resource. Calculations were conducted this way because the effects between flow and outcomes differ slightly depending on the chosen resource variable. Only some results will be reported to show examples of these relationships. Comprehensive results for all resource variables are presented in table 3.

Table 3

Summarized findings of the path analyses with mediation analysis

a) Effects of resources on flow (path a)	F	b	t	p	R^2
Feedback	11.62**	.27	3.41	.001	.10
Task variety	15.86**	.38	3.98	.001	.12
Social support	17.28**	.49	4.16	.001	.13
Autonomy	24.34**	.44	4.93	.001	.18
Self-efficacy	24.33**	.70	4.93	.001	.18

b) Effects of flow on outcomes (path b)	F	b	t	p	R^2
Well-being					
Autonomy	20.62**	.49	5.34	.001	.27
Social support	21.32**	.49	5.54	.001	.28
Feedback	20.95**	.49	5.69	.001	.28
Task variety	21.65**	.57	6.51	.001	.28
Self-efficacy	20.01**	.52	5.65	.001	.27
In-role work performance					
Autonomy	5.20**	.16	2.41	.05	.09
Social support	7.73**	.19	2.25	.05	.12
Feedback	7.78**	.14	2.28	.05	.12
Task variety	5.18**	.20	3.10	.01	.09
Self-efficacy	23.47**	.04	.71	.48	.30
Organizational citizenship behavior					
Autonomy	10.68**	.24	3.92	.001	.16
Social support	15.10**	.20	3.49	.001	.21
Feedback	18.29**	.19	3.50	.001	.25
Task variety	12.01**	.23	3.90	.001	.18
Self-efficacy	16.29**	.18	3.01	.01	.23
Health					
Autonomy	3.01*	1.87	2.36	.05	.05
Social support	3.41	.50	.63	.53	.06
Feedback	2.24	1.09	1.44	.15	.04
Task variety	1.17	1.22	1.52	.13	.02
Self-efficacy	1.93	1.57	1.96	.05	.03

c) Effects of resources on outcomes (path c)	F	b	t	p	R^2
Autonomy → well-being	10.21**	.30	3.20	.01	.08
Social support → well-being	9.47**	.38	3.08	.01	.08
Feedback → well-being	7.46**	.22	2.73	.01	.06
Task variety → well-being	.69	.09	.83	.41	.01
Self-efficacy → well-being	6.34*	.39	2.52	.05	,05
Autonomy → in-role work performance	4.38*	.13	2.09	.05	.04
Social support → in-role work performance	10.03**	.26	3.17	.01	.08
Feedback → in-role work performance	10.00**	.17	3.16	.01	.08
Task variety → in-role work performance	.71	.06	.84	.40	.01
Self-efficacy → in-role work performance	46.65**	.60	6.83	.001	.30
Autonomy → OCB	5.34*	.14	2.31	.05	.05
Social support → OCB	16.40**	.30	4.05	.001	.13
Feedback → OCB	22.10**	.23	4.70	.001	.17
Task variety → OCB	7.87**	.18	2.81	.01	.07
Self-efficacy → OCB	21.95**	.43	4.69	.001	.17
Autonomy → health	.42	.49	-.65	.52	.00
Social support → health	6.46*	2.47	2.54	.05	.13
Feedback → health	2.39	.98	1.55	.13	.02
Task variety → health	.03	.15	.18	.86	.00
Self-efficacy → health	.03	.20	.17	.87	.00

Note: *p<.05, ** p < .01, OCB = organizational citizenship behavior
F = F-value; b = regression coefficient; t = b/standard error; R^2 = effect size

As hypothesized, employees who report frequent flow experiences, also report high levels of subjective well-being, in-role work performance and organizational citizenship behavior. Only the connection between flow and in-role work performance under consideration of self-efficacy is not significant. Additionally, flow does predict health under consideration of autonomy (b=.44, p<.001). All other connections between flow and health are not significant. Altogether, hypotheses *3a* and *b* can be confirmed. Employees who report frequent flow experiences will also report high levels of subjective well-being and work performance. Hypothesis *3c* needs to be rejected. Employees who report frequent flow experiences do not also report high levels of health.

5.6. The Mediating Effect of Flow (F_4)

The results of the mediation analyses indicate that flow mediates the effects of resources on organizational outcomes. Specifically, all resources-well-being relations are mediated with indirect-only mediations. As visualized in table 4, flow fully mediates the effects of feedback (b=.13), task variety (b=.22), social support (b=.24), autonomy (b=.21) and self-efficacy (b=.36) on well-being. In addition, the relationship between resources and in-role work performance is either indirect-only or complementary mediated by flow with the exception of self-efficacy. This resource shows solely the direct-only path. Flow fully mediates the effects of task variety (b=.08) and autonomy (b=.07) and complementary mediates the effects of feedback (b=.04) and social support (b=.07) on in-role work performance. Also, the relation between resources and organizational citizenship behavior is indirect -only or complementary mediated by flow. Flow fully mediates the effects of task variety (b=.09) and autonomy (b=.11) and complementary mediates the effects of feedback (b=.05), social support (b=.10) and self-efficacy (b=.12) on OCB. Flow mediates the relationship between autonomy (b=.82) and self-efficacy (b=1.10) and health indirect-only. The other resources show no mediation effect of flow in their relation to health. The bias-corrected bootstrap confidence intervals for the

significant indirect effects based on 1000 bootstrap samples were entirely above zero.

Additionally conducted moderation analyses shows no significant moderation effect of flow in the relationship between resources and organizational outcomes. Results can be seen in table 5.

Summarizing the above, it can be emphasized that hypotheses *4.1a-e* can be confirmed. Work-related flow mediates the relation between feedback, task variety, social support, autonomy, and self-efficacy and subjective well-being. Hypotheses *4.2a-d* can be confirmed, too. Work-related flow mediates the relation between feedback, task variety, social support, and autonomy and work performance. Hypothesis *4.2e* needs to be rejected. Work-related flow does not mediate the relation between self-efficacy and work performance. In addition, hypotheses *4.3d* and *e* can be confirmed. Work-related flow mediates the relation between autonomy, and self-efficacy and health. Hypotheses *4.3a-c* need to be rejected. Work-related flow does not mediate the relation between feedback, task variety, and social support and health.

Table 4

Summarized findings of the mediation analysis with bootstrapping

a) direct effects (path c')	b	95% CI LLCI	ULCI
Autonomy → well-being	.09	-.10	.28
Social support → well-being	.14	-.09	.37
Feedback → well-being	.09	-.06	.24
Task variety → well-being	-.13	-.32	.06
Self-efficacy → well-being	.03	-.28	.33
Autonomy → in-role work performance	.06	-.07	.20
Social support → in-role work performance	.19*	.02	.36
Feedback → in-role work performance	.13*	.02	.24
Task variety → in-role work performance	-.02	-.16	.12
Self-efficacy → in-role work performance	.57**	.38	.77
Autonomy → OCB	.04	-.09	.16
Social support → OCB	.21**	.05	.36
Feedback → OCB	.17**	.08	.27
Task variety → OCB	.09	-.04	.22
Self-efficacy → OCB	.30**	.11	.50
Autonomy → health	-1.31	-2.92	.31
Social support → health	2.23*	.15	4.31
Feedback → health	.68	-.62	1.99
Task variety → health	-.32	-2.05	1.41
Self-efficacy → health	-.90	-3.51	1.72

b) indirect effects (path a x path b)	b	95% CI BootLL	BootUL	Conclusion
Autonomy → flow → well-being	.21	.09	.36	Indirect only
Social support → flow → well-being	.24	.11	.40	Indirect only
Feedback → flow → well-being	.13	.06	.26	Indirect only
Task variety → flow → well-being	.22	.07	.37	Indirect only
Self-efficacy → flow → well-being	.36	.17	.64	Indirect only
Autonomy → flow → in-role work performance	.07	.02	.15	Indirect only
Social support → flow → in-role work performance	.07	.02	.15	Complementary
Feedback → flow → in-role work performance	.04	.01	.09	Complementary
Task variety → flow → in-role work performance	.08	.03	.16	Indirect only
Self-efficacy → flow → in-role work performance	.03	-.05	.12	Direct only
Autonomy → flow → OCB	.11	.05	.20	Indirect only
Social support → flow → OCB	.10	.04	.18	Complementary
Feedback → flow → OCB	.05	.02	.10	Complementary
Task variety → flow → OCB	.09	.03	.17	Indirect only
Self-efficacy → flow → OCB	.12	.05	.24	Complementary
Autonomy → flow → health	.82	.11	1.94	Indirect only
Social support → flow → health	.24	-.34	1.03	Direct only
Feedback → flow → health	.29	-.004	.85	---
Task variety → flow → health	.47	-.09	1.38	---
Self-efficacy → flow → health	1.10	.14	2.31	Indirect only

Note. *p<.05, ** p < .01
OCB = organizational citizenship behavior
Bootstrapping sample size = 1,000. Indirect-only mediation represents full mediation. Complementary mediation refers to partial mediation with the product of indirect and direct effect being positive. Direct only represent no mediation. --- means no effect.
b = regression coefficient; CI = confidence interval, LL = lower limit, UL = upper limit.

Table 5

Summarized findings of the regression analysis examining the moderation of the effect of resources on organizational outcomes by flow

		b	*t*	*p*
Autonomy → flow → well-being	Intercept	3.76	39.42	.001
	Flow	.49	4.42	.001
	Autonomy	.04	.33	.74
	Flow x Autonomy	-.10	-1.01	.31
Social support → flow → well-being	Intercept	3.68	42.88	.001
	Flow	.47	4.90	.001
	Autonomy	.16	1.29	.20
	Flow x Autonomy	.16	1.26	.21
Feedback → flow → well-being	Intercept	3.69	40.31	.001
	Flow	.51	4.86	.001
	Autonomy	.09	.92	.36
	Flow x Autonomy	.09	1.04	.30
Task variety → flow → well-being	Intercept	3.76	47.17	.001
	Flow	.54	5.37	.001
	Autonomy	-.17	-1.74	.09
	Flow x Autonomy	-.14	-1.88	.06
Self-efficacy → flow → well-being	Intercept	3.70	40.30	.001
	Flow	.52	4.72	.001
	Autonomy	.04	.22	.83
	Flow x Autonomy	.07	.50	.62
Autonomy → flow → in-role	Intercept	6.15	99.86	.001
	Flow	.16	2.52	.01
	Autonomy	.06	.86	.39
	Flow x Autonomy	-.01	-.28	.78
Social support → flow → in-role	Intercept	6.16	103.03	.001
	Flow	.15	2.23	.03
	Autonomy	.18	2.13	.39
	Flow x Autonomy	-.02	-.24	.78
Feedback → flow → in-role	Intercept	6.15	106.42	.001
	Flow	.14	2.42	.02
	Autonomy	.13	2.56	.01
	Flow x Autonomy	.00	.00	1.00
Task variety → flow → in-role	Intercept	6.14	98.65	.001
	Flow	.21	3.00	.01
	Autonomy	-.01	-.13	.90
	Flow x Autonomy	.04	.85	.40
Self-efficacy → flow → in-role	Intercept	6.14	114.28	.001
	Flow	.04	.71	.48
	Autonomy	.58	5.01	.001
	Flow x Autonomy	.05	.58	.56
Autonomy → flow → OCB	Intercept	5.46	97.99	.001
	Flow	.24	3.72	.001
	Autonomy	.02	.27	.79
	Flow x Autonomy	-.03	-.59	.56
Social support → flow → OCB	Intercept	5.47	110.05	.001
	Flow	.21	3.70	.001
	Autonomy	.19	1.91	.06
	Flow x Autonomy	-.10	-.91	.36

Continuation of table 5.

Summarized findings of the regression analysis examining the moderation of the effect of resources on organizational outcomes by flow

		b	*t*	*p*
Feedback → flow → OCB	Intercept	5.47	114.03	.001
	Flow	.18	3.80	.001
	Autonomy	.17	3.71	.001
	Flow x Autonomy	-.07	-1.56	.12
Task variety → flow → well-being	Intercept	5.45	92.38	.001
	Flow	.23	3.09	.01
	Autonomy	.09	1.33	.19
	Flow x Autonomy	-.01	-.19	.85
Self-efficacy→ flow → well-being	Intercept	5.46	99.37	.001
	Flow	.18	2.89	.01
	Autonomy	.30	2.95	.01
	Flow x Autonomy	-.07	-.80	.43
Autonomy → flow → health	Intercept	52.37	65.87	.001
	Flow	1.88	2.01	.05
	Autonomy	-1.53	-1.70	.09
	Flow x Autonomy	-.41	-.62	.54
Social support → flow → health	Intercept	52.22	73.46	.001
	Flow	.62	.88	.38
	Autonomy	2.05	1.82	.07
	Flow x Autonomy	-1.30	-1.56	.12
Feedback → flow → health	Intercept	52.35	71.54	.001
	Flow	1.03	1.50	.14
	Autonomy	.67	1.23	.22
	Flow x Autonomy	-.43	-.76	.45
Task variety → flow → health	Intercept	51.49	64.28	.001
	Flow	1.54	1.85	.07
	Autonomy	.06	.06	.95
	Flow x Autonomy	1.43	1.89	.06
Self-efficacy → flow → health	Intercept	52.09	66.56	.001
	Flow	1.58	2.07	.04
	Autonomy	-.84	-.62	.54
	Flow x Autonomy	.59	.46	.65

Note. *p<.05, ** p < .01
OCB = organizational citizenship behavior; in-role = in-role work performance; b = regression coefficient; t = b/standard error

6. DISCUSSION

6.1 Results Regarding the Hypotheses

The objective of this study was to examine the relation between resources and organizational outcomes like well-being, work performance and health. The main focus was to specify how and why the relation occurs and if flow influences the relation between the two constructs. Based on a systematic literature review a model of causes and effects with flow as mediator between resources and outcomes was developed. In the following section, the results will be summarized and discussed with regard to the previously stated hypotheses.

In the first question (Hypotheses 1.1-1.3a-e) it was assumed that the resources feedback, task variety, social support, autonomy, and self-efficacy will lead to higher levels of subjective well-being, work performance and health. Thus significant and positive path analyses between these two variables were expected. The results only confirm parts of this hypotheses showing that feedback, social support, autonomy, and self-efficacy are reliable predictors of well-being and work performance. Results with regard to task variety must be taken with caution. Though this variable shows significant connections to organizational citizenship behavior, it has no connection to well-being, in-role performance and health. One possible explanation why exactly task variety contradicts the expectation could be the distribution of answers of this variable. Analyses of the frequency table demonstrated, that the distribution is severely skewed on the left side, which complicates significant correlations and regression analysis. Nevertheless, task variety cannot be seen as reliable predictor of organizational outcomes. The distribution of task variety is presented in figure 7.

These results are in line with findings of Demerouti et al. (2001), Salanova et al. (2005, 2003) and Tierney and Farmer (2002). They could also show that resources lead to positive well-being, better performance or work engagement. But the result stating that resources lead to both in-role performance and organizational citizenship behavior partly contradicts the findings of a previous study of Bakker et al. (2004). Bakker was able to show that job demands

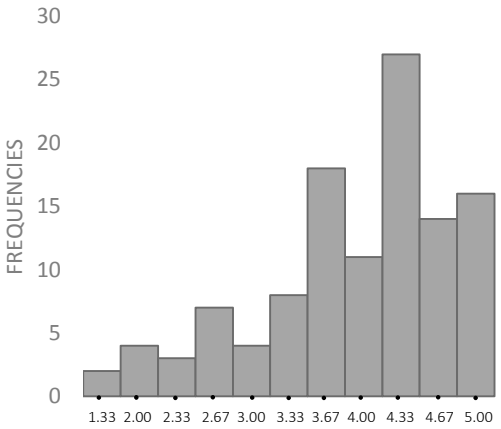

Figure *7*. Distribution of task variety

are predictors of in-role performance, whereas job resources are predictors of extra-role performances. The present study indicates no difference in the effect of resources on in-role or extra-role performance. Resources predict both kinds of work performance. One exception is task variety, which contains a significance pattern providing the results of Bakker et al. (2004). The resource only shows the significant path to organizational citizenship behavior and not to in-role performance.

In addition, the results could not confirm the hypotheses concerning the relation between resources and health. Only social support shows a significant positive connection to health, all other resources could not predict the outcome variable. Health was the explorative question in this survey, because little research exists about the connection of resources and general health. There are several researchers proposing research about indirect indicators of health like health-related absence rate or absence duration and resources, but not with direct measures (Bakker et al., 2003b; Väänänen et al., 2003). Bakker et al. (2003) as well as Väänänen et al. (2003) revealed that resources have negative correlations to absence duration and predict sickness absence. Conversely, the *revised Job Demands-Resources model* from Schaufeli and Bakker (2004) does not support the relation between resources and health. According to them, job resources exclusively affect engagement and organizational commitment and have no direct

connection to health. Nevertheless, health has no significant results in this study and did not receive much attention in previous research, it needs to be considered, that the measurement of health in this study has weak points. Due to the fact that the SF-12 calculates questions with a dichotomous answer format together with questions of a 6-point Likert-scale to one single value for a physical score, the characteristics of this value are challenging. The distribution of answers is severely skewed to the left side and most of the requirements to conduct a regression analysis are not met. Also a reflection and z- or log^{10}- transformation did not improve the results. The relation between resources and health needs to be considered and further examined in future research, in my opinion. The present study could not support the relation between resources and health, but due to the mentioned weaknesses it seem plausible to evaluate the results with proper measures of health.

In the second question (Hypotheses 2a-e) it was explored if high levels of feedback, task variety, social support, autonomy, and self-efficacy lead to flow at work. The path analyses support all hypotheses of question two. All five resources report high significant relations to flow. Especially self-efficacy shows an outstandingly strong connection to work-related flow. This finding is consistent with studies from Bakker (2005, 2008), Fullagar and Kelloway (2009) and Mäkikangas et al. (2010).

Moreover, the goal was to verify the relationship between flow and organizational outcomes. The third question (Hypotheses 3a-c) hypothesized that employees who report frequent flow experiences will also report high levels of subjective well-being, work performance, and health. Only the hypotheses *3 a,* and *b* concerning well-being and work performance could be confirmed, showing that flow is a reliable predictor of well-being, in-role work performance and organizational citizenship behavior.

The results could not confirm the relation between flow and health. This finding contradicts the results of several scientists (Csikszentmihalyi, 1975; Hirao et al., 2011; Kobayashi et al., 2008; Young-Dal, 2001). As mentioned above, the supposed relations with

health are explorative questions in the survey, but the connection between flow and health is also a good documented relation in literature. Several researchers could show in empirical surveys that the frequency of flow experience shows positive correlations to general health (Hirao et al., 2011, 2012; Kobayashi et al., 2008; Pastor-Ruiz et al., 2012). One possible reason for these contradictory outcomes could be a cultural one. Most of the research concerning flow in connection with health are Japanese studies. If you take a closer look into the studies and their operationalization you will find that all of them are using the 'Flow Experience Checklist of Ishimura' scale to measure flow (Hirao et al., 2011, 2012; Kobayashi et al., 2008). This is a measurement from Ikuo Ishimura especially for Japanese speaking users. The checklist consists of two parts: a single item to measure the frequency of flow experience in everyday life, and 10 items to evaluate the elements of flow experience (Ishimura & Kodama, 2009). Although the flow experience is based on Csikszentmihalyi and Csikszentmihalyi (1988b) (Ishimura & Kodama, 2009), it is very possible that the Flow Experience Checklist of Ishimura and the Work-Related Flow Inventory from Bakker (2008) contain different understandings and concepts of flow, which could be an explanation for the different findings. Additionally, none of the reported studies measure flow in the work context and the Checklist of Ishimura is no flow measurement designed especially for work-related flow. The most probable reason for the different findings is the weakness in the health measurement. The answer distribution of health is severely skewed to the left side so that no reflection or transformation improved the results. This skewness of the distribution could be the reason that there is no connection between health and flow. This is an operationalization mistake and the connection should be further investigated with proper measures of health.

The key assumptions represented in the fourth question state that work-related flow mediates the relation between the resources feedback, task variety, social support, autonomy, self-efficacy and the organizational outcomes well-being, work performance, and health. Results indicate that the mediation hypotheses can be confirmed for all resources and

organizational outcomes except for health. Flow fully mediates the effect of feedback, task variety, social support, autonomy and self-efficacy on well-being and also mediates the relationship between those resources, fully or partly, and work performance. One exception is self-efficacy, which shows no mediated relation to in-role work performance. In relation to health, flow only mediates the connection between autonomy and self-efficacy to health, all other resources have no mediated relation or no effect at all. None of moderation analyses can be supported. Considering that the measurement of health seems to have weaknesses, it can be stated that flow seems to be a reliable mediator of the relation between resources and organizational outcomes. This is consistent with previous research of Fullagar and Kelloway (2009), which has also found a mediating effect of flow between resources and positive mood.

It nevertheless needs to be considered that different researchers found different moderating or mediating connections in the relations between resources, flow, and organizational outcomes (Demerouti, 2006; Eisenberger et al., 2005). Demerouti (2006) demonstrated, that the relation between flow and performance is moderated by conscientiousness and Eisenberger et al. (2005) showed, that the relation between flow and performance is mediated by positive mood. It should also be considered, that all authors conducting a mediation or moderation analysis in connection with flow calculated simple moderation or mediation models or conducted the analyses via multiple regression analyses. The present study also tests the mediation and moderation analyses with a simple moderation or mediation model. Hayes (2013) stated that a mediation or moderator relation cannot always be explained by a simple model, rather often there seems to be a coexistence between different mediators and moderators. He introduces many other possible models that can explain the relation between two variables, like the *multiple mediator model*, where more than one mediator is realizing the connection; the *multiple additive moderation*, where more moderators next to each other influence the relation between two variables; the *moderated moderation model*, where the moderation relation itself is moderated by a fourth variable or the *conditional process*

model, where different mediators and moderators have their influences in a model of effects. Maybe all effects found are part of a bigger complete model and research should start to test more complicated and comprehensive models.

In conclusion, employees who report higher levels of the resources feedback, social support, autonomy and self-efficacy also show higher levels of the organizational outcomes well-being and work performance. The results regarding task variety and health are not reliable and cannot be seen as supported by the present study. All considered resources (feedback, social support, autonomy, task variety and self-efficacy) predict work-related flow and employees who report frequent flow experiences report also high levels of subjective well-being, in-role work performance and organizational citizenship behavior. Work-related flow seems to have no influence on health. The relationship between the resources feedback, social support, autonomy, task variety and self-efficacy and the organizational outcomes well-being, in-role work performance and organizational citizenship behavior is fully or partially mediated by work-related flow. Flow at work seems to be no mediator or moderator in the relation between resources and health in the present study.

6.2 Excursus: Further Calculations

Further calculations revealed, that a mediating relation still exist when flow and organizational outcomes switch places. Several analyses with a slightly different model were conducted, in which the outcomes well-being, performance, and health take the role of the mediator variable and flow takes the role of the outcome. This model also shows significant results in a mediation analysis. The only difference is, that the direct path c' also shows strong significant results with the outcomes as a mediator, meaning that well-being, health and performance only partially mediate the relation between resources and flow. Flow could also show some full mediated relations.

This results is not unusual, demonstrating the well-known problem of causality in regression analysis. Although some authors (Hayes, 2013) argue that the causality problem can be neglected if the hypotheses are precise, a priori defined and based on literature and theories, the direction cannot be calculated. A new approach from Wiedermann and von Eye (2015) promises to test directional theories in a confirmatory setting. In the so-called *direction-dependence analysis* the normality assumption is taken to get more information about the direction in a regression analysis. Instead of treating non-normality of variables as a violation of assumptions of parametric models, direction dependence approaches use the information of non-normality. In addition, second moments of distributions are used to analyze asymmetric properties of covariances or correlations. These properties come from the additive character of linear regression. When an outcome variable is a merging of a non-normal variable and a normal error term, it will be closer to normal distribution. These features of the direction dependence approach enables researchers to identify the outcome and the predictor variable. This makes the direction dependence approach a powerful candidate to address directional assumptions in regression analysis even when variables come from non-experimental or cross-sectional designs (Wiedermann & von Eye, 2015a, 2015b; W. Wiedermann & von Eye, 2015). In general, the procedure is conducted in two steps: First, both competing models were calculated and the residuals analyzed. The residuals of the right model are normally distributed, the residuals of the wrong model are not normally distributed. Second, in the right model the residuals need to be stochastically independent from the variable assumed as predictor, in the wrong model stochastically dependent from the variable falsely assumed as predictor.

The data of the present study indicates, that the model where flow mediates the relation between resources and well-being fits the data best. Table 6 displays the analyses conducted with the direction dependence approach. In the model regarding the mediation between resources and work performance the direction dependence approach tends to reject the model

Table 6

Results of the direction dependence approach

	Shapiro-Wilk test			
Models	W	r (R^2, ME)	r (R, ME^2)	r (R^2, ME^2)
1. Predictors → flow → well-being	.99	-.16	.01	-.16
2. Predictors → well-being → flow	.98*	.18	.000	.18
3. Predictors → flow → OCB	.97**	-.18	-.12	-.18
4. Predictors → OCB → flow	.99	.01	-.001	-.01
5. Predictors → flow → in-role	.97*	-.20	.01	-.17
6. Predictors → in-role → flow	.99	.08	.01	.08

Note: *p<.05, ** p < .01
OCB = organizational citizenship behavior; W = Shapiro-Wilk value; r = correlation; R = residuals; ME = mediator

in which flow operates as mediator and favors the competing model. Unfortunately, these results need to be taken with caution because of a too small sample for this kind of analyses, which result in insufficient testing power with no significant non-linear correlations.

Besides the findings that can be attributed to the hypotheses, additional information is provided. During preparation for the study and presentation of the objectives in a seminar with students from the Master's degree program of psychology at the University of Vienna, questions and discussion regarding the dimensionality of flow appeared. For this reason this part was included in the present paper.

According to Bakker (2008) flow consists of three dimensions: Absorption, work enjoyment and intrinsic work motivation. In one of his studies he stated that the overall value of work-related flow is an important predictor for job performance but that the sub dimension work enjoyment was significantly positively related to in-role performance, whereas intrinsic

work motivation showed significant correlations with extra-role performance (Bakker, 2008). As presented in table 7 the sub dimensions of flow have no differences in their correlation pattern to work performance. All three dimensions show significant and positive correlations to in-role work performance and organizational citizenship behavior.

The dimensionality of flow is quite unclear. As mentioned already, in most definitions of flow the flow experience itself and its prerequisites are mixed together (Llorens et al., 2013). In Csikszentmihalyi's (1975, 1990, 1997) original definition, flow consists of nine different characteristics. Rodriguez et al. (2008) stated that the real essence of flow constitutes from the dimensions enjoyment and absorption (cited by Llorens et al., 2013, p. 134). Ghani and Deshpande (1994) proposed that flow consists of the two dimensions enjoyment and absorption. And a recently conducted factor analysis of the work-related flow inventory from Bakker (2008) concluded that the two-factor-model consisting of enjoyment and absorption fits the data best (Llorens et al., 2013). Consequently, the dimensions of flow are not clearly analyzed and need more basic research. For the present study it is important to keep the problems around the

Table 7

Means, standard deviations and correlations of the flow sub dimensions with in-role work performance and organizational citizenship behavior

Variables	M	SD	1	2	3	4
1. Absorption	4.30	1.06	.	.	.	.
2. Work enjoyment	4.56	1.06	.73**	.	.	.
3. Intrinsic work motivation	3.88	1.06	.66*	.64**	.	.
4. Work performance – in role	6.15	.64	.25**	.32**	.20*	.
5. Work performance – OCB	5.45	.61	.34**	.51**	.30**	.42**

Note: *p<.05, ** p < .01
M = mean; SD = standard deviation; OCB = organizational citizenship behavior

assessment of flow in mind while interpreting the data and results.

At last, the distribution of the flow experience was analyzed in detail. First, it is examined if the sample meets the requirements. The sample was expected to experience high flow, because of the kind of work performing in daily work. Additionally, the work-related flow inventory conceptualizes flow with three sub dimensions and assumes that individuals can score low or high on them. If one would argue that the peak experience of flow is an all or nothing phenomenon this alternative operationalization of flow was also tested with three groups of flow: lower or equal to the 25%-percentile (no flow group), between the 25%-75% percentile (medium flow group) and higher or equal to the 75%-percentile (high flow group) (Bakker, 2005). In table 8 the means, standard deviations and the results of the independent group t-test are presented. As expected no participant is in the no flow group. 97 participants are in the medium flow group and 20 participants in the high flow group. Although there are fewer persons in the high flow group than expected, our sample shows good flow experience values. An independent t-test between the medium flow group and the high flow group shows that all variables show higher means in the high flow group than in the medium flow group. Autonomy ($t(36) = 2.41$ $p < .05$), social support ($t(112) = 2.88$ $p < .01$), self-efficacy ($t(25) = 4.44$ $p < .01$), well-being ($t(40) = 7.26$ $p < .01$), in-role work performance ($t(113) = 2.76$ $p < .01$) and organizational citizenship behavior ($t(113) = 3.11$ $p < .01$) show significant differences in their means between the both groups. Similarly to the path analyses, also in this calculation health and task variety do not present the expected pattern. Both have no significant differences in their means between the medium flow group and the high flow group. Additionally, feedback shows no significant differences in its mean between the two groups.

Table 8

Means, standard deviations and the results of an independent group t-test between resources, organizational outcomes and flow

	Flow 25%-75%-percentile n = 97		Flow > 75%-percentile n = 20		
Variables	M	SD	M	SD	t-test
1. Task variety	3.92	.86	3.96	.94	.22
2. Autonomy	5.64	.95	6.07	.65	2.41*.
3. Social support	3.74	.72	4.25	.54	2.88**
4. Feedback	4.74	1.10	5.09	1.01	1.26
5. Self-efficacy	4.08	.57	4.57	.41	4.44**
6. Well-being	3.51	.90	4.67	.59	7.26**
4. Work performance – in role	6.01	.64	6.50	.48	2.76**
5. Work performance – OCB	5.38	.61	5.82	.44	3.11**
6. Health	51.69	7.99	53.18	4.93	1.08

Note: *p<.05, ** p < .01
M = mean; SD = standard deviation; OCB = organizational citizenship behavior;
n = sample size

7. LIMITATIONS AND FURTHER RESEARCH

This study has some limitations that have to be noted. First, the sample of the study cannot be indicated as representative for the average working population as a whole. On the one hand this sample was chosen because of the conceptual and creative kind of work, which makes flow in this sample more likely. Thus it cannot be assumed, that in other work constellations flow is experienced to this extent. On the other hand the descriptive data do not follow a normal distribution. 66% of the participants are male and employees with academic

qualifications are over-represented in the sample (74%). This might have led to distortions in the calculation of the scores. For future research it would be necessary to recreate the study with a representative sample of the working population as a whole.

Second, the distributions of some of the items of the questionnaire, as already mentioned with the scores for health and task variety, are skewed to the left side. This could implicate that the scales do not differentiate adequately between the ranges. This could be a weakness of the single scales and for future research there should be considered to use other measurements, especially regarding to the health questionnaire SF-12. It could also be a sign for a social desirability response bias due to the fact that the questionnaire was answered at the participants work.

Third, the study was measured for a period of two month and has a cross-sectional design. Thus conclusions regarding causality need to be taken with caution. Although, nowadays statistics support drawing conclusions from single measurements, because they argue that it is more important to have the hypotheses on solid footing (Hayes, 2013) for future research longitudinal studies over a longer amount of time with multiple measures are needed to evaluate the present findings.

Fourth, as already mentioned the empirical research on flow has conceptual and methodological challenges: On the one hand, the dimensionality of flow is not entirely clear (Bakker, 2008; Csikszentmihalyi, 1990; Ghani & Deshpande, 1994; Llorens et al., 2013) and there exist different questionnaires with different conceptualizations (Bakker, 2008; Ishimura & Kodama, 2009; Jackson & Marsh, 1996). Consequently, the dimensions of flow are not clearly analyzed and need more basic research to eliminate more individual interpretation of the phenomenon.

Moreover, this study contradicts party findings of a study of Bakker et al. (2004). The present study found no difference in the effect of resources on in-role performance or organizational citizenship behavior, but Bakker et al. (2004) could show that job resources are

predictors of extra-role performance and not of in-role performance. Also the sub dimension of flow showed in Bakker's study different patterns than in the present study. Work enjoyment was in Bakker's study significant positive related to in-role performance, whereas intrinsic work motivation showed significant correlations with extra-role performance (Bakker, 2008). In the actual study there is no differences in correlation pattern with work performance with regard to the sub dimensions of flow. Further research should concentrate more on the differentiation of in-role and extra-role performance and if there are different patterns with predictors.

At last, the research gap with regard to health should find more attention in forthcoming studies. The present study was, due to methodological weaknesses not able to bring more light in the connection between resources or flow with health and previous studies did not serious enough explore the connection or found just contradictory outcomes.

8. PRACTICAL IMPLICATIONS

The result that resources and work-related flow are associated with well-being and work performance has significant practical implications and can be used as recommendations for work designs. Organizations should care more about resources and flow experience at work, since they are good predictors of well-being and work performance. In addition, when resources are present in an organizational environment employees are more likely to be absorbed by their work, they enjoy their work activity more and they show more intrinsic motivation. For work design it could be a good start providing an organizational environment that is high in feedback, social support, autonomy, task variety and self-efficacy beliefs and so is more likely to induce flow which in consequence leads to better performance of the employees and probably to a better company result at the end of the year. In addition also the result that resources and flow lead to better well-being can be interesting for employees as well as companies. So argued Fredrickson (2001) in his broaden-and-build theory of positive emotions that positive emotions

broaden individual resources and though-action repertories. In addition, there is evidence that subjective well-being is predictive of job performance, job satisfaction and reduced turnover intentions (Cropanzano & Wright, 2001; T. A. Wright & Bonett, 2007). So well-being is not just something that employees would like to achieve but also a state that companies should support since it leads to better work performance and other beneficial consequences for an organization. Another possible work redesign is to take care of the balance between challenges at work and skills of the employees. To increase the frequency of flow experience the job of an employee should be so designed that his skills are just adequate to face the challenges at work.

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10. LIST OF TABLES

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12. APPENDIX

Sehr geehrte Teilnehmerin/Sehr geehrter Teilnehmer,

vielen Dank, dass Sie sich Zeit nehmen an der vorliegenden Befragung teilzunehmen.

Es handelt sich hierbei um eine Studie, die sich mit Bedingungen und Ressourcen am Arbeitsplatz beschäftigt. Sie unterstützen durch Ihre Teilnahme meine Masterarbeit an der Universität Wien.

Die Bearbeitung des Fragebogens wird ca. 10 Minuten dauern.

Ihre Angaben bleiben selbstverständlich anonym und werden streng vertraulich behandelt. Die Daten werden ausschließlich im Rahmen dieser Studie verwendet.

Ich wünsche Ihnen viel Spaß bei den folgenden Fragen!

Bitte füllen Sie zuerst einige Angaben zu Ihrer Person aus. Kreuzen Sie hierfür den entsprechenden Kreis an bzw. tragen Sie Ihre Angaben in der dafür vorgesehenen Stelle ein.

Geschlecht:

Männlich O
Weiblich O

Alter:

bis 35 Jahre O
36 bis 55 Jahre O
ab 56 Jahre O

Nationalität:

Deutschland O
Österreich O
Schweiz O
Andere: _____

Höchste abgeschlossene Ausbildung:

Lehre O
Abitur O
Bachelor O
Master/Diplom O
Doktor/PhD O
Andere: _____

Ihr aktueller Beruf: _____

Wie viele Wochenstunden arbeiten Sie in Ihrem aktuellen Job? _____ Stunden
Wie viele Jahre sind Sie in Ihrem aktuellen Job tätig? _____ Jahre
Wie viele Jahre sind Sie insgesamt bereits berufstätig? _____ Jahre

Im Folgenden werden Ihnen mehrere Aussagen präsentiert.
Bitte beantworten Sie diese möglichst spontan und aufrichtig, ohne lange darüber nachzudenken. Bitte behandeln Sie jede Aussage einzeln und ohne Rücksicht auf Ihre Angaben bei den jeweils anderen Aussagen.

Die folgenden Aussagen beziehen sich darauf, wie Sie Ihre Arbeit in den letzten zwei Wochen erlebt haben. Bitte geben Sie an, wie oft Sie jede der Aussagen erlebt haben.
(1=nie, 2=fast nie, 3=ab und zu, 4=regelmäßig, 5=häufig, 6=sehr häufig, 7=immer).

Inwiefern treffen die folgenden Aussagen auf Sie zu?	nie	fast nie	ab und zu	Regel mäßig	häufig	Sehr häufig	immer
1. Wenn ich arbeite, denke ich an nichts anderes.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
2. Meine Arbeit gibt mir ein gutes Gefühl.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
3. Ich würde diese Arbeit auch noch ausüben, wenn ich weniger bezahlt bekäme.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
4. Meine Arbeit reißt mich mit.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
5. Es bereitet mir viel Freude, meine Arbeit auszuüben.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
6. Ich stelle fest, dass ich auch in meiner Freizeit arbeiten will.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
7. Wenn ich arbeite, vergesse ich alles um mich herum.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
8. Während meiner Arbeit bin ich glücklich.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
9. Ich arbeite, weil es mir Spaß macht.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
10. Ich gehe völlig in meiner Tätigkeit auf.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
11. Ich bin fröhlich, wenn ich arbeite.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
12. Wenn ich an etwas arbeite, tue ich es für mich selbst.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
13. Ich werde durch die Arbeit selbst motiviert, nicht durch die Belohnung dafür.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7

Die folgenden Aussagen betreffen Ihr Wohlbefinden in den letzten zwei Wochen. Bitte markieren Sie bei jeder Aussage die Rubrik die Ihrer Meinung nach am besten beschreibt, wie Sie sich in den letzten zwei Wochen gefühlt haben.

(1= Die ganze Zeit, 2= Meistens, 3= Etwas mehr als die Hälfte der Zeit, 4= Etwas weniger als die Hälfte der Zeit, 5= Ab und zu, 6=Zu keinem Zeitpunkt)

In den letzten 2 Wochen…	Die ganze Zeit	Meistens	Etwas mehr als die Hälfte der Zeit	Etwas weniger als die Hälfte der Zeit	Ab und zu	Zu keinem Zeitpunkt
1. … war ich froh und guter Laune.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6
2. … habe ich mich ruhig und entspannt gefühlt.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6
3. … habe ich mich energisch und aktiv gefühlt.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6
4. … habe ich mich beim Aufwachen frisch und ausgeruht gefühlt.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6
5. … war mein Alltag voller Dinge, die mich interessieren.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6

In diesem Teil geht es um Ihre Beurteilung Ihres Gesundheitszustandes. Der Bogen ermöglicht es, im Zeitverlauf nachzuvollziehen, wie Sie sich fühlen und wie Sie im Alltag zurechtkommen.
Bitte beantworten Sie jede der Fragen, indem Sie bei den Antwortmöglichkeiten die Zahl ankreuzen, die am besten auf Sie zutrifft.

	Ausge-zeichnet	Sehr gut	Gut	Weniger gut	Schlecht
1. Wie würden Sie Ihren Gesundheitszustand im Allgemeinen beschreiben?	1	2	3	4	5

Im Folgenden sind einige Tätigkeiten beschrieben, die Sie vielleicht an einem normalen Tag ausüben.

Sind Sie durch Ihren derzeitigen Gesundheitszustand bei diesen Tätigkeiten eingeschränkt?
Wenn ja, wie stark?

	Ja, stark eingeschränkt	Ja, etwas eingeschränkt	Nein, überhaupt nicht eingeschränkt
2. mittelschwere Tätigkeiten, z.B. einen Tisch verschieben, staubsaugen, kegeln, Golf spielen	1	2	3
3. mehrere Treppenabsätze steigen	1	2	3

Hatten Sie in den vergangenen 4 Wochen aufgrund Ihrer **körperlichen** Gesundheit irgendwelche Schwierigkeiten bei der Arbeit oder anderen alltäglichen Täti**gkeiten im Beruf bzw. zu Hause?**

	Ja	Nein
4. Ich habe weniger geschafft als ich wollte	1	2
5. Ich konnte nur bestimmte Dinge tun	1	2

Hatten Sie in den vergangenen 4 Wochen aufgrund **seelischer** Probleme irgendwelche Schwierigkeiten bei der Arbeit oder anderen alltäglichen Tätigkeiten im Beruf bzw. zu Hause (z.B. weil Sie sich niedergeschlagen oder ängstlichen fühlten)?

	Ja	Nein
6. Ich habe weniger geschafft als ich wollte	1	2
7. Ich konnte nicht so sorgfältig wie üblich arbeiten	1	2

	überhaupt nicht	ein bisschen	mäßig	ziemlich	sehr
8. Inwieweit haben die Schmerzen Sie in den vergangenen 4 Wochen bei der Ausübung Ihrer Alltagstätigkeit zu Hause und im Beruf behindert?	1	2	3	4	5

In diesen Fragen geht es darum, wie Sie sich fühlen und wie es Ihnen in den vergangenen 4 Wochen gegangen ist.
(Bitte kreuzen Sie in jeder Zeile die Zahl an, die Ihrem Befinden am ehesten entspricht)

Wie oft waren Sie in den vergangenen 4 Wochen	**immer**	**meistens**	**ziemlich oft**	**manch-mal**	**selten**	**nie**
9. … ruhig und gelassen?	1	2	3	4	5	6
10. … voller Energie?	1	2	3	4	5	6
11. … entmutigt und traurig?	1	2	3	4	5	6

	immer	**meistens**	**manchmal**	**selten**	**nie**
12. Wie häufig haben Ihre körperliche Gesundheit oder seelischen Probleme in den vergangenen 4 Wochen Ihre Kontakte zu anderen Menschen (Besuche bei Freunden, Verwandten usw.) beeinträchtigt?	1	2	3	4	5

Bitte kreuzen Sie im Folgenden die Antwortmöglichkeiten an, die Ihre Einschätzung am besten wiedergibt!

(1=trifft überhaupt nicht zu, 2=trifft nicht zu, 3=trifft eher nicht zu, 4=teils-teils, 5=trifft eher zu, 6=trifft zu, 7=trifft voll und ganz zu).

	trifft überhaupt nicht zu	trifft nicht zu	trifft eher nicht zu	teils-teils	trifft eher zu	trifft zu	trifft voll und ganz zu
1. Ich helfe anderen, wenn diese mit Arbeit überlastet sind.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
2. Ich komme immer pünktlich zur Arbeit.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
3. Ich verbringe viel Zeit damit, mich über Belanglosigkeiten zu beklagen.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
4. Ich erfülle übertragene Arbeitspflichten in angemessener Weise.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
5. Ich wirke bei auftretenden Meinungsverschiedenheiten ausgleichend auf Kollegen/Kolleginnen ein.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
6. Ich informiere frühzeitig, wenn ich nicht zur Arbeit kommen kann.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
7. Ich informiere mich über neue Entwicklungen im Unternehmen.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
8. Ich komme den in den Arbeitsplatzbeschreibungen festgelegten Verpflichtungen nach.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
9. Ich ergreife freiwillig die Initiative, neuen Kollegen/ Kolleginnen bei der Einarbeitung zu helfen.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
10. Ich zeichne mich durch besonders wenige Fehlzeiten aus.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
11. Ich mache innovative Vorschläge zur Verbesserung der Qualität in der Abteilung.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
12. Ich führe die Aufgaben aus, die von mir erwartet werden.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7

	trifft überhaupt nicht zu	trifft nicht zu	trifft eher nicht zu	teils-teils	trifft eher zu	trifft zu	trifft voll und ganz zu
13. Ich kritisiere häufig an Kollegen/Kolleginnen herum.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
14. Ich bilde mich laufend fort, um meine Arbeit besser machen zu können.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
15. Ich erfülle die gesetzten Leistungsanforderungen an meine Position.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
16. Ich äußere Vorbehalte gegenüber jeglichen Veränderungen im Unternehmen.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
17. Ich vernachlässige Dinge, die zu meinen Pflichten gehören.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7

Es folgen nun einige Fragen zu Ihrer Arbeitssituation. Kreuzen Sie bitte bei jedem Satz die für sie zutreffende Stufe an.
(1=fast nie, 2= selten, 3= manchmal, 4= oft, 5= fast immer).

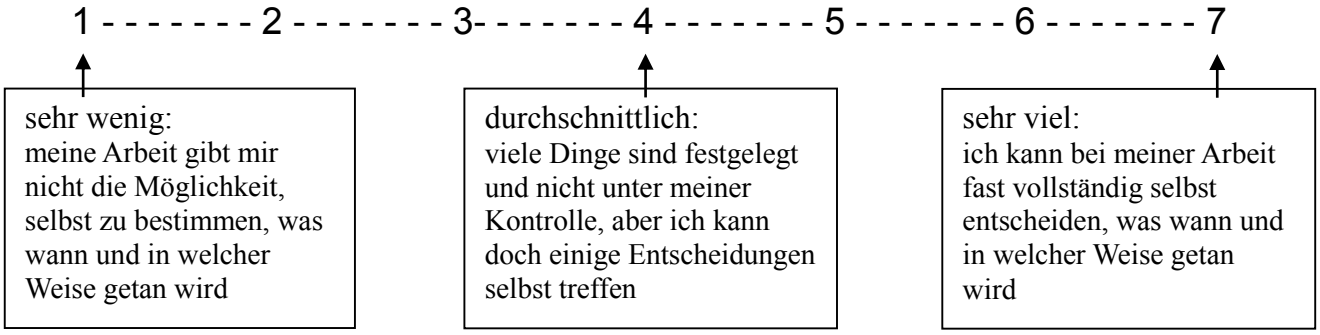
	fast nie	selten	manchmal	oft	fast immer
1. Bei dieser Arbeit muss man immer das Gleiche tun.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5
2. Diese Arbeit ist abwechslungsreich.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5
3. Es gibt fast jeden Tag etwas anderes zu tun	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5

Wie sehr können Sie sich auf die folgenden Personen verlassen, wenn in der Arbeit Probleme auftauchen.	fast nie	selten	manchmal	oft	fast immer
4. Auf Ihre Vorgesetzten.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5
5. Auf Ihre Arbeitskollegen/-kolleginnen.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5

Wie sehr sind diese Personen bereit, Ihre Probleme in der Arbeit anzuhören?	fast nie	selten	manchmal	oft	fast immer
6. Ihre Vorgesetzten.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5
7. Ihre Arbeitskollegen/-kolleginnen.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5

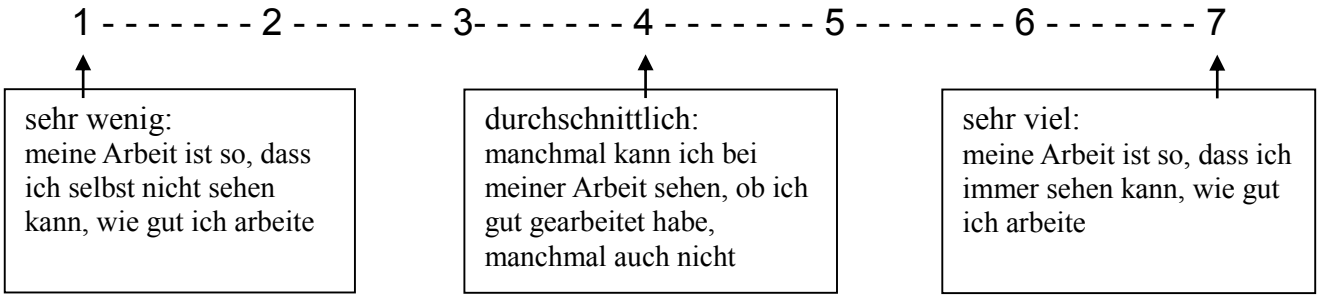
Wie sehr unterstützen diese Personen Sie aktiv, so dass Sie es in der Arbeit leichter haben?	fast nie	selten	manchmal	oft	fast immer
8. Ihre Vorgesetzten.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5
9. Ihre Arbeitskollegen/-kolleginnen.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5

1. Wie viel Selbstständigkeit haben Sie bei Ihrer Arbeit? Das heißt, in welchem Ausmaß können Sie selbst bestimmen, wie Sie bei der Ausführung Ihrer Arbeit vorgehen?



	völlig unzu-treffend	zum großen Teil unzu-treffend	eher unzu-treffend	unent-schieden	stimmt schon eher	stimmt zum großen Teil	stimmt völlig
2. Meine Arbeit gibt mir beträchtliche Gelegenheit, selbst zu entscheiden, wie ich dabei vorgehe.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
3. Ich habe überhaupt keine Möglichkeit, persönliche Initiative und Eigenständigkeit bei meiner Arbeit einzubringen.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7

4. In welchem Ausmaß liefert Ihnen Ihre Arbeit selbst Informationen über Ihre Arbeitsleistung? Das heißt, liefert Ihre Arbeit selbst Hinweise darüber, wie gut Sie arbeiten, unabhängig von den Informationen, die Ihnen Vorgesetzte oder Mitarbeiter/Kollegen geben?



	völlig unzu-treffend	zum großen Teil unzu-treffend	eher unzu-treffend	unent-schieden	stimmt schon eher	stimmt zum großen Teil	stimmt völlig
5. Bei der Ausführung meiner Arbeitstätigkeit kann ich gut feststellen, wie gut ich arbeite.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
6. Meine Arbeitstätigkeit selbst gibt keine Hinweise darauf, ob man die Arbeit gut oder schlecht macht.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7

7. In welchem Ausmaß lassen Ihre Vorgesetzten oder Mitarbeiter/Kollegen Sie wissen, wie gut Sie Ihre Arbeit tun?

1 - - - - - - - 2 - - - - - - - 3- - - - - - - 4 - - - - - - - 5 - - - - - - - 6 - - - - - - - 7

sehr wenig:	durchschnittlich:	sehr viel:
diese Leute lassen mich nie wissen, wie gut ich meine Arbeit tue	manchmal geben mir diese Leute einen Hinweis, zu anderen Zeiten tun sie es nicht	meine Vorgesetzten oder Mitarbeiter/Kollegen geben mir fast immer Hinweise, wie gut ich meine Arbeit tue

	völlig unzu-treffend	zum großen Teil unzu-treffend	eher unzu-treffend	unent-schieden	stimmt schon eher	stimmt zum großen Teil	stimmt völlig
8. Meine Vorgesetzten lassen mich sehr oft wissen, wie gut ich meine Arbeit mache.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7
9. Von meinen Vorgesetzten oder Mitarbeiter/Kollegen erfahre ich nie, wie gut ich meine Arbeit mache.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5	❒ 6	❒ 7

.

	stimmt nicht	stimmt eher nicht	teils-teils	stimmt eher	stimmt genau
1. Ich weiß genau, dass ich die an meinen Beruf gestellten Anforderungen erfüllen kann, wenn ich nur will.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5
2. Ich weiß nicht, ob ich die für meinen Beruf erforderlichen Fähigkeiten wirkliche habe.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5
3. Ich weiß nicht, ob ich genügend Interesse für alle mit meinem Beruf verbundenen Anforderungen habe.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5
4. Schwierigkeiten im Beruf sehe ich gelassen entgegen, da ich meinen Fähigkeiten vertrauen kann.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5
5. Es bereitet mir keine Schwierigkeiten, meine beruflichen Absichten und Ziele zu verwirklichen.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5
6. Ich glaube nicht, dass ich für meinen Beruf so motiviert bin, um große Schwierigkeiten meistern zu können.	❒ 1	❒ 2	❒ 3	❒ 4	❒ 5

Liebe Teilnehmerin, Lieber Teilnehmer,

die Befragung ist beendet.

Ich möchte mich an dieser Stelle ganz herzlich für die Teilnahme an meiner Umfrage bedanken.
Sie haben mir sehr bei meiner Masterarbeit geholfen.

Vielen Dank für die Teilnahme!

ABSTRACT IN GERMAN

Verfasserin: Alexandra Seifert, BSc

Titel: Moderator oder Mediator: Der Zusammenhang von Ressourcen und den Auswirkungen von Arbeit und der Einfluss von arbeitssbezogenem Flow in dieser Beziehung

Typ: Masterarbeit am Institut für Psychologie mit dem Schwerpunkt: Arbeit, Bildung und Wirtschaft der Universität Wien

Ort, Jahr: Wien, 2015

Begutachter: Univ.-Prof. Dr. Christian Korunka

Eines der Kernphänomene, im Rahmen der positiven Psychologie, ist das der optimalen Erfahrung auch Flow genannt. Obwohl Abraham Maslow bereits vor über 70 Jahren den Begriff „Positive Psychologie“ prägte, ist die Forschung auf diesem Gebiet immer noch spärlich. Auch Konzeptualisierungen und Implikationen in Bezug auf Flow sind bruchstückhaft und inkonsistent. Um einem Teil dieser Lücke zu schließen, untersucht die aktuelle Studie bei 117 Arbeitnehmern/Innen die Beziehungen zwischen arbeitsbezogenem Flow, den Ressourcen Feedback, Aufgabenvielfalt, soziale Unterstützung, Autonomie und Selbstwirksamkeit als auch zu den Auswirkungen von Arbeit subjektivem Wohlbefinden, Arbeitsleistung und Gesundheit. In diesem Zusammenhang wurde angenommen, dass Ressourcen und Flow der Entwicklung von Arbeitsauswirkungen vorausgehen und dass Feedback, Aufgabenvielfalt, soziale Unterstützung, Autonomie und Selbstwirksamkeit zudem Prädiktoren von Flow sind. Zusätzlich wurde untersucht, ob Flow die Beziehung zwischen Arbeitsressourcen und Arbeitsauswirkungen mediiert. Aufbauend auf diesen Annahmen haben Studienteilnehmer/Innen entweder einen online oder Papierfragebogen in Bezug auf

Ressourcen, Flow und Arbeitsauswirkungen ausgefüllt. Pfad- und Mediationsanalysen ergaben, dass höhere Ausprägungen an Jobressourcen sowohl zu höheren Ausprägungen an arbeitsbezogenem Flow führen, als auch zu verbessertem Wohlbefinden und besserer Arbeitsleistung. Zudem zeigen Arbeitnehmer/Innen, die von häufigen Flowerfahrungen berichten, verbessertes Wohlbefinden und bessere Arbeitsleistungen. Es konnte auch gezeigt werden, dass Flow den Zusammenhang von Ressourcen mit subjektivem Wohlbefinden und Arbeitsleistung mediiert. Die Ergebnisse werden vor dem Hintergrund früherer Studien und Theorien diskutiert und auch die Beschränkungen der Flowmessung mittels eines Fragebogens und praktische Implikationen für die Erforschung optimaler Erfahrungen für die Arbeitspsychologie werden erläutert.

Lebenslauf

Alexandra Seifert B.Sc.

Bachelor - Psychologie

*30. Juli 1987 in München

Schule & Studium

10/2013-vor. 10/2015	**Masterstudium Psychologie** **Universität Wien** Angewandte Psychologie: Arbeit, Bildung und Wirtschaft
2012/2013	**Mitbelegung Betriebswirtschaftslehre** **Wirtschaftsuniversität Wien**
10/2009 - 08/2012	**Studium Psychologie (B.Sc.)** **Paris-Lodron-Universität, Salzburg** Abschlussnote: 1,53 Thema der Bachelorarbeit: ‚Evaluation des Glücksseminars - Das Glücksseminar und seine Auswirkungen auf das subjektive Wohlbefinden und weitere Glückvariablen (Note: 1,0)
03/2009 - 07/2009	**Studium Regenerative Energien** **Fachhochschule, München**

2008	**Abitur** **Oberstufengymnasium, Eschwege** Notendurchschnitt: 2,20 Leistungskurse: Geschichte und Chemie
Auslandserfahrung	
07/2008 – 11/2008	**Aupair in New York und Florida** USA
Praktika & **Arbeitserfahrung**	
02/2015 – 04/2015	**Projektkoordinator** Bertrandt Ingenieurbüro GmbH, München • Projektmanagement „Prozesstafeln“ • Mitarbeit Konzeption und Gestaltung Workshops „Change Management bei TP-4“ • Organisation und Moderation Webinare • Mitarbeit Social-Media Plattform (Plaza)

07/2014 -12/2014	**Praktikum in der zentralen WPS Stelle der Montagen**
	BMW AG, München
	• Mitarbeit an einer social-Media Plattform zum schnelleren Austausch von Best-Practice Lösungen zwischen den Montagewerken
	  • Konzeption und Durchführung von Kommunikations- und Layoutlösungen
	  • Weiterentwicklung, Betreuung und Mitarbeitersupport
	  • Entwicklung, Durchführung und Verbesserung von Schulungsangeboten
	  • Vorstellung und Training der Plattform in Managementkreisen und Gruppen
	  • Definition neuer Zielgruppen
	• Entwicklung einer Webinarreihe
	  • Konzeption, Organisation und Moderation

- Erarbeitung eines Schulungskonzept ‚Ergonomie erleben‘
- Mitarbeit beim Konzept Wissensmanagement in der Montageprozessplanung
- Design von Marketingmaterialien (Flyer, Broschüren) im Rahmen Best-Practice Plattform und Webinare

02/2014 – 06/2014

Mitarbeit Reitpädagogische Betreuung

bei Sophie Bittner, Reitstall Rieglerhütte, Wien

http://www.bullerbue.at/

Stundenweise neben dem Studium

06/2013 – 08/2013

Projektarbeit: Digitalisierung der Personalakten

Austrian Airlines

Zeitweise neben dem Studium

10/2012 – 03/2013

Junior Consultant & Assistentin der Geschäftsführung

Praktikum

Karrieremanufaktur e.U., Wien

- Interviewführung (telefonisch und persönlich)
- Bewerberadministration
- Telefonische Betreuung der Kandidaten/innen im Bewerbungsprozess
- Terminkoordination mit Kunden und Bewerbern
- Verfassen von Kandidatenberichten und
- Projektübersichten
- Administrative Unterstützung der Geschäftsführung
- Kommunikation über die Facebookseite
- Unterstützung im Vertrieb (telefonische Terminvereinbarung, persönliche Kundentermine…)

07/2012 – 08/2012

Praktikum Recruitment

Amadeus FiRe AG, München

- Unterstützung bei der Kunden- und Mitarbeiterbetreuung
- Bewerbermanagement
- Administrative Tätigkeiten (Mailing-Aktionen, Stammdatenpflege...)

- Vertriebsunterstützende Tätigkeiten (Betreuung Telefonzentrale, Erstellung von Profilen...)
- Internetrecherche zu Mitarbeiterbindung und Mitarbeitergewinnung
- Konzepterstellung Mitarbeiterbindung und –gewinnung

08/2011

Klinisches Praktikum

Dynamisch-psychiatrische Klinik Menterschwaige, München

- Therapeutische Mitarbeit an milieutherapeutischen Gruppen, gruppendynamischen Sitzungen und Großgruppen
- Teilnahme an non-verbalen Therapieangeboten (Mal-, Tanz-, Musik-, Theater- und Sporttherapie)
- Teilnahme an Teamsitzungen und Übergaben
- Teilnahme an Fortbildungen zu verschiedenen Themen
- Testdiagnostik

08/2010 – 09/2010

Betriebspraktikum in der Abteilung 'Human Factors und Mass Behaviour'

Industrieanlagen-Betriebsgesellschaft mbH (IABG), Ottobrunn

- Unterstützung der Adressatenanalysen für ein Training im Bereich ÖPNV
- Recherchen zu dem Thema „Serious Games“
- Unterstützung der Szenariengestaltung in einem softwarebasierten Trainingsprogramm
- „Cognitive Apprenticeship“ und weitere Modelle des Instruktionsdesigns
- Unterstützung bei der Entwicklung eines virtuellen Tutors
- Betreuung internationaler Gäste während einer Konferenz
- Recherche zu militärischen Taktiken

2005 – 2008

Unterstützung des Jugendzentrums ‚Einstein’ bei verschiedenen Aktivitäten

Jugendzentrum ‚Einstein’, Ottobrunn

- Mitarbeit bei der täglichen Arbeit
- Hüttenbauen
- Kinderfasching

Interessen

01/2009 – 07/2010

Ehrenamtliche Mitarbeit bei dem Internetradiosender ‚Hurricane Rock' in München

- Moderation
- Interviewführung
- Programmvorbereitung
- Strategische Programmablaufplanung
- Public Relations (Kontakte zu Veranstaltern, Zeitungen)
- Journalistische Tätigkeit im ‚Hurricane Rock Magazin'

02/2009 – 05/2009

Mitwirkung bei dem Bündnis ‚SoS – Studieren ohne Studiengebühren', München

- Mitarbeit in der PR Abteilung
- Journalistische Tätigkeit
- Planung und Gestaltung der Pressemappe
- Kontakt zu Zeitungen und Radiosendern
- Organisation und Durchführung Anti-Studiengebühren-Demonstration

Hobbies

reiten, klettern, tauchen, schwimmen, Fitness, reisen

EDV-Kenntnisse

MS-Office	sehr gute Kenntnisse
SPSS	sehr gute Kenntnisse
Photoshop/InDesign	Grundkenntnisse

Sprachkenntnisse

Deutsch	Muttersprache
Englisch	Auslandserfahrung