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The Role of Need Satisfaction and Behavior Control

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Table of Contents

Abstract	5
Zusammenfassung	6
Introduction.....	7
1. Theoretical Background	8
1.1. New Ways of Working (NWW)	8
1.2. Work Motivation.....	10
1.2.1. Motivation-Hygiene-Theory	11
1.2.2. Job Characteristics Model	12
1.2.3. Intrinsic and Extrinsic Motivation.....	13
1.2.4. Self-Determination Theory.....	14
1.3. Behavior Control.....	18
2. Research Question and Hypotheses.....	22
3. Method.....	25
3.1. Procedure and Sample	25
3.2. Materials	26
3.3. Data Analysis	27
4. Results	28
4.1. Reliabilities and Intercorrelations	28
4.2. Hypotheses Testing.....	30
4.2.1. Main Effects (H1abcd)	30
4.2.2. Mediating Effect of SNA (H2abcd)	32
4.2.3. Moderating Effect of Behavior Control (H3abcd)	33
4.3. Research Model with Supported Hypotheses	39
5. Discussion.....	41
5.1. Summary of Results	41
5.2. Strengths and Limitations	46

5.3. Implications for Future Research.....	48
References.....	50
List of Tables	61
List of Figures	62
Appendix.....	63
Appendix A – Questionnaire.....	63
Appendix B – Index for Abbreviations.....	70
Appendix C – Factor Analyses	71
Availability of Flexible Work Arrangements.....	71
Use of Flexible Work Arrangements.....	71
Satisfaction of the Need for Autonomy.....	72
Behavior Control	73
External Regulation	73
Intrinsic Motivation	74
Curriculum Vitae.....	75
Eidesstattliche Erklärung	77

Abstract

An increasing number of organizations implement flexible work arrangements to increase motivation among employees, but simultaneously challenge their own organizational control systems. Change in these systems is needed but managers fail to adapt their strategies to the new circumstances and revert to electronic forms of behavior control. It is still unclear how flexible work arrangements influence work outcomes, and the effects of behavior control on flexible workers are unknown.

This study presents a research model based on self-determination theory (Deci & Ryan, 1985) and suggests that satisfaction of the need for autonomy mediates the effects of flexible work arrangements on extrinsic and intrinsic motivation, which have been associated with common outcomes of flexible work arrangements. Additionally, the model includes behavior control as a moderator in this relation.

The data of 115 knowledge workers support these propositions. Satisfaction of the need for autonomy significantly mediated for intrinsic motivation, results for extrinsic motivation showed no relevant effects. Behavior control moderated the relation between autonomy need satisfaction and both intrinsic and extrinsic motivation, however results were not all as expected. While behavior control was low, autonomy need satisfaction decreased extrinsic motivation, high behavior control inhibited this effect. Results for intrinsic motivation were very different, as high behavior control significantly enhanced the positive effect of autonomy need satisfaction on intrinsic motivation.

The results imply an ambiguous effect of behavior control. Two distinct roles of behavior control are discussed that explain the results and have implications for how organizations can adapt their control systems to positively affect their employees' work motivation.

Keywords: Flexible Work Arrangements, Work Motivation, Self-Determination Theory, Internalization, Need Satisfaction, Behavior Control

Zusammenfassung

Um die Motivation ihrer Mitarbeiter zu erhöhen bieten immer mehr Organisationen flexible Arbeitsvereinbarungen an. Dies stellt jedoch eine Herausforderung für bestehende organisationale Kontrollmechanismen dar, und es ist nötig, diese Systeme zu verändern. Führungskräfte passen ihre Kontrollstrategien allerdings nur selten an die neuen Bedingungen an und verwenden stattdessen neue Technik zur Verhaltenskontrolle. Obwohl sich viele Studien mit den Folgen flexibler Arbeit für verschiedenste Konstrukte befassen, sind die unterliegenden Wirkmechanismen, ebenso wie die Konsequenzen der Verhaltenskontrolle, noch immer unklar.

Das Forschungsmodell dieser Studie basiert auf der Selbstbestimmungstheorie (Deci & Ryan, 1985) und inkludiert die Befriedigung des Autonomiebedürfnisses als Mediator zwischen flexiblen Arbeitsbedingungen und intrinsischer, sowie extrinsischer Motivation. Intrinsische Motivation wurde bereits mit jenen Konstrukten in Verbindung gebracht, die auch durch flexible Arbeitsbedingungen beeinflusst werden, und es wird angenommen, dass beobachtete Folgen von flexibler Arbeit durch Effekte auf Arbeitsmotivation erreicht werden. Zusätzlich wird der moderierende Effekt von Verhaltenskontrolle in diesem Modell überprüft.

Die Daten von 115 Studienteilnehmern unterstützen die gemachten Annahmen. Die Befriedigung des Autonomiebedürfnisses mediierte die Effekte von der Möglichkeit und dem Nutzen flexibler Arbeitsvereinbarungen auf intrinsische Motivation signifikant. Verhaltenskontrolle moderierte den Zusammenhang zwischen der Befriedigung des Autonomiebedürfnisses und intrinsischer sowie extrinsischer Motivation, jedoch nicht wie erwartet. Hohe Verhaltenskontrolle inhibierte den negativen Effekt der Befriedigung von Autonomiebedürfnissen auf extrinsische Motivation, verstärkte jedoch den positiven Effekt auf intrinsische Motivation, was im Gegensatz zu bisherigen Forschungsergebnissen steht.

Die Ergebnisse implizieren einen doppelten Effekt von Verhaltenskontrolle. Es werden zwei unterschiedlichen Rollen von Verhaltenskontrolle diskutiert, die die beobachteten Effekte erklären und Implikationen für organisationale Kontrolle beinhalten.

Schlüsselbegriffe: Flexible Arbeit, Arbeitsmotivation, Selbstbestimmungstheorie, Internalisierung, Bedürfnisbefriedigung, Verhaltenskontrolle

Introduction

In the last years, more and more organizations have implemented flexible work arrangements, and an increasing number of employees have the option to use them. According to the Telework Trendlines 2009, the number of persons in the U.S. working away from the office increased from 12.4 million to 17.2 million, or by 39% between 2006 and 2008. In 2015 37% of a sample of 1011 working U.S. citizens reported to have used telework (Gallup Inc., 2015). In 2015 the Netherlands even issued a bill that grants Dutch citizens the right to work from their homes, as long as the employee ensures that they can maintain the quality of their work.

Many changes are associated with these developments, and research concerning the consequences for firms and their employees becomes increasingly important. For employees the changes seem to be mostly positive, but only few studies rely on established theories as a framework to explain these outcomes. For organizations the reduced presence and visibility of their employees necessitates a change of control systems (Hartner-Tiefenthaler, Gerdenitsch, & Koeszegi, 2014), but studies showed that many managers rely on their usual control practices and do not adapt them to the new conditions (Felstead, Jewson, & Walters, 2003; Kurland & Cooper, 2002). Instead, information and communication technologies have increased the possibility of behavior control through electronic performance monitoring, which has shown various detrimental effects on employees (Aiello & Kolb, 1995; Chen & Ross, 2007; Rafnsdóttir & Gudmundsdottir, 2011; Stanton, 2000a; Stanton & Barnes-Farrell, 1996).

This diploma thesis is directed to address both issues. Firstly, it is based on self-determination theory (Deci, Connell, & Ryan, 1989; Gagné & Deci, 2005; Ryan & Deci, 2000) to explain the outcomes commonly associated with increased flexibility and proposes indirect motivational effects of the availability and actual use of flexible work arrangements through an increased satisfaction of the need for autonomy. Secondly, it integrates behavior control as a moderator into this model to examine how it affects work motivation.

1. Theoretical Background

In the following section the theoretical background of this diploma thesis is presented. First, the development of the New Ways of Working and the increased flexibility as a consequence are introduced. Current research on the implications for employees as well as their work motivation is reviewed with the focus on potential risks and rewards. The next section gives an overview of work motivation. Important models and theories of work motivation are presented along with self-determination theory (SDT) as the theoretical framework of this study. SDT further elaborates on motivation at work and introduces need satisfaction of basic psychological needs as means to increase motivation quality. At last, the impact of the New Ways of Working on behavior control is explained, as well as the influence of behavior control and performance monitoring in particular on work motivation and other relevant work outcomes.

1.1. New Ways of Working (NWW)

In the past decades new developments of the information and technology industry, such as smartphones, laptops, and mobile internet, have had an undeniably large impact on how knowledge work is performed. The importance of where and when work is done has decreased and instead the new mobile devices promote spatial and temporal flexibility. This added flexibility is achieved through various ways to communicate, most prominently phone calls, email, online messaging, and video conferences (Baarne, Houtkamp, & Knotter, 2010). The increase of spatial and temporal flexibility, supported by mobile technology, are the three main characteristics of the New Ways of Working (NWW) that have emerged from these developments (Ten Brummelhuis, Bakker, Hetland, & Keulemans, 2012).

The transition from traditional ways of working to NWW includes changes in four different areas: 1) the physical place where work is pursued, 2) utilization of information and communication technology (ICT), 3) organization and management of employees and 4) work culture (Blok, Groenesteijn, Schelvis, & Vink, 2012). The first refers to the increased spatial flexibility which allows employees to work from places other than the traditional office. Offices themselves are changing as well. They are moving away from fixed desks and instead integrate flexible activity based working zones for employees working from the office building (De Croon, Sluiter, Kuijer, & Frings-Dresen, 2005; Vos & van der Voordt, 2001). Secondly, ICTs provide employees with the means to send and receive emails from anywhere, anytime. The newest addition that contributed to this development is the smartphone, whose main purpose is constant connectivity (Middleton,

2007). Employees are often provided with ICTs by their employers, in hope of yielding some return on investment in the form of higher productivity and improved performance. Thirdly, management and organization need to adapt as well. In traditional offices managers and supervisors can see whether their subordinates are working or not. This drastically changes if employees start working at home, and managers worry that they might lose control over their telecommuting employees (Tomaskovic-Devey & Risman, 1993; Kurland & Cooper, 2002). NWW also impose changes to work climate. While ICTs have greatly increased the velocity at which information can be exchanged, it requires improved collaboration among coworkers, a more open culture and the willingness to share information with others (Blok et al., 2012).

Although ICTs are a key factor in the NWW, according to Demerouti, Derks, Lieke, and Bakker (2014) the most distinctive feature of NWW is the introduction of greater spatial and temporal flexibility for workers. Hill et al. (2008) define workplace flexibility as employees having the choice influencing when, where, and for how long they work, emphasizing the autonomous choice over main attributes of the work that they are given. The most commonly used form of workplace flexibility is an either formal or informal flexible work arrangement (FWA) between employees and their superiors. According to Lambert, Marler, and Gueutal (2008), FWAs are agreements that provide employees with some extent of choice over the time and place of their work. FWAs have commonly been linked to various positive outcomes for employees as well as organizations and the number of firms that implemented NWW is rapidly increasing.

The transition towards NWW is the result of many studies that linked various positive effects to flexible work. These effects benefit not only the organization, but employees profit as well from increased flexibility. Studies have shown that flexible working leads to better mental health and resilience, less work-related stress and higher levels of job satisfaction and engagement (Blok et al., 2012). Hill, Ferris, and Mårtinson (2003) found that employees who can work at home have significantly more job motivation than workers in traditional offices and are still significantly more motivated than staff working in virtual offices. Kelliher and Anderson (2008) interviewed employees about perceived benefits and risks and found that many report subjectively more autonomy than before. Studies have also found that workplace flexibility improves work-life balance and decreases work-family conflicts (Blok, Groenesteijn, Van Den Berg, & Vink, 2011). Additionally, home workers do not have to endure lengthy commutes, can work more comfortably and with less interruptions (see

Kurland & Bailey, 1999). The benefits of flexible employees for organizations have been the subject of many studies as well, and have generally linked workplace flexibility with higher productivity, more efficient work processes and reduced organizational costs for office space. It also attracts new talented professionals and motivates and retains those already working in the company. Richman, Civian, Shannon, Hill, and Brennan (2008) also found that employees with higher perceived temporal and spatial flexibility in their job could work longer hours before causing worsened work-family balance. Additionally, they found that the mere availability of FWAs is related to positive outcomes, regardless of whether the employee actually benefits from such policies or not. They also report a general differentiation between effects of the possibility for workplace flexibility and the actual use.

Although FWAs have generally been linked to positive outcomes, there are also some negative effects on employees. Employees who work from home often feel disadvantaged regarding their advancement in the firm, especially in the long term. They observe that promotions are often related to visibility at the office, and are well aware of that when working at home (Kelliher & Anderson, 2008). Kurland & Cooper (2002) reported similar results in a qualitative study with 54 interviews and even found that several employees reverted to working from their traditional office because of the fear of professional isolation. Kelliher and Anderson (2010) conducted a study in three organizations that recently implemented flexible working arrangements and collected data from focus groups, interviews and questionnaires. While they found positive outcomes for job satisfaction and organizational commitment, employees also reported increased work intensification.

So while the majority of studies highlight the benefits of FWAs, employees also experience intensified work and face negative effects for their career, which may lead them away from flexible work arrangements and back to the office building. However, organizations continue offering their employees the option of FWAs and hope to enhance performance and work motivation.

1.2. Work Motivation

At work, motivation is seen as a strategic priority as organizational success was found to be strongly linked to having motivated workers (Hill & Weiner, 2003). Motivated employees are more likely to work according to their talents and spend more time (Deci, Eghrari, Patrick, & Leone, 1994) and energy (Ryan & Deci, 2000) on achieving organizational goals. As Ryan and Deci (2000, p. 69) put it, “in the real world, motivation is highly valued because of its consequences: motivation produces.” Many of the desirable

outcomes that were presented to result from flexible work have been found to be related to work motivation. Examples are increased organizational commitment, job satisfaction, psychological well-being, performance (Gagné & Deci, 2005), and lower turnover intentions (Richer, Blanchard, & Vallerand, 2002). As such, work motivation has seen a long history of research, and many theories try to explain its nature.

1.2.1. Motivation-Hygiene-Theory

Herzberg, Mausner, and Snyderman (1959) asked about 200 persons for work situations that made them feel either unusually good or bad and had them describe these situations in detail. Using qualitative methods, they found mainly two distinguishable categories of characterizations and concluded that there were two underlying factors that determined whether these situations resulted in good or bad feelings for the employee. Herzberg et al. (1959) named the first category hygiene factors, or dissatisfiers, as they caused dissatisfaction when not fulfilled. Examples of those factors include working conditions, wages, company policies, job security, supervisory practices etc. They are largely extrinsic and revolve around the general context in which work is performed. The second factor are motivators, which cause satisfaction once they are fulfilled, and are thus also known as satisfiers. Central to these is their rather intrinsic nature, as they include for instance personal growth, responsibility, recognition, achievement and characteristics of the tasks themselves.

Herzberg et al. suggested that satisfaction and dissatisfaction are not the ends of one dimension, but instead are independent from one another. The range of dissatisfaction would be from “not dissatisfied” to “very dissatisfied”, and accordingly, satisfaction ranges from “not satisfied” to “very satisfied.” This was assumed due to the finding that the absence of dissatisfiers would not increase satisfaction and a lower amount of satisfiers would not lead to higher dissatisfaction. Consequentially, Herzberg et al. (1959) argued that hygiene factors should be optimized to lower dissatisfaction and the work itself should be enriched with motivators, which would ultimately lead to higher work motivation among employees. Even today, although it has partly been falsified, it is among the most influential theories of work motivation (Ulich, 2001). Critics of this theory, which is known under the term “motivation-hygiene-theory,” argue that it does not account for individual differences in the responsiveness towards various motivators (Hackman & Oldham, 1976), as it appears that some persons respond more to enriched jobs than others (Hulin, 1971). Naturally, this imposes difficulties when applying the theory to practical situations.

1.2.2. Job Characteristics Model

Hackman & Oldham (1976) proposed a model that tackled some problems of the motivation-hygiene-theory and gave a more complex explanation for how work motivation could be achieved. The so called “job characteristics model” suggests five core job dimensions that constitute three psychological states. These states then result in various positive effects for the employee and work outcomes, for example motivation, job satisfaction and effectiveness, and should therefore benefit the organization as a whole.

The relations between the five job dimensions and the three psychological states as well as the relation between these states and the expected benefits are moderated by individual need growth strength. This concept is introduced as a concession to the findings that people react differently to job characteristics, as mentioned earlier. Hackman and Oldham predicted that employees with a high growth need strength will generally respond more positively to jobs with a high motivating potential than those with a low growth need strength.

They suggested that the motivating potential at work is high if an individual gets positive feedback on a task he or she feels personally responsible for and cares about. Accordingly, the three proposed psychological states are 1) the experienced meaningfulness of the work, 2) the experienced responsibility for work outcomes, and 3) the knowledge of the actual results of their work.

The knowledge of work results is achieved by providing feedback, which is defined as the degree to which an individual receives direct and clear information on how effectively he or she has performed on a task (Hackman & Oldham, 1976). The measure for task responsibility is the amount of autonomy given to the individual. Autonomy includes the choice in how and when a job is performed, and therefore outcomes depend increasingly on the individual’s own efforts and decisions, and not on how well instructions were followed.

A task’s experienced meaningfulness is dependent on three job characteristics that additively contribute to its meaningfulness. These are task variety, task identity and task significance. Task variety is fulfilled when a task requires different activities and various skills and talents to complete. Hackman and Oldham argue that when a task challenges an individual’s skills and abilities it is inevitably experienced as meaningful, and they draw comparisons to challenging puzzles or other recreational activities. Thus, if a task is challenging it may be perceived as very meaningful although it may not in fact be of great significance in general. The second job characteristic contributing to experienced

meaningfulness is the task's identity. A task has a strong identity if it results in a complete and identifiable outcome, in contrast to just a small part of a greater product. Thirdly, a task is viewed as significant if it is understood that outcomes have positive effects on the well-being of others, regardless of the skills required to perform the job. For example, identifying and fastening loose bolts on airplane breaks is perceived as more significant than sorting out misshaped gummy bears at a production line, although the necessary skill levels for both tasks might be equal.

With measures of these five characteristics, Hackman & Oldham (1976) developed an equation that determines the amount of motivating potential a specific job possesses. The equation is pictured in Figure 1.

$$\text{Motivating Potential} = \frac{\text{Task Variety} + \text{Task Identity} + \text{Task Significance}}{3} * \text{Autonomy} * \text{Feedback}$$

Figure 1. Equation for motivating potential.

This proposed model strongly emphasizes the importance of both autonomy and feedback for job motivation, because as soon as even one of them is low, the ceiling for the job's motivating potential becomes equally low, the worst case being either non-existent autonomy or feedback (or both). The individual growth need strength then moderates the effects of the work's motivating score on the employee's actual work motivation and general job satisfaction, leading to increased results for individuals with higher growth need strength.

1.2.3. *Intrinsic and Extrinsic Motivation*

While the previous models focused solely on intrinsic work motivation that can be either high or low and is thus one dimensional, Porter & Lawler (1968) proposed a model with two distinct forms of work motivation, intrinsic and extrinsic. Individuals who are intrinsically motivated perform a task because they enjoy doing the task itself and derive instant satisfaction from the activity. For example, individuals pursuing a hobby are usually intrinsically motivated, as they do not expect rewards but instead enjoy themselves by means of the activity itself. However, not all tasks are interesting and enjoyable, and therefore require an external source of motivation. Extrinsic motivation is instrumental by its very nature, as an externally motivated task is followed only due to desirable consequences following the task. These include for example material rewards, such as payment or a company car, but can also be in the form of verbal acknowledgements (Gagné & Deci, 2005).

Porter and Lawler (1968) suggested that these two forms of motivation are additive, so if work was designed to yield both intrinsic and extrinsic motivation it would result in total job satisfaction. This did not seem to be entirely the case as Deci (1971) found evidence that while verbal extrinsic rewards enhanced intrinsic motivation, tangible extrinsic rewards proved to be detrimental to it. Further research showed that positive feedback could increase intrinsic motivation, while offering tangible rewards lead to a decline of internal motivation (Deci, Koestner, & Ryan, 1999). Furthermore, Ryan, Mims, & Koestner (1983) found that if tangible rewards were reliant on high quality performance, individuals working in a supportive rather than in a pressuring interpersonal work context showed higher intrinsic motivation than a comparison group that received neither rewards nor feedback on their performance.

Cognitive evaluation theory (CET; Deci, 1975; Deci & Ryan, 1980) was proposed to explain the relation between extrinsic and intrinsic motivation. More specifically, CET suggested that various external factors, such as tangible rewards, surveillance (Lepper & Greene, 1975), deadlines (Amabile, DeJong, & Lepper, 1976), and evaluations (Smith, 1975), undermine feelings of autonomy, shift the perceived locus of causality (PLOC) from internal to external, and diminish intrinsic motivation. On the other hand when people felt responsible for a task they successfully completed, positive feedback increased intrinsic motivation by creating a feeling of competence (Fisher, 1978; Ryan, 1982). In contrast, negative feedback could decrease the sense of competence and cause a decline in both extrinsic and intrinsic motivation and create amotivation instead (Deci & Ryan, 1985).

1.2.4. Self-Determination Theory

Self-Determination theory (SDT; Deci et al., 1989; Ryan & Deci, 2000; Gagné & Deci, 2005) adopts many of the concepts of earlier models and further expands on them in order to explain the intricacies of motivation. SDT proposes a continuum of motivation with amotivation being the opposite, describing the complete lack of any form of motivation. Amotivated individuals will not perform a certain task whatsoever as nothing drives them to do so. In the absence of amotivation SDT postulates that motivation is on a continuum of controlled versus autonomous motivation. People who are autonomously motivated *want* to act and choose to do so on their own (Gagné & Deci, 2005).

Intrinsic motivation is a form of autonomous motivation, as performing an activity because it is interesting and enjoyable implies doing it fully volitionally (Gagné & Deci, 2005). In contrast, tasks that are not interesting or enjoyable, and therefore not intrinsically

motivating, require externally controlled motivation. Thus, task engagement is contingent on the perception of desired consequences for doing so, for instance being financially rewarded etc. This distinction between controlled and autonomous motivation is central to self-determination theory and is strongly intertwined with the concept of internalization.

Internalization means that under certain circumstances, originally externally regulated motivation is taken in by the individual and begins to work more and more autonomously. More specifically, it means to take in values, attitudes or regulations connected to certain behavior, so that external regulation shifts into internal regulation and behavior is no longer reliant on external rewards (Gagné & Deci, 2005). For example, an employee who only worked as long as his supervisor was watching him may internalize values and attitudes connected with his or her work and find the tasks he or she is delegated to be important and carry them out even without supervision. The degree to which an initially externally regulated behavior has been internalized can be described by its position on the previously mentioned controlled-to-autonomous continuum (also see Figure 2).

According to SDT, there are three distinguishable degrees of internalization and they are characterized by an increasing autonomous-to-controlled-ratio. The first step for external motivation to become internalized is introjection, which means that certain regulations have been taken in by the individual, but they still do not accept it as being internal. A person who behaves according to introjected regulation would perform a task to feel worthy or to avoid feeling bad about oneself. Although regulation originates from inside the person, it is still a very controlled form of extrinsic motivation.

For extrinsic motivation to become autonomous it is required that a person can identify with the values connected to a behavior and see them as means to pursue self-set goals. Connected to this is a greater sense of freedom and volition because the behavior is consistent with personal values and beliefs. A greater degree of perceived freedom and volition arises because the behavior is viewed as being in line with one's goals and identity, and the PLOC shifts to an internal, and thus more autonomous cause of behavior.

The next and final step of internalization is integrating a certain behavior into one's own identity and accepting it as immanent to personal values and beliefs. Behavior that has been integrated is fully self-determined and is the most autonomous form of extrinsic motivation. It shares characteristics with intrinsic motivation, which is autonomous by its very nature, but it does not become intrinsic motivation. The central aspect of intrinsic motivation is that motivation is drawn from the activity itself because it is interesting,

enjoyable etc., where activities that have been integrated are not engaged because they are deemed entertaining, but because they are important to one's identity. For instance, for a geriatric nurse their occupation may be a central part of their identity and thus they would give greatest care to all their patients, and care more for people in general. But the individual tasks in caring for someone are still not performed because they are considered interesting or create joy, but because they are of strong instrumental importance for something that is eminently meaningful to oneself.

A graphical summary of internalization and the controlled-to-autonomous continuum as they are described above is displayed in Figure 2.

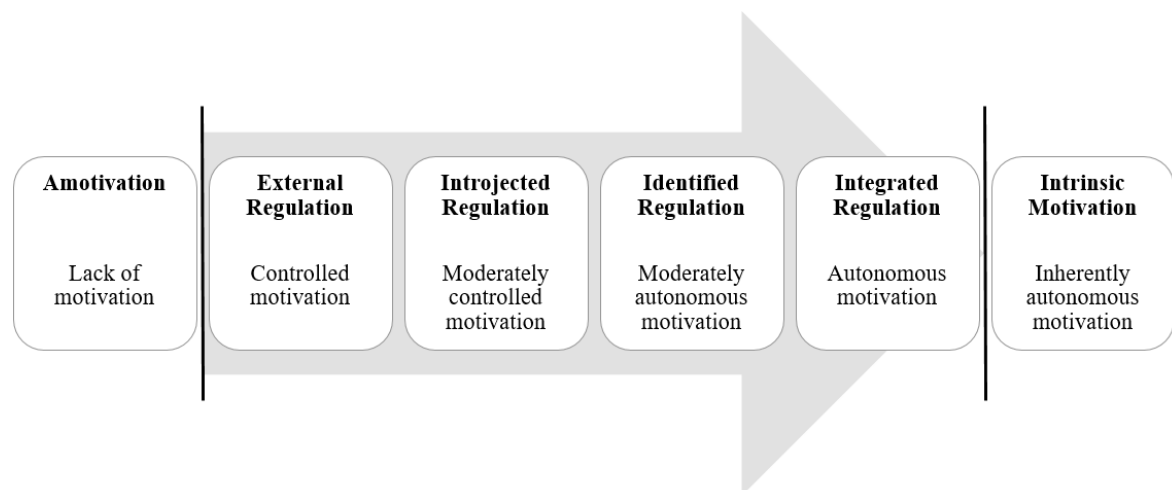


Figure 2. The controlled-to-autonomous continuum of motivation. Adapted from Gagné & Deci, 2005.

While Hackman and Oldham's job characteristics model (1976) suggests the five job characteristics to determine job motivation, SDT proposes satisfaction of the basic psychological needs for autonomy, competence and relatedness as playing a crucial role for internalization and work motivation (Gagné & Deci, 2005).

The concept of human psychological needs has a long history in academic research. Maslow (1954), for instance, proposed a pyramid model of human needs that mentioned psychological needs such as recognition, self-esteem and self-actualization. Although his proposed model has received substantial criticism (see e.g. Weinert, 1998), psychological needs have received much attention since then. Hackman and Oldham (1976) introduced the need for growth in their model of work motivation and suggested that its strength determines how important job characteristics are perceived by an individual and how strongly outcomes,

such as motivation, job satisfaction and work results are affected (e.g., Hackman & Lawler, 1971; Hackman & Oldham, 1976).

According to Gagné and Deci, (2005), needs have commonly been treated as individual differences and the strength of these needs was typically viewed as the important measure for organizational theories. Self-determination theory gives an alternative definition of human needs. They are viewed as universal to humanity and fundamental for human development and integrity (Ryan, Sheldon, Kasser, & Deci, 1996). The essential differentiation to previous models is that not the individual strength of a need is considered important, but instead SDT emphasizes the consequences of the degree to that the individual is able to satisfy that particular need within their given environment (Gagné & Deci, 2005).

SDT proposes the satisfaction of the psychological needs for autonomy, competence and relatedness as being the foundation of autonomous motivation as well as internalization. The first two, especially satisfaction of the need for autonomy (SNA), were mentioned before for having a crucial effect on intrinsic motivation and internalization, but it was found that relatedness plays an important role for the internalization process as well (e.g. Baumeister & Leary, 1995). SDT postulates that in order to internalize a certain behavior, it is necessary that the individual experiences a feeling of competence and relatedness towards that behavior. The degree to which the need for autonomy can be satisfied then determines how strongly the behavior is internalized, whether it is merely introjected, or if it can be identified with or even integrated.

For organizations, Gagné and Deci (2005) suggest that work climates that support the satisfaction of these three needs will enhance employees' intrinsic motivation and facilitate the internalization of extrinsic motivation. In turn, this would lead to an increase in various desirable work outcomes, such as a sustained change in behavior, well-being, job satisfaction, positive work-related attitudes and effective performance, especially on tasks that require creativity and cognitive flexibility.

SNA in particular is suggested to be the most important predictor for autonomous motivation and several studies have supported this claim. Black and Deci, (2000) conducted a study in a university course and found that instructors who supported the students' autonomy in their classes were a significant predictor of increased autonomous motivation. Furthermore, they found that course grades were higher for those instructors, in particular if the students initially showed lower autonomous motivation. Additionally, studies among managers showed that autonomy supportive behavior led to increased satisfaction of the

needs for autonomy, competence and relatedness and in turn resulted in higher levels of trust and other work-related attitudes (Deci et al., 1989), increased job satisfaction, higher performance evaluations, greater persistence, facilitated acceptance of organizational change, and better psychological adjustment (Baard, Deci, & Ryan, 2004; Deci et al., 2001; Gagné, Koestner, & Zuckerman, 2000; Ilardi, Leone, Kasser, & Ryan, 1993; Kasser, Davey, & Ryan, 1992). Lynch, Plant, and Ryan (2005) conducted a study among psychiatric hospital staff and found evidence that supervisors that exerted greater autonomy support among their subordinates induced increased internalization compared to supervisors who were perceived as controlling.()

1.3. Behavior Control

For an organization it is very important to have motivated employees who enjoy their work, however, it is also necessary for organizations to have some form of control over their employees. According to Goold & Quinn (1990) there are three substantial motives for companies to exert control that are critical to an organization's success. First, control systems facilitate the coordination of human resources. Second, they enable transparent incentive systems, such as promotions and tangible rewards that are intended to motivate workers, and thirdly, they help to identify certain signals that may require interventions.

Ouchi (1977) defines control as an evaluation process that is mainly based on monitoring and evaluating employees' work behavior and their output. Based on this definition, Ouchi describes two different forms of control, behavior control and output control, which are both aimed at changing a worker's behavior towards a desired conduct. A third type of control is also introduced, which depends on rituals and ceremonies rather than behavior or output. In this case, the strongest influence organizations have on how their employees behave is by performing a highly sensitive selection process. Ouchi later redefines this concept and suggests clan control as a third form of control, which also does not depend on monitoring of behavior or outcomes, but instead uses shared values and beliefs, legitimate authority and reciprocity as control mechanisms (Ouchi, 1980).

For many decades, supervisors could monitor their subordinates without much effort, as it was the norm that everyone was present at the office or facility. Controlling employees' work behavior was based on their presence and visibility and common practices accommodated for that. In recent years however, development of information and communication technologies have had a huge impact on behavior control practices. This is not only due to the fact that ICTs themselves play an important role in surveillance (Stanton,

2000a), but also because they enable employees to work from places other than the traditional office. This imposes a serious challenge for managerial control, as employees are often neither visible nor present. Studies have found that managers believe they lose control over their employees as telecommuting increases their autonomy (Tomaskovic-Devey & Risman, 1993). This belief leads them to disapprove of flexible work and resist against its implementation (see e.g., Mokhtarian & Salomon, 1996a, 1996b).

These developments call for a change in controlling practices to account for the increased flexibility of employees. Unfortunately, this is not always the case, as studies found that managers only rarely adapt their control strategies for telecommuting workers (Kurland & Cooper, 2002; Felstead et al., 2003). In a study of Kurland and Cooper (2002), managers used various means to control their subordinates. Common were increased use of scheduled audio and video conferences or face-to-face meetings, regular phone calls, carefully defined tasks, and job formalization. Others required their teleworkers to hand in written updates with details of their daily working activities, or visited employees working at home to check in on them. Some engaged in informal conversations while employees were at the office and asked about how and where at home employees would work. Most managers also reverted to some form of electronic performance monitoring (EPM).

As already mentioned, ICTs themselves play an important part in exerting behavior control, because these technologies do not only enable employees to work at any time, in any place, but also give their supervisors the possibility to continuously monitor their performance. There are many different technologies that enable EPM, for example video cameras, computer keystroke registration, GPS data to observe company vehicles, and electronic key cards for office buildings (Chen & Ross, 2007). Companies also often use communication software that shows an employee's online status, for example Microsoft's Skype for Business (former Lync). The specific method is usually customized to the characteristics of the respective job (Chen & Ross, 2007). Managers can gain access to employee's computers and telephones using EPM and precisely determine when and how accurate a person worked during a given day and even draw conclusions on the length of their employee's bathroom breaks (Aiello and Kolb, 1995).

There are some differences between EPM and traditional forms of monitoring that Stanton (2000a) points out: due to capabilities of computers, employees can be monitored continuously and the amount of data collected is much greater and covers more dimensions of work performance than traditional monitoring techniques. Human observers have many

perceptual limitations that computers do not have. The presence of a supervisor is also often noticeable, which means that employees are aware that they are being watched, whereas EPM is mostly hidden and many workers do not even know if they work under EPM or not (Rafnsdóttir & Gudmundsdottir, 2011). However, Stanton (2000a) also describes important similarities between both forms of performance monitoring, the most critical being that both are important data sources for feedback and evaluation, and inform relevant personnel decisions.

While performance monitoring may be a useful tool that organizations have at their disposal in order to make sure their employees actually work for their payment, effects on employees should not be underestimated. Research on electronic performance monitoring in particular has found strong links between EPM and increased levels of stress (Aiello & Shao, 1993; Amick & Smith, 1992; Smith, Carayon, Sanders, Lim, & LeGrande, 1992), as well as stress-related disorders and turnover (Henderson, Mahar, Saliba, Deane, & Napier, 1998; Marx & Sherizen, 1987; Batt, Colvin, & Keefe, 2002). Furthermore, evidence suggests that, in addition to increased stress, EPM also leads to lower job satisfaction (Grant & Higgins, 1989; Irving, Higgins, & Safayeni, 1986), reduced morale, and organizational distrust (Smith et al., 1992; Westin, 1992). Additionally, EPM causes a worse psychosocial work environment (Rafnsdóttir & Gudmundsdottir, 2011) and increases the feeling of social isolation (Aiello, 1993; Amick & Celentano, 1991; Amick & Smith, 1992). Furthermore, EPM causes the loss of perceived privacy at work, leads to a lack of acceptance of the EPM methods and causes dissatisfaction with the job (Zweig & Webster, 2002; Miller & Weckert, 2000).

Social facilitation theory (Zajonc, 1965) is commonly used to explain the effects of monitoring on work outcomes. For example, Aiello and Kolb (1995) showed that participants performed better on a simple task when they were observed, which is consistent with this theory. The opposite is true if the task is more complex, as participants' performance was lower if they thought they were monitored, and they showed greater levels of stress in those situations (Aiello and Svec, 1993). However, Schleifer, Galinsky, and Pan (1996) found evidence that persons with high ability did not show such stress reactions.

Especially with regards to self-determination theory, surveillance was found to undermine intrinsic motivation (Lepper & Greene, 1975). However, Koestner, Ryan, Bernieri, and Holt (1984) argue that this undermining effect only occurs under certain conditions. They propose that whether an external factor is detrimental or supportive to

intrinsic motivation depends on its functional significance for the individual, which can be either controlling or informational. If the controlling aspect is salient, the person experiences pressure towards a specific outcome. The informational aspect is salient when an event provides information about one's own effectiveness and is in a context of perceived autonomy and choice. Accordingly, Gagné & Deci (2005) proposed an interactive effect of such factors with the influence of work climates on autonomous motivation.

Some studies have found factors that could help to decrease the negative impact performance monitoring has on employees. For example, Amick and Smith (1992) suggested that employee reactions to monitoring should be different when employees were able to participate in the process of designing the monitoring system. Accordingly, Westin (1992) found positive effects in a setup where employees could participate in the development of monitoring systems, and Pearson (1991) found medium effects between participation in monitoring design and motivation. Stanton (2000b) conducted a study among 301 workers from eight organizations, collecting data on whether traditional performance monitoring or EPM was used, how they were used and their perceived fairness at work. He found that monitoring consistency, knowledge of performance from monitoring, control over time and place of monitoring, and justifications for monitoring were all significant predictors of perceived fairness. He concluded that the conditions under which performance monitoring is applied can have an impact on employees' reaction to it.

Surprising results were found by Stanton and Barnes-Farrell (1996) who found that persons who knew they could be monitored but were unaware of the timing reported higher perceived job control. Douthitt and Aiello (2001) also found evidence that having some form of control over monitoring can increase job satisfaction and performance, although it did not have any effect on the perceived fairness.

2. Research Question and Hypotheses

Research that examined the effects of flexible work arrangements has shown significant results for various positive outcomes, especially for employees. These outcomes included for example increased job satisfaction, effectiveness, well-being, and decreased turnover intentions. Positive effects were found even for the mere availability of FWAs and even for those who did not personally benefit from such options. Similar outcomes resulted from research examining the effects of intrinsic work motivation compared to extrinsic motivation. It is therefore proposed that the way FWAs affect work outcomes is by increasing employees' intrinsic work motivation. This in turn is then assumed to lead to the effects observed in various studies examining the effects of flexible work arrangements. As it has been shown that not only the use, but even the mere availability of FWAs can have such effects, it is proposed that not only the use of FWAs, but also the option to do so show the aforementioned effects.

Additionally, it is suggested that FWAs are autonomy supportive work environments and therefore facilitate the internalization of externally regulated motivation. As such, it is expected that employees working more flexibly show lower degrees of external regulation.

Based on these assumptions, the first research question this study hopes to answer is: Do the availability and actual use of flexible work arrangements foster intrinsic motivation and decrease externally regulated motivation? The following hypotheses are derived from this question:

Hypothesis 1a: The availability of FWAs increases intrinsic work motivation.

Hypothesis 1b: The use of FWAs increases intrinsic work motivation.

Hypothesis 1c: The availability of FWAs decreases extrinsic work motivation.

Hypothesis 1d: The use of FWAs decreases extrinsic work motivation.

Self-determination theory, the theoretical framework this study relies on, suggests that intrinsic motivation as well as the internalization of extrinsic motivation is dependent on the satisfaction of the needs for autonomy, competence and relatedness. Gagné & Deci (2005) suggested that work environments that support these needs would foster intrinsic motivation and facilitate internalization. They also emphasized that a SNA in particular is the most important variable for predicting motivation. Increased autonomy is one of the key elements associated with the introduction of FWAs, therefore it is proposed that the effects

of possible and used FWAs on intrinsic motivation and external regulation are mediated by SNA.

Hypothesis 2a: SNA mediates the positive effect of the availability of FWAs on intrinsic work motivation.

Hypothesis 2b: SNA mediates the positive effect of the actual use of FWAs on intrinsic work motivation.

Hypothesis 2c: SNA mediates the negative effect of the availability of FWAs on extrinsic work motivation.

Hypothesis 2d: SNA mediates the negative effect of the actual use of FWAs on extrinsic work motivation.

This study also examines the effects of behavior control on flexible employees. Behavior control, and EPM in particular, have been shown to negatively impact work outcomes. With the increased flexibility in place and time of work and the decreased visibility of employees, managers aiming to exert behavior control need to rely on EPM methods. Although FWAs are found to have mostly positive consequences, the role of behavior control in this relation is unclear. Therefore, the second research question of this diploma thesis is: “How does behavior control influence employees working with flexible work arrangements?”

When determining how behavior control could best be integrated into the proposed mediation model, it was found that the effects of behavior control methods were not always consistent. Stanton (2000b) suggests that the conditions under which performance monitoring is applied influences outcomes. Koestner et al. (1984) argued that the effects of external factors can be either positive or negative and the direction is dependent on how pressuring versus autonomous the factor is perceived and if it provides information about personal performance. Additionally, Gagné and Deci (2005) proposed an interactive effect of external job factors and work climates on autonomous motivation. Based on these findings, behavior control is proposed as a moderator and is expected to moderate the effect of SNA on intrinsic motivation and external regulation. Following the general findings that behavior control negatively impacts outcomes, the interactive effect is suggested to be negative for intrinsic motivation and positive for the relation with external regulation. The following hypothesis are formulated:

Hypothesis 3a: SNA mediates the positive effect of the availability of FWAs on intrinsic work motivation, especially when behavior control is low.

Hypothesis 3b: SNA mediates the positive effect of the actual use of FWAs on intrinsic work motivation, especially when behavior control is low.

Hypothesis 3c: SNA mediates the negative effect of the availability of FWAs on extrinsic work motivation, especially when behavior control is low.

Hypothesis 3d: SNA mediates the negative effect of the actual use of FWAs on extrinsic work motivation, especially when behavior control is low.

In conclusion, this diploma thesis hopes to contribute to the understanding of the motivational effects of flexible work arrangements and the influence of behavior control by answering the two stated research questions. The proposed hypotheses connected to these questions are displayed in figure 3.

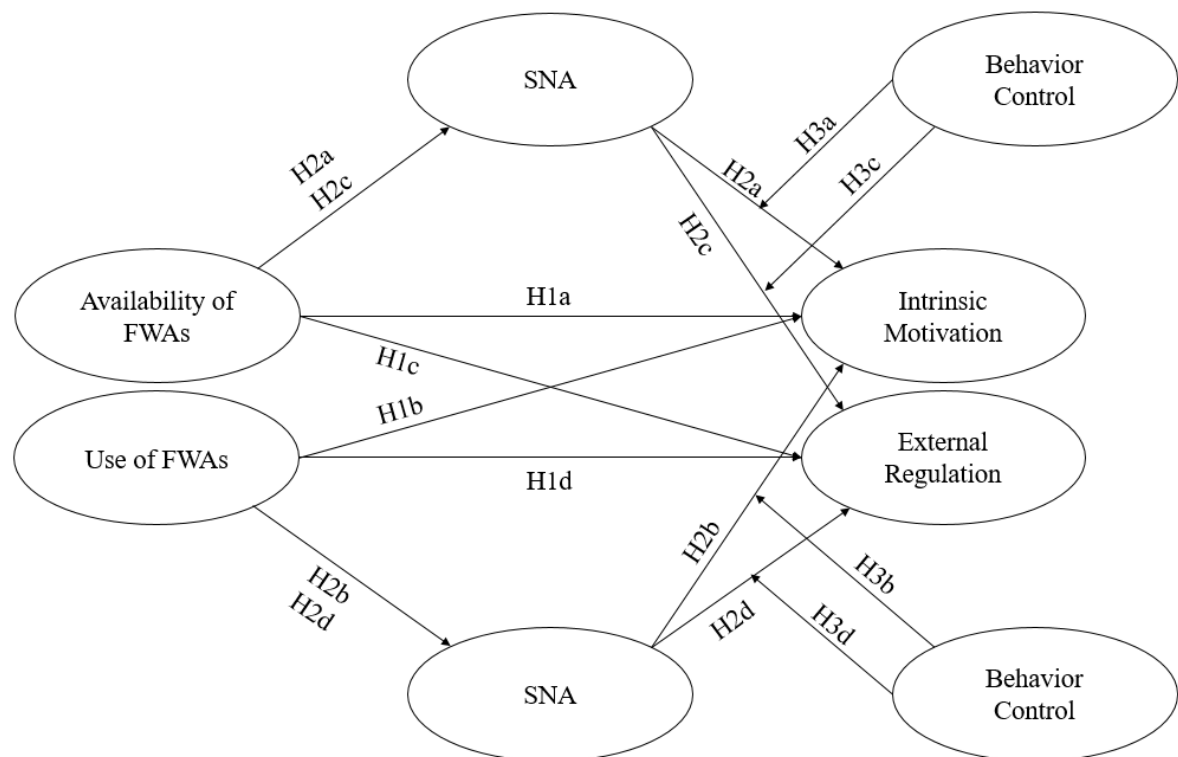


Figure 3. Research model with all proposed hypotheses.

3. Method

3.1. Procedure and Sample

For this study, a sample of 100 participants was assumed to be sufficient to receive significant results for the proposed effects. Studies that examined some of the effects proposed in this diploma thesis (e.g. Gagné et al., 2014; Hill et al., 2003) have reported effects around medium to large sizes ($\sim .3 - .6$), so according to Cohen (1992) the N for the sample should be at least 85 participants. Furthermore, the main part of the questionnaire consisted of 14 variables and as 10 – 15 participants per variable are most often proposed (Field, 2009), the targeted sample size of 100 participants met the requirements for this study.

The questionnaire was constructed and administered with Unipark, an online survey development software from Questback GmbH. A filter was set up so only participants who reported to work at least part-time with a minimum of 15 hours per week were allowed to participate. The sample was a convenience sample raised in the personal environment of the author. All persons who were personally invited engaged in knowledge work and were asked to distribute the invitation among coworkers, family, and friends. Participation in the study was explicitly voluntary for all respondents, including those invited by their superior.

At the beginning of the questionnaire all participants had to fill out the filter question mentioned above, which could not be skipped. Persons who were filtered out at this point were presented a thank you note, the rest was forwarded to the main part of the questionnaire. The questionnaire consisted of 80 items, of which 33 were relevant to this study. The first part covered the availability and actual use of flexible work arrangements, and continued with items about organizational behavior control. Next, participants were asked to fill out questions about their satisfaction of the need for autonomy at work, measured with the work-related basic need satisfaction scale (W-BNS) by Broeck, Vansteenkiste, Witte, Soenens, and Lens (2010). Following, externally regulated and intrinsic work motivation were assessed with the multidimensional work motivation scale (MWMS) by Gagné et al. (2014). The questionnaire concluded with questions about the participant's demographic data.

The survey took place from 7th May – 5th August 2015. During this period a total of 115 valid data sets were raised. Samples with missings in important variables were excluded from all analyses. 113 participants provided complete data over all variables, one person did not specify their tenure at the current organization, their working hours according to their

contract, their actual working hours and whether or not they occupied a leading position. Another person did not provide any demographic data.

The sample consisted of 52 males (45.2%) and 62 females (53.9%) and was on average 38.76 years old ($SD = 11.42$), with a range of 23 – 63 years. Regarding the educational level, 59 people (51.3%) of the sample had a university degree, 28 (24.3%) graduated from high school, 18 (15.7%) from secondary school, eight successfully completed vocational school and one person left compulsory school with a graduation. 87 participants (75.7%) worked at least 38 hours per week and were thus full-time employees, 28 persons stated that they were part-time employed, working between 15 and 37 hours per week. The mean working hours per week according to contract were 37.22 hours ($SD = 7.44$) with a range of 14 – 60. The actual working hours per week were 41.23 hours ($SD = 10.08$) on average with a range of 17 – 96 hours. Of the 115 participants, 30 persons said to occupy a leading position, while 83 people reported that they did not, and two did not specify their position.

3.2. Materials

Availability of FWA: In this study, the availability of flexible work arrangements was measured with a new scale developed by the faculty of work and organizational psychology of the University of Vienna. The scale is based on the Flexible Work Arrangement Availability scale by Shockley and Allen (2007). It measures the flexibility that is permitted by the participant's employer and consists of four items, for example, "My employer permits me to change my work place so it matches my personal preferences and needs." Responses are made on a five-point Likert scale ranging from 1 (*never*) to 5 (*always*).

Used FWA: The participant's actual use of flexible work arrangements is assessed with a new scale developed by the faculty of work and organizational psychology of the University of Vienna. The scale is an adaption of the Flexible Work Arrangement Availability scale by Shockley and Allen (2007). Four items ask for used flexibility, an exemplary question is "In fact I assign my working hours flexibly," which can be responded to on a five-point Likert scale ranging from 1 (*never*) to 5 (*always*).

Satisfaction of the Need for Autonomy: SNA was measured using the Work-related Basic Need Satisfaction scale (W-BNS) by Broeck, Vansteenkiste, Witte, Soenens, and Lens (2010). This scale was constructed with the goal of supporting more elaborate work related research on the effects of human's basic psychological needs as proposed by the Self-Determination Theory (see for example Deci et al., 1989; Gagné & Deci, 2005; Ryan &

Deci, 2000). The scale consists of three sub scales for relatedness, competence and autonomy. The latter was used for this study, which measures the satisfaction of the need for autonomy with six items, for example, “I feel free to do my job the way I think it could best be done.” Participants could answer on a five-point Likert scale ranging from 1 (*totally disagree*) to 5 (*totally agree*). The original scale showed a good reliability of .81.

Behavior Control: The amount of perceived behavior control exerted by the employer was measured with a three-item scale that was developed for this study. The items were “My superior constantly monitors my work progress”, “I permanently have to signal my virtual ‘presence’” and “My work steps are electronically registered” and are answered on a five-point Likert scale ranging from 1 (*not at all*) to 5 (*completely*).

Work Motivation: The Multidimensional Work Motivation scale (MWMS; Gagné et al., 2014) was developed in order to be able to use the self-determination theory in work-related subjects and measures the different forms of motivation as they are stated in SDT. The scale consists of six sub scales, covering different degrees of motivation between amotivation and intrinsic motivation. For this study, the subscales for the material aspect of external regulation and intrinsic motivation were used. The stem for all items was “Why do you or would you put efforts into your current job?” The material facet of external regulation was measured with three items, for example “Because others will reward me financially only if I put enough effort in my job (e.g., employer, supervisor ...).” Participants could respond on a seven-point Likert scale ranging from 1 (*not at all*) to 7 (*completely*). Three items measured intrinsic motivation, for instance “Because what I do in my work is exciting.” All responses were made on a seven-point Likert scale ranging from 1 (*not at all*) to 7 (*completely*). The original alpha coefficients of these scales were .91 for intrinsic motivation and .80 for external regulation.

3.3. Data Analysis

Prior to all statistical procedures all scales were standardized and mean centered. Before the main data analysis principal component analyses were performed for all multiple item scales. This was done to make sure that in the given sample all scales loaded only on their appropriate factors. For the main part of the analysis a linear regression was performed to examine the main effects proposed in hypothesis 1. All mediation and moderated mediation analyses were performed using the PROCESS macro for SPSS by Hayes (2014). Additionally, a simple slope analysis was used to test whether the interactive effects of the moderations were significant or not.

4. Results

In the first part of this section, the reliabilities of all scales are reported, as well as descriptive statistics and intercorrelations between scales and demographic variables. In the next step, the results of hypotheses testing are presented.

4.1. Reliabilities and Intercorrelations

The reliabilities of all scales showed sufficient values in the current sample. With two exceptions all scales showed a Cronbach's α of .80 or above, which according to Bortz and Döring (2006) is an indicator of good reliability. The scale measuring behavior control, which was constructed for the purpose of this study, had an initial Cronbach's α of .64. The third item of this three item scale showed inter-item-correlations of $r(N = 115) = .30$ and below, which suggests that the item in question should be excluded (Field, 2009). By eliminating this item, Cronbach's α was increased to .80. The scale for external regulation showed a reliability of .78, which is an acceptable value according to Field (2009). Thus, all scales used in this study can be considered sufficiently reliable. The exact values of Cronbach's α for each scale can be found in Table 1.

Table 1. Reliabilities of scales. $N = 115$.

Scale	Cronbach's α	No. of items
Availability of FWAs	.80	4
Use of FWAs	.82	4
SNA	.80	6
Behavior Control	.80	2
External Regulation	.78	3
Intrinsic Motivation	.91	3

Means, standard deviations, and Pearson's product-moment correlation coefficients of all variables utilized for hypothesis testing, as well as demographic variables, are displayed in Table 2 below.

Table 2. Descriptive statistics and Pearson product-moment correlation coefficients ($N = 114$ for columns 1, 2 and 3, $N = 115$ for all remaining columns).

	Variable	Mean	SD	1	2	3	4	5	6	7	8
1	Gender	1.54	0.50								
2	Education	4.19	1.00	.07							
3	Tenure	17.55	12.74	.02	-.37**						
4	Availability of FWAs	3.02	0.97	-.10	.02	.04					
5	Use of FWAs	2.69	0.90	-.15	.14	-.05	.79**				
6	SNA	3.56	0.66	.02	.04	.09	.25**	.19*			
7	Behavior Control	2.08	0.97	.04	-.08	.02	-.23*	-.27**	-.50**		
8	External Regulation	3.60	1.51	-.15	.06	.10	-.05	-.05	-.19*	.11	
9	Intrinsic Motivation	5.76	1.06	-.06	.09	.01	.22*	.27**	.59**	-.23*	-.12

Note: Gender (1 = male, 2 = female); Education (1 = compulsory school, 2 = vocational school, 3 = middle school, 4 = high school, 5 = university); * $p < .05$, ** $p < .01$.

Gender, education and tenure, which were all in question for possible control variables, had no significant correlation with any of the other variables of this study. Intrinsic motivation, however, showed significant relations with every other variable except for external regulation. Correlation coefficients ranged between $r = .22$ for the availability of flexible work arrangements, and $r = .27$ for actually used FWAs, behavior control being the only variable with a negative coefficient of $r = -.23$. As they all below .30, they are considered small effects (Field, 2009). However, a large effect could be observed between intrinsic motivation and SNA, with $r = .59$.

SNA ($M = 3.56$, $SD = 0.66$), the proposed mediator in this study, had small effects for both flexibility scales and external regulation, and large effects for behavior control ($r = -.50$) and intrinsic motivation.

External regulation and intrinsic motivation were the only scales measured with a seven-point Likert scale and thus should naturally have a higher mean and standard deviation than the others. Even when accounting for this, the mean for intrinsic motivation was very high with $M = 5.76$ and showed a comparatively low standard deviation ($SD = 1.06$). SNA also had a high mean ($M = 3.56$) and showed the lowest standard deviation of all variables ($SD = 0.66$).

4.2. Hypotheses Testing

The hypotheses were tested using linear regression models for the proposed main effects (H1abcd) and the PROCESS macro for SPSS (Hayes, 2014) to analyze mediating (H2abcd) and moderating (H3ab) effects. Prior to the actual hypotheses testing, linearity, normal distribution of residuals and homoscedasticity were checked by a graphical analysis of the residual plots. These assumptions could be confirmed, and the concern of multicollinearity could be discarded, as the variance inflation factor (VIF) was well below 10, and the tolerance was above the critical value of 0.2 (Field, 2009). Normal distribution for all scales was assumed, as the sample size was well above 30 (Bortz & Döring, 2006).

4.2.1. Main Effects (H1abcd)

The first hypothesis suggested that the possibility to use flexible work arrangements had a significant positive impact on intrinsic motivation. In order to test this model a linear regression analysis was conducted and explained a significant part of variance in intrinsic motivation ($R^2 = .049$, $F = 5.602$, $p < .05$). As proposed, the possibility to use flexible work

arrangements had a significant positive influence on intrinsic motivation ($\beta = .22, p < .05$), therefore H1a is accepted. A summary of the analysis is displayed in Table 3.

Table 3. Main effect on intrinsic motivation (H1a).

	B	SE B	β
Constant	0.00	.09	
Availability of FWAs	.22	.09	.22*

Note: $R^2 = .049$. * $p < .05$.

Hypothesis H1b postulated a significant positive influence of the use of flexible work arrangements on intrinsic motivation. To test this effect, a linear regression analysis was performed. The results showed that the use of flexible work explains a significant amount of the variance in intrinsic motivation ($R^2 = .073, F = 8.877, p < .01$). As proposed, high use of flexible work arrangements predicted higher values of intrinsic motivation ($\beta = .27, p < .01$) and thus supported the hypothesis. Main results are displayed in Table 4.

Table 4. Main effect on intrinsic motivation (H1b).

	B	SE B	β
Constant	0.00	.09	
Use of FWAs	.27	.09	.27**

Note: $R^2 = .073$. ** $p < .01$.

Hypothesis 1c proposed a significant negative relation between the availability of FWAs and external regulation. A linear regression analysis showed no significant effect ($R^2 = .002, F = 0.273, p > .05$), thus hypothesis H1c was rejected.

The fourth hypothesis claimed a negative effect of actually used FWA on external regulation. A linear regression analysis was run to examine this effect, but showed no significant results ($R^2 = .003, F = 0.320, p > .05$), and therefore did not support the hypothesis.

4.2.2. Mediating Effect of SNA (H2abcd)

Hypothesis 2 suggested SNA as a mediator between workplace flexibility and motivation quality. Before the actual mediation analysis, linear regression models were tested for each path separately. For the indirect effect, both available and used flexible work arrangements were significant predictors of SNA ($\beta = .25, p < .01$ for possible flexibility, $\beta = .19, p < .05$ for used flexibility). Satisfaction of the need for autonomy itself was also a significant predictor of motivation quality, showing a large positive effect on intrinsic motivation ($\beta = .59, p < .001$) and a small negative influence on external regulation ($\beta = -.19, p < .05$).

As seen in Figure 4 the mediation analysis for H2a showed a standardized total effect size of $\beta = .22$ ($p < .05$). The indirect effect was $\beta = .14$ and as bootstrapping with 1000 samples showed a confidence interval of 95% between .02 and .33 it was statistically significant. The direct effect of the availability of FWAs was $\beta = .08$, though not significant, thus SNA fully mediated the effect on intrinsic motivation. Hypothesis H2a was accepted.

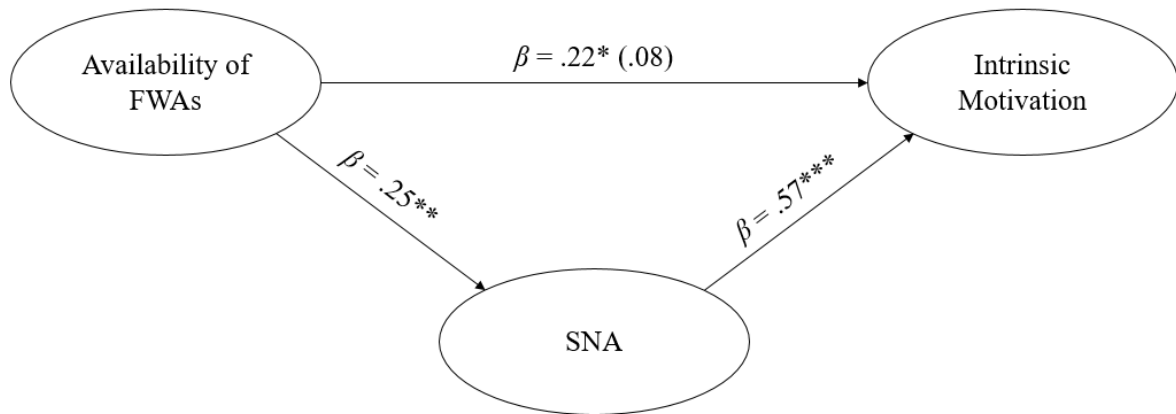


Figure 4. Mediation analysis for H2a. * $p < .05$, ** $p < .01$, *** $p < .001$.

Hypothesis H2b suggested a mediating role of SNA between the use of FWAs and intrinsic motivation. As Figure 5 shows, there is a significant total effect ($\beta = .05, p < .01$) with an indirect effect of $\beta = .11$. As the confidence interval, computed with bootstrapping 1000 samples, did not include zero, the effect was significant. The direct effect of used workplace flexibility on intrinsic motivation remains significant ($\beta = .16, p < .05$), hence satisfaction of the need for autonomy partially mediated the relationship.

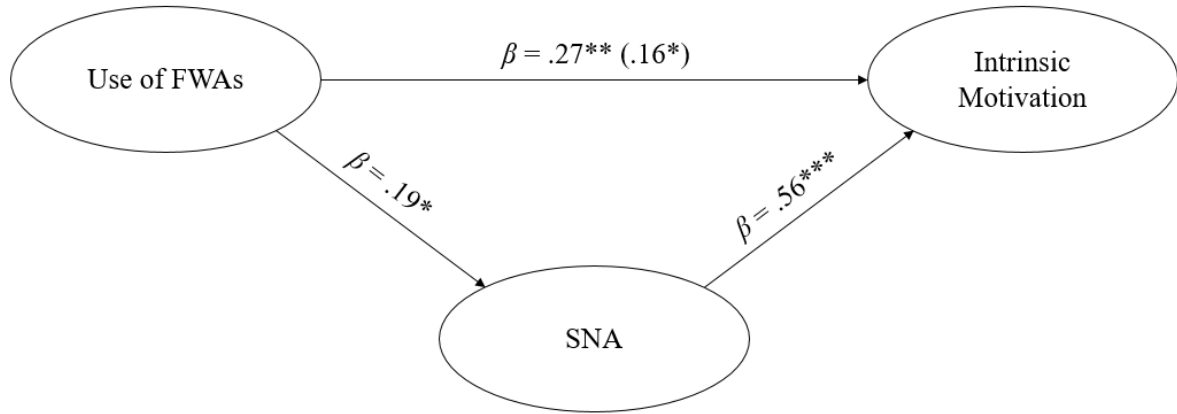


Figure 5. Mediation analysis for Hypothesis H2b. * $p < .05$, ** $p < .01$, *** $p < .001$.

Testing procedures for hypothesis H2c, which proposed satisfaction of the need for autonomy as a mediator between possible workplace flexibility and external regulation, showed a statistically insignificant total effect of $\beta = .05$. Therefore, the hypothesis was rejected.

Mediation analysis for hypothesis H2d showed no statistically relevant results. The main effect was not significant and thus no mediation was found. Hence, the hypothesis was not supported.

4.2.3. Moderating Effect of Behavior Control (H3abcd)

Hypothesis 3 proposed behavior control as a moderator, influencing the relationship between the SNA and motivation quality. Embedded in the mediation, it is expected to moderate the indirect effect of FWAs on motivation quality at different levels of behavior control. In a first step, only the moderation was examined to gain insight into the direction of the interaction. In the next step, the complete moderated mediation models were tested.

While behavior control did not have a statistically relevant direct effect on the dependent variable ($\beta = .15, p > .05$, as shown in Table 5 it did moderate the relation between SNA and intrinsic motivation significantly ($\beta = .15, p < .05$).

Table 5. Moderation analysis for intrinsic motivation ($N = 115$).

	SE	β
Constant	.08	.08
Behavior Control	.09	.15
SNA	.09	.61***
Behavior Control x SNA	.07	.15*

Note: $R^2 = .37$; * $p < .05$; *** $p < .001$.

Figure 6 further illustrates the moderating effect of behavior control. While satisfaction of the need for autonomy was low, the average value of intrinsic motivation ranged at about 0.5 standard deviations below average for all levels of the moderator. However, at higher values of behavior control, the influence of SNA on the dependent variable is significantly increased, leading to higher average values up to one standard deviation above the mean. A simple slope analysis showed statistically significant slopes at low ($\beta = .46$, $p < .001$), medium ($\beta = .61$, $p < .001$) and high levels ($\beta = .76$, $p < .001$) of behavior control.

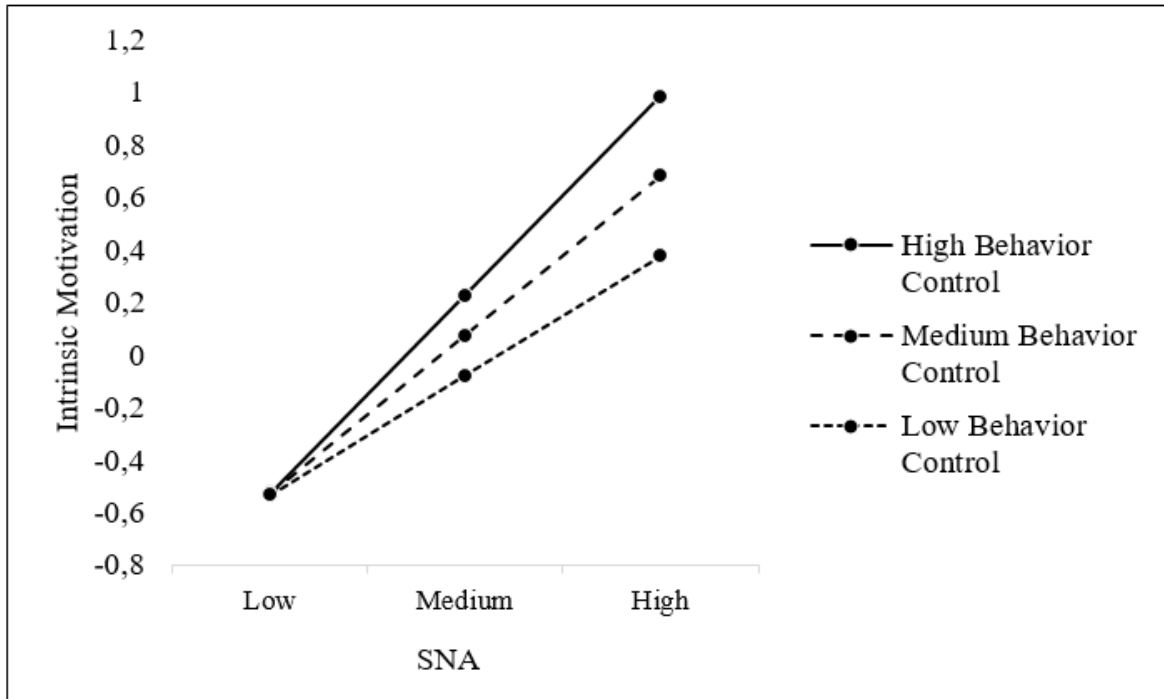


Figure 6. Moderation graph for intrinsic motivation.

Table 6 presents the results of the moderation analysis involving behavior control as a moderator between satisfaction of the need for autonomy and external regulation. The interactive effect is significant ($\beta = .18, p < .05$), influencing the main effect of SNA.

Table 6. Moderation analysis for external regulation ($N = 115$).

	SE	β
Constant	.10	.09
Behavior Control	.11	.10
SNA	.11	-.21*
Behavior Control x SNA	.09	.18*

Note: $R^2 = .07$; * $p < .05$.

Interactions of the moderation are depicted in Figure 7. At high levels of behavior control, SNA had no effect on external regulation, as the simple slope analysis showed no significant slope ($\beta = -.03, p > .05$) at one standard deviation above the mean. However, if

behavior control was lower, SNA had an increasingly negative effect on external regulation. For average values of behavior control the effect was $\beta = -.21, p < .05$, and at one standard deviation below average the effect of SNA was at $\beta = -.40, p < .01$.

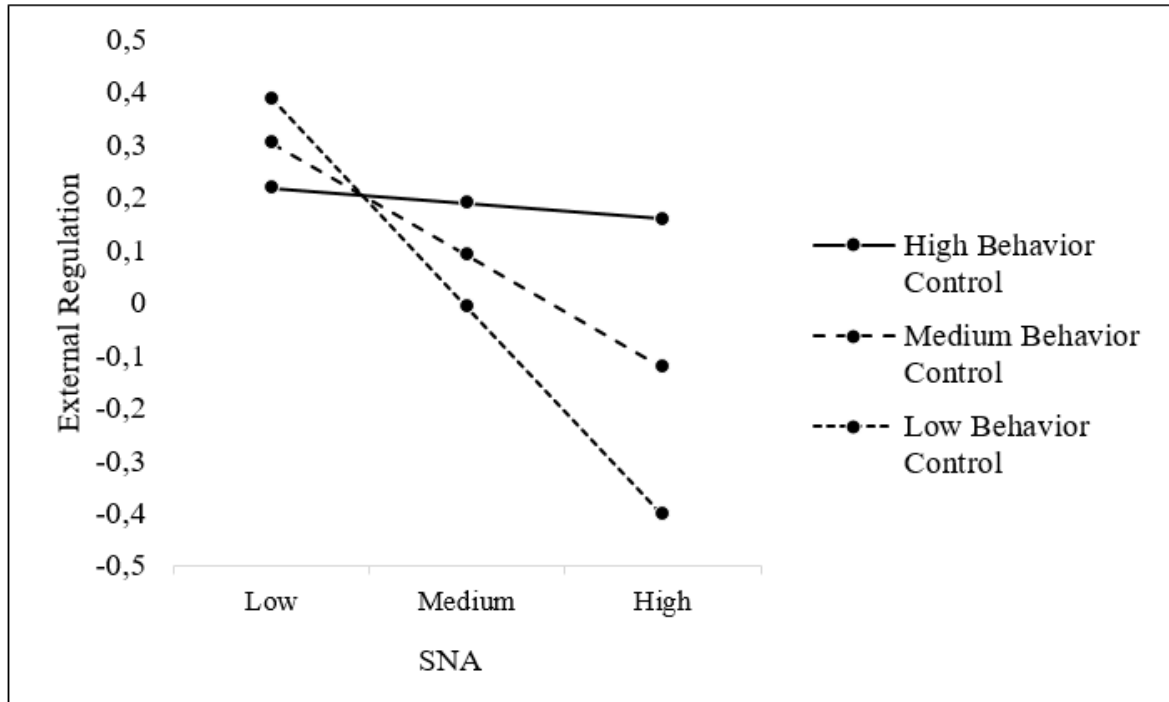


Figure 7. Moderation graph for external regulation.

After this initial analysis of the moderating effect of behavior control, the moderator was integrated into the mediation model to examine the influence on the indirect effects of FWAs. For hypothesis H3a, the results are displayed in Figure 8. The direct effect of the availability of FWAs was not significant for this model ($\beta = -.12, p > .05$), similar to the findings for hypothesis H2a. At low levels of behavior control, the indirect effect on external regulation was $\beta = .10, \beta = .14$ at average values, and $\beta = .18$ if behavior control was one standard deviation above the mean. Bootstrapping with 1000 samples showed that the confidence intervals for these effects did not include zero and were therefore significant. These results indicated a fully mediated effect, however, the effects were in the opposite direction of the hypothesized outcome. Hence, hypothesis 3a was discarded.

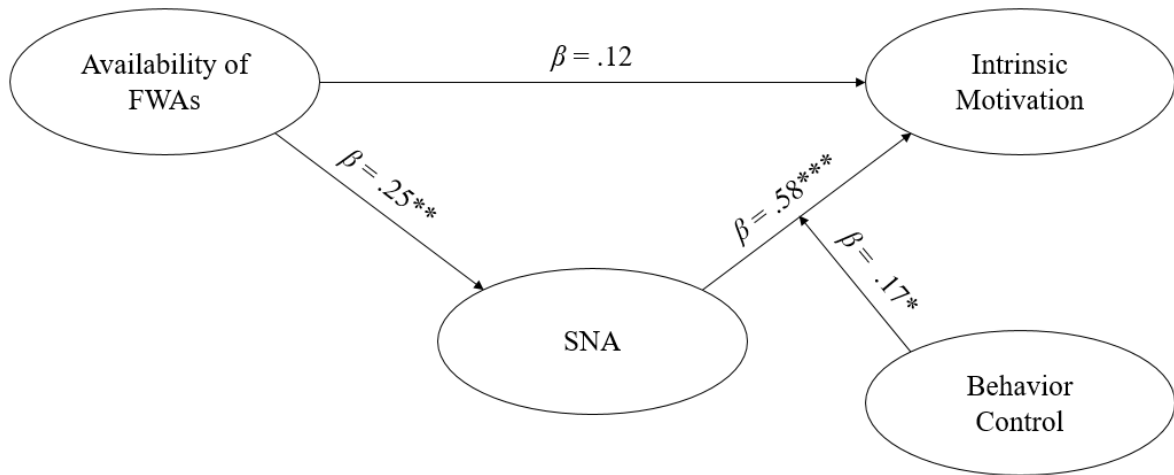


Figure 8. Moderated mediation analysis for Hypothesis H3a.

Hypothesis H3b suggested that behavior control moderates the mediating effect of SNA between used FWAs and intrinsic motivation. The outcomes of the moderated mediation analysis supported this assumption, as the interaction between behavior control and SNA significantly influenced the indirect effect the use of FWAs had on intrinsic motivation. However, the effects were pointed at the opposite direction, similar to the findings for hypothesis H3a. At low values of behavior control the indirect effect amounted to $\beta = .08$, increased to .11 at average levels of the moderator, and rose to .14 when behavior control was one *SD* above the mean. All indirect effects were tested with bootstrapping, after computing 1000 samples, no confidence intervals included zero. Similar to hypothesis H2b, the mediation is only partial, as the direct effect remained significant. The hypothesis was rejected, however, as the direction of the observed effects did not meet the expected results. A graphical summary of the results is presented in Figure 9.

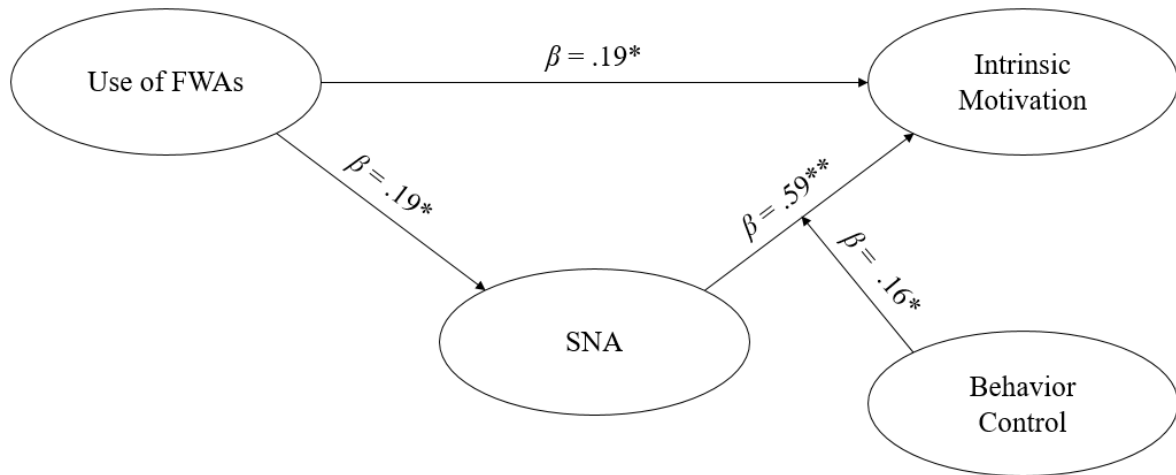


Figure 9. Moderated mediation analysis for Hypothesis H3b.

While the indirect effect of available FWAs on external regulation was not significant for hypothesis H2c, results were different when accounting for the moderation. At low levels of behavior control possible flexibility influenced external regulation significantly ($\beta = .10$). The same applied to average behavior control, although the indirect effect decreased by half ($\beta = .05$). No effects were observed at values of the moderator one standard deviation above the mean. Hypothesis H3c was supported by these results, which are also presented in Figure 10.

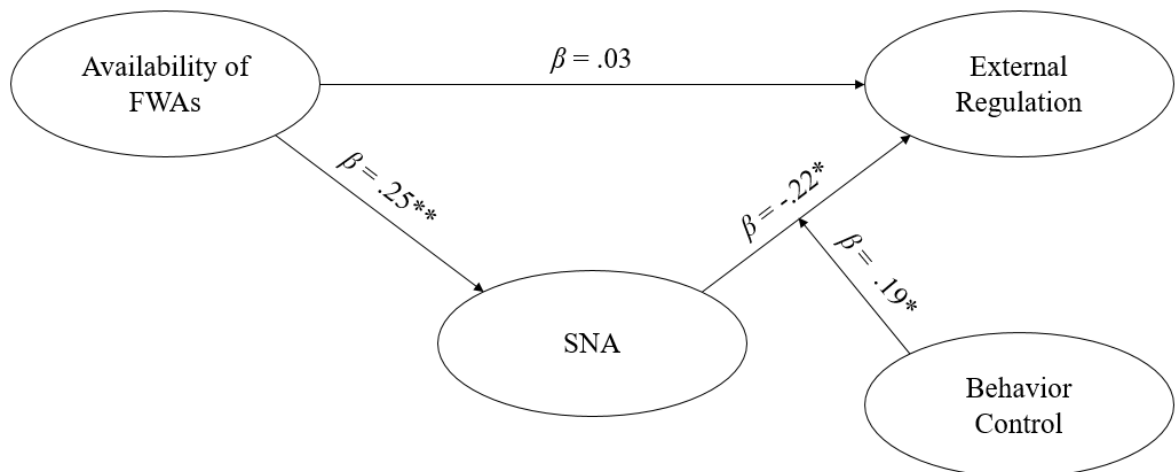


Figure 10. Moderated mediation analysis for Hypothesis H3c.

Significant indirect effects also occurred between used flexible work arrangements and external regulation as long as behavior control was average ($\beta = -.08$) or low ($\beta = -.04$).

Hypothesis H3d proposed such an effect and was therefore supported. The main results are graphically presented in Figure 11.

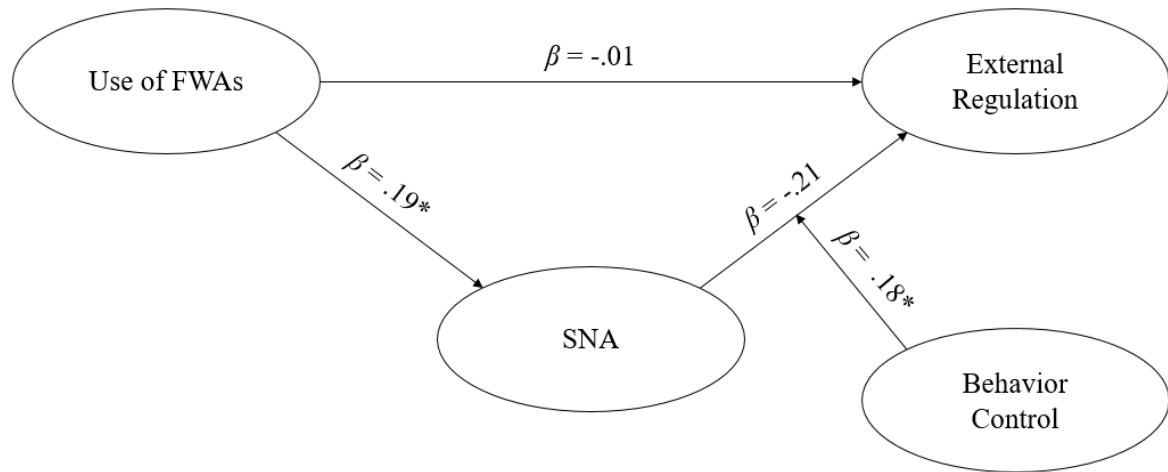


Figure 11. Moderated mediation analysis for Hypothesis H3d.

4.3. Research Model with Supported Hypotheses

After examining the postulated hypotheses, the original research model was adapted to reflect the findings in this study. Figure 12 visualizes the model with all supported hypotheses.

H1a and H1b were fully supported, as both possible and used workplace flexibility significantly predicted intrinsic motivation. Hypotheses H2a and H2b suggested the satisfaction of the need for autonomy as a mediator and both were accepted, as a full mediation was found for the availability of FWAs and a partial mediation for actually used FWAs. Hypotheses H3a, H3b, H3c and H3d proposed behavior control as a moderator and results were significant in all four cases. However, the direction of the effects did not meet the expectations for hypotheses 3a and 3b. Although there were no direct or indirect effects for external regulation found in H2c and H2d, results for H3c and H3d were significant for medium to low levels of behavior control.

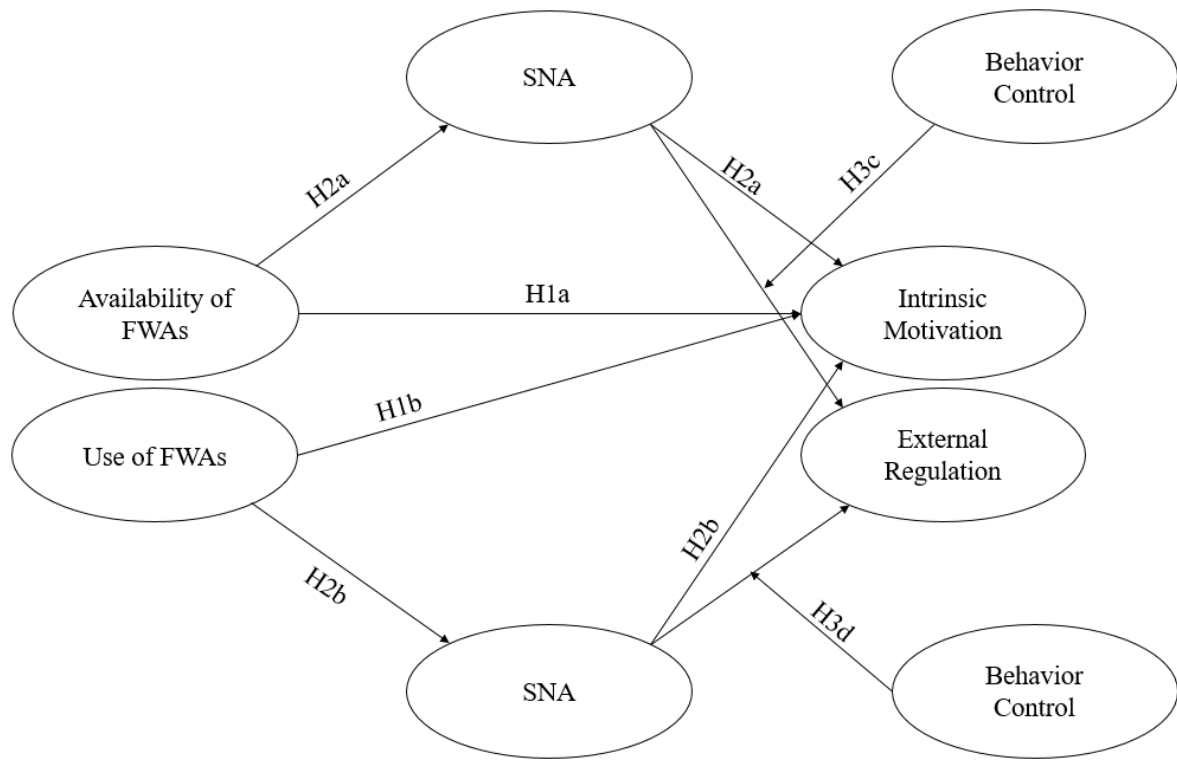


Figure 12. Adapted research model with all supported hypotheses.

5. Discussion

5.1. Summary of Results

This diploma thesis investigated whether working in a flexible work arrangement had an impact on the levels of intrinsic motivation and external regulation of workers, and if such an effect was mediated by increased satisfaction of the need for autonomy. Additionally, it was suggested that behavior control moderates between SNA and motivation and has an impact on the indirect effect of the mediation. This study relied on self-determination theory (Deci et al., 1989; Gagné & Deci, 2005) as the theoretical framework to explain how FWAs affected motivation. It was proposed that working in an organization with an opportunity to use flexible work arrangements would facilitate the internalization of extrinsic motivation and decrease the level of externally regulated behavior by supporting SNA. At the same time, elevated SNA would foster autonomous regulation and enhance intrinsic motivation in employees which leads to a variety of desired beneficial outcomes for employees as well as organizations. It was proposed that the amount of behavior control that workers were exposed to at their job would have an interactive effect on the relation between SNA and motivation, also affecting the indirect effect of flexible work on motivation. Studies suggested a negative impact on motivation and it was therefore expected to weaken the positive effect of SNA.

The predictive value of possible and used workplace flexibility on external and intrinsic motivation was tested (hypotheses 1a-d). The results of the linear regression analyses were as expected for intrinsic motivation, with small effect sizes for FWA availability and for workers who actually made use of such policies. This indicates a positive correlation between both variables and shows that flexible workers might indeed have higher intrinsic motivation than those not having the option of flexible work arrangements. This in turn would then lead to the observed positive effects of intrinsic motivation.

For extrinsic motivation however, the linear regression did not produce meaningful results. The effect sizes for availability as well as use of flexibility were both insignificant. This was unexpected as it appears that a FWA did not affect the employees' level of externally motivated behavior at work at all. Internalization is a central part of SDT which postulates that this process is facilitated by need satisfaction. As previously externally regulated behavior is taken in and undergoes introjection, identification or integration, it is expected that the total amount of externally regulated behavior at work should decrease simultaneously. Therefore, as it was assumed that FWAs promoted need satisfaction, it was

suggested that the frequent possibility to work flexibly would be related to lower levels of external regulation. The data showed that this was not the case. However, there are several possible explanations for this finding.

First, the reason could be a sample error, for example variables could be insufficiently variant and thus produce no effects. This was not the case, as both variables were normally distributed and showed a satisfactory amount of variance.

Secondly, SDT proposes that internalization takes place only if the individual has a feeling of competence and relatedness about the task. SNA then determines the degree of internalization, namely introjection, identification or integration. As this diploma thesis focused on satisfaction of the need for autonomy as a mediator, it was the only need satisfaction that was measured. Therefore, the reason that no measurable effects of internalization were detected could have been caused by the absence of either competence or relatedness.

Another reason could have been measurement errors. The scale for external regulation was taken from the Multidimensional Work Motivation Scale by Gagné et al. (2014), which is a new development and to date, there is little further evidence that supports its validity and reliability. The reliability for the current sample showed acceptable results (Cronbach's $\alpha = .78$) and there were no other statistical causes for concern in the present data. However, in the initial validation study for MWMS, Gagné et al. (2014) reported no significant correlations between any need satisfaction variable and external regulation. This could either indicate that the scale is not an adequate measurement for external regulation, so that changes in extrinsic motivation could only be observed in a longitudinal design, or that there is in fact no effect.

The measure for external regulation from the MWMS concentrates on the material aspect of external motivators, such as payment and job security. Thus, it can be concluded that people scoring high for external regulation put more effort into their job to earn money and to make sure that they keep their job because both are important factors to them. People with low values for money and job security have no reason to perform well, but in this case interpretation is much more difficult. It could mean that both are not meaningful to the individual and they do not care if they have either. However, it could also mean that they draw motivation to perform from other sources, as they no longer fear losing their job and/or they have enough money so losing their job is not an issue to them. Further, medium levels may only show that having a job and earning money is essential to people and it seems

natural that the effects of possible or used flexible work alone are negligible. Whether an increased SNA can influence this is examined in Hypothesis 2. In general, very high values can be considered the most interesting and deliver the most information, as the meaning of low values may be disputable.

Finally, there could be other variables inhibiting this effect. A moderating effect of behavior control was proposed in Hypothesis 3 and is discussed later.

Hypothesis 2 suggested SNA as a mediator for the effects of flexible work arrangements on work motivation. For the availability and use of FWAs, this effect could be verified, as the direct effect of the availability alone was not significant after considering the indirect effect through SNA and thus represents a full mediation. For the use of FWAs, the results were similar, although here the mediating effect was only partial. These findings supported the proposed hypotheses and were expected, as it was in line with the assumption of SDT that need satisfaction fosters autonomous motivation. The differences of the results between available and used FWAs are very interesting. They also confirm that FWAs can be viewed as being autonomy supportive work environments.

Using FWAs relates slightly lower to increased satisfaction of the need for autonomy than only having the option but not actually using it. This may be because having options mainly increases the sense of having choices and is therefore more strongly related to SNA. The use of FWA policies may instead emphasize other aspects more prominently, for example enhanced work-life balance, avoiding lengthy commutes, and a general change in how work is structured. The significant direct effect implied that these possible differences seemed to increase intrinsic motivation directly, as well as through an elevated satisfaction of the need for autonomy. As the option of FWAs alone does not directly affect work life, the effect on intrinsic motivation is indirectly achieved through increased SNA instead. Both results confirm that flexible work arrangements can be viewed as autonomy supportive for means of self-determination theory.

Since Hypotheses 1c and 1d did not yield significant results, it did not surprise that no significant mediating effect for the relation between either flexibility variable and external regulation was found. However, mediation analysis revealed that in contrast to the original publication (Gagné et al., 2014), there was at least a strong tendency for SNA to decrease external regulation. While the effect was small and only on the verge of statistical significance, it is still worth noting and could indicate that internalization of external

regulated behavior does take place, although the effect is too small to contribute meaningfully to the indirect influence of flexible work.

For hypothesis 3 it was proposed that behavior control acts as a moderator that influences the effects of SNA on motivation. It was expected that high levels of behavior control would weaken the negative effect on external motivation as well as the positive effect on intrinsic motivation, since a majority of research found mainly negative outcomes for behavior control. Behavior control proved to be a significant moderator in all four models, although not always in the expected direction.

It was found that at low levels of behavior control, SNA had a significant negative effect on external regulation. This indicates that the assumption made earlier, that externally regulated motivation should decrease as it is internalized, might be right. The indirect effect of possible and used workplace flexibility also reached significant values. Average levels of behavior control substantially reduced the moderated effect and approximately halved the indirect effect. If employees were exposed to high behavior control, the effect of NSA on external regulation, as well as the indirect effects were inhibited, and any level of SNA no longer had an influence on external regulation whatsoever.

In this particular analysis the relation between NSA and external regulation was also statistically significant. Why this should be the case has been argued, but in general, if something causes externally regulated motivation to be internalized, it should simultaneously decrease the amount of external regulation. There were several more aspects that should be noted though. First, there was a slight, although statistically insignificant, positive direct effect of behavior control that lead to modestly elevated external regulation. It can be concluded that constantly being monitored only lightly increased the motivational effect of tangible rewards or the fear of losing one's job, if at all. Second, and more importantly, performance monitoring seemed to prevent internalization. At levels one standard deviation above the mean it completely inhibited the negative effect of SNA. However, it was shown that, as long as behavior control was at moderate or low levels, SNA decreased potential job loss and tangible rewards as motivators. Although the discussed issues with interpreting low values of external regulation remain, it seems unlikely that increasing SNA would cause amotivation instead of internalization. However, this may have to be verified in future studies by controlling for internalized forms of motivation. Intrinsic motivation is not suited for this, as internalization does not lead to intrinsic motivation (see e.g. Deci et al., 1989; Gagné et al., 2005; Ryan & Deci, 2000)

While the previous findings were more or less expected, the moderated mediation analysis showed particularly surprising results for intrinsic motivation. As with external regulation, behavior control significantly moderated the relation between SNA and intrinsic motivation. However, the direction of this interaction raised some questions, as it contradicted not only the proposed direction, but basically every study concerning behavior control so far. The data showed that increasing amounts of performance monitoring enhanced the effects of SNA, leading to higher intrinsic motivation. While behavior control was low, the effect was of medium size, but surged to a large effect if behavior control was high. The observed indirect effects behaved similarly.

To be frank, the observed effects have not been reported before, and therefore they should be taken with a grain of salt. Further research is necessary to validate these findings or provide evidence against them. Explaining these results seems difficult, as they oppose everything that has commonly been related to performance monitoring. Positive outcomes have only been found for performance on simple tasks (Aiello & Kolb, 1995), but not yet for intrinsic motivation. In contrast, surveillance was found to undermine autonomy (Lepper & Greene, 1975), and Herzberg et al. (1959) listed surveillance practices among the hygiene factors, which by definition can only cause not being dissatisfied, but do not increase motivation. So how can performance monitoring enhance intrinsic motivation?

Koestner et al. (1984) proposed that whether an external factor has a positive or negative effect on intrinsic motivation is mainly determined by its perceived functional significance. There are two functional aspects, controlling and informational, that, depending on which is salient to the individual, predict the effect on intrinsic motivation. If the controlling aspect is salient, it involves a sense of pressure and coercion towards certain outcomes and the effects on intrinsic motivation are detrimental. A factor is perceived as being informational, if the general context is autonomous and the factor provides valuable feedback about one's own performance.

According to Stanton (2000b), the main purposes of performance data are informed personnel decisions and to provide feedback. Therefore, it can be argued that behavior control can be an enhancing factor for intrinsic motivation, if the setting is perceived as autonomous rather than controlling, and results in valuable feedback about the task. This notion is supported by both the job characteristics model and self-determination theory, which list feedback as an important motivational factor that enhances or even enables

intrinsic work motivation (Gagné & Deci, 2005; Hackman & Lawler, 1971; Hackman & Oldham, 1976).

Thus, it is proposed that behavior control may behave differently depending on the situation. Under the aforementioned conditions it may have the potential to foster intrinsic motivation, as long as the controlling aspect remains low. However, Koestner et al. (1984) said that the proposed effect only influences intrinsic motivation, and therefore behavior control can affect extrinsic motivation only either negatively or not at all. This is also supported by the present results.

Concluding, this study was able to answer the formulated research questions. It was found that flexible work arrangements increased intrinsic motivation, which correlated with the positive outcomes commonly associated with flexible work. It was also shown that this increase of intrinsic motivation was mainly mediated by enhanced SNA.

The role of behavior control was unexpected, but could be sufficiently explained and the effects were supported by established theories, under the assumption that certain conditions for behavior control were met. These findings could lead organizations to develop less intrusive behavior control methods, and use the collected performance data to give valuable feedback to employees. However, it is still suggested that organizations rethink their control systems for flexible workers in general, and perhaps follow the advice of Hartner-Tiefenthaler et al. (2014) to consider supporting normative control more vigorously.

5.2. Strengths and Limitations

Every study has its strengths and limitations, and so does this one. Flexible work arrangements are becoming more common these days and research on this matter is increasingly important to a rising population. Therefore, this diploma thesis is of high practical relevance to employees as well as organizations, as it gives implications on how behavior control can be adjusted to increase work motivation among employees. The new ways of working have the greatest effect on knowledge workers, as they are most likely to benefit from FWAs. The recruiting process for this study in general, as well as the unusually high education among the sample suggest that a considerable part of the participants engage in knowledge work, and therefore represent the targeted population. Furthermore, most of the studies conducted on behavior control, and especially EPM have been experimental designs. Although these designs have a high internal validity, their ecological validity is rather low, as they neglect many important aspects of work. Some studies concentrated on real work situations among facility workers or call center staff, but dedicated studies on

knowledge workers are still scarce. Additionally, the proposed model has a strong theoretical framework in self-determination theory, which has become an increasingly popular theory to evaluate work motivation. This study also tested a newly developed scale in the Multidimensional Work Motivation Scale (Gagné et al., 2014), which can be of relevance when evaluating the reliability and validity of this instrument. Most of the results were also consistent with prior research and theories which increases the meaningfulness of the outcomes.

However, this study also has its limitations and all results must be interpreted with these in mind. First and foremost, this diploma thesis suffers the typical disadvantages of cross sectional designs. Most importantly, the results are only based on correlations and regressions, and thus do not permit any causal statements about their effects. Secondly, influences of the common-method-bias cannot be ruled out, which may impact this study's validity.

The characteristics of the sample must also be taken into account when deriving implications from this study. The substantial proportion of highly educated participants also means that the results of this diploma thesis are only valid for the population of knowledge workers, and are not applicable to other forms of work. A high education also increases the ability to choose a job one enjoys, which could also greatly influence intrinsic motivation. Because some of the participants were invited to the questionnaire by their superior it is also possible that their responses may have been biased and led to artificial results. This might have been the case despite the introduction of the questionnaire clearly assuring complete anonymity for all respondents. Furthermore, the sample is rather small, which further limits the generalizability, and makes it more susceptible to random errors.

There have also been some problems with the measures that were used. The principal component analysis provided a two-factor-model for availability of flexible work arrangements. In order to retain reliability, the scale was not changed or split, which may have had an influence on all effects involving this scale. The current design also did not correctly separate between people who used FWAs and those who only had the option, but did not use it. Instead, as all people who used FWAs must also have had the option to do so, the results for FWA availability may have been biased. It may be advised to refine the measure in question to improve its factorial structure, while preserving good reliability. Although using new scales has the added benefit of providing evidence for or against the usefulness of the new measure, there is also a risk associated with this. Potential

shortcomings of the subscale for the material aspect of externally regulated behavior have already been discussed in detail (see section 5.1. Summary of Results).

Other problems were the low variance of intrinsic motivation and behavior control. Especially the former had a very high mean of 5.76 on a 7-point Likert scale and was heavily skewed towards the top end. Although this reflects the original results for the German version of this scale (Gagné et al., 2014), it might be the consequence of ceiling effects caused by the high education among the sample. Behavior control was also rather invariant, but leaned towards lower values.

Lastly, a potential weakness of the study may be the measure for behavior control. In addition to the previously mentioned problematic data structure, the initial reliability of behavior control was unacceptably low, which led to the deletion of one of three items. With only two items left, it is likely to neglect important aspects of performance monitoring that may impact its moderating effect. This is especially critical, as the results of this study were unexpected, and, although they can be explained using established theories and models, it can be argued that they are an artifact of measurement issues.

5.3. Implications for Future Research

The new ways of working have greatly changed how work is performed, and in order to fully use their potential it is vital to understand the way how NWW influence employees. This study contributed to this goal by providing a model that explains how flexible work arrangements impact external regulation and intrinsic motivation and tested the influence of behavior control on these relations.

For future research, several implications can be made to improve on the shortcomings of this study and to further examine the present results. As some of the findings of this study have contradicted previous research substantially, future efforts should be directed to repeat the present design and improve on some of its flaws to either validate or falsify the controversial results. One of the most basic improvements would be to include a more diverse measure for behavior control that differentiates between various behavior control methods. To have an indicator for whether these methods are experienced as controlling or informative, measures for the perceived fairness and intrusiveness of these measures could be included. To examine whether the data collected this way is in fact used to give more valuable feedback to employees, the quantity and quality of feedback should be included as well.

As FWAs enable employees to use temporal and spatial flexibility, future studies could also differentiate between these two flexibility forms and examine whether this distinction has an impact on SNA and motivation to further increase the understanding of this effect.

The theoretical framework for the proposed model is the self-determination theory. While the present study examined intrinsic motivation and the material aspect of external regulation, the social aspects of external regulation, introjection, identification, and integration were left out. Including these in future studies could lead to a better understanding of how FWAs contribute to work motivation. A longitudinal study would be desirable to obtain a more complete understanding of internalization in FWAs and to draw conclusions on causal effects.

Lastly, SDT suggests that for internalization to work properly, competence and relatedness are essential, and the degree to which a previously externally regulated behavior is then internalized solely depends on SNA. However, when the former two are not existent in the given work environment, the predictive value of SNA decreases greatly. Thus, including all three basic psychological needs into the study design could grant an even deeper insight into the motivational effects of flexible work.

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List of Tables

Table 1. Reliabilities of scales	28
Table 2. Descriptive statistics and Pearson product-moment correlation coefficients	29
Table 3. Main effect on intrinsic motivation (H1a)	31
Table 4. Main effect on intrinsic motivation (H1b)	31
Table 5. Moderation analysis for intrinsic motivation.....	34
Table 6. Moderation analysis for external regulation	35
Table 7. Principal component analysis: availability of FAW.	71
Table 8. Principal component analysis: used FWA.	72
Table 9. Principal component analysis: satisfaction of the need for autonomy.....	72
Table 10. Principal component analysis: behavior control.	73
Table 11. Principal component analysis: external regulation	74
Table 12. Principal component analysis: intrinsic motivation.....	74

List of Figures

Figure 1. Equation for motivating potential	13
Figure 2. The controlled-to-autonomous continuum of motivation	16
Figure 3. Research model with all proposed hypotheses.....	24
Figure 4. Mediation analysis for H2a	32
Figure 5. Mediation analysis for Hypothesis H2b	33
Figure 6. Moderation graph for intrinsic motivation	35
Figure 7. Moderation graph for external regulation	36
Figure 8. Moderated mediation analysis for Hypothesis H3a	37
Figure 9. Moderated mediation analysis for Hypothesis H3b	38
Figure 10. Moderated mediation analysis for Hypothesis H3c	38
Figure 11. Moderated mediation analysis for Hypothesis H3d	39
Figure 12. Adapted research model with all supported hypotheses	40



Flexible Arbeitswelten

KollegInnen - Studie

Sehr geehrte Damen und Herren!

Es freut uns, dass Sie an dieser Befragung teilnehmen.

Auf den folgenden Seiten finden Sie **Fragen** und **Aussagen** zu Ihrer **Arbeit**. Wir fragen Sie nach Einschätzungen Ihrer **Arbeitsbedingungen** und Ihrem **Wohlbefinden**. Sie sollen diese Fragen und Aussagen anhand vorgegebener Antwortalternativen beurteilen. Kreuzen Sie dazu bitte für jede Frage die Antwort an, die am ehesten auf Sie bzw. Ihre Arbeit zutrifft.

Selbstverständlich werden Ihre Angaben **streng vertraulich behandelt**. Es haben ausschließlich die Projektmitarbeiter und Projektmitarbeiterinnen der Universität Wien Einblick in die erhobenen Daten.

Bitte beachten Sie, dass wir Ihren Fragebogen nur dann verwerten können, wenn **Sie alle Fragen beantworten**.

Welches Angestelltenverhältnis trifft auf Sie zu?

- ☐ Vollzeit berufstätig (38+ Stunden)
- ☐ Teilzeit berufstätig (15+ Stunden)
- ☐ Teilzeit berufstätig (maximal 14 Stunden)
- ☐ Geringfügig beschäftigt (Minijob, 400-Euro-Job etc.)
- ☐ Derzeit ohne Beschäftigung
- ☐ RentnerIn (früher voll berufstätig)
- ☐ Nicht berufstätig

In welcher Branche arbeiten Sie?

- ☐ Land- und Forstwirtschaft, Fischerei
- ☐ Bergbau und Gewinnung von Steinen und Erden
- ☐ Verarbeitendes Gewerbe
- ☐ Energieversorgung
- ☐ Wasserversorgung; Abwasser- und Abfallentsorgung und Beseitigung von Umweltverschmutzungen
- ☐ Baugewerbe
- ☐ Handel; Instandhaltung und Reparatur von Kraftfahrzeugen
- ☐ Verkehr und Lagerei
- ☐ Gastgewerbe
- ☐ Information und Kommunikation
- ☐ Erbringung von Finanz- und Versicherungsdienstleistungen
- ☐ Grundstücks- und Wohnungswesen
- ☐ Erbringung von freiberuflichen, wissenschaftlichen und technischen Dienstleistungen
- ☐ Öffentliche Verwaltung, Verteidigung; Sozialversicherung
- ☐ Erziehung und Unterricht
- ☐ Gesundheits- und Sozialwesen
- ☐ Kunst, Unterhaltung und Erholung
- ☐ Hauspersonal in privaten Haushalten
- ☐ Exterritoriale Organisationen und Körperschaften
- ☐ Sonstige Branche (bitte eintragen): _____

Arbeitsbedingungen

Im folgenden Abschnitt finden Sie Fragen zu Ihren Arbeitsbedingungen.

Beantworten Sie die Fragen bitte für **Ihre aktuelle Arbeitstätigkeit**.

Die ersten Fragen behandeln, wie flexible Arbeitsbedingungen in Ihrem Unternehmen umgesetzt werden.

Der erste Teil der Fragen behandelt dabei, **was Ihr Arbeitgeber / Ihre Arbeitgeberin bzw. Ihre Organisation Ihnen ermöglicht**. Das heißt, dass es NICHT um Ihren Wunsch oder Ihr tatsächliches Verhalten, sondern um Vorgaben Ihres Arbeitgebers bzw. Ihrer Arbeitgeberin geht.

	Mein Arbeitgeber / Meine Arbeitgeberin ermöglicht mir...	Nie	Kaum	Teilweise	Häufig	Immer
FAM 1	...den Beginn und das Ende meiner Arbeitszeit meinen persönlichen Vorlieben und Bedürfnissen entsprechend zu ändern.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
FAM 2	...meinen Arbeitsort zu wechseln, sodass er an meine persönlichen Vorlieben und Bedürfnisse angepasst ist.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
FAM 3	...meine Arbeitszeit flexibel einzuteilen.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
FAM 4	...den Ort, an dem ich meine Arbeit ausführe, zu variieren.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

In diesem Teil der Fragen geht es nun darum, **wie flexibel Sie tatsächlich arbeiten**. Denn auch wenn etwas erlaubt ist, so muss dies nicht heißen, dass Sie dies auch anwenden. Zum Beispiel dürfen manche Personen ihren Arbeitsort variieren, arbeiten aber tatsächlich nur an ihrem Arbeitsplatz in der Firma.

	Tatsächlich...	Nie	Kaum	Teilweise	Häufig	Immer
FAN 1	...ändere ich den Beginn und das Ende meiner Arbeitszeit meinen persönlichen Vorlieben und Bedürfnissen entsprechend.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
FAN 2	...wechsle ich meinen Arbeitsort, sodass er an meine persönlichen Vorlieben und Bedürfnisse angepasst ist.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
FAN 3	...teile ich meine Arbeitszeit flexibel ein.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
FAN 4	...variieren ich den Ort, an dem ich meine Arbeit ausführe.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

	Inwiefern treffen die folgenden Aussagen auf Ihre Arbeit zu?	Gar nicht	Eher nicht	Teilweise	Überwiegend	Völlig
BC1	Mein Vorgesetzter / Meine Vorgesetzte kontrolliert permanent meinen Arbeitsfortschritt.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
BC2	Ich muss ständig meine virtuelle "Anwesenheit" signalisieren.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
BC3	Meine Arbeitsschritte werden elektronisch aufgezeichnet.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Arbeitserleben und Wohlbefinden

Im Folgenden finden Sie Fragen und Aussagen darüber, wie Sie Ihre Arbeit erleben, und über Ihr Wohlbefinden.

	Inwiefern treffen die folgenden Aussagen auf Sie zu?	Gar nicht	Eher nicht	Teilweise	Überwiegend	Völlig
NfA1	Bei der Arbeit habe ich das Gefühl, dass ich so sein kann wie ich bin.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
NfA2	Bei der Arbeit habe ich oft das Gefühl, den Befehlen anderer folgen zu müssen.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
NfA3	Wenn ich wählen könnte, würde ich Dinge bei der Arbeit anders machen.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
NfA4	Die Aufgaben, die ich bei der Arbeit erledigen muss, entsprechen dem, was ich wirklich machen will.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
NfA5	Ich habe die Freiheit meine Arbeit so auszuführen, wie ich glaube, dass es am besten ist.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
NfA6	Bei meiner Arbeit fühle ich mich dazu gezwungen Sachen zu tun, die ich nicht machen will.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Es gibt verschiedene Gründe dafür, sich anzustrengen und gute Arbeit zu leisten. Warum strengen Sie sich bei Ihrer Arbeit an? Bitte kreuzen Sie für jeden der Gründe an, wie sehr Sie der jeweiligen Aussage zustimmen.

Ich strenge mich bei der Arbeit an, ...	Stimme überhaupt nicht zu	Stimme nicht zu	Stimme eher nicht zu	Neutral	Stimme eher zu	Stimme zu	Stimme voll und ganz zu
--	---------------------------	-----------------	----------------------	---------	----------------	-----------	-------------------------

ERM 1	Weil andere mich nur dann finanziell belohnen, wenn ich mich anstrenge (z.B. ArbeitgeberIn, Vorgesetzte).	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
ERM 2	Weil andere mir größere Job-sicherheit bieten, wenn ich mich genug anstrenge (z.B. ArbeitgeberIn, Vorgesetzte).	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
ERM 3	Weil ich riskiere, meine Arbeit zu verlieren, wenn ich mich nicht genug anstrenge.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
IM1	Weil ich Spaß an meiner Arbeit habe.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
IM2	Weil das, was ich bei meiner Arbeit mache, spannend ist.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
IM3	Weil die Arbeit, die ich leiste, interessant ist.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

Angaben zu Ihrer Person

Alter _____ Jahre

Geschlecht ☐₁ Männlich ☐₂ Weiblich

Höchste abgeschlossene Schulbildung

☐₁ Pflichtschule/Hauptschule/Obligatorische Schule

☐₂ Lehrabschluss

☐₃ Fachschule/Mittlere Reife (Realschule)

☐₄ Matura/Abitur

☐₅ Universität/Fachhochschule

Wie lange sind Sie schon berufstätig?

_____ Jahr(e)

Wie lange sind Sie schon in **diesem Unternehmen** tätig?

_____ Jahr(e)

Wie viele **Stunden** beträgt Ihre **vertraglich vereinbarte Arbeitszeit pro Woche**
(gerundet, inkl. Mehrarbeit/Überstunden)?

_____ Stunden pro Woche

Wie viele **Stunden** arbeiten Sie **tatsächlich** durchschnittlich **pro Woche**
(inkl. Mehrarbeit/Überstunden)?

_____ Stunden pro Woche

Haben Sie **Führungsverantwortung**?

☐₁ Ja ☐₂ Nein

Vielen Dank für Ihre Teilnahme!

(Sie können das Fenster nun schließen.)

Appendix B – Index for Abbreviations

Index for abbreviations in the questionnaires

FAM	Availability of flexible work arrangements
FAN	Use of flexible work arrangements
NA	Satisfaction of the Need for Autonomy
ER-M	External Regulation
IM	Intrinsic Motivation
BC	Behavior Control

Appendix C – Factor Analyses

Availability of Flexible Work Arrangements

A principal component analysis was run in order to test whether all four items loaded on the same factor. The sample was adequate for this analysis, as a KMO value of .58 indicates a mediocre adequacy of the sample according to Field (2009). Bartlett's test of sphericity $\chi^2(15) = 264.84, p < .001$ also showed sufficient intercorrelations between items which suggests reliable results for a principal component analysis (Field, 2009). In an initial analysis, the eigenvalues of each component were obtained, of which two had an eigenvalue over Kaiser's criterion of 1 and explained 90.06% of the total variance. Factor loadings for availability of flexible work arrangements are presented in Table 7.

Table 7. Principal component analysis: availability of FAW.

Item No.	Item	Factors	
		1	2
FAM1	...den Beginn und das Ende meiner Arbeitszeit meinen persönlichen Vorlieben und Bedürfnissen entsprechend zu ändern.	.16	.92
FAM2	...meinen Arbeitsort zu wechseln, sodass er an meine persönlichen Vorlieben und Bedürfnisse angepasst ist.	.95	.17
FAM3	...meine Arbeitszeit flexibel einzuteilen.	.20	.91
FAM4	...den Ort, an dem ich meine Arbeit ausführe, zu variieren.	.95	.20
Eigenvalues		2.49	1.11
% of variance		62.25	27.86
Factor analysis with principal component analysis and varimax rotation.			

Use of Flexible Work Arrangements

A principal component analysis was run in order to test whether all four items loaded on the same factor. The sample was adequate for this analysis, as a KMO value of KMO = .62 indicates an acceptable sample according to Field (2009). Bartlett's test of sphericity $\chi^2(3) = 271.93, p < .001$ shows sufficient inter-item-correlations, hence conducting a principal component analysis for the three items was appropriate. In an initial analysis, the eigenvalues of each component were obtained, of which one had an eigenvalue over Kaiser's criterion of 1 and explained 65.05% of the total variance. Factor loadings for use of flexible work arrangements are presented in Table 8.

Table 8. Principal component analysis: used FWA.

Item No.	Item	Factor 1
FAN1	...ändere ich den Beginn und das Ende meiner Arbeitszeit meinen persönlichen Vorlieben und Bedürfnissen entsprechend.	.72
FAN2	...wechsle ich meinen Arbeitsort, sodass er an meine persönlichen Vorlieben und Bedürfnisse angepasst ist.	.83
FAN3	...teile ich meine Arbeitszeit flexibel ein.	.80
FAN4	...variieren ich den Ort, an dem ich meine Arbeit ausführe.	.87
Eigenvalues		2.60
% of variance		65.05
Factor analysis with principal component analysis.		

Satisfaction of the Need for Autonomy

To test whether all six items of the SNA scale loaded on the same factor, a principal component analysis was performed. Prior to this, the measures for the adequacy of the sample and inter-item-correlations were computed. The Kaiser-Meyer-Olkin value of .83 was considered great (Field, 2009) and implied an adequate sample, while Bartlett's test of sphericity $\chi^2 (15) = 189.86, p < .001$ showed satisfying intercorrelations for a principal component analysis. The latter resulted in a single factor with an eigenvalue over Kaiser's criterion of 1 and could be related to 50.91% of the variance. Factor loadings and eigenvalues for SNA are shown in Table 9.

Table 9. Principal component analysis: satisfaction of the need for autonomy.

Item No.	Item	Factor 1
NA1	Bei der Arbeit habe ich das Gefühl, dass ich so sein kann wie ich bin.	.69
NA2	Bei der Arbeit habe ich oft das Gefühl, den Befehlen anderer folgen zu müssen.	.69
NA3	Wenn ich wählen könnte, würde ich Dinge bei der Arbeit anders machen.	.75
NA4	Die Aufgaben, die ich bei der Arbeit erledigen muss, entsprechen dem, was ich wirklich machen will.	.69
NA5	Ich habe die Freiheit meine Arbeit so auszuführen, wie ich glaube, dass es am besten ist.	.73
NA6	Bei meiner Arbeit fühle ich mich dazu gezwungen Sachen zu tun, die ich nicht machen will.	.74
Eigenvalues		3.05
% of variance		50.91
Factor analysis with principal component analysis.		

Behavior Control

To verify that the three items of the behavior control scale measured the same, a principal component analysis was conducted. Before the actual analysis, the measures for the adequacy of the sample and inter-item-correlations were computed. The Kaiser-Meyer-Olkin value of .57 was mediocre, but acceptable (Field, 2009) and suggested an adequate sample. Bartlett's test of sphericity $\chi^2 (6) = 77.32, p < .001$ showed satisfying intercorrelations for a principal component analysis, which resulted in a single factor with an eigenvalue over Kaiser's criterion of 1 and could be related to 61.03% of the variance. Factor loadings and eigenvalues for behavior control are shown in Table 10.

Table 10. Principal component analysis: behavior control.

Item Nr.	Item	Factor 1
BC1	Mein Vorgesetzter / Meine Vorgesetzte kontrolliert permanent meinen Arbeitsfortschritt.	.88
BC2	Ich muss ständig meine virtuelle "Anwesenheit" signalisieren.	.86
BC3	Meine Arbeitsschritte werden elektronisch aufgezeichnet.	.57
	Eigenvalues	1.83
	% of variance	61.03
Factor analysis with principal component analysis.		

External Regulation

Another principal component analysis was performed for external regulation. As the Kaiser-Meyer-Olkin value of = .69 suggested, the sample was considered acceptably adequate (Field, 2009), while Bartlett's test of sphericity $\chi^2 (3) = 97.71, p < .001$ showed satisfying intercorrelations. A principal component analysis was resulted in a single factor with an eigenvalue higher than Kaiser's criterion of 1 and explained 69.67% of the total variance. Factor loadings for external regulation are presented in Table 11.

Table 11. Principal component analysis: external regulation.

Item Nr.	Item	Factor 1
ERM1	Weil andere mich nur dann finanziell belohnen, wenn ich mich anstrenge (z.B. ArbeitgeberIn, Vorgesetzte).	.83
ERM2	Weil andere mir größere Job-sicherheit bieten, wenn ich mich genug anstrenge (z.B. ArbeitgeberIn, Vorgesetzte).	.87
ERM3	Weil ich riskiere, meine Arbeit zu verlieren, wenn ich mich nicht genug anstrenge.	.81
Eigenvalues		2.09
% of variance		69.67
Factor analysis with principal component analysis.		

Intrinsic Motivation

For the intrinsic motivation scale another principal component analysis was run. The Kaiser-Meyer-Olkin value of .71 was considered a good value (Field, 2009), hence the sample was assumed to be adequate (Field, 2009). Bartlett's test of sphericity $\chi^2(3) = 263.36$, $p < .001$ showed satisfying intercorrelations, therefore a principal component analysis was run, which showed one factor with an eigenvalue higher than Kaiser's criterion of 1 and explained 84.97% of the total variance. Factor loadings for intrinsic motivation are presented in Table 11.

Table 12. Principal component analysis: intrinsic motivation.

Item Nr.	Item	Factor 1
IM1	Weil ich Spaß an meiner Arbeit habe.	.88
IM2	Weil das, was ich bei meiner Arbeit mache, spannend ist.	.95
IM3	Weil die Arbeit, die ich leiste, interessant ist.	.94
Eigenvalues		2.55
% of variance		84.97
Factor analysis with principal component analysis.		

Curriculum Vitae

Personal Data

Name	Martin Treppe
Date of Birth	25.05.1987
Nationality	Germany

Education

Since October 2008	Diplomstudium Psychologie , University Vienna
September 1997 – July 2007	Viktoriaschule Aachen, Aachen, DE
February 1996 – July 1997	Annaschule Aachen, Aachen, DE
March 1995 – February 1996	Thurston Elementary School, Ann Arbor, MI, USA
September 1993 – March 1995	Annaschule Aachen, Aachen, DE

Work Experience

October 2014 – December 2014	Internship: Psychological Test Diagnostics Schuhfried GmbH, Mödling
April 2014 – August 2014	Project Assistance: Validation Study for AID-Group Institute for Psychological Diagnostics, Faculty of Psychology, University Vienna, Wien
July 2007 – September 2007	Internship: Molecular Biology Fraunhofer Institute for Molecular Biology and Applied Ecology, Aachen

April 2004 – Mai 2004

Internship: Information Technology

T-Systems International GmbH, Aachen

Additional Qualifications

Languages

German – Native

English – Fluent in writing and speech

French – Basic knowledge

Latin – Intermediate Latin Certificate (Kleines
Latinum)

Computer literacy

Operating systems – Windows, Mac OS, Android

MS Office – Word, Excel, Powerpoint, Outlook

Statistical Analysis – IBM SPSS

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 11.12.2015

