universität wien

Diplomarbeit

Titel der Diplomarbeit

Personal Resources in the Job Demands-Resources Model: A Study about Coworking Spaces

Verfasserin

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Angestrebter akademischer Grad

Magistra der Naturwissenschaften (Mag. rer. nat.)

Wien, im Juli 2013

Studienkennzahl: 298

Studienrichtung: Psychologie

Betreuer: Univ.-Prof. Dr. Christian Korunka

Acknowledgement

With my deepest gratitude, I dedicate my diploma thesis to the following people without whose invaluable support the composition process would not have been possible.

Cornelia, you deserve my greatest thanks for guiding me through the entire process of this thesis. With your help I climbed to the peak of the mountain, overcoming struggles and mastering challenges. We worked together with high intensity, professionalism and ambition combined with joy, creativity and ease. I tremendously appreciate the time and energy you devoted to this project, your precious feedback that led me in the right direction and your positive attitude towards life and work that inspired me deeply.

Professor Dr. Korunka, I thank you for your approval of this coworking study and your openness for research in this innovative work arrangement. Your critical and open-minded attitude, advice and confidence in a good piece of work greatly assisted me in this process.

To all my friends – near or far – thank you for believing in me and for carrying me through this intense time. You gave me courage and confidence, warmed my heart with your cheery words and took my mind off my worries – each of you in your unique way. It's because of you that I could let it flow!

A special thank goes to you, Grüni, for being on my side throughout the last years. You have always been my safe haven, supporting my desires, taking the challenges together with me and backing me up – because you knew I could do it!

Finally, my eternal gratitude goes to my family. Mama, with your motherly love you were always there when I needed you, giving me wings to fly and a nest to return to. Papa, thank you for enabling me my studies and for showing me that the power of endurance pays off. Thus, I could realize my full potential instead of adhering to my childish career aspiration of becoming a street sweeper. Lena, you were my personal 'proofreader', devoted your entire heart, time and energy in supporting me and shared joys, ideas and dreams with me. I thank you for the endless hours of professional but even more for your emotional support and – just – for being my Sisi! Oma, I know that it was time for you to go in this intense time of my life, but I thank you for always guarding me from 'Himmelstraße 5'.

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Abstract

Coworking spaces are resourceful environments enabling new ways of working and social interaction predominantly used by people being self-employed and freelancers. Referring to the Job Demands-Resources model, job resources are directly related to work engagement, whereas personal resources and strategies play a mediating role. However, no study has yet investigated this motivational process for Coworkers. The present study suggested that self-efficacy mediates the relation between job resources and work engagement and self-goal setting acts as mediator between self-efficacy and work engagement. Therefore, an online survey was adapted for Coworkers after a focus group discussion and conducted Europe-wide with 156 Coworkers. Results showed that method control had a positive impact on work engagement. Moreover, self-efficacy was a partial mediator between job control (method and time control) and work engagement. Results lent support that work engagement in coworking spaces is mainly related to method control and mediated by personal resources and strategies. Unexpectedly, there was no relation between social support and work engagement, indicating that social support is not equivalent with social interaction, a characteristic feature of coworking spaces. Thus, further investigations of the social aspect are indicated.

Keywords: Coworking space, work engagement, self-efficacy, self-leadership, new ways of working

Zusammenfassung

Coworking spaces gelten vor allem für Selbstständige und Freelancer als ressourcenreiches Arbeitsplatzkonzept, welches flexibles Arbeiten (siehe New ways of working Ansatz) sowie sozialen Austausch unterstützt. Gemäß des Job Demands-Resources Modells stehen Arbeitsressourcen in direktem Zusammenhang mit Arbeitsengagement; Personale Ressourcen sowie Strategien hingegen nehmen eine vermittelnde Rolle ein. Dieser motivationale Prozess wurde bisher nicht an Coworkern erforscht. Diese Studie nimmt an, dass Selbstwirksamkeitserwartung den Zusammenhang zwischen Arbeitsressourcen und Arbeitsengagement mediiert und Strategien zur eigenen Zielsetzung einen Mediator zwischen Selbstwirksamkeitserwartung und Arbeitsengagement darstellen. Nach einer Fokusgruppen-Diskussion wurde dafür ein Fragebogen adaptiert und als europaweite Online-Umfrage mit 156 Coworkern durchgeführt. Ergebnisse zeigten die positive Wirkung von Handlungsspielraum auf Arbeitsengagement und die partielle Mediation von Selbstwirksamkeitserwartung zwischen Handlungs- sowie Zeitspielraum und Arbeitsengagement. Den Ergebnissen zufolge ergibt sich Arbeitsengagement in coworking spaces hauptsächlich durch Handlungsspielraum und wird außerdem von personalen Ressourcen und Strategien mediiert. Unerwarteterweise ergab sich kein Zusammenhang mit sozialer Unterstützung, sodass diese nicht gleichzusetzen ist mit sozialer Interaktion. Weitere Studien sind zur genaueren Betrachtung empfohlen.

Schlüsselbegriffe: Coworking space, Arbeitsengagement, Selbstwirksamkeits-erwartung, Selbstführung, new ways of working

Introduction

In the last decades, it was acknowledged that work is not only the source and purpose of earning money, but of essence for the individual's well-being. This in turn is not only affected by work itself but also by work arrangements which have radically changed within the last years. The traditional job from nine to five in a conventional office got competition from different other types of work concepts. More precisely, flexible forms of work have become more and more common. Coworking spaces are such an innovative work place arrangement and spread rapidly worldwide, providing an alternative work place for so-called Coworkers. In this respect, the reader is advised that the term 'Coworker' in this thesis is used as a proper noun for people working in a coworking space and is modelled after Foertsch (2012a) who describes Coworkers as mainly independent, self-determined workers who profit from the social support and resourceful environment of the peculiar work place arrangement – coworking spaces. Most Coworkers are occupied in new media technologies and the creative industries (Pohler, 2012). However, the sample itself is not completely homogenous; the only connecting link among Coworkers is that all of them use a coworking space, exclusively or sporadically. Coworkers' work design is characteristic for the so-called new ways of working (NWW; ten Brummelhuis, Bakker, Hetland, & Keuleman, 2012) describing that employees can decide where to work (spatial flexibility) and when to work (temporal flexibility) as they are assisted in their work by available information and communication technologies (ICTs). As a consequence, NWW facilitate work engagement because employees are better and quicker connected with their fellow workers and, additionally, technologies enable an enhancement in employees' effectivity and efficiency at work (ten Brummelhuis, et al., 2012). Work engagement is regarded as a beneficial state that is mainly boosted by job resources and personal resources (Bakker, 2011). For investigations of various relations between resources and engagement, the Job-Demands Resources (JD-R) model (Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) provides a suitable and well-proven framework that was excessively used, expanded and modified for research on well-being. Previous studies have shown that job resources have a motivational power and exert a positive impact on work engagement, even in the presence of demanding work conditions (e.g. Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007; Hakanen, Bakker, & Demerouti, 2005). Additionally, attention was shifted from the external (job) resources to resources that lie within the individual. In this regard, the mediating influence of personal resources in the motivational process was acknowledged and previous studies confirmed that personal resources act as tie between predictive job resources and work-related outcomes (e.g.

Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007, 2009a). Only recently was it proposed to pay regard not only to resources but also to behavioural strategies, since they constitute a promising addition in this context (van den Heuvel, Demerouti, Bakker, & Schaufeli, 2010).

Hence, the investigation of flexible work concepts like coworking spaces deserves attention in order to assess their value for the working world. Coworkers' reasons for working in a coworking space are mainly flexibility and social aspects (Foertsch, 2012a). However, empirical evidence on the resourcefulness of the environment coworking space, which is meant to boost engagement and productivity, is still missing. Thus, the current study puts the transferability of the proposed motivational process in the JD-R model to coworking spaces in the focus of interest. The question is posed whether the relationships between resources, strategies and work engagement that were mainly found in more or less traditional work places up to now, e.g. organisations, are equivalently present in coworking spaces. Since studies about this work place concept have not been published in a psychological context before, the present study is seen as a starting point of high value. It is aspired to fill or at least reduce the research gap by addressing an up-to-date issue in the world of employment and to find out more about work engagement and its antecedents in the sample of Coworkers.

1. Theoretical Background

The subsequent part is dedicated to the theoretical background in which this diploma thesis is embedded. Firstly, an introduction to coworking spaces is given, including a discussion about a potential definition and a description of existing empirical studies about this work design. Secondly, the Job Demands-Resources (JD-R) model as the theoretical framework of this diploma thesis is presented and complemented by previous research findings with a focus on work engagement. Thirdly, personal resources and strategies as extension of the basic JD-R model are highlighted in this part. Finally, an overview is given about the concept of work engagement, the investigated outcome in this study.

1.1 Coworking Spaces

Within the last decade, a new concept of working has emerged and is now playing a more and more important role in the landscape of offices around the world. Coworking spaces are environments in which entrepreneurs find social and infrastructural resources providing a social and professional network and flexibility concerning the working hours (Pohler, 2012). The term 'coworking' was used for the first time in 1999, when the American game designer and writer Bernie De Koven defined collaborative work that is supported by computer-technology as 'coworking'[1]. In 2005, Brad Neuberg initiated the coworking movement and emphasized the need for a new kind of work environment that could be seen as an alternative space to the common office. This new work place should be a provider of structure, community and innovation for self-employed developers and writers. Moreover, he founded the 'Hat Factory', a live-work loft, and cofounded the 'Citizen Space', a work-only coworking space, which can be regarded as pioneering in the coworking movement (Fost, 2008). Even though the term 'coworking space' seems to be self-explaining and common sense tells that coworking means 'working together with other people', a proper definition is needed to have a universal understanding of what is meant by this 'buzzword'. Until now, a commonly accepted, scientific definition is absent. At least, the portal Coworking Wiki offers a general definition; coworking spaces are described as follows:

> *Independent professionals and those with workplace flexibility work better together than they do alone. Coworking spaces are about community-building and sustainability. Participants agree to uphold the values set forth by the movement's founders, as well as interact and share with one another. We are*

[1] http://en.wikipedia.org/wiki/Bernie_DeKoven

> *about creating better places to work and as a result, a better way to work.*[2] [italics added]

To put it differently, coworking spaces are a spatial manifestation of the new work arrangements that have emerged due to socio-economic changes (Pohler, 2012). Like coffee houses and public spaces, they can be categorized as 'third places' as Oldenburg (1989) named those social surroundings that are neither home nor work place. Those third places are supposed to be a home away from home, they are free and accessible for everyone and they enable socialization and communication.

1.1.1 Who is Coworking?

In the beginning of 2013, there were 2490 coworking spaces worldwide, with 1160 in Europe (Foertsch, 2013) and an average growing rate of 245% within the last two years (Foertsch, 2012a). According to Fabbri (2012), Coworkers exemplify the work force of these days – knowledge workers that only depend on an Internet connection and a laptop to work. Indeed, coworking spaces are work environments that are mainly used by people in the information and communication technologies (ICTs), new media and creative industries (Pohler, 2012). Referring to the most recent results of the third annual coworking survey, more than half of the Coworkers are freelancers, others are for example entrepreneurs and small or big company employees (Foertsch, 2012b). If one had to model the representative Coworker, he would be male, 34 years old, would have a university education, would be a former home worker, a self-employed person and would earn an average to above average income (Foertsch, 2012a). But things are changing rapidly in this industry. The percentage of women using coworking spaces has risen from 34% in 2010 up to 38% in 2012 worldwide, with Europe as front runner with 42% female Coworkers (Foertsch, 2012b).

1.1.2 Reasons and Benefits for Coworkers

According to Deskmag's second annual coworking survey, Coworkers select coworking spaces as their place of work because of social and productivity reasons (Foertsch, 2012a). The social aspect seems to be a highly relevant factor for those people who take the opportunity to detach themselves from isolation, to have an alternative to home offices and to work alongside with others. About two thirds of Coworkers opt for a coworking space because they find a social and enjoyable atmosphere, a community and social interaction there (Foertsch, 2012b). Good infrastructure (e.g. free Internet, an own desk) is an important aspect

[2] http://wiki.coworking.com/w/page/16583831/FrontPage

for almost half of the Coworkers. Only one quarter of the interviewed Coworkers chooses to work in a coworking space because of the flexible working times (Foertsch, 2012b) which might be due to the fact that numerous coworking spaces only operate weekdays from morning to evening and are not open 24/7.

Besides the social aspects, enhancement in productivity is an important reason and benefit for Coworkers to opt for coworking spaces. Additionally, first insights in a current survey reveal that the increase in creativity and the enhancement of the standard of work represent valuable benefits in coworking spaces (Foertsch, 2012b). Accordingly, the positive effect of the work environment on creativity can be attributed to work place design and office layout (Peponis et al., 2012). Moreover, an increase in business-related ideas and time-efficiency are found to be two essential performance-related benefits from working in a coworking space (Foertsch, 2012b). Furthermore, Coworkers profit by the events regularly hosted in most coworking spaces as they enlarge and enrich their professional skills (Foertsch, 2012a). Apparently, the financial aspect is not among the reasons the most often stated, but a higher income is rated as a consequent benefit, which is probably due to the increased productivity (Foertsch, 2012a). In summary, working in a coworking space seems to make people more productive and creative.

1.1.3 Current State of Research

Coworking spaces are a product of the new working world and a manifestation of innovative work arrangements (Pohler, 2012). And even though coworking spaces have been developing for many years, there is still a lack of attention in scientific research for those new work places. There are hardly any citable scientific articles and papers to broaden one's knowledge and to get high-quality information from. But what is still missing in the scientific world can be rudimentarily found in academic papers. A handful of bachelor and master theses, mostly qualitative studies, were written about this emerging work concept (e.g. Döring, 2010; Pohler, 2011). Additionally, several popular-science books were published in the last few years that take a closer look at the phenomenon of coworking. The authors of those books give an explanation why this kind of work arrangement is gaining more and more popularity, examine how Coworkers make most out of the space, help to find the most suitable coworking space and advise how to master the art of networking (e.g. Hunt, 2009; Jones, Sundsted, & Bacigalupo, 2009). For example, the history of coworking spaces and its features is briefly outlined and illustrated by Jones et al. (2009). Moreover, Hunt (2009) explains that it is the Internet and online social networks that enable the coworking movement and let it grow quickly.

Despite the lack of (scientific) literature, there is a multitude of communication and information about the coworking movement which is found – as appropriate for the population of 'digital nomads' – online in blogs, forums and coworking portals. Deskmag[3] is the most popular coworking online portal and magazine, publishing articles about new trends (e.g. crowdfunding) and new coworking spaces. Furthermore, Deskmag informs about events (e.g. coworking conferences, jellyweek etc.), gives advice to Coworkers (e.g. advice for freelancers to 'survive' and for entrepreneurs to successfully found start-ups) and releases the results of the annual coworking surveys. Recently, the first results of Deskmag's third annual coworking survey were published (Foertsch, 2012b). Two thirds of coworkers do not plan to quit working in a coworking space, a percentage that has decreased slightly in the previous two years (Foertsch, 2012b). This suggests that the further development of coworking spaces in the future is still uncertain. Nevertheless, most operators of coworking spaces anticipate even more members for the following years and plan to expand by opening new coworking spaces (Foertsch, 2012b). The scarce amount of scientific literature indicates that the relevance of this new work place arrangement is still underestimated and needs to be sufficiently researched in order to understand, classify and evaluate its impact on the contemporary working world.

1.2 Job Demands-Resources Model

A framework that is suitable to describe working conditions of Coworkers is the Job Demands-Resources (JD-R) model. It was originally developed by Demerouti et al. (2001) to explain the relations between job conditions and well-being, focusing at first mainly on the development of exhaustion and disengagement. Crucial was the advancement of the model with the emphasis of work engagement as an antipode of burnout and a positive consequence from job conditions (Bakker & Demerouti, 2007). Accordingly, the JD-R model functioned as a suitable reference framework model in manifold studies that supported the assumption that work characteristics exert an influence on the individual's well-being and are associated with various consequences, e.g. exhaustion and work engagement (for an overview see Bakker & Demerouti, 2007).

A central assumption of the JD-R model is that every job position has its own risk factors which are seen in association with work-related stress and are separable into two main categories – job demands and job resources – which constitute basic essentials in the JD-R

[3] http://www.deskmag.com

model and render it applicable for various occupational groups with validity across job positions (Bakker & Demerouti, 2007; Bakker, Demerouti, & Euwema, 2005; Demerouti et al., 2001). In the JD-R model, job demands, on the one hand, are defined as physical, psychological, social or organisational aspects of the job with a constant need for physical or psychological, cognitive or emotional effort and with a connection to physiological and psychological costs respectively (Bakker & Demerouti, 2007, p. 312). Examples of job demands are according to Bakker and Demerouti (2007) high workload, time pressure, unfavourable physical environment (e.g. noise, heat) and emotionally demanding interactions with clients. In terms of job resources, on the other hand, Demerouti et al. (2001) put external resources in the centre of attention in their JD-R model, since there is a lack of uniformity about the stability and situational independence of internal resources. Job resources are understood as physical, psychological, social or organisational aspects that are characterised by some or all of the following aspects: firstly, functionally helping to achieve work goals; secondly, minimizing certain job demands and the corresponding costs; thirdly, stimulating personal growth, learning and progress (Demerouti et al., 2001, p. 501). According to Bakker and Demerouti (2007, pp. 312) job resources can be found at different levels – the organisation (e.g. pay, career opportunities, job security), the social relations (e.g. support from supervisors and colleagues, team climate), the work organisation (e.g. role clarity, participation in decision making) and the tasks (e.g. job control, skill and task variety, task significance, performance feedback). Deriving from this definition, job resources are not only functional in dealing with job demands but are of mere importance themselves (Bakker & Demerouti, 2007).

As another central premise, the two categories – job demands and job resources – are linked to different consequences in the JD-R model. Principally, exhaustion emerges because of high job demands and low job resources (Bakker & Demerouti, 2007; Demerouti et al., 2001). Exhaustion – as a symptom of burnout – is thus mainly attributed to high job demands like workload or emotional demands that lead to a depletion of energy, disengagement – by contrast – results because of a lack of job resources (Demerouti et al., 2001). The associated, underlying psychological process is called health impairment process (Bakker & Demerouti, 2007). The second process which is proposed in the JD-R model and referred to as motivational process implies that job resources have motivational aspects that can result in higher work engagement, less cynicism and better performance. Furthermore, job resources can either be intrinsically motivating if they support personal growth or extrinsically motivating if they are seen as means to reach certain work-related goals (Bakker &

Demerouti, 2007). Since the present study focuses on the positive consequence in the model – work engagement – the health impairment process will not be addressed in detail in the following. A multitude of previous studies found support for the positive relation between job resources (e.g. social support and job control) and work engagement in showing that job resources help to achieve work goals and thus facilitate to stay engaged (cf. Bakker & Demerouti, 2007, 2008; Bakker, Schaufeli, Leiter, & Taris, 2008).

Besides the described main effects – the health impairment process and the motivational process – the JD-R model proposes additional interaction effects between job demands and job resources with an equally important impact on the subsequent extent of job strain and work engagement (Bakker & Demerouti, 2007). On the one hand, interactive effects of job demands and job resources in relation to exhaustion were attested. A combination of high job demands and little job resources led to more emotional exhaustion than high job demands alone (Bakker, Demerouti, Taris, Schaufeli, & Schreurs, 2003). In contrast, the availability of high job resources can take up the position of a buffer and weaken the negative health-related effects of high job demands (e.g. Bakker et al., 2005; Bakker & Demerouti, 2007). On the other hand, the combination of job resources and job demands exerts an effect on the extent of work engagement. Concretely, job resources impact even more on work engagement, if they are accompanied by high job demands (Bakker & Demerouti, 2007).

Previous studies found support for the interaction effects of job resources and job demands in the prediction of burnout and work engagement. Bakker et al. (2005) reported that job resources, more precisely autonomy, social support from colleagues, a positive relationship with the supervisor, and feedback for one's performance, diminished the adverse effect of high workload on burnout in an educational setting; thus, they found evidence for the buffer hypothesis. Besides, in a sample of Finnish dentists, Hakanen et al. (2005) tested different kinds of interaction effects and hypothesised that job resources (in form of job control, innovativeness, variability for professional skills, peer contacts, positive patient contacts) would mitigate the negative relationship between job demands (in form of qualitative workload, physical environment, emotional dissonance and negative changes) and work engagement. Furthermore, they predicted an even higher motivational power of job resources in the presence of high job demands. They found almost half of the interaction effects to be significant, for example peer contact could reduce the negative effect of negative changes on work engagement and boosted work engagement when the qualitative workload was high and negative changes were present (Hakanen et al., 2005). The authors concluded from these findings that dentists would feel more vigorous, dedicated to and absorbed in their

work, if they had access to sufficient job resources and if job enrichment strategies were applied (Hakanen et al., 2005). Additionally, the study was replicated among Finnish teachers who were more engaged in their work when they had to deal with misbehaving pupils while being assisted by enough job resources (Bakker et al., 2007). Interestingly, job control was the only non-significantly interacting job resource with pupils' misconduct, but support for the coping hypothesis was found for supervisor support, information, innovativeness, climate and appreciation (Bakker et al., 2007).

The assumption of the higher motivational potential of job resources if accompanied by high job demands (Bakker & Demerouti, 2007) is based on the Conservation of Resources (COR) theory (Hobfoll, 1989, 2001). A main tenet of this theory is that resources are invested in order to handle threats and adverse conditions and to protect themselves from possible negative consequences. When resources are threatened, there is a lack of resources because they have already been invested before or there is a loss of resources and stress is experienced. People will then try to keep the loss of resources to a minimum. But if resources are used to countervail further losses of resources, so-called loss spirals are likely to result, especially if there is no chance to rebuild resources (Hobfoll, 1989). Nevertheless, people aspire to maintain their resources, to protect them or even to accumulate them. This is especially valid for times when people do not experience stress and provide for a risk of further resource losses. Thus, resources are invested in order to have a bigger pool of resources available in the long term; people who possess more resources are also less prone to resource loss. If people command many resources, they even risk resources in order to enlarge the gain of resources, resulting in so-called gain spirals (Hobfoll, 2001). Additionally, it is assumed that the gain of resources is only of moderate importance compared to the loss of resources, but the capability to mobilise resources gains in importance after a stress-related resource loss (Hobfoll, 2001; Hobfoll, Johnson, Ennis, & Jackson, 2003). Based on this particular assumption, Bakker and Demerouti (2007) conclude that job resources become salient if employees are confronted with high job demands. This can also be related to Karasek (1979) who argued that a gain in competency and behaviour is possible if – on the one side – work places are active and demanding and – on the other side – employees possess enough job resources (i.e. job decision latitude) to handle these challenges.

Within the last decade, the JD-R model has undergone several extensions and modifications by adding supplemental variables or exchanging the outcome variables of the model. Diverse studies could show the JD-R model's suitability in predicting – apart from burnout and work engagement – various organisational consequences, e.g. performance

(Luthans, Norman, Avolio, & Avey, 2008), work-home interference (Bakker, ten Brummelhuis, Prins, & van der Heijden, 2011), financial returns (Xanthopoulou et al., 2009a), job satisfaction (Llorens, Schaufeli, Bakker, & Salanova, 2007) and creativity (Bakker & Demerouti, 2013). Nevertheless, this study regards work engagement as central outcome (see 2. Research Questions).

1.3 Extension of the Model – Personal Resources and Strategies

In recent times, the JD-R model was not only subject to expansions as far as the outcome variables were concerned. Different modifications were made and additional variables were fed in the model. The importance of personal resources relating to stress had already been emphasized before (Hobfoll, 1989) but was disregarded in the JD-R model for a long time. In order to understand their role in the JD-R model, a definition of personal resources is given beforehand. According to Hobfoll (1989) there are four categories of resources that can be related to well-being: objects (e.g. home), conditions (e.g. marriage), energies (e.g. money) and personal resources. Personal resources aim at resisting against stress (Hobfoll, 1989) and are defined as facets of the self that are associated with resiliency and help to master one's environment successfully by controlling and impacting on it (Hobfoll et al., 2003, p. 632). Examples for personal resources are self-efficacy (Bandura, 1997), self-esteem (Scheier, Carver, & Bridges, 1994), optimism (Scheier & Carver, 1985) and locus of control (Rotter, 1975).

One of the main principles of COR theory is that resources tend to accumulate, which means that the possession of resources will lead to the creation of additional other resources, a process that is referred to as resource caravans (Hobfoll, 2001). At this point, the assumptions made by COR theory (Hobfoll, 1989, 2001) and JD-R model (Bakker & Demerouti, 2007) can be combined in order to incorporate personal resources in the JD-R model in a proper way. Personal resources in general help to make goal achievements easier and are especially relevant in times of uncertainty and adverse conditions (van den Heuvel et al., 2010). In their outlook for future research, Bakker and Demerouti (2007) welcomed the integration of personal resources as informative extension for the JD-R model and valued the initial studies by Xanthopoulou et al. (2007) as auspicious. Xanthopoulou et al. (2007) proposed an integration of personal resources in the JD-R model and highlighted their function as moderator and mediator variables in the prediction of exhaustion and work engagement.

In contrast to personal resources that have already been frequently studied in the context of the JD-R model (e.g. Mastenbroek, Jaarsma, Scherpbier, van Beukelen, & Demerouti, 2012; Llorens, Schaufeli, Bakker, & Salanova, 2007; Luthans et al, 2008; Xanthopoulou et

al., 2007, 2009a, 2009b), personal strategies have only recently gained attention. Whereas personal resources lie inside the person, personal strategies are regarded as distinct from the inherent resources and illustrate the observable behaviour demonstrated by the individual (van den Heuvel et al., 2010).

1.3.1 Personal Resources: Self-Efficacy

From the multitude of personal resources, the relevance of self-efficacy as moderating and mediating personal resource was well accounted for by previous studies and is thus the personal resource of choice in the present diploma thesis. Hence, the report of previous studies is focused on studies that – amongst others – included this particular personal resource. The construct self-efficacy is defined as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3). In the words of Chen, Gully and Eden (2001) a self-efficacious individual believes to manage context-specific demands. Additional to the assistance in dealing with challenging demands, self-efficacy is based on experience, open for development and related to well-being, social integration and goal achievements (Schwarzer, 1993).

In fact, previous research has shown that a moderating and a mediating role can be assumed for personal resources between job conditions and well-being, motivation or other organisational outcomes. When personal resources are included as moderators in the JD-R model, they are mainly influencers in the job demands-well-being relationship (e.g. Salanova, Peiró, & Schaufeli, 2002; Schaubboeck & Merritt, 1997; van Yperen & Snijders, 2000; Xanthopoulou et al., 2007). As mediators – by contrast – personal resources link job resources and positive organisational outcomes like work engagement (e.g. Llorens et al., 2007; Mastenbroek et al., 2012; Xanthopoulou et al., 2007, 2009a, 2009b), job performance (e.g. Luthans et al., 2008; Mastenbroek et al., 2012) and job satisfaction (e.g. Luthans et al., 2008).

A moderating role of self-efficacy had been found before with Karasek's (1979) Job Demand-Control model. Self-efficacy significantly influenced the relationship between job demands and psychological health symptoms insofar that people working in a Dutch bank with high job demands reported more psychological health symptoms when they did not feel self-efficacious (van Yperen & Snijders, 2000). In addition, self-efficacy acted as moderator in the relationship between job demands and blood pressure in a clinical setting (Schaubboeck & Merritt, 1997). Aiming at the integration of personal resources in the JD-R model as moderator, Xanthopoulou et al. (2007) chose self-efficacy, optimism and organisational-based self-esteem as personal resources and hypothesised that these personal resources would moderate the relationship between job demands (i.e. workload, emotional demands, emotional

dissonance, organisational changes) and exhaustion. Nevertheless, the moderating role of personal resources could not be supported which – according to the authors – might have been due to the homogeneity of the well-educated sample or inappropriately chosen job demands (Xanthopoulou et al., 2007).

In contrast, the hypothesised partial mediator role of personal resources in the motivational process of the JD-R model was supported in a Dutch engineering company; if job resources (i.e. autonomy, social support, supervisory coaching and opportunities for professional development) were available, employees felt more self-efficacious, optimistic and had a higher organisational-based self-esteem and, in consequence, felt more engaged in their work (Xanthopoulou et al., 2007). Partial mediation was expected because apart from the three included mediators other variables could have been further possible mediators (Xanthopoulou et al., 2007). Unanticipated was the mediation of personal resources in the relationship between job resources and exhaustion, indicating their important role in the prevention of stress in environments that were equipped with many job resources, e.g. job control, social support and feedback from supervisors (Xanthopoulou et al., 2007). In a subsequent diary study, support for the mediating role of personal resources was attested for daily engagement and financial returns as consequences (Xanthopoulou et al., 2009a).

Apart from that, self-efficacy is part of the higher order, core construct labelled psychological capital (PsyCap) which as a whole consists of four personal resources, namely self-efficacy, resiliency, hope and optimism (Luthans et al., 2008). PsyCap was related to job performance, job satisfaction and commitment in a study that was conducted in various organisational settings and acted as mediator in the relationship between supportive organisational climate and employee performance (Luthans et al., 2008). There was evidence that employees' personal attributes in addition to a supportive climate were beneficial for a good performance at work. Noteworthy is that a causal link between supportive organisational climate, PsyCap and performance could not be assumed due to the cross-sectional study design (Luthans et al., 2008). Still, a meta-analysis showed that self-efficacy and self-esteem belong to the best predictors of job performance and job satisfaction (Judge & Bono, 2001).

While the causality remained open for questions in the relationship between supportive organisational climate and job performance (Luthans et al., 2008), Xanthopoulou et al. (2009b) found reciprocal relationships between job resources and personal resources and between those two resource types and work engagement. This finding additionally affirmed the assumption of resource caravans in COR theory (Hobfoll, 2001) proposing that resources are interrelated in a circular manner. Furthermore, work-related efficacy beliefs functioned as

a mediator between task resources and work engagement in a longitudinal study (Llorens et al., 2007). This indicated that the presence of task resources, operationalised by method and time control, encouraged employees' work-related self-efficacy beliefs and in succession fostered their work engagement. Additionally, the reverse effect was also found: engaged people felt subsequently more self-efficacious. Llorens et al. (2007) explained that the causation was not unidirectional but reciprocal and thus provided evidence for gain spirals between task resources, self-efficacy beliefs and work engagement, as proposed by Hobfoll (2001).

Noteworthy in the context of personal resources in the JD-R model is the inclusion of specific personal resources that relate to particular job demands or resources in the respective occupational settings. In terms of future research, Xanthopoulou et al. (2007) suggested for example to add personal resources on a behavioural level in addition to cognitive-affective resources (e.g. self-efficacy) that are generally in the focus of most studies. According to this suggestion, Mastenbroek et al. (2012) investigated two behavioural personal resources (i.e. proactive and reflective behaviour) alongside with the cognitive-affective resource self-efficacy in a sample of young veterinaries and found those three resources to partially mediate the relationship between job resources and work engagement. The contribution of that study lay in its accent on practical resources and their impact on work engagement as well as on performance. Furthermore, Mastenbroeck et al. (2012) included other-ratings in addition to self-ratings for the measurement of performance. Ratings by others are according to the authors regarded as additionally valuable but rather neglected in literature concerning the JD-R model (Mastenbroek et al., 2012).

1.3.2 Personal Strategies: Self-Leadership

Individuals' impact on organisations gained recognition for organisational behaviour more than two decades ago, when the concept of self-management was formulated (e.g. Manz & Sims, 1980) and complemented with the theory of self-leadership (Manz, 1986). In these fields of organisational behaviour, the individual employee is acknowledged as a particularly important factor for organisations. Self-leadership is defined as a "comprehensive self-influence process that concerns leading oneself toward performance of naturally motivating tasks as well as managing oneself to do work that must be done but is not naturally motivating" (Manz, 1986, p. 589). In other words, self-leadership skills are aimed at positively impacting on individual's effectiveness and at encouraging a self-motivated, self-directed way of living by implementing cognitive and behavioural strategies (Neck & Houghton, 2006).

Self-leadership is characterised by three factors: it deals with standards related to self-influence, it considers the importance of intrinsic motivation and it proposes strategies for the individual to exert self-control (Manz, 1986). In reference to these attributes, three categories are built to divide and group the different strategies with regard to contents. The three categories are behavioural-focused strategies, natural reward strategies and constructive thought patterns (Prussia, Anderson, & Manz, 1998). Behavioural-focused strategies refer to the organisation of one's behaviour in order to fulfil all kinds of tasks, especially unwanted tasks, and require being self-conscious and self-disciplined but also to reward oneself (Prussia et al., 1998, p. 524). This category consists of self-goal setting, self-observation, self-reward, self-punishment and self-cueing; all of these strategies generally aim at promoting a behaviour that results in desired outcomes and at avoiding hindering, non-constructive actions (Neck & Houghton, 2006). Natural reward strategies include the establishment of situations in which one perceives a work task or duty as enjoyable and gets rewarded by the execution of a task itself; thereby, the belief in one's competence to perform a certain task can be enhanced by perception- and behaviour-related alterations (Prussia et al., 1998). The category of constructive thought patterns (i.e. visualizing successful performance, self-talk, evaluating beliefs and assumptions) is supposed to reinforce reasoning and frequent thinking processes with a positive impact on subsequent behaviour and performance (Neck & Manz, 1992). The favourable effect of positive self-talk and mental imagery on performance has been demonstrated in e.g. sport, counselling and clinical psychology and is thought to be applicable for organisational research too (Neck & Manz, 1992).

The influence of self-motivation is regarded as highly important in the body of literature concerning self-leadership. In addition to what an employee is obliged to do at work, the self-leadership perspective acknowledges the own interests and wishes of an employee. Thus, the individual can control and manage the courses of action and to a certain extent influence the outcome (Manz, 1986). Based on this assumption, self-leadership strategies can be directly linked to personal resources and furthermore to organisational outcomes, well-being and motivation.

Manz (1986) conceptually proposed the positive impact of self-leadership qualities on employees' committed and enthusiastic attitudes to work as much as on better performance. Especially noteworthy is the connection between self-leadership and self-efficacy that was highlighted theoretically (Neck & Houghton, 2006). Additionally, an empirical study lent support to the relationship between self-leadership strategies and general self-efficacy (Norris, 2008). Furthermore, it was hypothesised that self-efficacy increased due to self-leadership

practices and consequently enhanced performance (Manz, 1986). In accord with that, support for the effect of self-leadership skills on performance was found and was fully mediated by self-efficacy in a sample of undergraduate students (Prussia et al., 1998). Apparently, the administration of certain self-leadership strategies activates the belief in one's competencies and subsequently increases one's performance. In a meta-analysis, there was evidence for the mediating role of self-efficacy in enabling self-led employees to boost their performance (Neck & Houghton, 2006).

In contrast, the recently proposed Personal Resources Adaptation Model by van den Heuvel et al. (2010) highlights the role of the individual who is attributed with personal resources and strategies in changing environments. In times of organisational change, the environment, job demands and job resources alter and personal resources as well as personal strategies (e.g. self-leadership, job crafting) play a leading role. These situations demand an adaptation from employees to the new circumstances with altered, challenging demands and different available resources. Obviously, the Personal Resources Adaptation Model is regarded as a modification or rather extension of the much-quoted and widely recognised JD-R model (van den Heuvel et al., 2010). In the Personal Resources Adaptation Model, personal resources play a triple role, being linked to job characteristics, organisational outcomes and personal strategies.

Firstly, they are predictor and outcome variable since reciprocity between personal resources, job demands and job resources is supposed. This is in line with previous studies, showing that job characteristics do not only initiate the process of well-being and motivation, but are also the consequence of engaged and self-efficacious employees (Xanthopoulou et al., 2009b). Besides, a reciprocal relationship between personal resources and work engagement as well as adaptive performance is proposed, stating that the more engaged employees are in times of change, the more personal resources they can activate. Secondly, the model regards personal resources as mediator and moderator in the relationship between the predictors, job demands and job resources, and the positive organisational outcomes, work engagement and adaptive performance (van den Heuvel et al., 2010). Thirdly, personal resources positively impact on the practice of job crafting and self-leadership strategies and result, in consequence, in adaptive performance and higher work engagement in times of change (van den Heuvel et al., 2010). The Personal Resources Adaptation Model contains the essential message for organisations that employees are "active agents who shape their environment using behavioral strategies, influenced by personal resources and change attitudes" (van den Heuvel et al., 2010, p. 141).

Self-leadership is rather an individual coping strategy to manage work stress successfully by creating active, resourceful work environments (Lovelace, Manz, & Alves, 2007). This is in line with Bakker, Demerouti and Xanthopoulou (2012) who concluded in reference to previous literature that employees actively create work environments upon which they have control; in turn their work engagement increases. But self-leadership is not easily practicable for every employee, especially if the standards and values of an organisation do not correspond to those of an individual (Manz, 1986). Apparently, women are more likely to use behaviour-focused, natural rewards and constructive thought pattern strategies (Norris, 2008). Self-leadership skills can also help to deal with high job demands and to enlarge job control (Lovelace et al., 2007).

A recent study by Bakker and Demerouti (2013) especially merits attention, since it was the first that showed the positive relationship between work engagement, creativity and a charismatic leadership style. While job resources led through personal resources to more engagement at work, engagement in turn led to a flourishing creativity and a charismatic leadership style (Bakker & Demerouti, 2013). The link between work engagement and leadership style was addressed in a study before, when highly motivated leaders could increase their employees' work engagement and identification with the job when they cultivated a transformational leadership style (Tims, Bakker, & Xanthopoulou, 2011). Additional to the relation between work engagement and creativity, a study showed that also self-leadership is connected to creativity by facilitating innovative behaviour that encompasses new or adopted ideas or solutions for identified problems (Carmeli, Meitar, & Meisberg, 2006). This signals the significance of self-leadership as coping strategy for people whose job is to elaborate ideas, create new concepts and to promote an innovation process.

1.4 Work Engagement

For a long time, the focus of research about work-related well-being was placed on burnout but within the last decade, the concept of work engagement raised more and more attention and a multitude of studies was conducted that showed that work engagement is important for occupational health, best predicted by job resources and personal resources and linked to positive organisational outcomes (e.g. Bakker & Demerouti, 2007, 2008, 2013; Xanthopoulou et al., 2007).

Kahn (1990) is known as initially dealing with engaged employees by relating the experience of three psychological conditions, i.e. psychological meaningfulness, safety and psychological availability, to personal engagement. But Schaufeli and Bakker (2004) were the ones who phrased the valid and common definition of work engagement, a lasting and

dominant cognitive-affective state that represents the opposite pole of burnout. In their words, work engagement is defined as “a positive, fulfilling, work-related state of mind characterized by vigor, dedication and absorption” (Schaufeli & Bakker, 2004, p. 295). Vigor is described as mental energy for persistence and endurance as well as for resistance in difficult, challenging times, whereas dedication is understood as identification, pleasure and enthusiasm while working (Schaufeli & Bakker, 2004). Noteworthy is that vigor is regarded as one pole on a continuum with exhaustion on the other end of the continuum; the same holds true for dedication as one pole on a continuum having cynicism on its opposing pole (Bakker et al., 2008). Moreover, the vigor-exhaustion continuum is accurately related to the term ‘activation’, whereas the term ‘identification’ describes the dedication-cynicism continuum aptly (Schaufeli & Bakker, 2004). The third dimension – absorption – implies that one finds it hard to uncouple oneself from work and that one is sunk in one’s work (Schaufeli & Bakker, 2004). In its form, absorption is similar to the concept of flow which is a state of optimal experience, when people address themselves to challenging tasks that are neither too difficult nor too simple for one’s abilities, enjoy doing these tasks, are effortlessly concentrated and experience a sense of transcendence (Csikszentmihalyi, 1990). According to Csikszentmihalyi (1990), flow is also applicable to the working world rendering jobs more pleasant and employees more motivated.

Bakker and Demerouti (2008) developed an overall model of work engagement with its antecedents and consequences assuming that job resources and personal resources, singularly or in combination, are the best predictors of work engagement and are particularly influential if job demands are additionally high. Furthermore, work engagement is linked in consequence to job performance, measured with in-role and extra-role performance (Bakker et al., 2012), sickness absenteeism (Schaufeli, Bakker, & van Rhenen, 2009), financial returns (Xanthopoulou et al., 2009a) and creativity (Bakker & Demerouti, 2013). The opposite direction is also possible, engaged workers seek work environments in which they can work autonomously and feel capable of controlling the environmental circumstances, thus being their own creator of job resources and personal resources (Bakker & Demerouti, 2008).

In summary, if an employee is supplied with job resources and possesses personal resources, this individual is likely to carry out the job with engagement. Furthermore, this is also advantageous for an organisation, since the performance of an employee who is engaged is likely to be enhanced (Bakker et al., 2008).

2. Research Questions and Hypotheses

Coworking spaces have been emerging around the world for the last couple of years with a total number of 2490 coworking spaces worldwide, whereof 1160 are distributed in Europe, the continent where the second most coworking spaces are located (Foertsch, 2013). The phenomenon of coworking is evident, this work place arrangement seems trend-setting for the future, especially for people being self-employed and freelancers, as they are the main users of coworking spaces. Coworking spaces are considered to be resourceful working environments, providing flexibility and opportunity for social interaction (Foertsch, 2012a). However, apart from Deskmag's annual global coworking survey, research in general is still scarce in this field and in particular no comparable previous psychological studies are known.

In general, the relation between job resources and work engagement and the question how to build and uphold employees' engagement is a well researched issue (e.g. Bakker & Demerouti, 2007, 2008; Bakker et al., 2012). The JD-R model is used in the present study as a theoretical frame model predicting a relation between work conditions and psychological well-being like exhaustion and work engagement (Bakker & Demerouti, 2007; Demerouti et al., 2001). Job resources are the best predictors of work engagement, whereas job demands directly impact on exhaustion (Bakker & Demerouti, 2007). Within this study the motivational process proposed in the JD-R model, i.e. the positive relation between job resources and work engagement, is in the centre of attention. Temporal flexibility and autonomy were reported as essential resources for self-employed (Vanselow, 2003). Besides these external job resources, internal personal resources are expected to rate high in nowadays challenging working world, with demands for self regulation and self-determination being part of a self-employed person's work (Vanselow, 2003). Additionally, freelancers have personal resources at their disposal, e.g. self-efficacy (Gerlmaier, 2002). Referring to these findings, the present study investigates the motivational process in the JD-R model for the target group of Coworkers and aims to fill an existing research gap. Therefore, the current study considers the mechanisms leading from job resources to work engagement for an innovative occupational group little is known about.

As proposed by Xanthopoulou et al. (2007), personal resources can be integrated in the motivational process of the JD-R model and act as mediator between job resources and work engagement. This mediating effect was present in many studies (e.g. Llorens et al., 2007; Luthans et al., 2008; Mastenbroek et al., 2012; Xanthopoulou et al., 2007, 2009a) but in an extension, the present study wants to test this assumption for the target group of people working in coworking spaces. Consequentially, the following research question arises: Do

personal resources mediate the relationship between job resources and work engagement in coworking spaces?

For this study, job control and social support were chosen as job resources because these two resources are the main reasons for working in a coworking space and are widely researched in the JD-R model, as Bakker and Demerouti (2007) presented in their essential paper. Besides, Karasek's (1979) Job Demand-Control model named job control, labelled as job decision latitude, as leading job resource and the model's extension by Johnson and Hall (1988) included social support as additionally relevant job resource. Xanthopoulou et al. (2007) reported that autonomous and socially supported employees were more engaged. Furthermore, in a study among information technology workers, job control was investigated as method control and time control in order to cover both, the qualitative and quantitative control dimension (Salanova, Peiró, & Schaufeli, 2002). In reference, a study among freelancers confirmed that method control and time control as well as social support from supervisors, family and friends positively impacted on well-being indicators (Clasen, 2012). Deskmag's second annual coworking survey found social interaction to be the main reason for Coworkers to choose this work place option (Foertsch, 2012a). This justifies the assumption that coworking spaces live on community, rendering social support highly relevant for Coworkers. In order to test the impact of job resources on work engagement in coworking spaces, the following hypotheses are formulated:

Hypothesis 1a: Job control leads to higher work engagement for people working in coworking spaces.

Hypothesis 1b: Social support leads to higher work engagement for people working in coworking spaces.

A huge number of studies in different occupational settings could show that resourceful environments assist in the activation of personal resources. Thereby, the role of the personal resource self-efficacy in the relationship between job resources and work engagement was confirmed as partial mediator (e.g. Mastenbroek et al., 2012; Xanthopoulou et al., 2007, 2009a) and as full mediator (e.g. Llorens et al., 2007; Luthans et al., 2008; Xanthopoulou et al., 2009a). Also according to Verà, Salanova and Lorente (2012), self-efficacy is regarded as a very powerful personal resource in predicting work engagement that takes in the role of a mediator. The population of Coworkers has not been in the body of research yet but similar mediation effects are expected since the stress-related work-characteristics are overlapping for traditional employees and freelancers (Vanselow, 2003). In

addition, self-efficacy is a resource found frequently among freelancers (Gerlmaier, 2002). Hence, the following hypotheses derive:

Hypothesis 2a: Self-efficacy mediates the relationship between job control and work engagement for people working in coworking spaces.

Hypothesis 2b: Self-efficacy mediates the relationship between social support and work engagement for people working in coworking spaces.

Whereas personal resources, as described in 1.3.1, are studied frequently in association with the JD-R model, personal strategies have been less researched so far. Xanthopoulou et al. (2007) recommended the integration of resources on a more practical level and suggested the organisation of one's time or energy. In reference, Mastenbroek et al. (2012) included behavioural skills (i.e. reflective and proactive behaviour) in their study and explained that behavioural aspects, in addition to self-efficacy, mediate the relation between job resources and work engagement. Particularly for self-employed people an important skill is the capability to organise oneself. The concept of self-leadership (Manz, 1986) was found to be positively related to self-efficacy, moreover self-efficacy mediated the relationship between self-leadership and performance (Prussia et al., 1998; Neck & Houghton, 2006). In contrast, self-leadership has been recently incorporated as mediator in the Personal Resources Adaptation Model (van den Heuvel et al., 2010) which is a modification of the JD-R model, particularly valid for times of change. Due to the mixed and scarce findings about self-leadership in this context, the following research question arises out of the inconsistencies: Which role does self-leadership play as personal strategy in the JD-R model for people working in coworking spaces?

Dealing with Coworkers who are mainly freelancers and self-employed (Foertsch, 2012a) requires looking at the ability of these people to organise and manage themselves and to set goals in order to be successful. Hence, in a study about coworking spaces, it makes sense to add self-goal setting, one dimension of behaviour-focused self-leadership strategies, as a revealing variable. Its positive relation to innovative behaviour (Carmeli et al., 2006) and its relevance for managerial jobs and leaders (Lovelace et al., 2007) justifies the inclusion of self-goal setting, in this study. To evaluate the role of self-goal setting in relation to personal resources and work engagement, the following is hypothesised in this study:

Hypothesis 3a: Self-efficacy and self-goal setting are positively related for people working in coworking spaces.

Hypothesis 3b: Self-goal setting mediates the relationship between self-efficacy and work engagement for people working in coworking spaces.

Although job demands are not in the focus of the present study in which the motivational process between job as well as personal resources and work engagement is addressed, the impact of time pressure as a prototypical job demand is not to be neglected in this context. Indeed, time pressure was found to be an essential stressor for freelancers (Vanselow, 2003) and is regarded as highly prevalent work stressor for most occupations (Bakker & Demerouti, 2007; Lee & Ashforth, 1996). Nevertheless, time pressure could also be an indicator of success for self-employed, indicating a florishing business with a good order situation. As summarized by Bakker and Demerouti (2007) and attested in studies beforehand, the impact of job resources on work engagement is even more salient if accompanied by job demands (e.g. Bakker et al., 2007; Hakanen et al., 2005). For example, if dentists' workload was high but peer contact was possible, the dentists felt especially engaged (Hakanen et al., 2005). Consequentially, job control and social support are expected as especially fruitful for work engagement if Coworkers are pressed for time. Accordingly, the final hypotheses in this study are:

Hypothesis 4a: Job control leads to higher work engagement for people working in coworking spaces, especially if time pressure is high.

Hypothesis 4b: Social support leads to higher work engagement for people working in coworking spaces, especially if time pressure is high.

In conclusion, a contribution to a neglected research field is aspired with this diploma thesis and the value of coworking spaces as innovative work places is hoped to be assessed. In reference to previous literature about the JD-R model and personal resources as well as personal strategies the hypotheses for the present study were formulated for the target group of people working in coworking spaces and are presented in an overview in table 1. Additionally, based on the two research questions and the formulated hypotheses a research model for this diploma thesis was designed and is depicted below (see Figure 1).

Table 1. Hypotheses tested in the present study

H1a	Job control leads to higher work engagement for people working in a coworking space.
H1b	Social support leads to higher work engagement for people working in a coworking space.
H2a	Self-efficacy mediates the relationship between job control and work engagement for people working in a coworking space.
H2b	Self-efficacy mediates the relationship between social support and work engagement for people working in a coworking space.
H3a	Self-efficacy and self-goal setting are positively related for people working in a coworking space.
H3b	Self-goal setting mediates the relationship between self-efficacy and work engagement for people working in a coworking space.
H4a	Job control leads to higher work engagement for people working in coworking spaces, especially if time pressure is high.
H4b	Social support leads to higher work engagement for people working in coworking spaces, especially if time pressure is high.

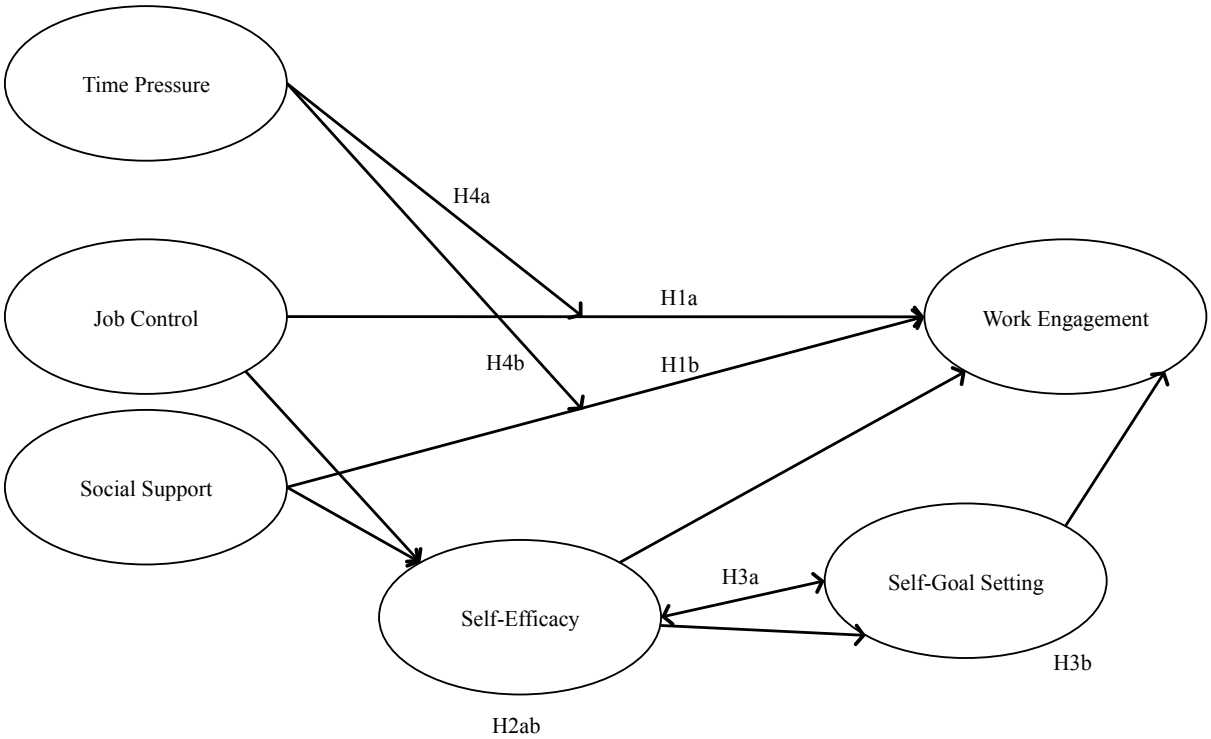

Figure 1. Research model describing the hypothesised relations between antecedents and work engagement for Coworkers

3. Present Study

This diploma thesis was embedded in the context of a dissertation thesis about flexible working models at the Faculty of Psychology, in the research field of Work and Organisational Psychology. The present study was the first wave of a longitudinal study about coworking spaces and was – itself – designed as a cross-sectional study plus a preceding focus group discussion. In the following section, the sample, material, procedure and data analysis of the present study about coworking spaces are explained in detail.

3.1 Sample

Coworkers are people who work in a shared working environment, namely coworking spaces, and mainly choose this option as an alternative to home offices. Since more than 1000 coworking spaces are located in Europe (Foertsch, 2013), it was important to evaluate a detailed recruitment concept in order to reach and motivate Coworkers for participation. Therefore, the recruitment strategy was based on Deskmag's procedure for its annual coworking surveys by contacting coworking spaces per email, conducting an online survey and including similar questions about Coworkers' working habits. This was done in order to provide a representative study.

3.1.1 Recruitment Strategy

In order to guarantee a diverse sample, the aim was to reach as many Coworkers as possible from different spaces in different European countries. Therefore, a recruitment strategy with the following three sequential steps was implemented.

Firstly, a list of 208 coworking spaces in 27 European countries was compiled assisted by the online platform deskwanted[4] which listed most coworking spaces worldwide. It was attempted to include smaller and larger coworking spaces from different countries and different cities. The managers of these coworking spaces were contacted via email and the procedure and the schedule were explained to them. They were asked for supporting this study and for spreading the online survey to the Coworkers in the respective coworking space. Additionally, a YouTube video[5] was created to shortly present the study, to attract the Coworkers' attention in an appealing way and to be distributed in social media for recruitment. This video was attached in the email to the coworking spaces. About 50 coworking spaces guaranteed their support and offered to forward the online survey's link to

[4] https://www.deskwanted.com

[5] http://www.youtube.com/watch?v=TRfDi33ssXE

the Coworkers in their coworking spaces. At the start of the survey on February 11th, 2013, these supporting coworking spaces were contacted again via email supplied with an invitation to participate and to spread the material. Two weeks later, the coworking spaces received a reminder email with an additional call for participation.

Secondly, multiplicators, like the owner of Deskmag, the international online portal for coworking, and journalists of corresponding online magazines, were approached for posting the link to the survey in diverse social media and for writing blog entries about the study. Exemplarily, Deskmag published an article by Gerdenitsch (2013) about the planned study in the website's news section, attached with the video and the link to the survey.

Finally, the coworking study was promoted in two coworking spaces in Vienna, namely sektor5 and yurp, to raise the Coworkers' attention and to show a personal presence on the spot. The Coworkers who were present were individually invited to take part in the study. Cake was provided as incentive for the ones that filled out the questionnaire promptly.

With this recruitment strategy, the link to the survey was opened 1140 times. Most participants clicked on the survey on the two respective days, when the email and the reminder email to the coworking spaces were sent out. The drop-out rate was 86.2% with most drop-outs – 73.2% – on the first page. This means that 837 looked at the introduction but did not start to fill out the survey. All in all, 158 participants proceeded until the end of the survey.

3.1.2 Sample Description

The number of valid data was $N = 156$ (more than 20% missings from values that were of particular relevance for the study were excluded). Sociodemographic data was provided from 155 participants (one missing), except for the participants' age that was submitted by 154 participants (two missings).

The sample consisted of 102 (65.8%) male and 53 (34.2%) female persons. The average age of the sample was 34.86 years (ranging from 19 to 62; $SD = 8.45$) with half of the sample aged between 30 and 39. It became apparent that the participants had a high educational level. A number of 122 (78.7%) possessed a university degree, 28 (18.1%) graduated from high school, two (2.1%) finished a compulsory school, two (2.1%) did an apprenticeship and one (0.6%) completed a vocational school. As far as the employment status is concerned, more than half of the sample, namely 96 (61.9%), were self-employed, 55 (35.5%) worked as freelancers, 25 (16.1%) were full-time employees and 15 (9.6%) part-time employees, twelve (7.7%) were students and ten (6.5%) indicated to have another employment status. It should be pointed out that multiple options could be selected for this

particular question. The sample was composed of Coworkers from 52 different coworking spaces from 17 European countries, located in 35 cities. Altogether, participants from 24 nationalities were part of the study, 52 (33.8%) of them were Austrian, 20 (13.0%) Portuguese, 18 (11.7%) German, ten (6.5%) Italian and eight (5.2%) French.

With an open question participants were asked to describe their current project they occupied themselves with. Based upon those answers, categories for the fields of occupation were created and the participants were classified correspondingly from two independent evaluators (see Table 2).

Table 2. Classification of occupation

Occupation	%
Software/web development and design	29.3
Consultancy and management	17.4
Writing, journalism, blogging and language services	10.2
Science, research/technology, education	8.4
Online marketing/communication, social media marketing and PR	7.2
Working for a coworking space	4.8
Design and creative projects	4.2
Arts and architecture	3.6
Social entrepreneurship	3.0
Tourism and gastronomy	2.4
Others	9.5

More than half of the sample worked either in the section ‘software/web development and design’ (29.3%), ‘consultancy and management’ (17.4%) or ‘writing, journalism, blogging and language services’ (10.2%). The remaining were categorised in ‘science, research/technology, education’ (8.4%), ‘online marketing/communication, social media marketing and PR’ (7.2%), ‘design and creative projects’ (4.2%), ‘arts and architecture’ (3.6%), ‘social entrepreneurship’ (3.0%) and ‘tourism and gastronomy’ (2.4%). Another 4.8% were solely working for a coworking space. To the category ‘others’ (9.5%) belonged for example a director of a shipping company in the field of crewing and a coordinator of a research project about peace.

There is evidence for the representativeness of this sample, when the variables gender, age and highest educational level of the sample are considered and compared with Deskmag’s second annual coworking survey. Foertsch (2012a) recruited an international sample from 52 countries with a tenfold sample size (N = 1532), finding almost the same gender distribution (66% male and 34% female), average age of a Coworker (34 years) and percentage of

Coworkers holding a university degree (75%). Moreover, in both samples social interaction was named as most important reason for working in a coworking space, with a percentage of 83.2% in this study and 92% in Deskmag's second annual coworking survey (Foertsch, 2012a). Besides, both studies used an online survey in unipark as survey methodology of choice.

3.2 Material

The material for this coworking study was an online questionnaire with general questions about coworking spaces and scale-related questions about job demands, job resources, personal resources, personal strategies and work engagement. Since the target group of Coworkers was specific and not tested frequently before, it was necessary to check the comprehensiveness of the survey prior to the start of data collection. Therefore, a focus group discussion was held which will be described later on (see 3.2.2 Focus Group Discussion).

3.2.1 Instruments Used in the Online Questionnaire

The online questionnaire consisted of 71 items and a personal code that was included in the survey to contact the participants again and to further use the data for the second wave of the planned longitudinal study. The survey started with 18 questions about coworking spaces and was followed by 39 questions referring to different scales of the eight included psychological constructs. In the end, questions about sociodemographic data (age, gender, nationality, highest education, employment status) were included (see Appendix B for entire questionnaire). The questions about coworking spaces aimed at getting an insight about the Coworkers' working habits (times, reasons for and duration of working in a coworking space, frequency of using other work places and community aspect) and were based upon the worldwide representative survey about coworking spaces, Deskmag's second annual coworking survey (Foertsch, 2012a). Additionally, self-constructed items were generated about temporal flexibility and the use of information and communication technologies (ICTs). Concerning the psychological constructs and their operationalisations, job control and social support were included as job resources and time pressure was the tested job demand. Self-efficacy as personal resource and self-goal setting as self-leadership strategy were further parts of the study. Work engagement with the three subscales vigor, dedication and absorption acted as outcome variable. Subsequently, the scales for testing the specific hypotheses of the study are described.

Job Control was measured with two subscales from the Instrument for Job-oriented Stress Analysis (ISTA) by Semmer, Zapf and Dunckel (1999). This originally German instrument is suitable for an evaluation of stress-related occupational strain as well as for an identification of job resources (Semmer et al., 1999). The two subscales assessed method control and time control, respectively. Cronbach's α for the original scale was .78 for method control, no explicit reliability score was reported for time control (Semmer & Dunckel, 1991). An exemplary item for method control was "Considering your work place in general, how much can you change the sequence of the different steps yourself?". Time control was for example assessed with the item "To what degree is it possible for you to set your own working pace?''. The answers for the four items per scale were ranging from 1 *(very little)* to 5 *(very much)*, except for one different time control item with possible answers from 1 *(less than 5 minutes a day)* to 5 *(more than 2 hours a day)*.

Social Support was assessed with a modified and translated version of the Skala zur Sozialen Unterstützung am Arbeitsplatz (SzSU) by Frese (1989). The original items referred to supervisors and colleagues, whereas the adapted items for this study referred to Coworkers and (other) friends. Cronbach's α for the original scales was .86 for social support from supervisors and .84 for social support from colleagues (Frese, 1989). Exemplary for this scale was the item "How willing are these persons to listen to your problems with the job?". Answers to the five questions were rated on a 4-point Likert scale, ranging from 1 *(not at all)* to 4 *(completely)*.

Time Pressure was assessed with a subscale from the ISTA (Semmer et al., 1999). Internal consistency for the subscale was reported with .81 for Cronbach's α (Semmer & Dunckel, 1991). A translation in English of the 4-item subscale was used. An exemplary item was "How often do you have to work faster than normal in order to complete your work?". The items were scored on a 5-point Likert scale, ranging from 1 *(very rarely/never)* to 5 *(very often)*.

Self-efficacy was measured with a selection of four items from the English version of the Generalized Self-Efficacy Scale (Schwarzer & Jerusalem, 1995) that originally consisted of ten items. Cronbach's α for the original scale ranged from .76 to .90 and the scale's reliability was already attested in some studies (e.g. Luszczynska, Scholz, & Schwarzer, 2005). The following item was an exemplary one: "I am confident that I could deal efficiently with unexpected events". The four statements were scored with answers ranging from 1 (*not at all true)* to 4 *(exactly true)*.

Self-Goal Setting was assessed with four items from the Revised Self-Leadership Questionnaire (RSLQ) developed by Houghton and Neck (2002). The RSLQ is a self-assessment instrument measuring nine self-leadership dimensions as first order factors and three groups of self-leadership strategies as second order factors, among them is self-goal setting one out of five dimensions of the behaviour-focused strategies (Houghton & Neck, 2002). The original subscale's Cronbach's α was .84. This subscale originally consisted of five items, whereof four were used here, such as "I consciously have goals in my mind for my work efforts". The items were scored on a 5-point Likert scale, ranging from 1 *(not at all accurate)* to 5 *(completely accurate)*.

Work Engagement was measured with the short, 9-item version of the Utrecht Work Engagement Scale (UWES-9) developed by Schaufeli, Bakker and Salanova (2006). As stated from Schaufeli et al. (2006), the three subscales vigor (e.g. "At my job, I feel strong and vigorous".), dedication (e.g. "I am enthusiastic about my job".) and absorption (e.g. "I am immersed in my work".) can be considered as one general indicator for work engagement. Schaufeli et al. (2006) reported sufficient values for the internal consistency of the scales in a cross-national study. Cronbach's α varied between .60 and .88 for vigor, between .75 and .90 for dedication and between .66 and .86 for absorption. Cronbach's α was between .85 and .92 for the engagement scale consisting of all nine items. The answers were scored on a 7-point Likert scale, with options from 1 *(never)* to 7 *(always)*.

3.2.2 Focus Group Discussion

In order to evaluate the created questionnaire and to check its adequacy for the study's target group, a focus group discussion was arranged in sektor5 on January 24th, 2013. Sektor5 is a 580m^2 big coworking space in Vienna offering up to 75 permanent and flexible desks. Sektor5 attracts mainly start-up enterprises and Coworkers in the field of software and web development, but is open for members from any occupations. Additionally, this coworking space has two conference rooms, a community area, couches, a bar and a kitchen. Coworkers can use sektor5 weekdays from 9am to 7pm. The space is also open when events and workshops are held there.

The general conditions of the focus group discussion were the following: three Coworkers who formed the focus group were recruited. The size of the group was chosen deliberately since it appeared appropriate for the purpose and the goal of the meeting. The group of experts consisted of a male software developer (28 years), a female owner of a social media marketing agency (30 years) and a male mobile app developer (25 years). They exchanged ideas, opinions and suggestions with the two moderators who led the discussion

and took notes. Additionally, an audio recorder was used. The discussion took place in the community area of sektor5. The welcome was warm, the atmosphere relaxed with some music in the background and coffee was provided.

The focus group discussion started with a presentation of the participants and their businesses, followed by an explanation of the study's aim, background and reason for the meeting. Afterwards, participants discussed the questionnaire's items sequentially regarding the comprehensibility and appropriateness in general and especially for the target group of Coworkers. In the end, there was time for general feedback, comments and questions. Finally, the experts were presented with some chocolate in return for their willingness to participate in this focus group discussion.

With the aim of improving the questionnaire and appropriately adapting it for the target group, the discussion focused mainly on the self-developed items concerning coworking spaces. As far as the places Coworkers work at are concerned, the Coworkers suggested adding 'in my office' and 'in a friend's office' to the options 'in a coworking space', 'in home office' and 'at other places (coffeehouse, train etc.)'. Since the recommended options represented crucial work places for Coworkers, they were incorporated in the survey. Referring to the work places, one of the Coworkers explained: *"In your own office you are isolated. Hence, you want to be in a coworking space in order to communicate with others."* (#1, 25 years, male, mobile app developer; free translation from German, content remains the same).

Dealing with the times spent in coworking spaces, the options 'for some hours a day', 'at the weekend', 'at night-time', 'sporadically' and 'others' were understood clearly, but the alternative '9 to 5' evoked an association with officialdom and appeared inappropriate for the Coworkers. Thus, the suggestion to change it in 'full-time' and to mention different working schemes (i.e. 9 to 5, 10 to 6) as examples in brackets was accepted.

As far as the reasons for using a coworking space were concerned, the wording of the option 'establishment of business network' was changed in simply 'networking' to describe the option more precisely. Additionally, 'collaboration' was named as a frequent practice in coworking spaces and was therefore incorporated in the list of reasons. Then, the complete list of reasons was: 'structure in one's work day', 'collaboration', 'flexible working', 'networking', 'social interaction', 'productivity', 'provision of infrastructure', 'locational advantages' and 'cost-efficiency'.

The satisfaction items "How satisfied are you with your work?" and "How would you rate the quality of your work?" were not clear and intelligible to all of the participants in the

focus group. In consultation with them, the wording was changed in “How satisfied are you with the quality of your work?” and “How satisfied are you with the achievement of goals you have set for your work?”. Furthermore, one of the Coworkers hypothesised that probably most of the participants would rate the quality of their work extremely high, leading to a not really informative ceiling effect.

As further information, they suggested an inclusion of items concerning the size of the Coworker’s project team. Nevertheless, this aspect was not included for two reasons. There would not have been any additional value for the focus of the study and furthermore, it could have been difficult to name and compare the teams’ sizes.

The last question in this section “Does your coworking space have a community aspect?” was completely comprehensible for the Coworkers. Correspondingly, they explained that even in sektor5 they had a community spirit, although sektor5 did not declare the coworking space as a community as other coworking spaces do.

When the questions about temporal flexibility were under consideration, the three Coworkers agreed on the importance and appropriateness of this aspect. Concerning this matter, the following statement illustrated the problem: *“There is a romanticising of how coworking spaces work...but the traditional working world wants me to be available from 9 to 5. Yes, I am tied to my desk.”*. (#2, 30 years, female, social media agency owner; free translation from German, content remains the same). Obviously, there was a difference between the time that Coworkers wanted to spend in the space and the time they were actually present. One Coworker explained that clients wanted them to be available during the traditional working hours and that this limited the flexibility generally provided in coworking spaces. Since this aspect had not been covered sufficiently before, the item ‘My clients/project partners expect my permanent accessibility.’ was added.

The Coworkers unanimously did not understand what was intended to find out with the question “How often do you use the following technologies for your work?” and predicted only extreme ratings for the target group. One of them confessed: *“We cannot live without those technologies. We use them all the time. But…who does not today?”* (#3, 28 years, male, software developer; free translation from German, content remains the same). They went along with each other that the options ‘laptop’ and ‘tablet (iPad, Galaxy Tab etc.)’ should be itemised, since these two technologies were used for different purposes. The remaining options ‘mobile phone/smartphone’, ‘social networks (Facebook, Twitter, Pinterest etc.)’ and ‘chat/messaging services (Skype, Messenger etc.)’ were regarded as appropriate.

Thereafter, the participants were asked to read through the questions adopted from the scales. All of those items were understood properly with no further comments. Finally, the options for employment status 'full-time employee', 'part-time employee', 'self-employed', 'freelancer', 'student' and 'others' were discussed. One of the interviewees suggested an inclusion of 'consultant'. But since this option was rather a job title and did not refer to the employment status as such, it was not added to the list.

In the end, one of them said noticeably surprised: *"That was it? Short and sweet!"* (#4, 28 years, male, software developer; free translation from German, content remains the same). This neat statement reinforced the belief that the length of the survey was appropriate for the target group. No further objections were raised. Concerning the recruitment strategy, the Coworkers uniformly proposed that it would be a good idea to show presence in the coworking spaces, meet the Coworkers in person and ask them individually to participate in the survey. The following notice illustrates this idea and was implemented as effectively as possible in the subsequent recruitment process: *"Time is a major shortcoming in our jobs. Emails get lost...but if you asked me personally to fill out the survey, I would certainly do it."* (#5, 30 years, female, social media agency owner; free translation from German, content remains the same).

3.3 Procedure

At first, the appropriateness of the created questionnaire for the specific target group of Coworkers was evaluated and discussed in a focus group discussion. Then, the online survey was designed with the online survey software unipark and Coworkers received the survey per email from the operators of the coworking spaces who guaranteed their support. Lastly, two reminder mails were sent to the operators of the spaces two and four weeks afterwards. The focus group discussion took place in January 2013 with three Coworkers from sektor5[6], one of the biggest coworking spaces in Vienna. A detailed description is found in 3.2.2 Focus Group Discussion.

The criterion to participate in the study was to work in a coworking space; people using a coworking space full-time, part-time or sporadically were included as well as self-employed people, employees and further statuses of employment like freelancers or students. The survey was designed to be as short as possible. The intended length of about ten minutes was exceeded. On average, it took 17 minutes and 42 seconds to fill out the survey. The period of data collection was scheduled from February 11th until March 31st, 2013.

[6] http://www.sektor5.at

3.4 Data Analysis

Prior to the main data analysis, exploratory factor analyses (principal component analysis) were performed for the respective items of the scales. This was especially relevant for work engagement to test if in this sample the three dimensions vigor, dedication and absorption were reducible to one single factor, namely work engagement (see Appendix C).

Then, the main data analysis was conducted with mean-centred variables. To test the main effects of job resources on work engagement, a hierarchical regression analysis with blockwise entry was performed, entering in the first step age and gender as control variables, followed in the second step by method control, time control, social support from Coworkers and social support from friends as main variables.

In order to test the mediation effects, the procedure proposed by Baron and Kenny (1986) was followed. This requested the estimation of three regression equations: firstly, the dependent variable (work engagement) was regressed on the independent variable (method control, time control, social support Coworkers, social support friends, respectively); secondly, the mediating variable (self-efficacy) was regressed on the independent variable; thirdly, the dependent variable was regressed on both the mediating and the independent variable. A mediation effect existed, if the relationships in these three equations were significant, except for the regression of the dependent on the independent variable, when the mediating variable was also included. A non-significance of this relationship indicated full mediation, a weaker relationship than in the first regression equation signified partial mediation. Furthermore, the mediation effects were tested with Sobel tests and a bootstrapping analysis (cf. Preacher & Hayes, 2004). Sobel tests were performed to calculate indirect effects leading from the independent via the mediating to the dependent variable. Additionally, bootstrapping, a method of increasing popularity and practice (Bollen & Stine, 1990), was applied in order to test the significance of indirect effects. Therefore, $m = 5000$ resamples were drawn, resulting in a parameter distribution for which a confidence interval (95%) was specified. A significance of indirect effects resulted, if zero was not included in the confidence interval.

Subsequently, a further mediation analysis was performed for the mediator self-goal setting in the self-efficacy-work engagement relationship following the same analysis as described above.

Finally, to test the interaction effects of job resources and job demands on work engagement, a moderator analysis was conducted. Centred cross products of the standardised job resources and time pressure were built to avoid the problem of multicollinearity (Aiken &

West, 1991) and hierarchical regression analyses were performed. Therefore, the predictors, job demand and job resource, were entered in the regression equation first, followed by the two-way interaction term (i.e. time pressure X job resource). Altogether, four hierarchical regression analyses were conducted for the interactions time pressure X method control, time pressure X time control, time pressure X social support Coworkers, time pressure X social support friends separately.

4. Results

At first, results for the questions about Coworkers' working habits are reported in order to portray the target group that has not been studied frequently yet. Secondly, the reliabilities of the scales and descriptive statistics are included. Lastly, the results from the tested hypotheses are presented.

4.1 Coworkers' Working Habits

The online questionnaire provided data describing Coworkers' working habits including reasons for working in a coworking space, times for using the coworking space and whether they used other working places too. Furthermore, duration of working in a coworking space, community aspect, satisfaction with the work and goal achievement as well as temporal flexibility were assessed. It should be noted that multiple answers were possible for the relevant questions.

The main reason to work in a coworking space was social interaction for 83.2% (n = 129). Other reasons that were rated as very important were productivity for 67.7% (n = 105), networking for 67.1% (n = 104), the provision of infrastructure for 65.8% (n = 102) and flexibility for 63.2% (n = 98). The remaining categories as important reasons were structure for 62.3% (n = 96), collaboration for 57.4% (n = 89), cost-efficiency for 53.5% (n = 83) and locational advantages for 50.3% (n = 78). Overall, each of the listed reasons to work in a coworking space was considered to be an important factor for a minimum of half of the sample. Regarding the times to use a coworking space, 73.1% (n = 114) worked full-time in a coworking space, 29.5% (n = 46) frequented it for some hours a day, 14.1% (n = 22) worked sporadically there, 11.5% (n = 18) used it at the weekend, 11.3% (n = 16) at night-time and 7.7% (n = 12) indicated to have other time preferences.

Coworking spaces were reported to be the most frequently used work places (M = 64.47, SD = 28.91), followed by home office (M = 25.10, SD = 24.04), cafés (M = 13.02, SD = 13.15), the own office (M = 8.89, SD = 20.58) and a friend's office (M = 2.61, SD = 7.22). The reported means and standard deviations are related to the percentage of the respective working time at the different places.

Coworkers had worked in a coworking space on average for 17.84 months (SD = 22.17), ranging from not even one month to 130 months. A number of 139 from 152 Coworkers (91.4%) indicated that their coworking space had a community aspect. Additionally, on a 5-point Likert scale the participants rated the satisfaction with work quality

(M = 3.86, SD = 0.70), the satisfaction with goal achievement (M = 3.95, SD = 1.03) and the temporal flexibility (M = 3.81, SD = 0.66) as relatively high.

4.2 Reliabilities and Intercorrelations

The reliabilities of the original scales were consistently good (see 3.2.1 Instruments Used in the Online Questionnaire). Correspondingly, the scales were reliable instruments in this sample with Cronbach's α above .70, which is defined as the lower limit for an acceptable reliability (Field, 2009). One exception was time control with Cronbach's α of .66. Reducing the time control scale to three items by eliminating the fourth item increased Cronbach's α to .73. After the elimination, Cronbach's α for the scales ranged between .72 and .87, with six scales exceeding .80, a value that is indicative for good reliabilities (Bortz & Döring, 2006). The exact reliabilities found in this study are shown in table 3.

Table 3. Reliabilities of scales (N = 156)

Scale	Cronbach's α	Nr. of items
Time pressure	.81	4
Method control	.85	4
Time control	.66	4
Time control without item 4	.73	3
Social support Coworkers	.79	5
Social support friends	.77	5
Self-efficacy	.77	4
Self-goal setting	.85	4
Vigor	.82	3
Dedication	.85	3
Absorption	.72	3
Work engagement	.89	9

Means, standard deviations and Pearson product-moment correlation coefficients among the study variables for the hypotheses as well as for the control variables age and gender are summarised below (see Table 4). The correlation coefficients with gender were based on N = 155, with age on N = 154 and the remaining intercorrelations were based on N = 156.

Table 4. Descriptive statistics and Pearson product-moment correlation coefficients ($N = 155$ for column 1, $N = 154$ for column 2, $N = 156$ for the remaining columns)

	Variables	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12
1	Gender	1.66	0.48												
2	Age	34.86	8.45	-.05											
3	Time pressure	2.85	0.75	-.07	.11										
4	Method control	4.10	0.71	.12	.16	.01									
5	Time control	4.18	0.67	.02	.10	-.09	.66**								
6	Social support Coworkers	2.74	0.58	. 07	-.21**	-.02	.09	-.04							
7	Social support friends	2.93	0.58	-.07	-.24**	-.16*	.19*	.16*	.33**						
8	Self-efficacy	3.41	0.46	-.03	.03	.13	.34*	.24**	.10	.08					
9	Self-goal setting	3.89	0.75	-.15	-.02	.01	.24*	.05	.07	.12	.24**				
10	Vigor	4.82	0.96	-.14	.12	.20*	.32**	.21*	.12	.11	.40**	.27**			
11	Dedication	5.63	0.98	-.07	.02	.21**	.34**	.26**	.16	.13	.29**	.41**	.55**		
12	Absorption	5.24	0.94	-.10	-.07	.24**	.33**	.22**	-.001	.07	.34**	.33**	.54**	.65**	
13	Work engagement	5.23	0.82	-.12	.03	.25**	.39**	.27**	.11	.12	.40**	.40**	.82**	.87**	.86**

Note: Gender (1 = female, 2 = male), *$p < .05$, **$p < .01$.

Work engagement was significantly related to all of the other scales except for social support, age and gender. The highest positive relationship was found for work engagement with self-efficacy (r = .40, p < .01) and self-goal setting (r = .40, p < .01), respectively. Furthermore, the subscales vigor, dedication and absorption were significantly related to each other and to work engagement, with the strongest relationship between dedication and work engagement (r = .87, p < .01). Vigor had the lowest mean (M = 4.82, SD = 0.96) compared to dedication (M = 5.63, SD = 0.98) and absorption (M = 5.24, SD = 0.94). As expected, a significant positive relationship was found between self-efficacy and self-goal setting (r = .24, p < .01), showing that more personal resources accompanied more personal strategies. The job resource social support friends related significantly and positively to method control (r = .19, p < .05) and time control (r = .16, p < .05) and negatively to time pressure (r = -.16, p < .05). In contrast, social support from Coworkers did not correlate significantly with other constructs but with social support from friends (r = .33, p < .01). Additionally, both social support scales were negatively related to age (r = -.21, p < .01 for Coworkers; r = -.24, p < .01 for friends), indicating that social support decreased with age.

4.3 Hypothesis Testing

The hypotheses were analysed with hierarchical regression analyses. Beforehand, a graphical analysis from the residual plots of the presented regression analyses showed that the assumptions of linearity, normal distribution of residuals and homoscedasticity were sufficiently fulfilled. Additionally, according to the central limit theorem, the sample's mean distribution is assumed to be normally distributed if the sample size exceeds N > 30 (Bortz & Döring, 2006, p. 411), which applied for the present sample. To identify a possible multicollinearity, the variance inflation factor (VIF) and tolerance were used as indicators and compared with the critical values of 10 for VIF and 0.2 for tolerance (cf. Field, 2009). Since the VIF values in these analyses were all well below 10 and the tolerance statistics well above 0.2, collinearity in the data was no cause for concern.

4.3.1 Main Effects of Job Resources on Work Engagement (H1ab)

The first hypothesis suggested that job resources, more precisely method control, time control, social support from Coworkers and social support from friends, lead to higher work engagement. The control variables, namely gender and age, were included in a first step in the hierarchical regression model. They did not contribute significantly to the model, R^2 = .012, F = 0.954, p = .387. In the second step, job resources were added in the regression analysis and explained a significant proportion of the criterion variance, ΔR^2 = .156, F = 4.956, p < .001.

As predicted, method control exerted a significant positive influence on the criterion work engagement (β = .36, $p < .001$). The other predictors time control (β = .03, $p = .786$), social support from Coworkers (β = .09, $p = .273$) and social support from friends (β = .02, $p = .988$) did not explain a significant proportion of the variance in the regression model. The significance of the control variable gender (β = -.16, $p < .05$) in the second step was to be neglected, since it had not shown any significance in the first step of the regression analysis. Table 5 summarises these results.

Table 5. Hierarchical regression analysis for hypothesis 1ab ($N = 154$)

	B	SE B	β
Step 1			
Constant	.25	.37	
Age	.01	.01	.02
Gender	-.18	.14	-.11
Step 2			
Constant	.53	.37	
Age	-.01	.01	-.02
Gender	-.28	.13	-.16*
Method control	.44	.13	.36***
Time control	.03	.12	.03
Social support Coworkers	.13	.12	.09
Social support friends	.01	.12	.02

Note: $R^2 = .012$ for Step 1, $\Delta R^2 = .156$*** for Step 2 ($p < .001$).

Hence, hypothesis 1a was partially supported, since only method control but not time control lead to a significant higher work engagement. Hypothesis 1b was rejected; social support (from Coworkers as well as friends) was no significant predictor of work engagement.

4.3.2 Mediation Effect of Personal Resources in the JD-R Model (H2ab)

Self-efficacy as a personal resource was hypothesised as mediator variable between job resources and work engagement in hypothesis 2. The regression coefficient for work engagement was significant, when work engagement was regressed on job control (β = .39, $p < .001$ for method control; β = .27, $p < .001$ for time control) as well as the regression coefficient, when self-efficacy was regressed on job control (β = .34, $p < .001$ for method control; β = .24, $p < .01$ for time control). Additionally, when work engagement was regressed both on self-efficacy and job control, self-efficacy was a significant contributor to the equation (β = .31, $p < .001$ for method control; β = .36, $p < .001$ for time control). Furthermore, the relationship between job control and work engagement weakened, but was

still significant (β = .29, $p < .001$ for method control; β = .18, $p < .05$ for time control), which signified partial mediation. Briefly, the mediation analysis was significant with method control and time control as predictors. Table 6 summarises the mediation analysis.

Table 6. Mediation analysis for hypothesis 2a ($N = 156$)

	Work engagement β	
	Step 1	Step 2
Method control	.39***	.29***
Self-efficacy		.31***
ΔR^2		.072***
Time control	.27***	.18*
Self-efficacy		.36***
ΔR^2		.032*

Note: *$p < .05$, ***$p < .001$.

The partial mediation effect is graphically depicted for method control as independent variable in figure 2 and for time control as independent variable in figure 3.

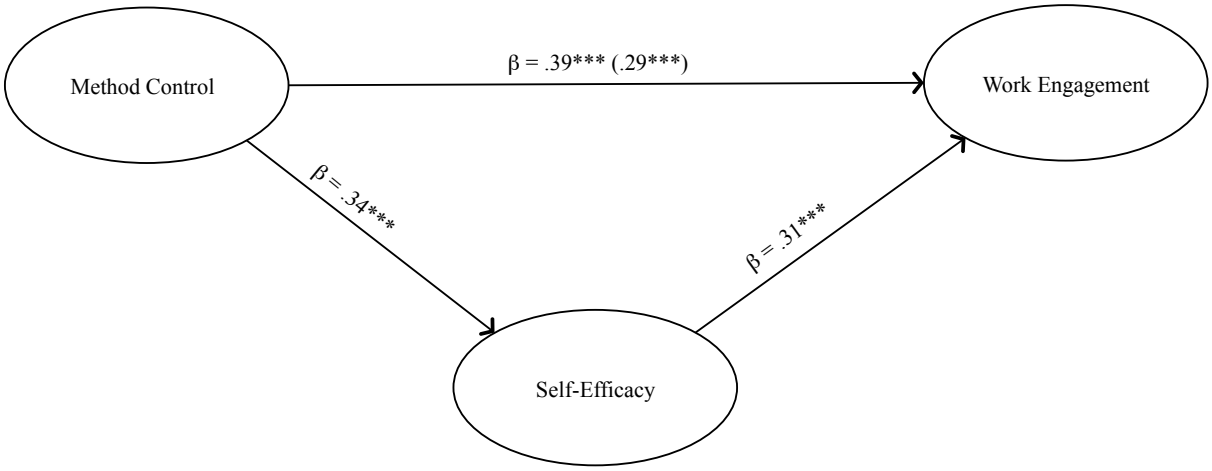

Figure 2. Relationship between method control and work engagement, partially mediated from self-efficacy. Reported are the standardised regression coefficients β, ***$p < .001$.

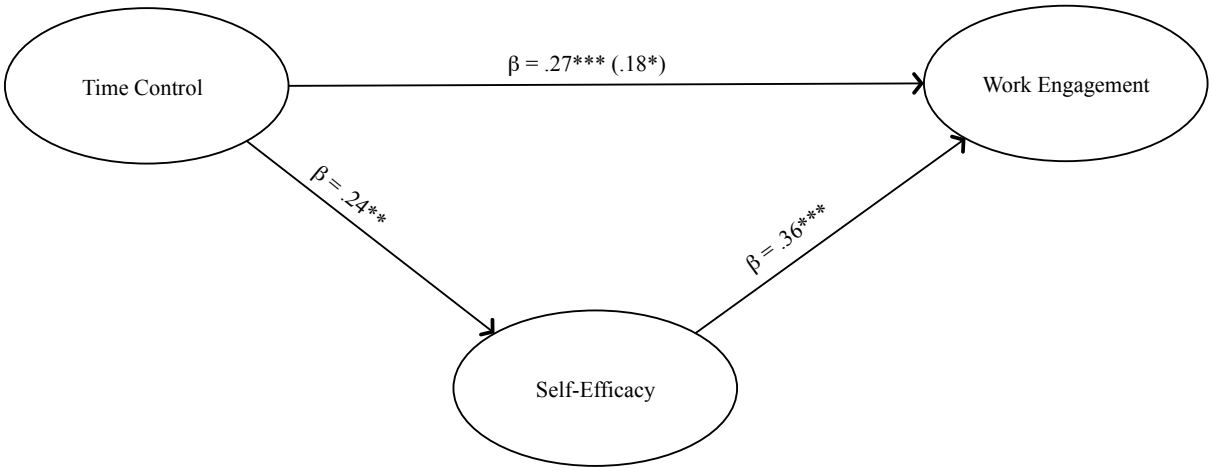

Figure 3. Relationship between time control and work engagement, partially mediated from self-efficacy. Reported are the standardised regression coefficients β, *$p < .05$, **$p < .01$, ***$p < .001$.

The additional conducted analyses – the Sobel test and a bootstrapping analysis – further supported the mediator effect of self-efficacy. The Sobel test confirmed the significance of the indirect effect of 0.10 for method control as independent variable, $z = 2.98$, $p < .01$. Similarly, when time control was the independent variable, the indirect effect of 0.09 was significant, $z = 2.52$, $p < .05$. Besides, the bootstrapping analysis attested a significant indirect effect for self-efficacy with both job resources (method control and time control) as independent variables. The confidence interval ranged from $CI_{95-} = 0.05$ to $CI_{95+} = 0.21$ when method control acted as independent variable and from $CI_{95-} = 0.03$ to $CI_{95+} = 0.19$ when time control was included as independent variable in the mediation analysis.

When social support acted as independent variable, the mediation analysis for self-efficacy did not reveal any significant results, since the first regression equation was non-significant (β = .11, $p = .174$ for social support Coworkers; β = .12, $p = .128$ for social support friends). Significance in the regression of the dependent on the independent variable is assumed as prerequisite for a possible mediator effect (Barron & Kenny, 1986). Thus, the mediation analysis was interrupted at this point.

Consequently, the mediation analysis for self-efficacy in the job resources-work engagement relationship only found partial support for hypothesis 2a; self-efficacy partially mediated the relationship between method control and work engagement and time control and work engagement, respectively. Hypothesis 2b was not supported; self-efficacy did not act as mediator in the relationship between social support (from Coworkers and friends, respectively) and work engagement.

4.3.3 Role of Self-Leadership as Personal Strategy in the JD-R Model (H3ab)

The hypotheses formulated concerning self-goal setting aimed at analysing the role of the personal strategy self-leadership, more specifically self-goal setting, in the JD-R model. Hypothesis 3a assumed a positive relationship between personal resources and personal strategies. There was full support for hypothesis 3a. Self-efficacy was significantly positively related to self-goal setting for people working in coworking spaces (r = .24, p < .01), illustrating a small effect. Even more informative was the mediation analysis conducted for hypothesis 3b, considering self-goal setting as mediator in the relationship between self-efficacy and work engagement. Regression results are shown in table 7.

Table 7. Mediation analysis for hypothesis 3b (N = 156)

	Work engagement β	
	Step 1	Step 2
Self-efficacy	.40***	.33***
Self-goal setting		.32***
ΔR^2		.101***

Note: ***p < .001.

The regression coefficient for work engagement was significant, when work engagement was regressed on self-efficacy (β = .40, p < .001), as well as the regression coefficient, when self-goal setting was regressed on self-efficacy (β = .24, p < .001). Additionally, when work engagement was regressed both on self-goal setting and self-efficacy, self-goal setting as the mediator was a significant contributor to the equation (β = .32, p < .001). Furthermore, the relationship between self-efficacy and work engagement weakened but remained significant (β = .33, p < .001) when the mediator was additionally included in the regression model. Hence, partial mediation of self-goal setting in the self-efficacy-work engagement relation was found and hypothesis 3b was partially supported. The partial mediation effect of self-goal setting in the relationship between self-efficacy and work engagement is graphically depicted in figure 4.

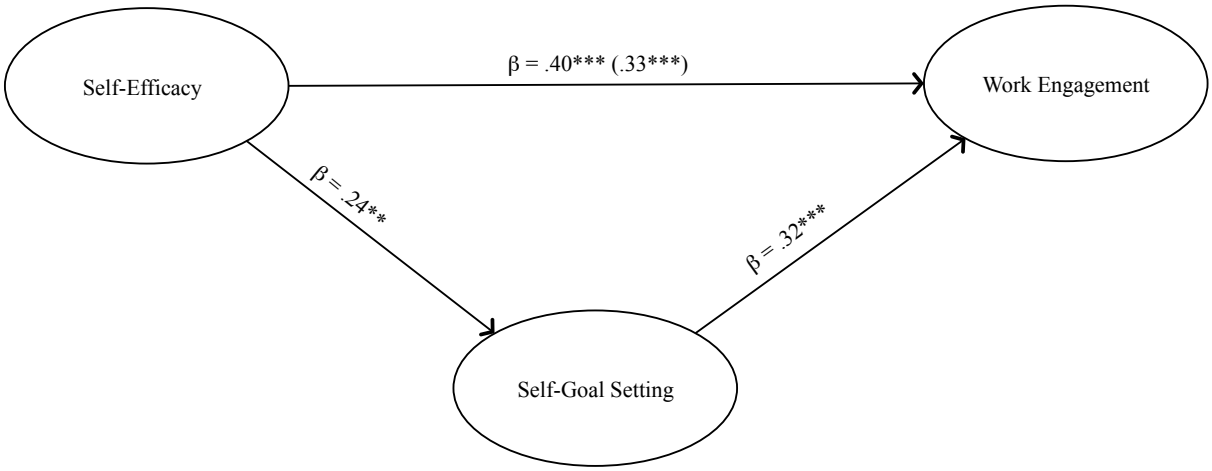

Figure 4. Relationship between self-efficacy and work engagement, partially mediated from self-goal setting. Reported are the standardised regression coefficients β, $^{**}p < .01$, $^{***}p < .001$.

For further evidence of the mediation effect, which was examined with the approach of Barron and Kenny (1986), a Sobel test and a bootstrapping analysis were performed as additional means. Sobel test found an indirect effect of 0.08 leading from self-efficacy to the mediator self-goal setting and then further to work engagement. Sobel test was significant, $z = 2.49$, $p < .05$. Correspondingly, a bootstrapping analysis argued for significance of the indirect effect with a confidence interval ranging from $CI_{95-} = 0.04$ to $CI_{95+} = 0.25$.

Summarising, all of the statistical tests found support for the partial mediator role of self-goal setting in the relationship between self-efficacy and work engagement, supporting hypothesis 3b partially.

4.3.4 Interaction Effects of Job Resources and Time Pressure (H4ab)

For the examination of hypothesis 4 regarding interaction effects between job resources and job demands and their effects on work engagement, time pressure was included as moderator variable. Therefore, centred cross products of job resources and job demands were built and a hierarchical regression analysis was conducted separately for each interaction. In a first step, the centred predictors (time pressure and job resource) were fed in the model and in a second step, the centred cross products were added. The dependent variable was, as in each hypothesis before, work engagement. Four different interactions were analysed with this moderation analysis and are displayed in table 8.

Table 8. Moderation analysis for hypothesis 4ab ($N = 156$)

	Step 1			Step 2		
	B	SE B	β	B	SE B	β
Time pressure	.27	.08	.25***	.27	.08	.25***
Method control	.45	.08	.39***	.45	.09	.39***
Time pressure X method control				-.05	.11	-.03
R^2		.212			.213	
F for ΔR^2		20.640***			0.177	
Time pressure	.30	.08	.28***	.30	.08	.27***
Time control	.36	.09	.29***	.35	.09	.29***
Time pressure X time control				.10	.13	.06
R^2		.148			.151	
F for ΔR^2		13.262***			0.560	
Time pressure	.28	.09	.25***	.28	.09	.25**
Social support Coworkers	.16	.11	.12	.16	.11	.12
Time pressure X social support Coworkers				.05	.15	.02
R^2		.076			.077	
F for ΔR^2		6.289**			0.090	
Time pressure	.30	.09	.28***	.32	.09	.29***
Social support friends	.24	.11	.17*	.26	.11	.19*
Time pressure X social support friends				-.17	.14	-.10
R^2		.090			.099	
F for ΔR^2		7.551***			1.583	

Note: *$p < .05$, **$p < .01$, ***$p < .001$.

Time pressure did not significantly moderate the relationship between method control (β = -.03, $p = .674$), time control (β = .06, $p = .455$), social support from Coworkers (β = .02, $p = .765$) and social support from friends (β = -.10, $p = .210$) and work engagement. Hence, hypothesis 4 was not supported for any of the tested interactions between the job demand, i.e. time pressure, and the respective job resource. Apart from the non-significant interactions, attention should be paid to the significant standard regression coefficients for social support from friends. This result is irritating, since work engagement regressed on social support from friends did not reveal any significance in any other analysis of the present study. However, a similar methodical problem occurred in a previous study, too (Cavanaugh, Boswell, Roehling, & Boudreau, 2000) and will be discussed in detail in 5.1 Summary of Results.

4.3.5 Research Model with Supported Hypotheses

After testing the formulated four hypotheses, the original research model (see 2. Research Questions) was reduced as graphically depicted in the following figure 5 where only the supported hypotheses are shown.

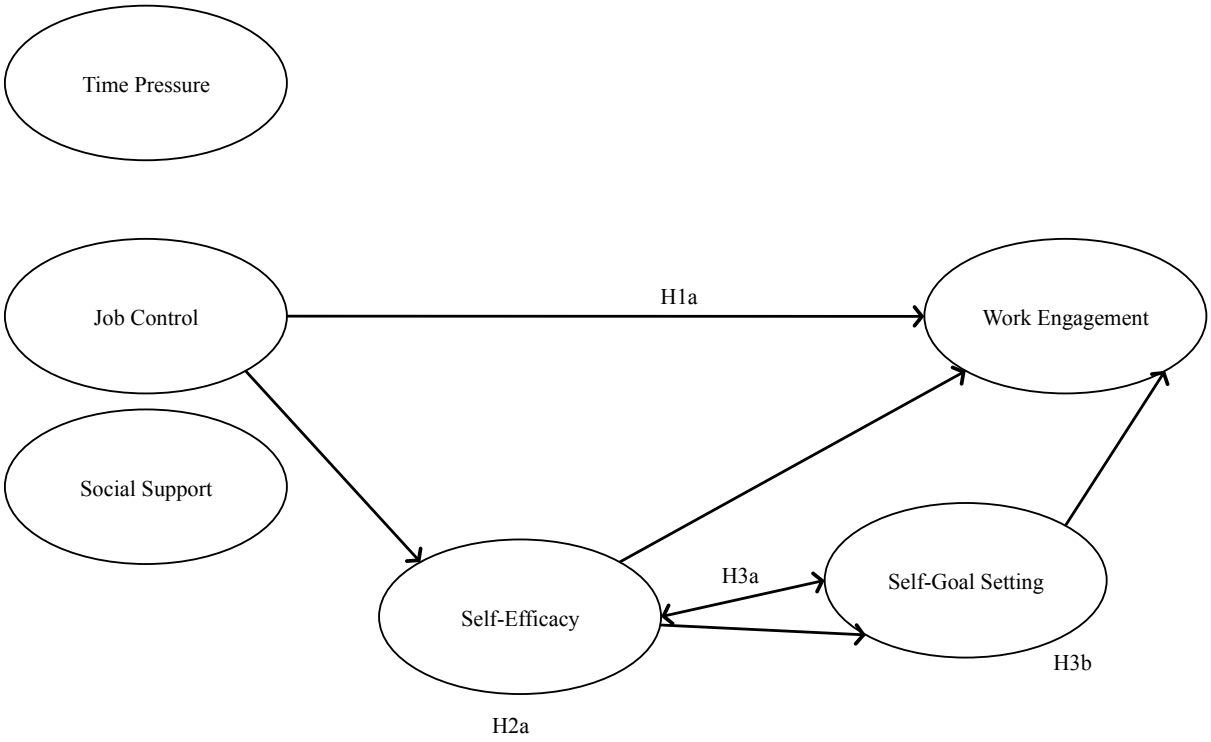

Figure 5. Research model with the supported hypotheses for the relations between antecedents and work engagement for Coworkers

Partial support was found for hypothesis 1a, relating method control significantly to work engagement. Hypothesis 2a was partially supported, stating that self-efficacy was a partial mediator in the relationship between job control (method control and time control) and work engagement. Additionally, partial support was found for hypothesis 3b. Self-goal setting acted as partial mediator in the relationship between self-efficacy and work engagement. Moreover, full support was found for the positive relationship between self-efficacy and self-goal setting as formulated in hypothesis 3a.

5. Discussion

5.1 Summary of Results

This diploma thesis investigated the effects of job resources as well as personal resources and strategies on work engagement as desired job-related outcome for self-employed in an innovative working environment – coworking spaces. The JD-R model (Bakker & Schaufeli, 2007; Demerouti et al., 2001) was used as theoretical framework model that proposed a positive main effect of job resources on work engagement, labelled as motivational process. An expansion of the JD-R model with personal resources was firstly suggested by Xanthopoulou et al. (2007) who included them as moderator in the health impairment process and as mediator in the motivational process. These relationships were studied manifold since then (e.g. Llorens et al., 2007; Luthans et al., 2008; Mastenbroek et al., 2012; Xanthopoulou et. al., 2007, 2009a), mostly with employees. In the present study, the personal resource self-efficacy was examined as mediator variable in the relationship between job resources and work engagement. Additionally, van den Heuvel et al. (2010) pointed to personal strategies as important, yet neglected factor in this cycle and suggested self-leadership as significantly involved, especially in times of change. Thus, self-goal setting as one behaviour-focused self-leadership strategy was incorporated in the present diploma thesis. In its particular manner, this study represents the first psychological quantitative study concerning coworking spaces as innovative work place arrangements. An essential characteristic of the study was the sample, namely 156 Coworkers from 27 nationalities working in 52 different European coworking spaces, distributed in 35 cities. An online survey was conducted which was designed as a cross-sectional study, embedded in a longitudinal research project. The current study about coworking spaces comprises three main findings.

The first finding concerns the motivational process in the JD-R model (Bakker & Demerouti, 2007), investigating the positive impact of job resources on work engagement for the target group of Coworkers. Therefore, the main effects from job resources on work engagement were analysed in a hierarchical regression model and the two distinct dimensions of job control (i.e. method control and time control) and of social support (i.e. from Coworkers and friends) were incorporated as predictive job resources. Hierarchical regression analysis showed that method control significantly related to work engagement, whereas time control was not significantly related to work engagement. Due to this result, hypothesis 1a was supported partially, more precisely only for method control. Apparently, Coworkers' work engagement is more related to the kind of executing and controlling actions instead of

the degree that time is perceived to be disposable. Since the sample consisted of mainly self-employed people and freelancers who use work places like coworking spaces, one might suppose that time control is taken for granted for those people. The distribution of the scale time-control would support the assumption of flexible division of time that is promoted in coworking spaces but apparently control over the pace of one's work did not affect the level of engagement while working. The significance of method control is consistent with previous findings. A validation study of the ISTA for freelance workers showed that three job resources – method control, participation and social support from clients – impacted on indicators of psychological well-being, i.e. work pleasure, irritation and mental discomfort (Clasen, 2012). Additionally, the finding about method control is congruent with work of others who investigated the motivational process in the frequently tested JD-R model (for an overview see Bakker & Demerouti, 2007). Bakker et al. (2007) confirmed the predictive power of job control (no distinction between method control and time control was made in this study) for work engagement in a sample of Finnish teachers. Moreover, Mastenbroek et al. (2012) stated that decision latitude, a construct similar to method control, was a significant predictor of work engagement. Furthermore, the main effect of method control in this study accentuates Karasek's (1979) statement that job decision latitude, a similar term for job control, is the most important job resource.

While results lent support to the impact of method control on work engagement, social support (from Coworkers and friends, respectively) did not have a significant effect on work engagement. This is unexpected and contrary to the hypothesis as there is strong evidence on the positive direct effect of social support on work engagement in related literature. Results from Bakker et al. (2007) indicated that, amongst others, supervisor support was related to work engagement for teachers. Xanthopoulou et al. (2007) found social support to be an essential predictor of work engagement besides autonomy, supervisory coaching and opportunities for professional development. Probably, the target group, consisting of mainly self-employed people and freelancers, is a crucial factor in terms of appropriateness of the construct social support. In a validation study among freelancers social support from colleagues did not impact on well-being, whereas support from clients had a positive relationship with work pleasure (Clasen, 2012). The author assumed that this mixed finding for the two distinct support dimensions – from clients and from colleagues – could be explained with pressure for competition among freelancing colleagues who did not present a source of support for pleasure at work (Clasen, 2012). This may lead to the conclusion that employees and self-employed workers need and accept social support differently, dependent

on the person who plays the supporting role. In addition to these divergent findings in previous studies, the ambivalence concerning social support is found in the present study itself. The distribution of the two social support scales did not indicate that social support was absent. In contrast, Coworkers indicated to be indeed socially supported from Coworkers and friends, since the distributions were rather left-skewed (v = -.42 for social support Coworkers; v = -.44 for social support friends). Additionally, Coworkers rated social interaction with 83.2% as most valid reason for working in a coworking space, illustrating the important role of the social aspect and confirming the result of Deskmag's second annual coworking survey (Foertsch, 2012a). With the knowledge how highly important social interaction seems to be in coworking spaces, the result concerning social support in relation to work engagement in this study seems confusing. An explanation might be a divergence between the social dimension as experienced in coworking spaces and the social support as psychological construct in this and related studies. In other words, this would imply that interacting with other Coworkers, sharing ideas and having lunch or a coffee break together, is not equivalent with being supported by others. Apparently, the items used for social support (adapted for the target group of Coworkers from Frese, 1989) take social aspects into account that – in hindsight – are not appropriate for this sample. The items are rather problem-focused, asking for Coworkers' and friends' reliability, ease of accessibility and willingness to listen to job-related as well as personal problems. Perhaps social interaction in coworking spaces is more about others being just present and available for a trivial conversation. Since coworking spaces are substitutes for home office work and provide a possibility to escape from isolation (Foertsch, 2012a), the quality of informal social exchange could be meant by social interaction. Accordingly, this would imply that Coworkers' work engagement is not related to the extent of social support, but to the fact of being embedded in a social network. An inspection of this confusing finding should be carried out in future studies as suggested below (see 5.3 Contribution and Implications for Future Research).

The second finding deals with further processes that can be inserted in the association between job resources and work engagement. More precisely, these processes comprised personal resources and strategies for which a mediating function was assumed. In conformity with the expectation, self-efficacy acted as mediator and partially mediated the relationship between method control and work engagement as well as time control and work engagement. On the one hand, the partial mediation is congruent with previous studies that investigated the mediating role of personal resources (Mastenbroek et al., 2012; Xanthopoulou et al., 2007) and assumed partial mediation because besides the investigated personal resources there could

have been other possible mediators that were not examined in the particular study (Xanthopoulou et al, 2007). On the other hand, former studies lent support to a full mediation of personal resources (e.g. Llorens et al., 2007; Luthans et al., 2008; Xanthopoulou et al., 2009a). Due to these inconsistencies in literature, in the present study full mediation was hypothesised. However, the partial mediation is in line with the structural equation analysis from Xanthopoulou et al. (2007) who found that self-efficacy significantly reduced the direct association between job resources and work engagement. Furthermore, Mastenbroek et al. (2012) showed in their cross-sectional study that self-efficacy partially mediated the relation between decision latitude, support from colleagues and feedback at work and work engagement. It is interesting to compare the standardised regression coefficients from Mastenbroek et al. (2012) with those of the present study, since the direct effect from method control on work engagement was surprisingly almost the same in both studies. However, self-efficacy in the present study reduced this direct effect more (from $\beta = .39$ to $\beta = .29$) than the other study (from $\beta = .40$ to $\beta = .39$). This indicates that self-efficacy is especially important for Coworkers. Still, the indirect effects were significant in both studies, which implies that a job that is featured with resources, especially control over one's task performance and pace, enables self-efficacy to emerge and work engagement to result. Summarizing, this finding indicates that personal resources (i.e. self-efficacy) are activated in an environment (e.g a coworking space) that provides scope for action and pace and lead to work engagement. This accumulation of resources evokes an association with Hobfoll (2001) who assumed that the availability of resources entails the activation of further resources, resulting in resource caravans and gain spirals.

Equally to the non-significant main effect regarding social support, the mediation analysis with social support as independent variable revealed a similar picture. Contrary to the expectation, self-efficacy was not a mediator between social support and work engagement. The prerequisite first condition for a mediation analysis – a significant regression from work engagement on social support – did not exist. This is inconsistent to previous studies that found self-efficacy to partially mediate the relationship between social support and work engagement (Xanthopoulou et al., 2007) and to fully mediate the relationship between supportive organisational climate and job performance (Luthans et al., 2008). Since the current study is not in line with previous studies regarding social support, the assumption is strengthened that the psychological construct social support is not equivalent with the social aspect regarded as highly important in coworking spaces. As mentioned before, the issue of social support in work environments like coworking spaces needs to be addressed in the

future and possible investigations should be planned (see 5.3. Contribution and Implications for Future Research).

Additional to personal resources, personal strategies can be included as aspects in the process between job resources and work engagement. Therefore, the present study investigated the role of self-goal setting as behavioural self-leadership strategy. As the significant and positive correlation between those two constructs showed, self-efficacy and self-goal setting were directly related. This implies that self-efficacious Coworkers also practise more self-goal setting, which is in line with previous studies (e.g. Norris, 2008). But as a matter of fact, a bare correlation is not able to reveal any causality. Referring to causality, Neck and Houghton (2006) mentioned in their review article that the causal relationship between self-efficacy and self-leadership is not sufficiently clarified, since self-efficacy on the one hand mediates the association between the practice of self-leadership and organisational outcomes, e.g. performance, and on the other hand is a dependent variable itself, predicted by self-leadership strategies. Since the present study was based on the JD-R model (Bakker & Demerouti, 2007; Demerouti et al., 2001), a mediating role of self-leadership strategies was expected in reference to the Personal Resources Adaptation Model (van den Heuvel et al., 2010), a modified and expanded JD-R model. Affirmation for hypothesis 3b showed that self-goal setting partially mediated the relationship between self-efficacy and work engagement. This means that Coworkers who feel capable of shaping and impacting on their environment (Bandura, 1997) are more likely to set themselves goals concerning job performance and prospective achievements, and furthermore feel more motivated at work. Since the Personal Resources Adaptation Model is relatively new, studies confirming the mediator role of self-goal setting in this context are still missing. However, job crafting, another personal strategy proposed in the Personal Resources Adaptation Model (van den Heuvel et al., 2010), directly affected social resources over time and furthermore indirectly influenced work engagement (Tims, Bakker, & Derks, 2012). By all means, further investigations concerning personal strategies are recommended in order to classify the findings in this context.

The third finding of the present study refers to the hypothesised moderating influence of time pressure in the relationship between job resources and work engagement. According to Bakker and Demerouti (2007), job resources unfold their entire motivational potential if the employee is confronted with high job demands. Consequently, it was hypothesised that job resources have an especially positive effect on work engagement in the presence of high job demands. For this purpose, time pressure was analysed as moderator and interactions between time pressure and the four job resources were calculated separately. None of the interactions

became significant, indicating that time pressure did not moderate the relationship between work engagement and method control, time control, social support from Coworkers or social support from friends, respectively, for people working in coworking spaces. This is contrary to previous literature. For example, a study showed that dentists stayed engaged when they could profit from positive contacts with patients, while their workload was high (Hakanen et al., 2005). Another study confirmed the interaction effect stating that teachers' job resources with the exception of job control especially enhanced work engagement, when they had to deal with pupils' misbehaviour (Bakker et al., 2007). These results could not be replicated in the present study. A possible explanation for the non-significant interaction effects is mentioned by Bakker and Demerouti (2007) who stated that main effects from job demands and job resources on exhaustion and work engagement were sufficiently proven in studies concerning the JD-R model, whereas in contrast interaction effects were documented in a somewhat more moderate extent. They argued that this fact was either due to researchers' higher interest in main effects or related to a more difficult detection of interaction effects.

In this context, a methodical issue that occurred in the moderation analysis for social support from friends needs to be addressed. When work engagement was regressed on time pressure and social support from friends, both predictors were significant. When work engagement was regressed on the two predictors and the interaction term of time pressure and social support from friends, the significance of social support from friends remained, whereas the interaction term was not significant. This significance of social support was contrary to the other findings in the study, since neither main effects nor indirect effects were found for social support from friends on work engagement. However, a comparable effect occurred in a study about challenge and hindrance work stressors, when work satisfaction and job search were regressed on both challenge- and hindrance-related stress and revealed a significance of challenge-related stress that disappeared when the outcomes were regressed on challenge-related stress and control variables (Cavanaugh et al., 2000). The authors suggested that hindrance-related work stress functioned as a suppressor and advised researchers to control for the variance that is common to challenge- and hindrance-related stress for an identification of the true effect. Similarly, in the present study time pressure might have evoked a suppressor effect that revealed a significance of social support on work engagement that was not detected elsewhere.

Although none of the interactions between job resources and time pressure was significant, there is reason to inspect time pressure more exactly for Coworkers, because it was related significantly and positively to work engagement ($r = .25$, $p < .001$). Hence, time

pressure indeed plays a relevant role in connection to work engagement for Coworkers but it might resemble a rather positive challenge or job requirement instead of a negatively connoted job demand. Support for this assumption is found in the challenge-hindrance approach that proposes challenge stressors like time pressure to be positively associated with motivation and other work outcomes (LePine, Podsakoff, & LePine, 2005). That time pressure as a prototype of challenge-related stressors comes along in an ambivalent nature, leading to both positive and negative well-being, was highlighted only recently (Widmer, Semmer, Kälin, Jacobshagen, & Meier, 2012). In the target group of Coworkers the experience of time pressure could signify a positive characteristic of work, since it implies that many orders are received and processed. Thus, one might suppose that time pressure is comprehended as an indicator of success and attraction of business for this target group that boosts Coworkers' engagement. Derived from this association, an investigation of time pressure from the challenge-hindrance approach is recommended because of the positive association of the challenging job demand time pressure with work engagement.

5.2 Strengths and Limitations

As every study, this study has its strengths and limitations that need to be addressed. The primary strength is the present study's good and appropriate design and inclusion of a previously conducted focus group discussion. The questionnaire could be adapted for this particular sample of Coworkers because of the essential insights gained from the focus group discussion. Thereby, the informative value was maximized, especially from the questions about Coworking. Additionally, a comparison with Deskmag's annual coworking study regarding the descriptive data and results for Coworkers' working habits showed: Coworkers who were recruited for the present coworking study were not a random congregation of people but represented indeed a selection of typical Coworkers. Therefore, the choice of an online survey was the only possible and practical way for this study that addressed Coworkers all over Europe. The Internet-based survey enabled an asynchronous, locally independent, documentable and economic implementation (Batinic, 2003). Furthermore, the recruitment strategy of the current study is regarded as strength, since attention was raised for this project in social media, with the YouTube video and by email, so that the link to the survey was opened 1140 times. This showed that Coworkers at least initially were motivated to participate in the survey.

Besides the innovativeness of the present study, theoretical aspects are other notable strengths. The application of the JD-R model in coworking spaces enabled a transfer from employees in traditional, well-researched work places to Coworkers in new, trend-setting

work arrangements. In its manner, the current study is the first quantitative study that psychologically inspected coworking spaces, and thus is a precious addition to the present state of research. A further strength of the study is the extension of the JD-R model by incorporating personal resources as well as personal strategies. Based on the affirmative results, future studies should choose more comprehensive types of resources (i.e. job resources, personal resources and personal strategies) for the investigation of the impact of resources on well-being.

Despite the affirmative strengths explained above, the study possesses also some limitations that ought to be acknowledged. Firstly, the cross-sectional design does not allow causal interferences, e.g. that method control caused work engagement. A similar problem was reported by others who showed that personal resources were mediators in the link between job resources and work engagement (Mastenbroeck et al., 2012; Xanthopoulou et al., 2007) as well as performance (Luthans et al., 2008) but could not eliminate alternative directions in their cross-sectional studies. In addition, reciprocity of job resources, personal resources and work engagement was confirmed before (Xanthopoulou et al., 2009b) but could not be tested in this cross-sectional study. To test causality, experimental design features, temporal precedence or theoretical rationales would be necessary (Mathieu & Taylor, 2006). Especially, a longitudinal study with time lags would be appropriate and informative in this context. It would offer insights in the development of and changes in engagement over time. In fact, a second wave was performed as a part of the research project this study was embedded in. However, a response rate of no more than $N = 40$ Coworkers led to the realisation that for such a special target group a cross-sectional design appeared more appropriate as a starting point. Moreover, it would be revealing to extend the survey to the worldwide population of Coworkers rather than aiming for a longitudinal study.

Secondly, the proposed research model could have been tested with structural equation modelling (SEM) as performed in related studies (e.g. Llorens et al., 2007; Mastenbroek et al., 2012; Xanthopoulou et al., 2007). SEM provides a combination of diverse statistical procedures and is regarded as superior, since it simultaneously could have tested the proposed model. It is advised that SEM should only be used if the data and sample size is appropriate and the user has sufficient knowledge (Nachtigall, Kroehne, Funke, & Steyer, 2003). However, hierarchical regression analyses were optimal in this context, since the prerequisite conditions for SEM were not fulfilled completely. Additionally, Llorens et al. (2007) also found support for the mediation effect by analysing the data similarly.

Thirdly, social desirability is a general problem of self-report questionnaires and illustrates a common limitation researchers are confronted with. A slight left-skewness of the scales raises awareness to the question, in what way the answers reflect the true attitudes of Coworkers, socially desirable answers or maybe even indicate a ceiling effect. One might suppose that especially the self-efficacy and work engagement scales are prone for a tendency of agreement. However, well-validated and published instruments were used and the problem of social desirability was inevitable to a certain degree. The option to use other-report measures would not be appropriate, since anonymity could not be guaranteed. But a possibility to provide more clarity would be a comparison of Coworkers with people being 'traditionally' self-employed. Then it would be more informative if the relationships found in this study were typical for Coworkers or transferable to other self-employed workers. Thus, in the current state, the results cannot be generalised to other work places than coworking spaces.

Finally, the design of the online platform could have been the crucial factor for the low response rate. An appealing design is a general challenge for the adaptation of scientific research to a particular target group like Coworkers about whom only little is known. While the link to the survey was opened more than 1000 times, which indicated a good recruitment strategy, the final sample consisted of only about a tenth from the total number of clicks. With the information from the focus group discussion that time is a scarce resource for Coworkers, the length of the survey needs to be reconsidered. It is important to find a balance in the survey's design between scientific completeness and attractive design and should be decided separately for each case by calculating costs and benefits. In future online surveys for Coworkers, a more precise and shortened introduction and explanation of the study's aim should be strived for, since most people dropped out on the first page when they had to fill in a code. However, a code was absolutely essential because of the planned longitudinal research project. Maybe it would have been of additional value for the study to establish personal contacts and to be more present in coworking spaces, aiming for a higher response rate and willingness of Coworkers to participate. Nevertheless, an online survey was the best option to maintain user experience as well as anonymity.

5.3 Contribution and Implications for Future Research

In the last couple of years, more and more self-employed people and freelancers swapped their work place and settled down in coworking spaces. These innovative work place arrangements appear to be a resourceful environment for this particular target group. But up to now a scientific investigation of Coworkers was lacking. Testing resources and their

relation to work engagement by applying the well-researched JD-R model to a new and relatively unknown target group – people working in coworking spaces – is regarded as the main contribution of the present study. Attention was paid to a work place arrangement that had become more popular and established in a certain cohort of workers, mainly in the ICT sector and creative industries (Pohler, 2012). Thus, the existent gap in research about well-being could be reduced with the examination of an emerging occupational group from the organisational psychology's point of view. The motivational process of the JD-R model (Bakker & Demerouti, 2007) could be investigated for Coworkers with a detailed inspection of the two job resources job control and social support that were regarded as being most important and their connection to work engagement. Furthermore, the study revealed that Coworkers had personal resources and strategies available that boosted their engagement. Since the current study was designed as a Europe-wide survey with more informative value, it allows generalised implications for an emerging work environment that is found frequently, especially in the Western world (Foertsch, 2012b). Nevertheless, the reservation must be made that this psychological study is the first in this matter for coworking spaces and serves as a starting point.

While the present study could answer some question, it also evoked new questions and problems that should be addressed in future research. Firstly, the resources found in coworking spaces should be considered in more detail, since the selection of variables in the present study was not exhaustive at all. Future studies should primarily target the social aspect of coworking spaces. Obviously, there is something unique about the community aspect in coworking spaces that cannot be understood as social support. Hence, the social interaction that was stated as most important reason for choosing this work concept deserves attention. Is it the embedding in a social network, a mutual assistance in professional concerns or maybe the 'creative spirit' that accounts for the difference in coworking spaces? In this context, qualitative methods seem to be appropriate and more revealing than quantitative surveys. The relevant components of the social aspect in coworking spaces could be grasped in interviews and a better distinction could be made between social support as understood psychologically as job resource and the social interaction as characteristic in coworking spaces.

Secondly, interviews could also bring other variables (e.g. job resources, personal resources and strategies and work-related outcomes) in the focus of attention that should be investigated in terms of coworking spaces. Additional personal resources, e.g. the higher-order construct PsyCap (Luthans et al., 2008) or core self-evaluations (Judge, Erez, Bono, & Thoresen, 2003), could reveal informative insights in the mediating mechanism, because these

constructs comprise more personal resources at once. Regarding personal strategies, job crafting would be an appropriate construct for Coworkers that was reported to be in relationship to work engagement (Tims et al., 2012). Moreover, its incorporation in the JD-R model was suggested before (Bakker & Demerouti, 2013; van den Heuvel et al., 2010). A notably interesting and in these days relevant question would be whether personal resources and strategies are capable to offset the relation between demanding characteristics in coworking spaces and exhaustion and mental discomfort. Until now there is a lack of results relating personal resources to the health impairment process of the JD-R model, leading from job demands to exhaustion but an existing circuit was suggested in the recent JD-R theory (Bakker & Demerouti, 2013). Thus, not only resources but also job demands should be taken into account in further studies about coworking spaces.

Finally, in order to classify the results from Coworkers and to relate them to similar occupational groups, a comparative study is definitely indicated. Traditionally self-employed people seem to be the best comparison group, since they are expected to differ from self-employed Coworkers foremost in the community aspect and the social interaction quality that make coworking spaces unique. This comparison might help to find out the special features of coworking spaces, if there are any, and to relate them to work engagement, performance or job satisfaction.

All of the proposed implications would help to better identify the reasons why people opt for coworking spaces. There could be differences between types of coworking spaces that are most suitable for particular occupational groups. A cultural comparison would be of further interest. Moreover, the problem of procrastination and interruptions could be investigated in diary studies by comparing coworking spaces with home offices. In addition, the question should be addressed whether productivity and creativity are indeed greater in coworking spaces or if such auspicious promotions are arbitrary.

In conclusion, there is evidence for the positive impact of job and personal resources as well as personal strategies on work engagement for Coworkers. Based on the JD-R model, the study aimed to identify the motivational drivers in coworking spaces and therefore examined job control, social support, self-efficacy and self-goal setting in a Europe-wide cross-sectional coworking study. The results lent support for the importance of resourceful job conditions that activate personal resources and strategies and enhance work engagement. This finding is a valuable starting point for research about innovative work place arrangements and encourages further studies to discover more about the source and essence of Coworkers' well-being.

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Appendix

Appendix A - Guideline for the Focus Group Discussion

(in original German version)

vorab:

- Fragebogen ausdrucken und jedem Teilnehmer zur Besprechung vorlegen
- Kurzpräsentation über Studie vorbereiten
- Audioaufnahme am Handy einschalten
- Schokolade als Dank kaufen

Einleitung:

- Begrüßung der Coworker und Dank für spontane Bereitschaft zur Diskussion
- Klärung, ob dutzen oder sietzen
- kurze Vorstellung von Cornelia und Julia sowie Vorstellung des „Forschungsprojekts" (Beschäftigung mit jobspezifischen sowie personalen Ressourcen und deren Beziehung zu Arbeitsengagement in coworking spaces; Beziehung ist für viele Zielgruppen schon gut erforscht und belegt, aber coworking spaces wurde bisher noch keine wissenschaftliche Studie diesbezüglich gewidmet; daher besonderes Anliegen, hier einen Beitrag zu leisten)
- Grund für Diskussion erläutern (Nutzung von coworking spaces und deren Bedeutung für die heutige Arbeitswelt – in Anlehnung und Bezug auf den angefertigten Fragebogen) → „Anliegen und Ziel dieser heutigen Diskussionsrunde ist es, die Angemessenheit der Fragen zu besprechen. Dabei ist für uns von entscheidender Bedeutung, ob ihr als Experten mit den Fragen etwas anfangen könnt, in euren Augen etwas Entscheidendes fehlt etc. Dadurch lassen sich eventuelle wichtige Änderungen noch vor Beginn der Erhebung einbeziehen."
- Einverständnis erfragen für Protokollierung sowie Audioaufnahme

Kurze Vorstellungsrunde:

- Persönliche Vorstellung und Nennung der Berufssparte bzw. auch des aktuellen Projekts sowie Dauer und Häufigkeit der Nutzung von coworking spaces als Arbeitsplatz

Besprechung des Fragebogens:

- Fokus auf Seite 3 bis 5 – Projektbeschreibung, Informationen über Gründe für Nutzung des coworking spaces, Zeiten, Dauer, Bewertung der Zufriedenheit und der zeitlichen Flexibilität
- Dienstverhältnis (employment status) diskutieren
- Einschätzung über Teilnahmebereitschaft an Studie generell und bei follow-up Erhebung

Leitfragen (nicht zwingend alle durchgehen – eher nachfragen):

- Wie angemessen findet ihr den Einstieg in den Fragebogen über die Beschreibung des aktuellen Projekts?
- Ist das Erfassen der Dauer, die bereits im coworking space gearbeitet wurde, in Monaten oder in Wochen angemessener zu erfragen?
- Wie empfindet ihr die Clusterung der Zeiten für die Nutzung von coworking spaces? Gibt es eurer Erfahrung nach bestimmte andere "Nutzungsmuster", die hier noch ergänzt bzw. weggelassen werden sollten?
- Fallen euch weitere wesentliche Gründe für die Nutzung von coworking spaces ein? Sind die genannten Gründe verständlich und passend?
- Sind die Fragen zu Zufriedenheit und Qualität der eigenen Arbeit verständlich und klar formuliert?
- Sollen die Benefits noch zusätzlich in einer offenen Frage erhoben werden?
- Wie beurteilt ihr die Relevanz des zeitlichen Flexibilitätsaspekts sowie der Verwendung von ICTs für diese Zielgruppe?
- Wie bewertet ihr die Antwortmöglichkeiten zum Dienstverhältnis (employment status) für diese Zielgruppe? Wie ist eurer Erfahrung nach die Zusammensetzung von Selbstständigen und Angestellten bzw. wie häufig kommen Mischformen vor? Sollte die Option "freelancer" noch zusätzlich angeführt werden?

Allgemeine Anmerkungen:

- Wie sind generell die Länge und der Umfang des Fragebogens in euren Augen zu bewerten? Wie steht es um die Angemessenheit für die Stichprobe?
- Wie schätzt ihr die Rekrutierung über Aussendung des Links per E-mail bzw. dessen Verbreitung über soziale Medien ein? Habt ihr weitere Ideen, wie bzw. durch welche Medien Coworker kontaktiert und zur Teilnahme animiert werden könnten?
- Wie schätzt ihr die Teilnahmebereitschaft für die zwei weiteren geplanten Umfragen (in ca. zwei Monaten) ein?
- Zusätzliche Anregungen, Hinweise, Empfehlungen?

Verabschiedung:

- Dank für Teilnahme und Diskussionsbereitschaft, Überreichung von Schokolade
- Kontaktierung erbeten sowie Hilfe bei Rekrutierung mittels Aussendung des Links
- Angebot: Ergebnisse im sektor5 präsentieren und zur Verfügung stellen

Appendix B – Online Questionnaire

Study about Coworking Spaces

Dear participant,

First of all, we thank you very much for your willingness to take part in this scientific study.

This survey is about **personal resources** and their relation to **job resources** and **work engagement**. The aim of the study is to take a look closer at Coworking Spaces as an innovative workplace arrangement. The survey is conducted in the context of a longitudinal study for a research project at the Faculty of Psychology, University of Vienna. At the end of this survey, you can provide us with your email address, if you agree to take part in the two following surveys of this longitudinal study.
Your participation is completely anonymous and your answers will be treated absolutely confidentially. Please take into consideration that we can only use consciously and completely filled in questionnaires for the data analysis. Therefore, we ask you to answer **every question** and to respond spontaneously, without deliberating too much over a question.

The survey will take approximately 7 minutes.

If you are interested in the study's results, please email us (coworkingstudy@gmx.at) and we will provide you with a summary of the present study.

We thank you in advance for your participation,

Cornelia Gerdenitsch & Julia Andorfer

In order to compare the data from the current survey with that of the planned survey in spring 2013, while maintaining your anonymity, we ask you to enter a code into the following field that only you know. The code consists of your birthday, your mother's year of birth and the initials of your mother's and father's first names.

Example:
Let's assume, you were born on January 06, and your mother was born in 1943. Let's assume, your mother's first name is Maria and your father's is Thomas. You would now enter the following code:

Your birthday	Your mother's year of birth	First letter of your mother's first name	First letter of your father's first name
06	**43**	**M**	**T**

Your personal code:

Your birthday	Your mother's year of birth	First letter of your mother's first name	First letter of your father's first name

Description of current project

We are interested in the project you are currently working on.Therefore, we kindly ask you to describe this project in some words (business category, position, scope of functions, aim of project etc.).

Furthermore, we would be grateful to get some information about your use of a Coworking Space.

For how long have you been working in a Coworking Space? _____ months

Please indicate – as a percent - how much of your working time per week you spend at the following places.	%
in a Coworking Space	
in my office	
in a friend's office	
in home office	
at other places (coffeehouse, train etc)	
	Σ 100

Your preferred times of working in a Coworking Space: (multiple options possible)

- ❒ full-time (e.g. 9 to 5, 10 to 6 etc.)
- ❒ for some hours a day
- ❒ at the weekend
- ❒ at night-time
- ❒ sporadically
- ❒ others _____

	How important are the following reasons for your decision to work in a Coworking Space?	unimportant	rather unimportant	moderately important	important	very important
	structure in one's work day	❒	❒	❒	❒	❒
	collaboration	❒	❒	❒	❒	❒
	flexible working	❒	❒	❒	❒	❒

	networking	❒	❒	❒	❒	❒
	social interaction	❒	❒	❒	❒	❒
	productivity	❒	❒	❒	❒	❒
	provision of infrastructure	❒	❒	❒	❒	❒
	locational advantages	❒	❒	❒	❒	❒
	cost-efficiency	❒	❒	❒	❒	❒

How satisfied are you with the quality of your work?

❒ not at all satisfied	❒ slightly satisfied	❒ moderately satisfied	❒ satisfied	❒ extremely satisfied

How satisfied are you with the achievement of the goals you have set for your work?

❒ not at all satisfied	❒ slightly satsfied	❒ moderately satisfied	❒ satisfied	❒ extremely satisfied

Name of the Coworking Space you are currently working at: _____

Location of this Coworking Space (city): _____

Does this Coworking Space have a community aspect? ❒ yes ❒ no

Temporal flexibility

	Please answer the following statements concerning WHEN you work.	never	rarely	occasionally	often	always
	Concerning my work, I decide independently when to work.	❒	❒	❒	❒	❒
	I decide independently, for how many hours I work per day.	❒	❒	❒	❒	❒
	In my work, I have the opportunity to take some hours off from work because of private reasons.	❒	❒	❒	❒	❒
	My clients / project partners expect my permanent accessibility.	❒	❒	❒	❒	❒

Use of ICT

	How often do you use the following technologies for your work?	very rarely / never	occasionally (several times a week)	very often (several times a day)
	Laptop	❒	❒	❒
	Tablet (iPad, Galaxy Tab etc)	❒	❒	❒
	Mobile phone / Smartphone	❒	❒	❒
	Social networks (Facebook, Twitter, Pinterest etc.)	❒	❒	❒
	Chat / messaging services (Skype, Messenger etc.)	❒	❒	❒

Job conditions

	To what degree do the following statements apply to your work?	very little	rather little	some-what	pretty much	very much
MC	Considering your workplace in general, how much can you change the sequence of the different steps yourself?	❒	❒	❒	❒	❒
MC	How much influence do you have on the work which is assigned to you?	❒	❒	❒	❒	❒
MC	Considering your work activity in general, how much opportunity is there for you to make your own decisions?	❒	❒	❒	❒	❒
MC	Can you yourself decide on which way to carry out your work?	❒	❒	❒	❒	❒
TC	To what degree is it possible for you to set your own working pace?	❒	❒	❒	❒	❒
TC	To what degree are you able to decide on the amount of time you will be working on a certain task?	❒	❒	❒	❒	❒
TC	To what extent are you able to plan your working day yourself?	❒	❒	❒	❒	❒

	How long is it possible for you to put aside work, each day, and to occupy yourself with other things (i.e. take a break) without falling behind in your work?					
TC	❒ less than 5 minutes a day	❒ between 5 and 15 minutes a day	❒ between 15 and 30 minutes a day	❒ between 30 minutes and 1 hour a day	❒ between 1 and 2 hours a day	❒ more than 2 hours a day

	How often are you pressed for time?				
TP	❒ very rarely/never	❒ rarely (approx. once a week)	❒ occasionally (approx. once a day)	❒ often (several times a day)	❒ very often (several times an hour)

	How often do you have to work faster than normal in order to complete your work?				
TP	❒ very rarely/never	❒ rarely (approx. once a week)	❒ occasionally (approx. once a day)	❒ often (several times a day)	❒ very often (several times an hour)

	How often do you miss or delay a break because of having too much to do?				
TP	❒ very rarely/never	❒ rarely (approx. once a month)	❒ occasionally (approx. once a week)	❒ often (several times a week)	❒ very often (daily)

	How often do you have to finish work later because of having too much to do?				
TP	❒ very rarely/never	❒ rarely (approx. once a month)	❒ occasionally (approx. once a week)	❒ often (several times a week)	❒ very often (daily)

	To what degree do the following statements apply to your fellow coworkers and (other) friends?	fellow coworkers				(other) friends			
		not at all	a little bit	con-sider-ably	compl etely	not at all	a little bit	con-sider-ably	compl etely
SS	How much can you rely on the following persons when the job gets tough?	❒	❒	❒	❒	❒	❒	❒	❒
SS	How willing are these persons to listen to your problems with the job?	❒	❒	❒	❒	❒	❒	❒	❒
SS	How much do these persons support you so that your work is easier?	❒	❒	❒	❒	❒	❒	❒	❒
SS	How willing are these persons to listen to your personal problems?	❒	❒	❒	❒	❒	❒	❒	❒
SS	How easy is it to talk to these persons?	❒	❒	❒	❒	❒	❒	❒	❒

Personal resources

	To what degree do the following statements apply to you?	not at all true	hardly true	modera tely true	exactly true
SE	I am confident that I could deal efficiently with unexpected events.	❒	❒	❒	❒
SE	Thanks to my resourcefulness, I know how to handle unforeseen situations.	❒	❒	❒	❒
SE	I can solve most problems, if I invest the necessary effort.	❒	❒	❒	❒
SE	If I am in trouble, I can usually think of a solution.	❒	❒	❒	❒

Personal strategies

	Please read each of the following statements carefully and decide how true the statement is in describing you.	not at all accurat e	some-what accurate	a little accurat e	mostly accurate	comp-letely accurat e
SL	I establish specific goals for my own performance.	❒	❒	❒	❒	❒
SL	I consciously have goals in my mind for my work efforts.	❒	❒	❒	❒	❒
SL	I work toward specific goals I have set for myself.	❒	❒	❒	❒	❒
SL	I think about the goals I intend to achieve in the future.	❒	❒	❒	❒	❒

Work engagement

	The following statements are about how you feel at work. Please read each statement carefully and decide if you ever feel this way about your job.	never	almost never	rarely	some-times	often	very often	always
VI	At my work, I feel bursting with energy.	❒	❒	❒	❒	❒	❒	❒
VI	At my job, I feel strong and vigorous.	❒	❒	❒	❒	❒	❒	❒
VI	When I get up in the morning, I feel like going to work.	❒	❒	❒	❒	❒	❒	❒
DE	I am enthusiastic about my job.	❒	❒	❒	❒	❒	❒	❒
DE	My job inspires me.	❒	❒	❒	❒	❒	❒	❒
DE	I am proud of the work that I do.	❒	❒	❒	❒	❒	❒	❒
AB	I feel happy when I am working intensely.	❒	❒	❒	❒	❒	❒	❒
AB	I am immersed in my work.	❒	❒	❒	❒	❒	❒	❒
AB	I get carried away when I am working.	❒	❒	❒	❒	❒	❒	❒

Information about your person

Age	_____ years
Gender	❒ female ❒ male
Nationality	_____
Highest education level completed	❒ compulsory education ❒ apprenticeship diploma ❒ vocational school ❒ high school level ❒ university level
Employment status (multiple options possible)	❒ full-time employee ❒ part-time employee ❒ self-employed ❒ freelancer ❒ student ❒ others

We thank you very much for your participation in this survey and the provision of your valuable answers.
If you agree to participate in the following two surveys of this longitudinal study, we ask you kindly to supply your email address.
We assure you that your data is treated in confidence and will NOT be transmitted to third parties. Your email address is ONLY used to establish contact with you, if you are willing to participate in the follow-up of this survey.

Email address _____

Thank you for your participation!

Index for Abbreviations in Questionnaire

MC	Method control
TC	Time control
TP	Time pressure
SS	Social support
SE	Self-efficacy
SL	Self-goal setting
VI	Vigor
DE	Dedication
AB	Absorption

Appendix C - Factor Analyses for Job Control and Work Engagement

1. Job Control

In order to investigate if job control loaded on two distinct factors (i.e. method control and time control), a factor analysis with principal component analysis and varimax rotation was performed. Beforehand, one of the time control items (TC_4) was excluded, since its removal increased the rather insufficient Cronbach's α for time control from .66 to an acceptable level of .73 (Field, 2009). The sampling adequacy was verified by the Kaiser-Meyer-Olkin (KMO) measure of .88 being a great value and well above the acceptable limit of .5 (Field, 2009). Bartlett's test for sphericity showed with χ^2 (21) = 454.93, $p < .001$ that the correlations between the items were sufficiently large, approving a principal component analysis. Table 9 shows the factor loadings for method control and time control.

Table 9. Factor analysis: job control, factor extraction with Kaiser's criterion

Item-nr.	Item	Factors	
		1	2
MC_1	Considering your workplace in general, how much can you change the sequence of the different steps yourself?	.83	
MC_2	How much influence do you have on the work which is assigned to you?	.77	
MC_3	Considering your work activity in general, how much opportunity is there for you to make your own decisions?	.78	
MC_4	Can you yourself decide on which way to carry out your work?	.68	
TC_1	To what degree is it possible for you to set your own working pace?		.71
TC_2	To what degree are you able to decide on the amount of time you will be working on a certain task?		.79
TC_3	To what extent are you able to plan your working day yourself?		.77
	Eigenvalues	2.60	2.16
	% of variance	37.08	30.80
	A	.85	.73
	Factor analysis with principal component analysis and varimax rotation.		

2. Work Engagement

At first, a principal component analysis for work engagement was performed according to Kaiser's criterion and factors with eigenvalues greater than one were extracted. The sampling adequacy was verified by the Kaiser-Meyer-Olkin (KMO) measure of .86 which was much larger than the acceptable limit of .5 (Field, 2009). Bartlett's test for sphericity was χ^2 (36) = 722.93, $p < .001$, indicating that the correlations between the items were sufficiently large to perform a principal component analysis. Two factors resulted, explaining together 65.3% of criterion's total variance. The items of the dimensions dedication and absorption clustered on the same factor, the items of vigor on another. This structure was not commonly found before in the related literature. The performed factor analysis for work engagement with Kaiser's criterion is reported in table 10.

Table 10. Factor analysis: work engagement, factor extraction with Kaiser's criterion

Item-nr.	Item	Factors	
		1	2
DE_1	I am enthusiastic about my job.	.73	
DE_2	My job inspires me.	.80	
DE_3	I am proud of the work that I do.	.78	
AB_1	I feel happy when I am working intensely.	.73	
AB_2	I am immersed in my work.	.68	
AB_3	I get carried away when I am working.	.65	
VI_1	At my work, I feel bursting with energy.		.85
VI_2	At my job, I feel strong and vigorous.		.84
VI_3	When I get up in the morning, I feel like going to work.		.78
	Eigenvalues	3.43	2.45
	% of variance	38.12	27.23
	A	.86	.82
	Factor analysis with principal component analysis and varimax rotation.		

Because of the unusual factor structure in the factor analysis above, the one-factor model of work engagement, as suggested by Schaufeli et al. (2006), was tested with an additional factor analysis. Therefore, a principal component analysis with the extraction of one factor was performed in order to investigate if the three dimensions of work engagement (i.e. vigor, dedication and absorption) were subsumable as one work engagement factor. The one-factor model fit well to the data, explaining 53.3% of the total variance. Table 11 presents the factor analysis for work engagement, when only one factor was extracted.

Table 11. Factor analysis: work engagement, extraction of one factor

Item-nr.	Item	Factor 1
VI_1	At my work, I feel bursting with energy.	.77
VI_2	At my job, I feel strong and vigorous.	.74
VI_3	When I get up in the morning, I feel like going to work.	.62
DE_1	I am enthusiastic about my job.	.78
DE_2	My job inspires me.	.77
DE_3	I am proud of the work that I do.	.76
AB_1	I feel happy when I am working intensely.	.73
AB_2	I am immersed in my work.	.77
AB_3	I get carried away when I am working.	.62
	Eigenvalues	4.80
	% of variance	53.30
	A	.89
	Factor analysis with principal component analysis. Extraction of one factor	

Curriculum Vitae

Personal Data
Name: Julia Andorfer
Date of birth: February 7th, 1989
Nationality: Austria

Education

10/2007 – 10/2013	**Diplomstudium Psychology** University of Vienna
08/2011 – 11/2011	Exchange semester with Joint Study (international exchange program) University of Western Australia, Perth
09/2001 – 06/2007	Bundesgymnasium BG XVIII, Vienna (Matura with high distinction, grade point average 1.0)
09/1999 – 07/2001	Gymnasium Oberhaching, Munich

Work Experience

07/2012 – 09/2012	**Internship in Human Resources Management,** Kienbaum Management Consultants GmbH, Berlin
10/2010 – 06/2011	**Internship in the Organisational Psychology Department**, WELLCON - Gesellschaft für Prävention und Arbeitsmedizin GmbH (Association for Prevention and Occupational Medicine), Vienna
07/2010 – 08/2010	**Internship as Research Associate**, Amrop Delta Management Consultants GmbH, Berlin
07/2006	**Internship in the Editorial Department***,* Fit For Fun, Burda-Verlag (publishing company), Hamburg

Additional Qualifications
Foreign Languages
English: fluent in written and spoken language
French: very good in written and spoken language
Spanish: basic knowledge

Computer Literacy
MS Office: Word, Excel, Power Point
Statistical and analytical software: SPSS

Activities and Engagement

08/2011 – 11/2011	**academic tutor** for German students, St George College, Perth
10/2010 – 06/2011	participation as **mentee** at the University of Vienna's alumni association's pilot project 'ALMA - Mentoring program for students' career entry'

Scholarships

2008 – 2013	scholarship for achievement, University of Vienna
2011	Joint Study Scholarship for an exchange semester at the University of Western Australia, Perth

Eidesstattliche Erklärung

Ich versichere, dass ich die Diplomarbeit ohne fremde Hilfe und ohne Benutzung anderer als der angegebenen Quellen angefertigt habe, und dass die Arbeit in gleicher oder ähnlicher Form noch keiner anderen Prüfungsbehörde vorgelegen hat. Alle Ausführungen der Arbeit, die wörtlich oder sinngemäß übernommen wurden, sind als solche gekennzeichnet.

Wien, den 31.07.2013

(Julia Andorfer)