

THE INFLUENCE OF HRM PRACTICES ON INNOVATIVE WORK BEHAVIOUR: A SYSTEMATIC LITERATUR REVIEW

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Summary

Nowadays, organisations are facing with rapidly changing environment. Responding to these changes appropriately is the challenge organizations have to tackle.

Innovation, as one of the critical success factors for an organizations competitive advantage has recently raised more and more attention in science. Seeing the human being as the source of innovation, research therefore aims to answer the questions whether and how effective human resource management can foster innovation. The level of analysis though, can be very different in this regard. This thesis obtains the perspective of Van de Ven (1986) who pointed out that individuals are those who foster innovation by developing, facilitating, responding, and amending ideas. This is called innovative work behaviour (IWB) and is here defined as *individual intentional behaviours to produce and implement new and useful ideas explicitly intended to benefit the individual, group or organisation*. Hence, these behaviours might have a huge impact on organisation's innovativeness. Due to this, HRM becomes important, as it has already been proven to influence employees' behaviours at work (e.g. Laursen & Foss, 2003). Therefore, this thesis was aimed at finding all possible HRM practices that significantly influence IWB and how these relationships could be explained and thereby extending the literature and providing managerial recommendations. For this purpose, a systematic literature review was conducted since it bears the possibility to obtain and synthesise all relevant data in the research field.

This systematic literature review reveals twenty eight articles that met the inclusion criteria and could therefore be analysed in depth. Through the in depth content analysis, eight HRM practices could be discovered that significantly influence IWB (1) *autonomy*, (2) *task composition*, (3) *training & development*, (4) *reward*, (5) *job demand*, (6) *feedback* (7) *job (in)security*, and (8) *job rotation*. Moreover, two additional important influences regarding IWB could be discovered, namely *Leadership/LMX* and *organisational culture*. The Data analysis also reveals various theories and approaches, which explain the distinct relationships between the particular HRM practices and IWB. *Autonomy*, *training & development*, *feedback*, and *job rotation* were found to positively affect IWB. These relationships are mainly explained by the motivation of employees to engage in IWB as well as by the establishment of a mutual relationship between employers and their employees, which is reflected in the Social Exchange Theory (Homans, 1958). The linkage between *task composition* and *reward* revealed mixed results. Here, the reason often lays in the different understandings of the used HRM practice and IWB, respectively. Moreover, the relation between job demand and IWB suppose an inverted U-curve in the sense that a moderate level

of job demand and time pressure seem to be superior to a too low or a too high level, when employees' IWB should be influenced positively. Although job insecurity and its relation to IWB also revealed mixed results, it should be avoided at all, since even the positive correlation is based on fear, which is in general not seen as a good motivational factor on a long term view. In addition, leaders and their relation to subordinates appeared to be very important in shaping employees' innovative behaviour in the work setting. Moreover, the in depth content analysis obtained interrelations between leaders and organisational culture as well as between employees' work related knowledge, several HRM practices, and their mutual relation to IWB. However, these are still under explored relationships, which should be considered in further research. Furthermore, since employees' traits seem to matter as well, it could be reasonable to expect that selection and recruitment practices have an impact on IWB, however, no single article could be discovered that investigated selection & recruitment in relation to IWB.

Concluding, this thesis offers several recommendations for further research, but is also able to provide practical implications. First of all, organisations should deal with the question how they interpret IWB and consider several contingencies factors, such as which employee type they want to trigger to engage in IWB and if the workforce consists of employees from different cultures as these variables appear to have an effect on the relationship between various HRM practices and IWB. Lastly, organisations should train and support their leaders in the sense that these are qualified to implement HRM practices, as they are intended and therewith actually able to provoke desired employee behaviour, thus IWB.

Acknowledgments

Since Organisations and how they manage their employees always raised my attention I wanted to gain in depth knowledge in this topic. For this purpose I opt for the specialization Human Resource Management of the faculty Business Administration at the University of Twente. I am very thankful for the possibility of writing my master thesis about the interesting topic of HRM and Innovative work behaviour.

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List of abbreviations

CS	Cross Sectional
HRM	Human Resource Management
HR	Human Resource
IWB	Innovative Work Behaviour
LMX	Leader Member Exchange
LGO	Learning Goal Orientation

1. Introduction

Innovative work behaviour (IWB) is necessary for organisations. Today, innovation is an indispensable factor for organisations to adapt to rapid economic changes and therewith gain and sustain competitive advantage (Hitt, Keats & DeMarie, 1998). The reason why IWB raised more and more attention in research and practice lies in the origin of every innovation, individuals: Almost three decades ago Van de Ven (1986) already pointed out that individuals are those who develop, facilitate, respond, and amend ideas, which are basic requirements and critical success factors for innovation.

Referring to De Jong and Den Hartog (2010), IWB contains four different stages namely the discovering of opportunities or problems, the generation of new and useful ideas, finding support for those ideas and the implementation of them. IWB can therefore be characterized as discontinuous and interrelated behaviours where individuals most likely are involved in any combination of these activities at any one time (Scott & Bruce, 1994). Therefore, employees' behaviours might have a major impact on organisational innovativeness. In this context Human resource management (HRM) becomes important, as it has already been proven to be able to influence employees' attitudes and behaviours (Laursen & Foss, 2003; Wright, McMahan & McWilliams, 1994; Shipton, West, Dawson, Birdi & Patterson, 2006).

By now, an extensive literature emerged that identified support for the positive link between HRM and innovation (including Laursen & Foss, 2003; De Leede & Looise, 2005; Messersmith & Guthrie, 2010; Jiménez-Jiménez & Sanz-Valle, 2008; Mumford, 2000; Shipton, West, Dawson, Birdi & Patterson, 2006). Moreover, they stress the importance of HRM for organisational innovativeness. Not all researches provide an explanation for this positive linkage, however a quantity of sources provide one. For instance, Shipton et al. (2006) and Jose and Mampilly (2012) suggest that particular HRM practices signal the employee that the organisation recognises and rewards employees' effort. These signals motivate and satisfy employees in a way that they might put extra effort in their work, which in turn might lead to organisational innovation. This is in line with what Messersmith and Guthrie (2010) suggest in their work. They assume that HRM practices intended to retain and motivate employees, are those, which have the most impact on organisational innovativeness as they promote creativity among employees. Vogus and Welbourne (2003) found similar results and argue that organizational innovativeness is enhanced if HRM practices are implemented that foster employee commitment. These relationships are explained by the social exchange theory (Homans, 1958). Referred to this theory, employees perceive HRM as

investment in themselves. As employees strive for a balance between what they receive and what they give, employees feel a kind of obligation to reciprocate that investment (Emerson, 1976) by giving the organization value back in terms of desired working behaviours (Blau, 1964; McClean & Collins, 2011), which is suggested to lead to higher organisational innovativeness (Tsui, Pearce, Porter & Tripuli, 1997). Laursen and Foss (2003), Cano and Cano (2006), as well as Lopez-Cabrales, Pèrez-Luno and Valle Cabrera (2009) found support for another line of reasoning regarding the positive HRM innovation linkage. They argue that organisations, which foster employees' knowledge diffusion through specific HRM practices, are more innovative than those that do not. This assumption is reflected in the knowledge based perspective (Kogut & Zander 1992; Kogut 2000).

Although the researches mentioned above found support for the linkage between HRM and innovation by influencing and shaping the individuals' attitudes, behaviours, and knowledge, they all linked HRM to innovation at an organisational level. This research though, attempts to link HRM to individual innovative behaviours at work. Due to the previous findings that HRM contributes to organisational innovativeness it is reasonable to suggest that HRM is also able to influence innovation at the individual level, thus IWB.

Following Boxall and Macky (2009), HRM practices are used "to recruit, deploy, motivate, consult, negotiate with, develop and retain employees, and to terminate the employment relationship". Further, they were also introduced "to organize the work itself, including its normal structure" (p. 7). This definition of HRM practices implies that IWB could be influenced in different ways and by different reasons. Since the interest of this research lies in finding all possible HRM practices that might influence IWB and how such relationships could be explained, this broad view of HRM is being followed.

1.1 Problem statement and research objective

Innovative work behaviours of employees are central for the innovative capacity of organisations as individuals can be seen as the cornerstone of every innovation (Van de Ven, 1986). Despite its importance, knowledge about IWB and how it could be influenced is fragmented and partly inconsistent. Therefore, it can be assumed that organisations might be restricted in their possibilities, as they do not know how to trigger employees in a way that they show IWB. However, this could be a threat for organisations' innovativeness and therewith for their competitiveness in the long term. For that reason, gaining deeper insight in the factors that influence IWB and in what ways is of great importance, not only for

practitioners as outlined, but also for theorists. Since this research attempts to provide a more coherent picture of the relationship between HRM and IWB it could be expected that it will in turn discover lacks of empirical evidence, which could stimulate further research.

Therefore, the aim of this study is twofold. First of all, it is crucial to understand the highly complex relationship between HRM and IWB by providing a framework that aggregates the findings and clarifying which HRM practices significantly influence IWB and how these relationships can be explained. The second aim of this study is to push forward research in this field by uncovering knowledge gaps and lacks of empirical findings. This will be done in the form of a systematic review of the literature.

1.2 Research questions

In order to meet the research objectives the following central research question and its associated sub questions will be answered:

Which HRM practices significantly influence innovative work behaviour and how?

- What constitutes IWB?
- Which underlying theories explain the particular relationships between HRM practices and IWB?
- Which HRM practices should be implemented by organisations to stimulate IWB?

1.3 Relevance of the study

Since employees are the cornerstones of innovation due to their creative capacity and their support in implementing new and useful ideas (Mumford, 2000; Van de Ven, 1986), it is of high relevance to know what influences employees that they exert innovative behaviours at work. Here, we relate HRM to IWB as it is already demonstrated that HRM is able to influence employees' behaviours and attitudes (Laursen & Foss, 2003; Wright et al., 1994; Shipton et al., 2006). However, to our knowledge, no comprehensive work exists that tried to find all possible relationships between HRM practices and IWB. Further, we still do not know enough about how such relationships, if present, could be explained. Due to this, we are searching for all HRM practices that significantly influence IWB and how, because we

propose that knowing precisely what affects employees' innovative behaviours is valuable for theorists as well as for practitioners. With systematic reviews, all relevant data in the research field could be synthesized so that knowledge gaps can best be obtained. This allows for future research agendas to be shaped accordingly (Eagly & Wood, 1994), which in the end, could lead to more empirical evidence and logically to more knowledge on this highly complex topic. Additionally, this thesis is of practical relevance, because it is necessary for organisations to know what makes their workforce more innovative to enhance quality, performance, and in the long-term competitive advantage over competitors. With this study it will be possible to make propositions for managers, what they should do to stimulate IWB. Moreover, it can be supposed that successfully performing firms grow and therewith improve employment within their operating area, thus the wider society will also benefit from high performing organisations.

1.4 Structure of the thesis

Throughout the introduction (Chapter 1) the research topic was discussed. This included the research problem and the objectives of this thesis. Subsequent to the objectives, the central research question and its associated sub questions were mentioned followed by the relevance of the thesis. In chapter 2, the methodology part of this thesis the entire review process will be outlined inclusive the data analysis procedure. Chapter 3 then provides the findings. Chapter 4 contains the final discussion of the findings, which entails the limitations as well as recommendations for further research and leads to a conceptual framework. Chapter 5 presents the conclusion as well as practical implications.

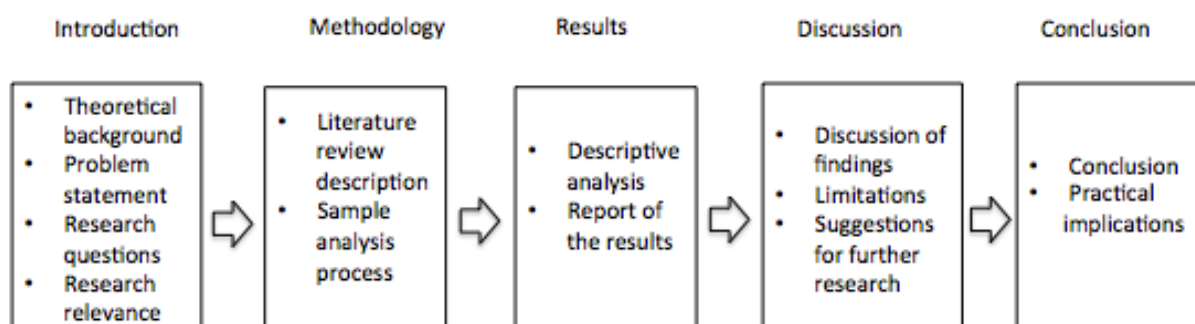


Figure 1 Chapter structure

2. Methodology

2.1 Research approach

Since one of the objectives of this study is to develop an integrated framework that outlines the various relationships between all possible HRM practices and IWB and explains the reasons why these occur, we follow an inductive research approach. In order to derive this integrated framework, we execute a systematic literature review as it bears the possibility of analysing all relevant articles of this topic in depth as well as the potential to detect rather unexplored concepts and interrelations within this field. Furthermore, systematically reviewing the literature enhances the quality of the review progress and outcomes by deploying a transparent and reproducible procedure (Tranfield, Denyer & Smart, 2003) and provides a comprehensive and unbiased search for identifying and evaluating an extensive amount of literature (Mulrow, 1994). Herewith, a qualitative research method is taken.

2.2 Description of the review-process—Data collection

To investigate this systematic review the following steps were taken: Firstly, the objective of the research was explained and secondly, the key data sources were identified. The databases *Scopus*, *ISI Web of Knowledge*, and *Google Scholar* were chosen and used as data sources as Google Scholar is one of the biggest available and both *Scopus* and *ISI Web of Knowledge* are most comprehensive databases of peer-reviewed journals in social sciences. Thirdly, for the initial search the following search terms and keywords were used independently and combined with the Boolean Operator “AND” and “OR”: “innovative work behaviour (IWB)”, “employee innovative behaviour”, “individual innovation”, “HRM practice”, and “human resource management” (HRM). The quotation marks were used to ensure that these words occur together in the articles not divided and therewith refine the search for suitable results. Further, we modified the search setting that only peer-reviewed articles should be presented.

2.3 Description of the inclusion criteria

The discovered articles had to match some criteria to be included in this review: (1) The articles need to be peer-reviewed and the journals which have published them need to be rated by an impact factor since those are expected to have most impact in the field and as such provide valid data (Podsakoff, P.M., MacKenzie, Bacharach & Podsakoff, N.P., 2005); (2) the

articles had to be written in English; (3) they had to contain research about innovative work behaviour; (4) they had to investigate HRM practices in relation to IWB and (5) had to present the results of the relationships separately. No restriction was made regarding the publication date, since the aim was to capture all articles that considered the relationship between HRM practices and IWB. Moreover, such a restriction might prevent from detecting the research development in this topic. In the following section, the inclusion criteria and the data extraction will be described.

2.4 Procedure of the data extraction

The first step of the sample analysis includes the check of redundant data. After that, the abstracts were tested for the inclusion criteria. When the abstracts met the inclusion criteria the introduction, methodology, and the discussion part were read and summarized in a table with headings regarding research title, type of research, which HRM practices were considered, how they may have impact on IWB, which results were found by the author(s), in which journal the article is published, and how high the impact factor is for that journal. In the table, the articles are presented in an alphabetical order by the first authors' name. Through this summary, an open coded valuation was executed leading to an inductive content analysis. As mentioned before, this approach is appropriate, due to this study being of high exploratory nature that aims at composing an integrated framework (Saunders et al., 2007).

The initial search (step 1) with the search terms “innovative work behaviour (IWB)”, “employee innovative behaviour”, “individual innovation”, “HRM practice”, and “human resource management” (HRM) revealed in total 796 articles. Hereof, *Google Scholar* provided 549 articles, *Scopus* delivered 126 articles, and *ISI Web of Knowledge* offered 121 articles. In step 2 all articles were checked on redundancies, which resulted in 73 articles being sorted out. In step 3 the abstracts of the remaining 723 articles were checked regarding the inclusion criteria, leading to a removal of another 645 articles, with now 78 articles remaining. Of these articles, the introduction, methodology, and discussion section was checked in detail regarding the inclusion criteria (step 4). After step 4, 50 more articles were removed. This selection left 28 articles that entirely met the inclusion criteria. Figure 2 gives an overview of the process of data extraction.

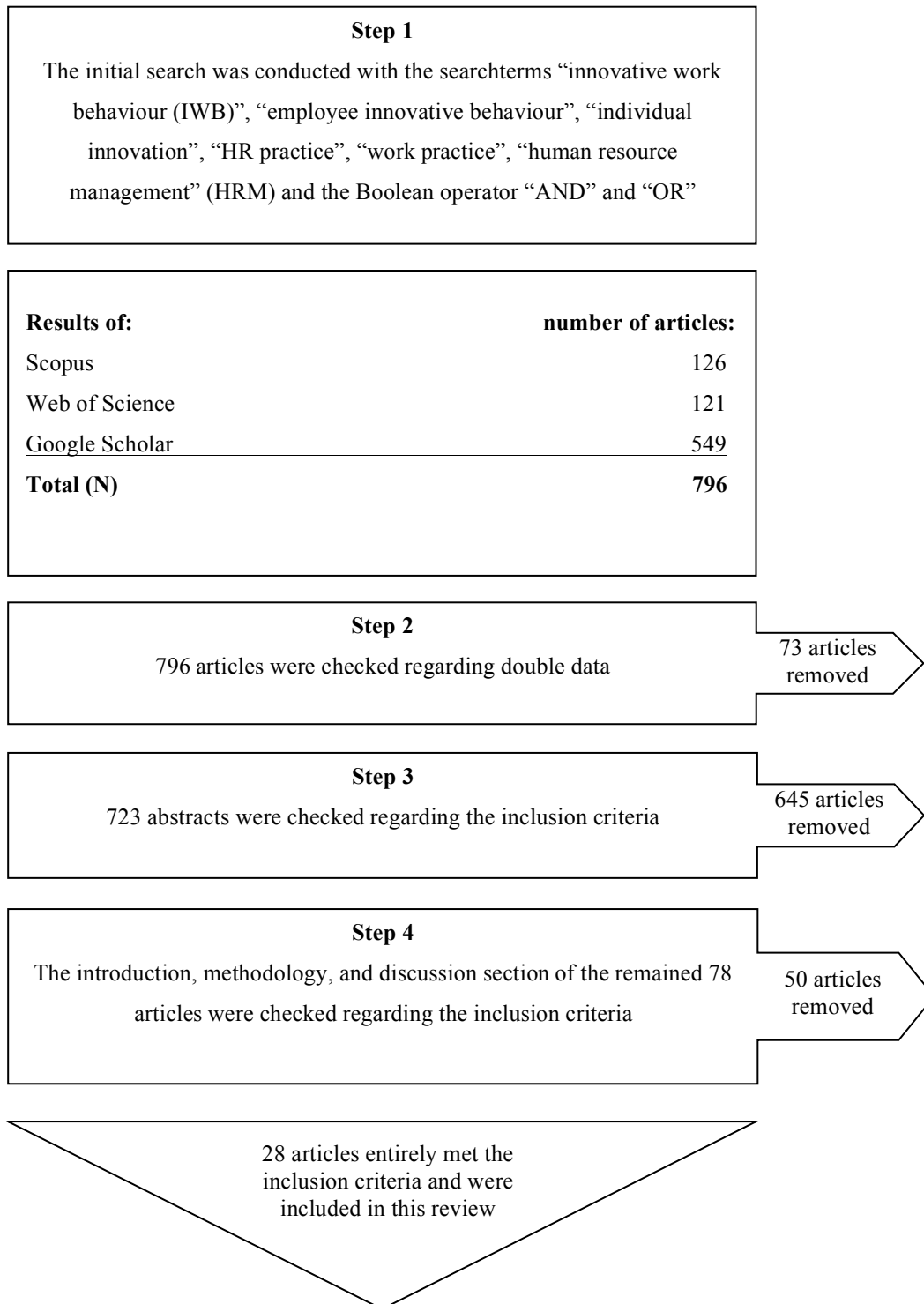


Figure 2 Data extraction

2.5 Description of the sample analysis

During the initial search, different search terms and key words were used to be able to catch all possible articles that investigated HRM practices in relation to IWB. To ensure the same understanding of IWB, the authors’ definitions were contemplated and, if stated, their used

items to measure IWB critically examined. After safeguarding that the concept of IWB was generally under research, the investigated HRM practices were beheld. HRM is defined as “all management decisions and activities that affect the nature of the relationship between the organisation and its employees – the human resources” (Beer, Spector, Lawrence, Mills & Walton, 1984 in De Leede & Looise, 2005, p. 109). HRM practices can be seen as instruments to design that relationship and even more, to shape and influence employees’ attitudes and behaviours (Laursen & Foss, 2003). The particular definitions of the found HRM practices that influence IWB will be presented during the result section.

After making sure that the studies investigated HRM practices in relation to IWB, the found articles were comprised in form of a table (Table 1). The table was constructed in an alphabetical order by the first author’s name. In addition to the authors name and year of publication, the headings consist of the research title, the used sample, the research design and research method, which HRM practices and possible other influences were considered, which theories were used to explain the found relationships, the most important findings, the journal the article was published in, and the impact factor of that journal.

Afterwards, the definitions and critical examination of the used items were contemplated regarding the investigated HRM practices to ensure that the various researchers define those similarly. Hereby a categorization of the articles according to HRM practices was possible (For an overview of the used items, please see Appendix 1).

In addition, this in depth content analysis helped to minimize selection bias. Subsequently, the proposed relationships between HRM practices and IWB and its explorations were analysed in detail by exercising the result and discussion section. Based on this, it could be detected if HRM practices were supposed to have a direct or an indirect relationship with IWB, whether or not hypotheses could be supported, and how these relationships were explained.

3. Results

3.1 Descriptive analysis

Twenty-eight articles met the inclusion criteria and were included in this systematic review. Their publication dates range from 1994 to 2014 while twenty-four of them were published within the years 2004 to 20014. Two of the included articles used a qualitative research

method in the form of semi-structured interviews. The other twenty-six articles investigated a quantitative research method in the form of a survey.

In total, eight HRM practices were found to significantly influence IWB: (1) *Autonomy* and its influence on IWB were found in nineteen out of twenty eight studies. (2) *Task composition* and its relation to IWB was investigated in ten articles. (3) *Training & Development* and (4) *Reward* and their distinct relations to IWB were studied seven times each. (5) *Job demand* and its correlation to IWB got attention in six articles. (6) *Feedback* and its linkage to IWB was inspected in four studies. (7) *Job (in)security*, was investigated two times and (8) *Job rotation* and its relationship with IWB were studied once. One article also investigated HR flow as a proposed influencing HRM practice, however, no significant relation to IWB could be found. In addition, two influencing factors regarding IWB were found, which were investigated in the articles besides the mentioned HRM practices, namely (1) *Leadership* and (2) *Organisational culture/organisational climate*.

The results will be outlined in detail in the following sections. These will also contain the description and various definitions of the HRM practices. Before starting the exploration of HRM practices and their impacts on IWB, it will be first outlined what actually constitutes IWB.

3.2 What innovative work behaviour constitutes

As briefly outlined at the beginning of this thesis IWB consists of different interrelated behaviours and is meant to appear on the individual level of innovation.

In this research Innovative work behaviour is defined as *individual intentional behaviours to produce and implement new and useful ideas explicitly intended to benefit the individual, group or organisation*. This definition already implies that IWB is more than being creative as an individual. Creativity is a necessary part of IWB especially at the beginning to produce new and useful ideas (West, 2002). However, IWB is through its implementation phase expected to generate innovative outputs and therewith expected to benefit the individual, the group or the organisation. Innovative outputs can range from enlargement and renewal of products, services, procedures, and processes, the evolution of new methods of fabrication to the constitution of new management systems (Crossan & Apaydin, 2010; Tidd, Bessant & Pavitt, 2005). Further, innovation can be radical or incremental in nature. Radical innovation is often defined as a fundamental change of existing products or processes while incremental innovation often constitutes modifications in existing

procedures and routines and is rather described as continuous change (Crossan & Apaydin, 2010). IWB is rather assigned to continuous and evolutionary change, thus incremental innovation.

IWB, how it could be divided in dimensions, and how it could be measured was already subject of different researches. For example, Dorenbosch, van Engen and Verhagen (2005) divide IWB in two main stages, such as invention and implementation of ideas. Scott and Bruce (1994) based on Kanter (1988) divide IWB in three stages, such as the generation of novel and useful ideas, the search for sponsorship, and the implementation of generated and promoted ideas. However, the generation of ideas is a broad concept, wherefore De Jong and Den Hartog (2010) argue that it is also important to comprise what anticipates idea generation and included researches on creativity (e.g. Amabile, 1988; Basadur, 2004) to their work, which has led to a fourth stage of IWB namely the recovery of opportunities or problems. They argue, that the recovery of problems and opportunities precedes the generation of new ideas in the sense that the discovery of opportunities or problems produces a gap between how current products, processes or services are and how they could or even should be. These states lead to feelings of discontent, which could be a trigger for change as it provokes the search for solutions. Therefore, in the research of De Jong and Den Hartog (2010) is IWB investigated as a four stage process, consisting of, firstly, opportunity or problem recognition as outlined above, secondly the exploration of new and useful ideas, which means to rethink current processes, products or services in a way that already existing parts were rearranged into a new entirety (Kanter, 1988). If a new entirety leads to its implementation depends on the support it gets from others within an organization, also called idea championing, the third stage of IWB as outlined by De Jong and Den Hartog (2010). It means evoking enthusiasm for that newly generated idea and spraying confidence that the implementation of it will lead to an improvement of performance and at the same time will pay off the costs this change might bear. To realize idea championing, coalition building and getting the right people involved are further requirements needed at this stage (Howell, Shea & Higgins, 2005). After having received enough support, the new generated idea should be implemented. Moreover, the implemented idea has to be transferred into regular processes in a way that the new idea replaces the previous lesser effective once, which concerns the forth stage of IWB. Although IWB is outlined in stages, De Jong and Den Hartog (2010) and Schroeder, Van de Ven, Scudder and Polley (1989) found only small evidence for the distinctiveness of the different phases rather, it can be characterized as discontinuous and interrelated behaviours where individuals are most likely involved in any combination of these activities at any one time

(Scott & Bruce, 1994). This is in line with previous investigations of IWB as a one-dimensional construct (Scott & Bruce, 1994; Reuvers, van Engen, Vinkenburg & Wilson-Evered, 2008). Although IWB appears theoretically multi-dimensional, its empirical evidence is rare, because of the proposed high intercorrelations of the stages. This could be due to the fact that self-ratings within empirical research are often biased and ratings of managers might be influenced by reason of their general, holistic view of the performance levels of their employees (De Jong & Den Hartog, 2010).

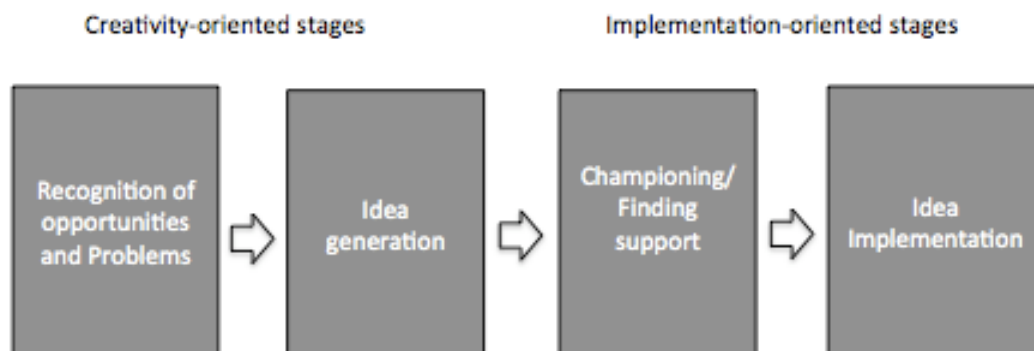


Figure 3 Stages of IWB, inspired by Dorenbosch et al. (2005)

Before specifying the HRM practices in detail, table 1, which comprises the results, will be presented to get an overview of the included articles as mentioned in the methodology section.

Table 1 Description and most important findings of the included articles

<i>Author (Year)</i>	<i>Research title</i>	<i>Sample</i>	<i>Research design</i>	<i>Research method</i>	<i>IWB explored in...</i>	<i>HRM practices</i>	<i>Other influences/underly ing theory</i>	<i>Most important findings</i>	<i>Journal</i>	<i>Impact factor</i>
Abstein & Spieth (2014)	Exploring HRM Meta-features that foster employees' innovative work behaviour in times of increasing work–life conflict	21 companies in Germany	Cross-sectional (CS)	Semi-structured interviews (qualitative)	One-dimension	<ul style="list-style-type: none"> Autonomy 	<ul style="list-style-type: none"> Cognitive evaluation theory involvement 	Autonomy of employees influences IWB positively and can enhance individual innovative performance through involvement and cognitive evaluation theory	Creativity and innovation management	0.855
Battistelli, Montani & Odoard, (2011)	The impact of feedback from job and task autonomy in the relationship between dispositional resistance to change and innovative work behaviour	1 University in Florence; 270 employees	CS	Survey	One-dimension	<ul style="list-style-type: none"> Autonomy Feedback 	<ul style="list-style-type: none"> Trait activation perspective 	Autonomy does not moderate the relationship between dispositional resistance to change and IWB; Feedback, in contrast, moderates the relationship between resistance to change and IWB (high feedback leads to a positive relationship between resistance to change and IWB)	European Journal of Work and Organizational Psychology	2.09
Bommer & Jalajas (1999)	The threat of organizational downsizing on the innovative propensity of R&D professionals	150 R&D employees of 15 different firms	CS	Survey	Two-dimensions	<ul style="list-style-type: none"> Job (in)security 	<ul style="list-style-type: none"> Threat-Rigidity Model 	Job insecurity is significantly negative related to willingness to take risks as well as significantly negative related to willingness to make suggestions	R&D Management	1.58
Bysted & Hansen (2013)	Comparing public and private sector employees' innovative	8.310 employees from Denmark, Norway,	CS	Survey	One-dimension	<ul style="list-style-type: none"> Reward (expectancy clarity) Autonomy 	<ul style="list-style-type: none"> Risk culture Room for innovation (organizational 	Autonomy influences employees' IWB positively (no difference between private and public sector employees was found; less clarity	Public Management Review	0.99

	behaviour	Sweden					support/innovative climate) • Intrinsic motivation • Sector type	between innovative performance and reward is negatively related to IWB, this relationship is more apparent for public sector employees		
Bysted & Jespersen (2013)	Exploring Managerial mechanism that influence innovative work behaviour: Comparing private and public employees	8.310 employees from Denmark, Norway, Sweden	CS	Survey	Two-dimensions	• Reward • Competence development Autonomy	• Intrinsic motivation • Sector type	Autonomy is significantly positive related to IWB irrespective of sector type; Competence development is significantly positive related to IWB, but sector type moderates this relationship; reward is negatively related to IWB, however, public sector employees respond well to reward when IWB is expected	Public Management Review	0.99
Chang, Hsu, Liou & Tsai (2013)	Psychological contracts and innovative behaviour: a moderated path analysis of work engagement and job resources	267 dyads of employees and their related supervisors of 30 high-tech firms in Taiwan	CS	Survey	One-dimension	Supervisor feedback	• Work engagement • Transactional and relational contracts • Social side of innovation perspective	The mediated relationship between transactional and relational contracts and IWB via work engagement are each moderated by feedback of supervisors	Journal of Applied Social Psychology	0.75
Dorenbosch, van Engen & Verhagen (2005)	On the job innovation: The impact of job design and human resource management through production ownership	132 employees of a Dutch government organization	CS	Survey	Two dimensions	• Training and Development • Multifunctionality • Feedback • Reward		Multifunctionality is significantly positive related to IWB as a whole as well as to the implemented oriented stage, but is not significantly positive related to the creativity oriented variable	Creativity and Innovation management	0.71
Fernandez & Moldogaziev (2013)	Employee Empowerment, Employee Attitudes, and	197.446 U.S. federal employees	CS	Survey	One dimension	• Reward • Training and development	• Job satisfaction	Empowerment is significantly positive related to IWB; empowerment might also increase job satisfaction, which in turn might improve	Public administration review	1.55

	Performance: Testing a Causal Model					t Empowerm ent		IWB		
Janssen (2000)	Job demands, perceptions of effort-reward fairness and innovative work behaviour	170 employees of 1 Dutch organizatio n (from the food sector)	CS	Survey	One dimension	<ul style="list-style-type: none"> • Effort Reward fairness • Job demand 	<ul style="list-style-type: none"> • Social exchange theory 	Job demand is significantly positive related to IWB when employees perceive their efforts as fairly rewarded	Journal of occupational and organization al psychology	2.42
Janssen (2005)	The joint impact of perceived influence and supervisor supportiveness on employee innovative behaviour	170 employees from 1 Dutch Company	CS	Survey	One dimension	<ul style="list-style-type: none"> • Perceived influence 	<ul style="list-style-type: none"> • Supervisor supportivenes s • Sociopolitical approach 	Perceived influence is significantly positive related to IWB and supervisor supportiveness moderates this relationship	Journal of occupational and organization al psychology	2.42
Jong, de, Parker, Wenneker s & Wu (2013)	Entrepreneurial behaviours in organizations: Does Job design matter?	179 employees from 1 Dutch company	CS	First Survey (n=179 employees) Second Survey three years later (n=93 peers)	One dimension	<ul style="list-style-type: none"> • Autonomy • Job variety 	Not mentioned	Autonomy increases perceived control over the work environment which in turn enhances motivation and willingness to engage in entrepreneurial behaviours; Job variety was not found to enhance entrepreneurial behaviours, maybe due to perceived extra work (horizontal enlargement) instead of perceived enlargement of decision- making tasks (vertical scope)	Entrepreneur ship theory and practice	2.24
Knol & van Linge, 2009	Innovative behaviour: the effect of structural and psychological empowerment on nurses	519 registered nurses in the Netherland	CS	Survey	One dimension	<ul style="list-style-type: none"> • Empowerm ent practices • Feedback • Opportunity and 	<ul style="list-style-type: none"> • Cognitive mediation theory 	Both empowerment (structural) (SE) and psychological (PE) have a significant positive impact on IWB; PE mediates the relationship between SE and IWB, explained by the	Journal of advanced nursing	1.53

						information		cognitive mediation theory; further, feedback as part of SE is significantly positive related to IWB; information also seen as part of SE is significantly positive related to IWB		
Lu, Lin & Leung (2012)	Goal orientation and innovative performance: The mediating roles of knowledge sharing and perceived autonomy	248 part time MBA students from a University in China, who also work part time in different companies	CS	Survey	One dimension	<ul style="list-style-type: none"> Perceived autonomy 	<ul style="list-style-type: none"> Learning Goal orientation 	Perceived autonomy does not mediate the relationship between learning goal orientation (LGO) and IWB	Journal of applied social psychology	0.83
Marane (2012)	The mediating role of trust in organization on the influence of psychological empowerment on innovative behaviour	245 managers from manufacturing companies	CS	Survey	One dimension	<ul style="list-style-type: none"> Empowerment 	<ul style="list-style-type: none"> Social exchange theory 	Psychological empowerment (PE) has a significant positive impact on IWB; Trust partially mediates this relationship	European journal of social sciences	0.44
Martín, Salanova, Peiró (2007)	Job demands, job resources and individual innovation at work: Going beyond Karasek's model	244 employees from 12 Spanish firms	CS	Survey	One dimension	<ul style="list-style-type: none"> Job demands 	<ul style="list-style-type: none"> Problem coping strategy Job resources 	Job demand and IWB are significantly negative related, Job resources have a marginally moderating effect on this relationship, but turns it into a positive one	Psichothema	0.96
Messmann & Mulder (2014)	Exploring the role of target specificity in the facilitation of vocational	239 vocational teachers from German	CS	Survey	Four dimensions	<ul style="list-style-type: none"> Perceived impact 	<ul style="list-style-type: none"> Intrinsic task motivation 	Perceived impact is positively related to IWB; Intrinsic task motivation is found to be a key antecedent for IWB and partially mediates the	Journal of occupational and organizational	2.42

	teachers' innovative work behaviour	vocational colleges						relationship between perceived impact and IWB	psychology	
Monks, Kelly, Conway & Flood (2012)	Understanding how HR systems work: the role of HR philosophy and HR processes	56 employees and managers from 7 companies from the Information and Communication Technology (ICT) sector in Ireland and the UK	CS	56 semi-structured interviews (qualitative)	One dimension	<ul style="list-style-type: none"> • Autonomy • Time pressure • Job variety • Job rotation • Training & Development 	<ul style="list-style-type: none"> • Job satisfaction • Commitment 	Autonomy, job variety, job rotation, Training & development, implemented to encourage employees' overall innovative attitudes & behaviours lead to such outcomes via job satisfaction and commitment; introducing these HRM practices to enhance productivity and efficiency do not lead to innovative outputs of employees; withholding of bonuses and salary have negative effects on employees' IWB	Human resource management journal	1.56
Noefer, Stegmaier, Molter Sonntag, (2009)	Great many things to do and not a minute to spare: Can feedback from supervisors moderate the relationship between skill variety, time pressure and employees' innovative behavior?	81 employees of a German University	CS	Survey	Two dimensions	<ul style="list-style-type: none"> • Job variety • Time pressure • Feedback 	<ul style="list-style-type: none"> • Activation theory 	Skill variety is significant positive related to idea generation as well as to idea implementation; Supervisor feedback does not moderate the relationship between skill variety and idea generation, only idea implementation increased under high feedback	Creativity research journal	1.16
Ohly, Sonnentag & Pluntke (2006)	Routinization, work characteristics and their relationships with creative	278 employees of 1 German high-tech company	CS	Survey	Two dimensions	<ul style="list-style-type: none"> • Job control • Job complexity/ Routinization • Time 	<ul style="list-style-type: none"> • Supervisor support • Activation theory • Intrinsic motivation 	Job control significantly predicts creativity and proactive behaviours; Routinization is significantly positive related to creativity and proactive behaviours,	Journal of organizational behaviour	3.63

	and proactive behaviors					pressure		whereas job complexity, in contrast, is only significantly positive related to proactive behaviours, but not to creativity; time pressure and its relation to creativity and proactive behaviours shows an inverted U-shape; supervisor support was neither significantly positive related to creativity nor to proactive behaviours		
Ong, Wan & Chng (2003)	Factors affecting individual innovation: an examination within a Japanese subsidiary in Singapore	190 employees of a Japanese subsidiary	CS	Survey	Two dimensions	<ul style="list-style-type: none"> Challenging tasks Training & Development (Knowledge structure) 	<ul style="list-style-type: none"> Leadership Organizational support 	Challenging tasks are neither significantly related to idea generation nor to idea implementation; Training & Development (Knowledge structure) is significantly positive related to ideation as well as to implementation; Leadership is neither significantly related to idea generation nor to idea implementation, the same was found for organisational support	Technovation	3.18
Pratoom & Savatsomboon (2010)	Explaining factors affecting individual innovation: The case of group members in Thailand	1526 employees from 138 producer groups in 19 different provinces in Northeast Thailand	CS	Survey	One dimension	<ul style="list-style-type: none"> Training & Development (Knowledge management) 	Not mentioned	Knowledge management is significantly positive related to IWB	Asia pacific journal of management	3.06
Ramamoorthy,	Determinants of innovative work	204 employees	CS	Survey	One dimension	<ul style="list-style-type: none"> Autonomy Reward 	<ul style="list-style-type: none"> Psychological contracts 	Autonomy is directly positive related to IWB as well as	Creativity and	0.86

Flood, Slattery & Sardesai (2005)	behaviour: Development and test of an integrated model	from manufacturing organizations in Ireland					(expectations met & obligation to innovate)	indirectly via obligation to innovate; Reward is directly positive related to IWB and also indirectly related to IWB via expectations met and obligation to innovate	innovation management	
Sanders, Moorkamp, Torka, Groeneveld, S. & Goenevel, G. (2010)	How to support innovative behaviour? The role of LMX and satisfaction with HR practices	272 employees of 1 Dutch and 3 German technical organizations	CS	Survey	One dimension	<ul style="list-style-type: none"> • Employees influence • Work content • Reward • Training & development (Flow) 	<ul style="list-style-type: none"> • Intrinsic motivation • Leader Member exchange (LMX) • Social exchange theory 	Satisfaction with influence and work content is positively related to IWB; primary rewards are significantly negative related to IWB, secondary rewards do not affect IWB significantly, the same appears for HR flow; LMX is significantly positive related to IWB and influence, primary rewards and work content mediates the relationship between LMX and IWB	Technology and Investment	0.06
Scott & Bruce (1994)	Determinants of innovative behaviour: A path model of individual innovation in the work place	172 employees of a R&D company in U.S.	CS	Survey	One dimension	<ul style="list-style-type: none"> • Job variety 	<ul style="list-style-type: none"> • Supportive climate • LMX • Leader role expectations • Pygmalion effect 	Job variety does not moderate the relationship between supportive climate and IWB; LMX and leader role expectations are both significantly positive related to IWB; support was significantly positive related to IWB, however, resource supply was significantly negative related to IWB	Academy of management journal	4.97
Spiegelaere, de, van Guys & Van Hoote gem (2012)		893 employees of 17 companies in Belgium	CS	Survey	One dimension	<ul style="list-style-type: none"> • Autonomy • Routine Tasks • Time pressure • Job content insecurity 	<ul style="list-style-type: none"> • Occupational groups • Intrinsic motivation 	Autonomy leads to positive employee outcomes (IWB); organizing tasks is positively related to IWB for white-collar workers and negatively for blue-collar workers; Routine tasks have a negative effect for white collar workers	Journal of Entrepreneurship, Management and Innovation	2.10

						<ul style="list-style-type: none"> Learning opportunities 		and rather positive effects (n.s.) for blue collars; Job content insecurity and its relation to IWB is positive for white collars and strongly negative for blue collars; time pressure was not significantly related to IWB, no difference between white- and blue-collars was found; Learning opportunities are significantly positive related to IWB and occupational groups matter		
Urbach, Fay & Gora (2010)	Extending the job design perspective on individual innovation: Exploring the effect of group reflexivity	135 employees from 1 software company in Poland	CS	Survey	Two dimensions	<ul style="list-style-type: none"> Job control Job complexity 	Not mentioned	Job control is significant positively related to Ideation, but only marginally significant linked to implementation; job complexity does not predict ideation, but affects idea implementation positively	Journal of occupational and organizational psychology	2.42
Wu, Parker & de Jong (2011)	Need for cognition as an antecedent of individual innovation behaviour	179 employees of a research and consultancy firm in the Netherlands	CS	Survey	One dimension	<ul style="list-style-type: none"> Job autonomy Time pressure 	<ul style="list-style-type: none"> Interactionist model of personality 	Job autonomy and time pressure moderate the relationship between 'need for cognition' and IWB in the sense that low job autonomy strengthens the positive relationship and high job autonomy weakens it. Regarding time pressure, the results reveal a same pattern, low levels of time pressure strengthen the positive relationship between 'need for cognition' and IWB.	Journal of management	6.70
Zhang & Begley (2011)	Perceived organizational climate, knowledge	327 employees of 5 Chinese	CS	Survey	One dimension	<ul style="list-style-type: none"> Empowerment Reward Knowledge 	<ul style="list-style-type: none"> Company's home country Organisational climate 	Empowerment is significantly positive related to IWB within American owned firms in China, but is not significantly	The international journal of human	0.79

	transfer and innovation in China-based research and development companies	and 5 US R&D companies located in China				resources and knowledge transfer		related to IWB within Chinese owned firms, which implies a moderator effect of culture; The link between knowledge resources and knowledge transfer is tightly related for American owned companies and the relationship between knowledge transfer and innovation is fully mediated by Chinese owned companies	resource management	
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3.3 HRM practices and their influence on IWB

The HRM practices: *Autonomy*, *Task composition*, *Training & Development*, *Reward*, *Job demand*, *Feedback*, *Job (in)security*, and *Job rotation*, which were found to significantly affecting IWB will be elucidated in detail in the next sections. In addition to that, *Leadership* and *Organisational culture/climate* and their distinct influences on IWB get attention at the end of the result section. *Autonomy* and its relation to IWB will be presented first, since it was most often researched. Starting of a description of what autonomy entails followed by the direct effect of autonomy regarding IWB.

3.3.1 Autonomy

Autonomy or employee empowerment was in nineteen out of twenty-eight researches investigated and found to have a significant impact on IWB (Abstein & Spieth, 2014; Battistelli, Montani & Odoard, 2011; Bysted & Hansen, 2013; Bysted & Jespersen, 2013; Fernandez & Moldogaziev, 2013; Janssen, 2005; de Jong, Parker, Wennekers & Wu, 2013; Knol & van Linge, 2009; Lu, Lin & Leung, 2012; Marane, 2012; Messmann & Mulder, 2014; Monks, Kelly, Conway & Flood, 2012; Ohly, Sonnentag & Pluntke, 2006; Ramamoorthy, Flood, Slaterry & Sardesai, 2005; Sanders, Moorkamp, Torka, Groeneveld, S. & Goeneveld, G., 2010; de Spiegelaere, Van Guys & Van Hootegeem, 2012; Urbach, Fay & Gora, 2010; Wu, Parker & de Jong, 2011; Zhanga & Begley, 2011).

Although the authors name this HRM practices differently, they all describe job autonomy in more or less the same way. Abstein and Spieth (2014), Battistelli et al. (2011), Bysted and Hansen (2013) and Bysted and Jespersen (2013), Janssen (2005), De Jong et al. (2013), Lu et al. (2012), Monks et al. (2012), Ohly et al. (2006), Ramamoorthy et al. (2005), Sanders et al. (2010), de Spiegelaere et al. (2012), Urbach (2010), Wu et al. (2011) and Zhang & Begley (2011) describe autonomy as independency and freedom of employees in how they compose and fulfil their tasks. Fernandez and Moldogaziev (2013), Knol and van Linge (2009) and Marane (2012) investigated a concept of empowerment, which consists of two main parts, namely psychological and managerial (structural) empowerment. Psychological empowerment is defined as a set of an employees' cognition towards his or her beliefs about their ability to perform, how competent they are and to what extend they feel that their work is important. This kind of empowerment refer to personal determinants rather than to HRM practices as outlined above. However, two other parts of psychological empowerment, also

described by Knol and van Linge (2009) and Fernandez and Moldogaziev (2013) are ‘self determination’ and ‘impact’. ‘Self determination’ is defined “as freedom that people have in deciding how to do their work” (Knol & van Linge, 2009, p. 361) and ‘impact’ is described as the extend to which “the organization takes employees’ ideas seriously” (Knol & van Linge, 2009, p. 361). Although these two parts were referred to personal determinants, they can, due to their definitions, be related to autonomy as described above. Managerial or structural empowerment is the second part of the employee empowerment construct as outlined by Knol and van Linge (2009) and Fernandez and Moldogaziev (2013). What they mean by this is closely related to autonomy as described at the beginning. However, they add that the extend employees are independent and free to decide how they compose and fulfil their work is partly determined by ones job position and the information and resources (e.g. equipment, time) employees receive from their employer.

Summarized, autonomy or employee empowerment reflects independency and freedom of employees in how they compose and fulfil their jobs and to a certain extend under which conditions they work. However, independence and freedom, although not in every aspect, result in more responsibility employees has to bear. It can be supposed that the higher the level of autonomy is, thus the higher the responsibility is, an employee gets from his/her employer to organize her-/himself in the workplace, the higher is the vertical scope of the job, which in turn enables employees to make more decisions.

Autonomy and its direct relationship with IWB were investigated in fifteen out of the total nineteen articles that considered a relation between autonomy and IWB. Hence, four of the nineteen articles investigated autonomy as an intervening variable and propose an indirect influence on IWB. At first, the direct influence of autonomy on IWB shall be examined.

Monks et al. (2012) conducted a qualitative research in the form of semi structured interviews. Based on the statements of the interviewee, the authors found a positive correlation between autonomy and IWB. One manager stated, “I try to give as much autonomy as possible (...) we basically give autonomy in terms of suggesting changes or suggesting solutions”. Further, an employee stated that he was able to explore ideas due to the fact that he gets a sufficient amount of autonomy (Monks et al., 2012, p. 7). The authors found that when employees are satisfied with their jobs and how these are designed they are more motivated to show IWB. Fernandez and Moldogaziev (2013) support these results since they also found a strong positive relationship between employee empowerment and IWB ($z = 76.25, p < .001$). Additionally, they also argue that job satisfaction is the reason why autonomy causes IWB. In order to support this line of reasoning, they add job satisfaction as

intervening variable to their research and found that employee empowerment is also positively linked to IWB when job satisfaction and performance are included (empowerment \rightarrow job satisfaction, $z = 444.50, p < .001$; job satisfaction \rightarrow performance, $z = 86.74, p < .001$; performance \rightarrow IWB, $z = 8.19, p < .001$).

Marane (2012) used another approach to explain why psychological empowerment, as they call it, and IWB are positively related. To recap, psychological empowerment is captured with the four dimensions, 'meaning', 'self determination', 'competence', and 'impact'. Marane (2012) investigated trust as mediating variable and found that all four dimensions of psychological empowerment positively affect IWB (meaning \rightarrow IWB, $\beta = .354, p < .01$; self determination \rightarrow IWB, $\beta = .540, p < .01$; competence \rightarrow IWB, $\beta = .546, p < .01$; impact \rightarrow IWB, $\beta = .547, p < .01$). Further, they found that psychological empowerment significantly predicts trust in organization ($\beta = .670, p < .01$) and that trust significantly predicts IWB ($\beta = .625, p < .01$). Moreover, the value between the independent variable (psychological empowerment) and the dependent variable (IWB) were still significant, but decreases when trust was added to the third equation model ($\beta = .497, p < .05$), which confirms a partially mediation role of trust. Marane (2012) argues that employee empowerment works as a motivational factor to trigger IWB. Moreover, he explains the important effect of trust with the social exchange theory. He argues that in cases where employees trust their top management in the sense that they feel that their organisation cares for them, they feel obligated to return value back in terms of IWB (Homans, 1958). Therefore, trust and the proposed resulting mutual relationship is given a central function in the linkage between employee empowerment and IWB. Ramamoorthy et al. (2005) also try to use the social exchange theory to explain why job autonomy positively affects IWB. For this purpose, the authors add 'obligation to innovate' to their research since they assume that a psychological contract like 'obligation to innovate' can be referred to the mutual relationship as described before. However, whether 'obligation to innovate' is included or not, autonomy significantly predicts IWB. Even more, 'obligation to innovate' seems to decrease the effect of job autonomy on IWB (job autonomy \rightarrow IWB, $\beta = .57, p < .001$; job autonomy \rightarrow obligation to innovate, $\beta = .24, p < .001$; obligation to innovate \rightarrow IWB, $\beta = .14, p < .05$). Due to these slightly contractive results, Ramamoorthy et al. (2005) suggest that empowered employees might already be provided with an avenue to test new ways of working even in the spite of failure and that this feeling leads to intrinsic motivation of employees to engage in IWB meaning that 'obligation to innovate' might not have much effect in this relationship.

Several authors use intrinsic (task) motivation as explanation for the relationship

between autonomy on IWB. Ohly et al. (2006), for instance, argue that empowered employees feel more responsible for their work and might therefore develop a more active approach towards the search for solutions and the implementation of them. A more active approach of employees can be referred to intrinsic motivation in the sense that empowered employees are more intrinsically motivated which in turn triggers proactive behaviours such as IWB (job control \rightarrow creativity, $\beta = .31, p < .01$; job control \rightarrow innovative behaviours, $\beta = .23, p < .01$). Sanders et al. (2010) and De Spiegelaere et al. (2012) also account intrinsic motivation for the positive influence of autonomy on IWB. According to them, occupational groups seem to explicate why intrinsic motivation matters. It is argued that the work motives seem to be different for blue and white collar employees. Blue collar workers are supposed to be more motivated by extrinsic job aspects for example job security, whereas white collar workers are supposed to be more motivated by job content and how much freedom they have to organize their work (Centers & Bugental, 1966; Locke, 1973; Mottaz, 1985; Ronen & Sadan, 1984 cited in De Spiegelaere et al. 2012). In order to test this proposition, De Spiegelaere et al. (2012) investigate occupational group as moderator for the relationship between autonomy IWB. The researcher did not find an interaction effect of blue and white collar employees, meaning that there is no difference found for the type of employees in the relationship between autonomy and IWB. The relation between organizing tasks and IWB though, is different for white and blue collar employees in such a way that organizing tasks is positively related to IWB for white collar employees ($\beta = .262, p < .0001$) and negatively related to blue-collar employees' IWB ($\beta = -.145, p < .007$). Since the variable organizing tasks can be referred to autonomy in the sense that independence in how employees plan their tasks is a kind of job autonomy, the results are mentioned here as well, although De Spiegelaere et al. (2012) distinct it within their research. The difference in the organizing tasks – IWB relation can be explained by differences in how employees are motivated to engage in IWB. However, they give no explanation why employee type does not moderate the relationship between the autonomy variable and IWB. Sanders et al. (2010) did not explicitly investigate occupational groups, but refer their sample to knowledge workers (technicians) and hence argue that intrinsic motivation can serve as explanation why the relationship between autonomy and IWB is found to be positive ($\beta = .19, p < .01$). Intrinsic task motivation also plays a role in the research of Messmann and Mulder (2014). However, there are differences in the investigation of the variables compared to the studies outlined before wherefore it will be outlined in more detail here. On the one hand, Messmann and Mulder (2014) divided IWB in a four dimensional construct and were therewith able to present the impact of autonomy on

each stage of IWB separately. On the other hand, they investigated perceived social support in addition to perceived influence since they believe that employees need different resources for the accomplishment of the different stages of IWB due to different levels of target specificity. In more detail, they argue that opportunity exploration refers to low target specificity since this innovation task does not bear much risk or uncertainty; it is more hypothetical in nature. Idea generation, promotion, and implementation in contrast, affect established work routines and are therefore referred to high target specificity. Employees who engage in these innovation tasks are influenced by responses of their colleagues and supervisors such as conflicts with them or rejection to implement new ideas why perceived social support might be more important for these dimensions with high target specificity. They discovered that perceived influence (PI) positively influences opportunity exploration (OE) ($\beta = .28, p < .01$) but has no significant or only a marginally significant impact on the other dimensions of IWB (PI \rightarrow idea generation (IG), $\beta = .12, n.s.$; PI \rightarrow idea promotion (IP), $\beta = .16, p < .10$; PI \rightarrow reflection (RE), $\beta = .17, p < .10$). Perceived social support (PSS) is not significantly related to opportunity exploration ($\beta = .04, n.s.$) but significantly affects the IWB dimensions IG ($\beta = .33, p < .01$), IP ($\beta = .32, p < .01$), and RE ($\beta = .26, p < .05$). Their results further reveal that intrinsic task motivation (ITM) is a key predictor of all dimensions of IWB (ITM \rightarrow OE, $\beta = .28, p < .01$; ITM \rightarrow IG, $\beta = .36, p < .001$; ITM \rightarrow IP, $\beta = .27, p < .01$; ITM \rightarrow RE, $\beta = .33, p < .001$). Moreover, the proposed mediation of ITM between the relationship of perceived influence, perceived social support and the dimensions of IWB could partially be confirmed (PI \rightarrow ITM \rightarrow OE, $\beta = .06, p < .10$; PSS \rightarrow ITM \rightarrow IG, $\beta = .11, p < .05$; PSS \rightarrow ITM \rightarrow IP, $\beta = .08, p < .05$; PSS \rightarrow ITM \rightarrow RE, $\beta = .10, p < .05$) since the mediation of intrinsic task motivation between perceived influence and opportunity exploration is only marginally significant (please see above). The authors argue that rather internal resources such as perceived influence are more important at the beginning of the engagement in IWB and external resources such as perceived social support becomes more important later on in the innovation process. Although the authors found only a marginally significance of intrinsic task motivation, they argue that an adequate amount of intrinsic task motivation is needed for the engagement in all four innovation tasks of IWB, because perceived influence and perceived social support and their relationship to IWB seems to depend on intrinsic motivation.

Abstein and Spieth (2014) came to similar conclusions; however, they are the only ones who provide a theory that explains how intrinsic motivation contributes to the positive autonomy IWB link. They refer to the Cognitive Evaluation Theory (Deci & Ryan, 1985),

which argues that when employees are involved in decision making, they get feelings of self determination and competence, which in turn fosters their intrinsic motivation. Those employees are passionate and more enthusiast in putting forward their ideas. This theory, thus, connect researches, which explain the significant positive relationship between autonomy and IWB with intrinsic motivation with those studies using involvement and commitment as explanation like this of Bysted and Jespersen (2013; autonomy \rightarrow ideation, $\beta = .19, p < .001$; autonomy \rightarrow realization, $\beta = .21, p < .001$).

There are also researches, which give no or a rather general explanation regarding the positive autonomy IWB linkage. Bysted and Hansen (2013) for instance, discovered a significant positive relationship between autonomy and IWB ($\beta = .235, p < .01$), however, they do not describe why they think this positive linkage occurs. Rather, they try to explain why sector type (public and private employed people) does not matter in this regard. They argue that the theoretical distinctions between the private and the public sector might have changed in a way that the characteristics of the public sector are in the meantime comparable to characteristics of the private sector in the sense that researches cannot obtain differences in both forms of employment and therefore might not be able to alter the outcomes regarding autonomy and IWB.

Regarding a rather general explanation, De Jong et al. (2013) argue that an increase of the vertical scope of ones job itself enables employees to generate new and useful ideas and, especially implement them, due to more freedom and independence and again more responsibility. Urbach et al. (2010) explain their somewhat contradictive results (autonomy \rightarrow ideation, $\beta = .28, p = .030$; autonomy \rightarrow implementation ($\beta = .20, p = .089$) with a lack of time resources. They suggest, that employees who mainly work on individual tasks, but are also organized in teams to fulfil group projects, where they do not fully depend on (as it is the case in their research) are restrained to completely engage in innovative behaviours. In other words, when employees are mainly working individually but also have to attend to group meetings, since they are organized in teams, they may able to generate new and useful ideas, but might not have additional resources (time) to implement them. Therefore, other job design factors might influence the relationship between job control and IWB.

Zhang and Begley (2011) focus on cultural differences regarding autonomy and IWB since they proposed that a company's home country moderates the relationship between autonomy and IWB. Their results reveal that empowerment was significant positively related to IWB for employees working in U.S. owned companies in China ($\beta = .27, p < .01$) and not significantly related for employees working in Chinese owned firms ($\beta = .06, n.s.$). Hence,

their hypothesis is supported. Although both types of companies (Chinese owned and American owned) employ Chinese, cultural differences of the home country seem to carry over in policies and practices of these firms. Empowerment might be less able to encourage Chinese employees to engage in IWB, because they seem to rather value obedience to authority. In contrast, Americans are in general rather less power distant, why employees working in American owned firms might be more encouraged to show innovative behaviours when they receive more power.

Janssen (2005) suggests that the supportiveness of employees' supervisors matters. His findings support his hypothesis meaning that perceived influence as well as supervisor supportiveness are positively related to IWB ($PI \rightarrow IWB, \beta = .30, p < .001$; supervisor supportiveness $\rightarrow IWB, \beta = .36, p < .001$). Further, he also discovered an interaction effect of perceived influence and supervisor supportiveness ($\beta = .20, p < .001$). Supplementary analyses indicate that the relationship between perceived influence and IWB was only positively significant when employees perceive their supervisor as supportive ($M + 1 SD, \beta = .52, t = 3.34, p < .001$). When employees perceive them as non supportive the linkage becomes non significant ($M - 1 SD, \beta = .11, t = .86, n.s.$). Following these results, Janssen (2005) argues that employees do not only need feelings of influence in the workplace to engage in innovative behaviours, but also support of their supervisors. This means that an employees' perceived influence need to be amplified by supportive supervisors. Hence, when IWB should be fostered, supervisors should be supportive; otherwise they run the risk to be a resistor for employees' IWB.

The research of Knol and van Linge (2009) builds a transition to the studies that examined autonomy in an indirect manner, since they investigated empowerment practices and their relations to IWB both, directly and indirectly. More precisely, they hypothesise that psychological and structural empowerment has each a positive influence on IWB. Further, they assume that psychological empowerment works as a mediator between structural empowerment and IWB and, moreover, that structural empowerment has an effect on the extent to which psychological empowerment implicates IWB among nurses. Thus, they suppose that structural empowerment works as a moderator for the relationship between psychological empowerment and IWB. They found structural empowerment to be significant positively related to IWB ($r = .45, p < .01$). Psychological empowerment was also statistically significant, correlated with IWB ($r = .53, p < .01$). Further, the mediating role of psychological empowerment is partly confirmed, meaning that the influence of structural empowerment did not drop to zero, but was weakened when they corrected for psychological

empowerment ($\beta = .675, p < .001$ to $\beta = .393, p < .001$). Regarding the proposed moderating role of structural empowerment, the results do not support this assumption ($t = -.217, p = .828$ *n.s.*). Due to this, structural empowerment has no statistical effect on the extent to which psychological empowerment influences IWB.

The authors explain these various results as follows. They argue that the influence of structural empowerment, here divided in formal (ones job position) and informal (ones network) power, relies in the uncertainty of innovation itself. This means that as higher ones job position within a team/hospital and as better ones network in and outside of the hospital, the greater ones impact in the workforce and as better can she/he cope with uncertainty innovation usually bears. Regarding the mediating role of psychological empowerment, Knol and van Linge (2009) refer to the Cognitive Mediation Theory of Bandura and Cervone (1986). Due to this theory, cognitive variables are able to explain the interactive linkage between behaviour and context, meaning that people, who have feelings of impact on their work, might be better able to influence contextual variables, which in turn could help them to show proactive behaviours such as IWB. The fact that no significant moderation of structural empowerment was found explain the authors by the assumption that other contextual factors such as climate might be more influential then structural empowerment. However, they did not investigate climate in their research.

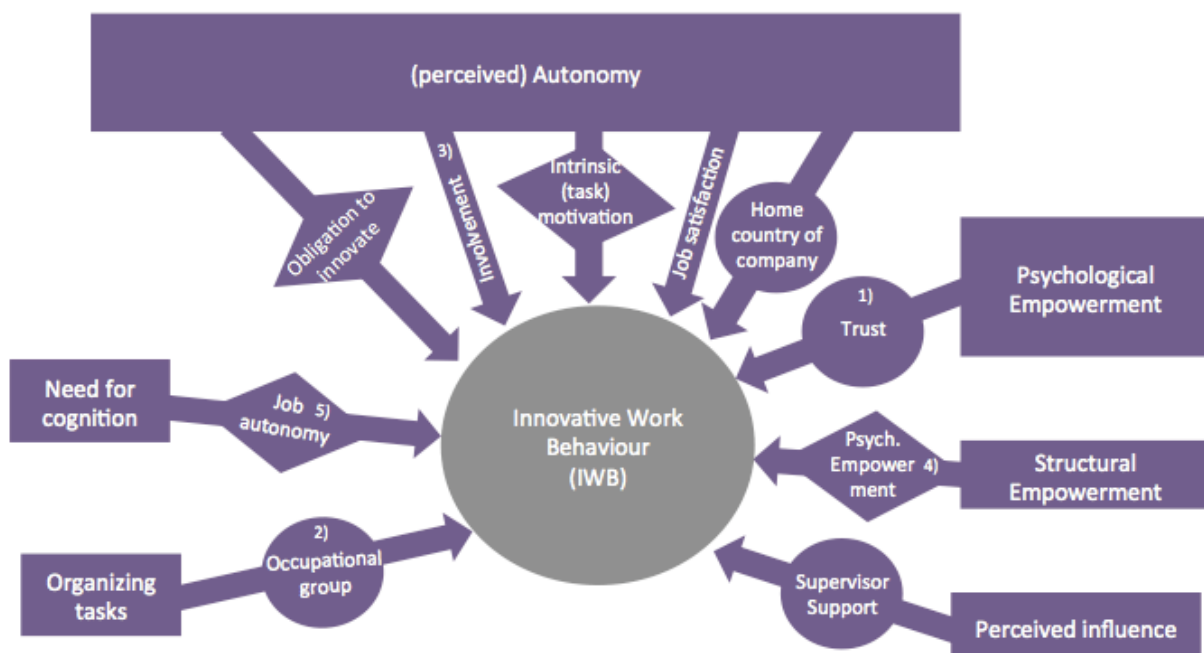
Battistelli et al. (2011), Lu, Lin and Leung (2012), and Wu et al. (2011) investigated autonomy as intervening factor as well. For instance Battistelli et al. (2011) considered autonomy as a moderator between dispositional resistance to change and IWB. They hypothesise that resistance to change is positively linked to IWB when autonomy is high rather than low. Their hypothesis is partly confirmed, meaning that the interaction effect of resistance to change and autonomy was supported ($\beta = .07, p < .01$) however, whether autonomy is low or high, has no moderating effect on the relationship between high resistant to change individuals and IWB (for low autonomy, $M-1$ *SD*, $\beta = -.26, n.s.$; for high autonomy $M+1$ *SD*, $\beta = .03, n.s.$). The researcher argue that these findings could be explained by the assumption that individuals who are rather resistant to change might feel more unconfident as they get more freedom and discretion in how to accomplish their tasks when change processes occur. However, Battistelli et al. (2011) suppose that autonomy is able to moderate this relationship in a non changing context, because routine seeking traits (a part of resistance to change) was positively (but non-significant) related to IWB, when autonomy was entered to the multiple regression analysis. Lu et al. (2012) used learning goal orientation (LGO) also described as dispositional trait as independent variable. Here, perceived autonomy was

investigated as mediator between LGO and IWB. The authors assume that employees who inherit LGO are more encouraged to put extra effort in acquiring knowledge and therewith are able to experiment with different solutions, which in turn might lead to IWB. Further, they posit that LGO is related to perceived autonomy in the sense that high learning goal oriented employees believe that they are able to master job related knowledge, which fosters self efficacy in a sense that they perceive control over their work. Thus, their choice to include perceived autonomy as mediator is based on the assumption that LGO provokes perceived autonomy, which in turn triggers IWB. Their results show that LGO is positively related to IWB ($\beta = .33, p < .05$). No statistically significance was found between LGO and perceived autonomy ($\beta = .10, n.s.$) and only a marginal significance between perceived autonomy and IWB ($\beta = .20, p < .10$). Therefore, the supposed mediation of perceived autonomy is not confirmed. Lu et al. (2012) speculate that employees with high LGO might be more intrinsically encouraged to learn, and therewith feel competent enough to show IWB. This already might lead to feelings of empowerment in the sense that LGO itself could destroy the effect of autonomy received from the organisation. In the research of Wu et al. (2011), autonomy is considered a moderating variable between ‘need for cognition’ and IWB. ‘Need for cognition’ is according to Wu et al. (2011, p. 2) defined as an “individuals’ dispositional tendency to engage in and enjoy thinking”. They found support for their hypothesis. Job autonomy moderates this relationship in the sense that ‘need for cognition’ has no significant influence on IWB when job autonomy is high ($\gamma = .06, t(408) = 1.02, p > .05$), has a positive impact when job autonomy is moderate ($\gamma = .15, t(408) = 2.94, p < .01$) and has the strongest positive effect when job autonomy was low ($\gamma = .24, t(408) = 3.62, p < .01$). The authors explain their results by the Interactionist Model of Personality introduced by Endler (1983). According to this approach, dispositional and contextual factors work together in order to frame individual behaviour. Individuals with high ‘need for cognition’ might not be as much influenced by contextual forces such as job autonomy than those with low ‘need for cognition’. ‘Need for cognition’ might itself play an important role for engaging in IWB, however, contextual factors such as job autonomy seems also be critical, since its degree might be able to alter the impact of individual dispositional trait on IWB.

Summarized, nearly all researches (17 out of 19) found a significant positive (direct/indirect) relationship between autonomy and IWB. Only when particular dispositional traits like ‘resistance to change’ and LGO are apparent, autonomy might not be able to influence the relationships between these traits and IWB. They might themselves provoke such a strong influence on IWB that autonomy neither matters (Battistelli et al., 2011; Lu et

al., 2012). Irrespective of these two researches, it can be assumed that the more employees are independent and free to determine how their job is composed and carried out the more IWB will those employees show. In addition, no difference could be identified between employees working in the public or private sector.

However, there might be some differences between occupational groups (white collar workers and knowledge workers compared to blue collar workers) as outlined by Sanders et al. (2010) and De Spiegelaere et al. (2012). Although, both researched employee types show more IWB when they receive more power from their employer, this relationship was stronger for employees who seem to be rather intrinsically motivated (white collar and knowledge workers) compared to rather extrinsic motivated employees (blue collar workers). Intrinsic motivation is one explanation of how the relationship between autonomy and IWB can be explained and Abstein and Spieth (2014) support this argument by using the Cognitive Evaluation Theory. Marane (2012) argues that the Social Exchange Theory (Homans, 1958) explains why empowerment fosters IWB. And others such as Fernandez and Moldogaziev (2013) and Monks et al. (2012) argues that satisfaction with ones job (provoked by autonomy) is the explanation why autonomy positively influences IWB. Finally, factors such as supervisor support, trust in the organisation, and cultural differences among firms, seem to influence the relationship between empowerment practices and IWB. Figure 4 represents the findings mentioned above. To clarify, only significant relationships will be presented. Further, the figure comprises the findings in the sense that multiple significant findings were illustrated only once.



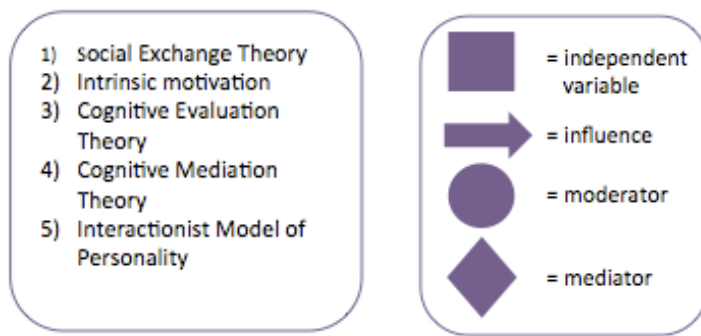


Figure 4 Significant relationships between autonomy and IWB

3.3.2 Task composition

Task composition is the second most researched HRM variable, sought to influence IWB. Ten out of twenty eight researches investigated task composition as potential influencing factor regarding IWB (Dorenbosch et al., 2005; de Jong, et al., 2013; Monks et al., 2012; Noefer et al., 2009; Ohly et al., 2006; Ong, Wan & Chng, 2003; Sanders et al., 2010; De Spiegelaere et al., 2012; Scott & Bruce, 1994; Urbach et al., 2010).

While the researchers use terms like task variety, job complexity and routine or non routine tasks, as will be outlined, we will name this variable ‘task composition’, since it better reflects the different views of this HRM variable and also comprises routinization as part of job complexity.

De Jong et al. (2013) adapt the definition regarding job variety from Hackman and Oldham (1976) who describe it as “the degree to which a job requires a variety of different activities in carrying out the work, which involves the use of a number of different skills and talents of the person“ (Hackman & Oldham, 1976 in de Jong et al., 2013, p. 4+5). Noefer et al. (2009) have the same understanding regarding job variety, however, they call it skill variety since they argue that employees who have to accomplish diverse and complex tasks, need and use different skills to be able to fulfil their job. Monks et al. (2012) describe task variety from two perspectives. First, they argue that tasks can be challenging and stimulating or second, standardized, iterative and dreary. According to them, both forms should be taken into account, when talking about the composition of tasks and its influence on IWB. Ong et al. (2003) and Urbach et al. (2010) describe task variety with terms such as stimulating and challenging tasks. Ohly et al. (2006) use an almost similar definition of task complexity. They refer it to diverse and difficult to accomplish tasks. However, they also use the term routinization in this context. According to them, routinization should not be seen as the

opposite of task complexity. They argue that also complex jobs entail routine tasks, in the sense that employees, who fulfil a complex and diversified job also do some tasks repeatedly, which can be referred to routine tasks. For instance, a network administrator fulfils an overall complex job, however, some tasks such as filing documents were performed repeatedly and predictably, which can be seen as automaticity in behaviours, thus routinization.

Dorenbosch et al. (2005) propose a direct positive relationship between multifunctionality and IWB. They investigated IWB as a one dimensional as well as a two dimensional construct. Their findings confirm a positive relationship between multifunctionality and the complete IWB variable ($\beta = .221, p < .01$) as well as between multifunctionality and the implementation oriented variable ($\beta = .313, p < .01$). However, the relationship between multifunctionality and the creativity oriented variable was positive, but not significant ($\beta = .135, n.s.$). The authors give no explanation why multifunctionality is positively related to the implementation oriented stage, but not to the creativity oriented variable of IWB. In general, they argue that multifunctionality might enable employees to gain a lot of different work related knowledge and skills, which in turn is assumed to be necessary for the successful engagement in IWB. Monks et al. (2012) explain the positive linkage between diversified jobs and IWB with satisfaction regarding ones job. They found that the engagement in IWB comes from challenging and stimulating work. For example, one participant said that satisfaction to engage in IWB “derives from the intellectually stimulating nature of my job, which involve a lot of thinking” (Monks et al., 2012, p. 9). On the other hand, employees said that standardized and dreary jobs lead to dissatisfaction and feelings of stress as the focus lies on numbers, deadlines, and sales targets (“a lot of tedious, repetitive jobs, which take away from my time to develop properly”, Monks et al. 2012, p. 12). Motivating employees by giving them the possibility to use more skills, is also the explanation of Noefer et al. (2009). They found that job variety has a significant positive impact on idea generation ($r = .26, p < .05$) as well as on idea implementation ($r = .31, p < .01$). They argue that employees who are due to their work context able to use diverse skills “also have the behavioural freedom to develop and evaluate new ideas” (p. 390), which in turn motivates them to behave in this manner. In addition to that, Noefer et al. (2009) also proposed that supervisor feedback moderates these relationships, however, feedback will get extra attention later on, therefore, the results are not presented here. Sanders et al. (2010) use a similar assertion. They investigated job content, as direct influencing variable regarding IWB as well as mediator between leader member exchange (LMX) and IWB. They suppose that employees who have a favourable relationship with their leaders experience more

satisfaction with their job, because leaders are often seen as being responsible for the composition of tasks for example how challenging and stimulating employees' jobs are. Their findings could confirm both hypotheses. Satisfaction with 'work content' is positively linked to IWB ($\beta = .20, p < .01$) and LMX and IWB also show positive correlation ($\beta = .19, p < .01$). Moreover, the latter significant positive relationship disappeared when satisfaction with 'work content' was added (LMX \rightarrow IWB with 'work content,' $\beta = .11, n.s.$), which confirms a mediation of 'work content' in the relationship between LMX and IWB. The authors explain these results with the intrinsic motivation of their research group. Here, the sample consists of knowledge workers. The authors argue that autonomy (please see under the part autonomy) and work content are of utmost importance for this occupational group, since they are rather intrinsically motivated. Thus, satisfaction with task composition stimulates them to show IWB. Regarding the relationship between LMX and IWB, this relationship will be outlined in more detail later on in this chapter.

Urbach et al. (2010), Ohly et al. (2006), and De Spiegelaere et al. (2012) detected mixed results regarding the inducement of job complexity on IWB. The results of Urbach et al. (2010) reveal that job complexity has no significant impact on ideation ($\beta = .11, p = .432$) but significantly affects implementation ($\beta = .23, p = .041$). The authors suppose that their sample (software developer) is in general concerned with high stimulating jobs, meaning that the threshold needed for stimulating idea generation is already met by the job itself. The question why job complexity affects the implementation of ideas is answered by the assumption that employees who fulfil complex jobs might have usurped the necessary know how to implement their ideas due to a general high acquisition of knowledge and skills. Ohly et al. (2006) investigated routinization in addition to job complexity. To recap, Ohly et al. (2006) do not see routinization as the opposite of job complexity. Rather, they understand it as an automatic behaviour, which is also part of a complex job. Due to this, they propose a positive relationship between routinization and IWB as well as between job complexity and IWB. Their findings partly confirm their hypotheses. They found a significant positive relationship between routinization and creativity ($\beta = .13, p < .05$) as well as a significant positive relation to innovation ($\beta = .12, p < .05$). Job complexity shows no significant impact on creativity ($\beta = .08, n.s.$) but a significant positive correlation to innovation ($\beta = .19, p < .01$). Ohly et al. (2006) explain these results with the suggestion that employees, who accomplish particular tasks frequently, can use their spared cognitive and time resources to generate and implement new and useful ideas. However, they argue that this might only be the case when routinization appears in specific tasks, not when it occurs in job content, because repetition on

this dimension might lead to tedium. Regarding the non significant relationship between job complexity and creativity and the positive correlation between job complexity and innovation, the researcher argue that employees working in challenging jobs might view it as their task to enhance work processes, but this does not necessarily mean that more useful ideas were produced. De Spiegelaere et al. (2012) in contrast, found an overall negative effect of routine tasks on IWB ($\beta = -.056, p < .025$). They give no explanation for this finding, as their focus lay more on the difference between occupational groups. For this purpose, they also investigated blue and white collar workers as moderator between routine tasks and IWB. They found indeed differences in the correlation between routine tasks and IWB for white collar and blue collar workers (routine tasks \rightarrow IWB for white collar employees, $\beta = -.093, p = .056$; for blue collar employees $\beta = .090, p = .072$). Although, both findings only appear marginally significant, the authors assume that the more routine tasks white collar employees have to fulfil the less IWB will they show, because stimulating and challenging jobs might be more important for the motivation of white collar employees to engage in IWB than for blue collar employees.

De Jong et al. (2013), Ong et al. (2003), and Scott and Bruce (1994) found no significant correlation between complex jobs and IWB. Since De Jong et al. (2013) also investigated autonomy in their research, they argue that enlarged job control might reduce the effect of job variety to nothing (job variety \rightarrow entrepreneurial behaviour $\beta = .017, n.s.$), because diversified jobs are usually understood as a predefined set of additional tasks, not necessarily meant to increase motivation, which was the explanation for the positive relationship between autonomy and IWB. Ong et al. (2003) found similar results (challenging tasks \rightarrow idea generation, $\beta = .170, n.s.$; challenging tasks \rightarrow idea implementation, $\beta = .205, n.s.$). Unfortunately, the authors give no statement why they think these results occurred.

Scott and Bruce (1994) could also not support their hypotheses, but they used another approach regarding the influence of complex jobs and IWB. They investigated task type, as they name it and considered it as moderator. In more detail, they suggest that the correlation between supportive climate and IWB is different for scientists/engineers and technicians, since their survey yield that the tasks of these employees seem to be different. According to them, Scientist and engineers fulfil rather non routinized tasks, whereas technicians conduct rather structured and routinized jobs. Their findings were not able to support their hypotheses. Supportive climate and IWB show a significant positive correlation ($\beta = .30, p < .05$), but task type does not moderate this relationship (for technicians $\beta = .26, n.s.$; for scientists and engineers $\beta = .26, n.s.$). The authors explain these results by the assumption that R&D

companies might construct a general high level of supportive climate, due to its “espoused mission of innovation” (Scott & Bruce, 1994, p. 601). Thus, when a high level of perceived supportive climate exists, a threshold might have already been met and task types might not be able to influence this relationship.

Consolidated, the findings regarding the relationship between the composition of tasks and IWB are mixed. In three out of the ten articles, the researcher could not find a statistically significant relationship between task composition and IWB. However, by reason of the significant findings in seven articles, it could in general be argued that as more routine a task is as more negative might be its relation to IWB. This is partly supported by Ohly et al. (2006). They argue that routinization in work content should be avoided since it could lead to tedium. However, a particular degree of routinization in specific tasks could be beneficial for the engagement in IWB because it could spare those cognitive resources, which are necessary for the engagement in IWB. Noefer et al. (2009) and Sanders et al. (2010) use another perspective. They assume that challenging and stimulating jobs might be able to trigger the intrinsic motivation of employees, which in turn is seen as being responsible for the engagement in IWB. Figure 5 summarizes the findings regarding job complexity and IWB. To clarify, only significant relationships were illustrated.

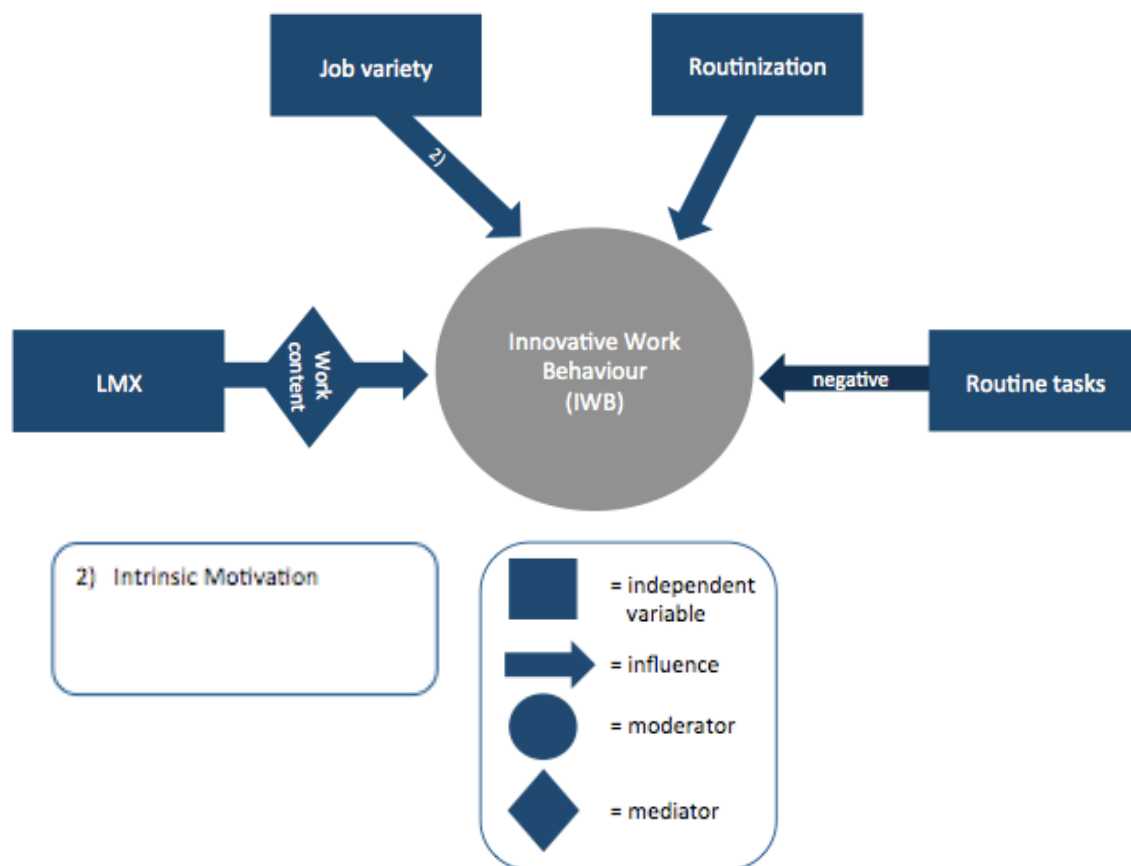


Figure 5 Significant correlations between task composition and IWB

3.3.3 Training and development

Training and development was seven times investigated as HRM practice supposed to influence IWB (Bysted & Jespersen, 2013; Knol & van Linge, 2009; Monks et al., 2012; Ong et al., 2003; Pratoom & Savatsomboon, 2010; Spiegelaere, de et al., 2012; Zhang & Begley (2011). Bysted and Jespersen (2013) describe this HRM practice as competence development and argue that when employees' competences get developed, their creative skills get stimulated which in turn might trigger their innovative working behaviours. For instance, they assume that only competent employees are able to engage in innovative behaviours, since they are actually able to detect opportunities and problems. Knol and van Linge (2009) use two variables to comprise training and development, namely opportunity and information. The first means to give employees the opportunity to learn and grow. The latter refers to technical knowledge and data provided by the organisation to enhance employees' knowledge and skills. This is in line with Monks et al. (2012) who also describe training and development as knowledge and skill enhancing practice. Ong et al. (2003), Pratoom and Savatsomboon (2010), and Zhang and Begley (2011) name this practice knowledge structure, knowledge management and knowledge transfer, respectively. Here, knowledge acquisition and how this knowledge is structured and transferred among groups and individuals within an organisation to enhance individuals' innovative capacity stay central.

All authors could confirm a direct positive relationship between training and development and IWB. However, they use different investigations of this HRM variable and give different explanations for the positive linkages, why a closer look is taking to their findings.

For instance, Ong et al. (2003) argue that there are different knowledge resources within an organisation e.g. employees, files and data. Such knowledge should be organised and shared in way that it could be utilized to encourage IWB. They found that knowledge structure has a significant positive relation to ideation as well as to implementation (knowledge structure \rightarrow ideation, $\beta = .353$, $p = .005$; knowledge structure \rightarrow implementation, $\beta = .280$, $p = .027$). The researcher claim that knowledge and how it is organised within a company is of utmost importance, because without work related knowledge and skills it will be almost impossible to detect either problems nor opportunities to enhance work processes, the assumed first steps to idea generation. Moreover, structuring and sharing such knowledge is important to sustain expertise within an organisation. Pratoom and Savatsomboon (2010) agree with Ong et al. (2003) and considered knowledge management as influencing variable regarding IWB. According to them, it is of utmost importance to know where necessary

knowledge could be acquired, which people should be involved and when a task should be completed, to engage in IWB, at all. Their results support their assumption. Knowledge management is significantly positive related to IWB ($\beta = .109, p = .039$). The authors argue that in Thailand (where their research was executed) a lot of tacit knowledge exists, which is passed down from one generation to the next. According to them, making tacit knowledge explicit is imperative to be able to detect problems and opportunities, to generate new ideas, and to know who is important when a good idea needs to be supported.

Zhang and Begley (2011) came to the same conclusion. However, they add cultural differences to their research model. More precisely, they propose that knowledge resources predict IWB only when it is shared with others (knowledge transfer) and that this relationship is mediated by Chinese working in a Chinese owned company in China. Their findings could confirm their hypotheses. Knowledge resources show a significant positive relation to knowledge transfer ($\beta = .35, p < .01$) and knowledge transfer in turn, is positively linked to IWB ($\beta = .58, p < .01$). Moreover, regarding the mediating effect of a company's home country, their results show a full mediation of Chinese owned companies while the American sample indicates no mediation for the relationship between knowledge transfer and IWB (for Chinese owned companies, $\beta = .47, p < .01$; American sample, $\beta = .14, n.s.$). Zhang and Begley (2011) argue that the rather collectivistic culture within Chinese owned companies fosters employees' innovativeness because of their high in-group mentality. Herewith, Chinese employees working in a Chinese owned company, trust in-group members and are therefore more willing to share their knowledge with each other. The authors use this cultural difference as explanation why the relationship between knowledge transfer and IWB is fully mediated by the sample of Chinese owned companies.

Knol and van Linge (2009) use a different justification for the positive correlation between opportunity and information, respectively, and IWB. They refer both to structural empowerment, since they argue that knowledge and expertise is a kind of power. Their results reveal positive relationships between opportunity, information and IWB, however; only information has a significant positive impact on IWB ($\beta = .104, p = .015$; opportunity \rightarrow IWB, $\beta = .088, p = .056$). The authors argue that as more competent an employee is as more power he/she generally possesses, which in turn might encourage their IWB. Unfortunately, they give no explanation why information (the excess to data) has a greater positive impact on IWB than opportunity.

Monks et al. (2012) use another perspective to explain why training and development predict IWB. They ascribe this HRM practice as employers' opportunity to enhance

employees' motivation to engage in IWB. The researcher discovered that training and development lead to an increase in employees' commitment to the organisation, due to an arising mutual relationship between employer and employee. This view is reflected in the social exchange theory (Homans, 1958) previously outlined. For instance, one participant said, "the acknowledgment by the company in the form of spending money on your development is quite a boost...a moral boost really" (Monks et al., 2012, p. 10).

De Spiegelaere et al. (2012) again elucidate the linkage between learning opportunities and IWB in another way. This may lay in the fact that they investigated occupational groups as moderator. In more detail, they suppose that blue and white collar employees moderate the identified positive relationship between learning opportunities and IWB ($\beta = .260, p < .0001$). The authors found an interaction effect ($\beta = .290, p < .0001$) and a negative, but non significant correlation for blue collar employees ($\beta = -.077, p = .187$). The authors suggest, that job resources such as learning opportunities are more important for white collar employees to engage in IWB than for blue collars. Since learning opportunities could be referred to intrinsic motivators and blue collar workers are supposed to be rather extrinsically motivated, this HRM practice might not be able to encourage blue collar employees' IWB.

Bysted and Jespersen (2013) add sector type to their research model. They propose a positive linkage between competence development and IWB and that this relationship is moderated by sector type. Their findings could confirm their hypotheses (competence development \rightarrow idea generation, $\beta = .12, p < .001$; competence development \rightarrow idea implementation, $\beta = .07, p < .01$). Furthermore, their results reveal an interaction effect of private and public sector employees. The impact of competence development on public employees' idea generation is 33 per cent lower than on private employees' idea generation ($\Delta: (.12 - .04)/.12 = .67$) and 57 per cent lower than on private employees' idea implementation ($\Delta: (.07 - .04)/.07 = .43$). Thus, competence development fosters privately employed individuals' IWB more than that of publicly employed people. The moderating effect is explained by dissimilarities in the understanding of IWB. According to them, private sector employees perceive IWB (more than public sector employees) as career enhancing opportunity, since it is rather seen as a firms' measurement tool for individual performance, which is worthwhile to invest in, when private employees wants to get ahead. Public sector employees, in contrast, are rather faced with bureaucratic rigidity wherefore a greater engagement in IWB would not automatically help them to foster their career.

Summarized, all articles found a direct positive relationship between training and development or also called knowledge structure or knowledge management, respectively and

IWB. The main difference among the articles lay in the investigation of training and development. For instance, Knol and van Linge (2009) refer opportunity and information to structural empowerment. They claim that expertise and knowledge is a kind of power, in the sense that more competent and skilled employees are usually more autonomous and therewith able to utilize their knowledge to engage in IWB more than less competent employees. Others, such as Monks et al. (2012) and de Spiegelaere et al. (2012) ascribe training and development to commitment and motivational factors for employees to engage in IWB. Occupational groups, sector type and cultural differences seem to make a difference in the strength of the relationships between learning opportunities and IWB. Figure 6 presents the summarized significant results of the linkage between training & development and IWB.

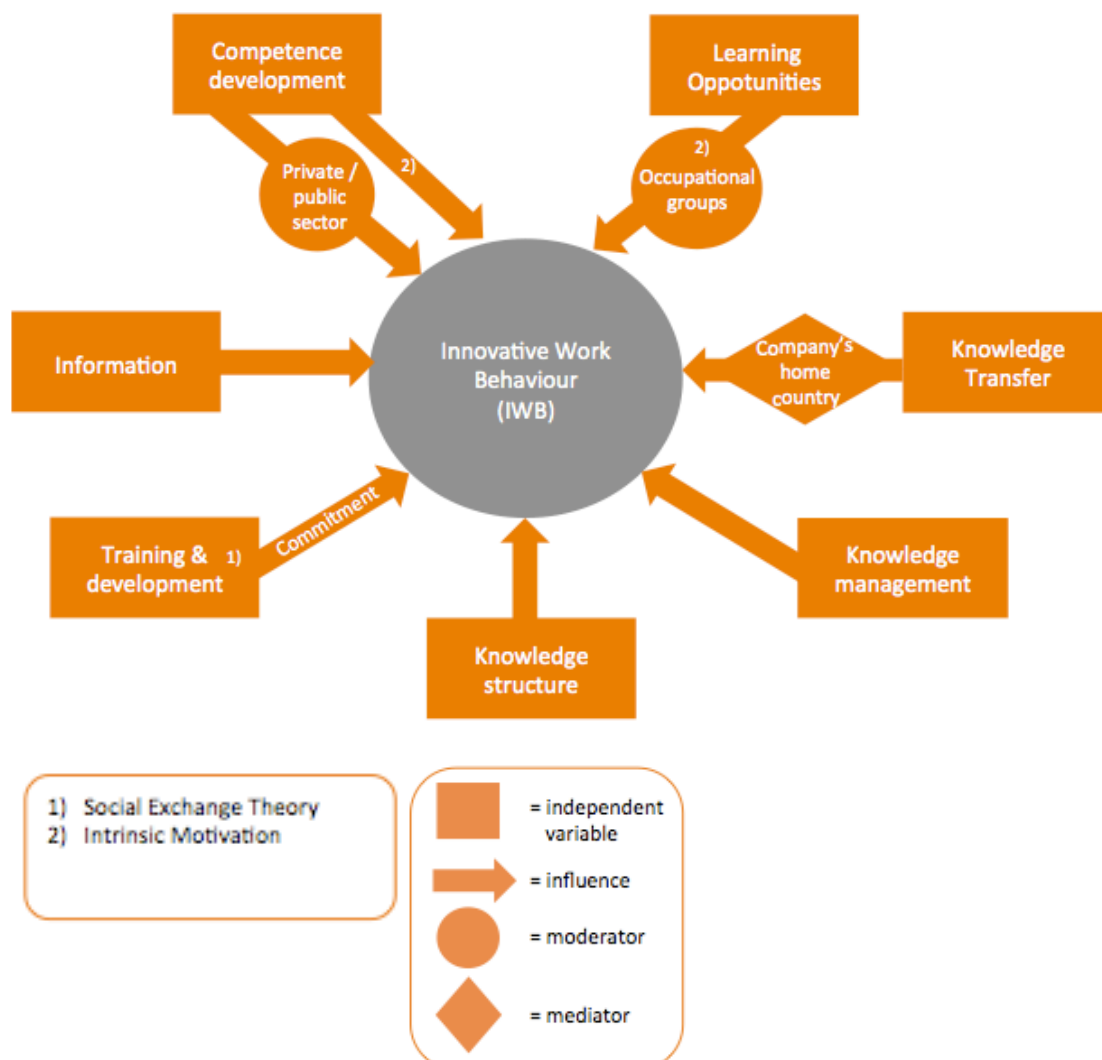


Figure 6 Significant linkages between training and development and IWB

3.3.4 Reward

Seven out of twenty eight articles investigated reward and tried to find out how it influences employees' IWB (Bysted & Hansen, 2013; Bysted & Jespersen, 2013; Janssen, 2000; Monks et al., 2012; Ramamoorthy et al., 2005; Sanders et al., 2010; Zhang & Begley, 2011). Although some researchers name this HRM practice differently, they describe it in more or less the same way. For instance, Bysted and Hansen (2013) and Bysted and Jespersen (2013) name this HRM practice expectancy clarity, which focuses on the linkage between performance and reward. Thus, the clarity of the link between employees' innovative performance and what they receive for this effort. Sanders et al. (2010) and Zhang and Begley (2011) call it primary and secondary and organisational rewards, respectively, where also non financial benefits are included. Thus, not only financial rewards are of interest when employees' IWB should be influenced. Six articles suggest a direct influence of reward on IWB. Beside that, some of them also propose that mediators and moderators, respectively, intervene this relationship. Only Janssen (2000) investigate effort reward fairness as intervening variable.

Starting with the assumptions and findings of Ramamoorthy et al. (2005) who suppose a positive linkage between pay and IWB. In addition, they investigate 'met expectations' and 'obligation to innovate' as intervening variables. These proposed mediating variables are described as being part of a psychological contract between employees and their employer. In more detail, 'met expectations' "refer to an employees' assessment and belief that his/her expectations has been satisfied through their work experiences" (Ramamoorthy et al., 2005, p. 143). These expectations are unilateral, thus without explicit assurances of the employer. 'Obligation to innovate', in contrast, lasted on a mutual relationship between employees and their employer. When employers fulfil their obligations e.g. paying salary or bonuses, employees feel more obligated to give the organisation value back in terms of discretionary behaviours such as IWB (Homans, 1958). Hence, the authors assume that 'met expectations' and 'obligation to innovate' are positively linked to IWB. Their results reveal a positive relationship between pay and IWB via 'expectations met' ($\beta = .22, p < .001$). Further, 'expectations met' was indirect positively related to IWB via 'obligation to innovate' ($\beta = .15, p < .05$). Regarding the supposed positive relationship between pay and IWB via 'obligation to innovate', this hypothesis could only indirectly be supported. Pay is positively related to 'expectations met', which in turn was positively linked to IWB via 'obligation to innovate'. Even more, pay also positively affects IWB directly (pay \rightarrow IWB, $\beta = .13, p < .05$). The researchers claim that pay has a positive influence on IWB because employees may

view IWB not as extra role behaviour, but as 'on the job performance', wherefore they expect to be rewarded for. They assume further, paying bonuses for the engagement in IWB seems to influence the fulfilment of 'met expectations' and 'obligation to innovate', thus the psychological contract seems to be fulfilled, which might foster IWB. Monks et al. (2012) found a similar relationship and used the same explanation. They found that punishing employees by ignoring them for example for salary increase leads to feelings of stress, which in turn is argued to hinder employees motivation to engage in IWB. One participant said, "suggestions and new ideas come well down on a list of tasks that had to be undertaken and so were ignored unless they had an immediate impact on day-to-day activities or revenue" (Monks et al., 2012, p. 11). Bonuses were only paid when new processes are more cost effective than previous ones. This means that the focus heavily lays on cost effectiveness not on the generation and implementation of new and useful ideas in general. According to the authors, implementing this HRM practice in such a way puts pressure on employees, leads to job dissatisfaction, and low moral, which in turn restrain employees to be innovative. Thus, the recognition and reward of employees' effort seems to be an indispensable factor for encouraging employees' IWB, because it seems to be the basis for a mutual relationship.

Although Sanders et al. (2010) hypothesise the same relationship they detected completely different results. Here, reward is subdivided into monetary rewards (e.g. bonuses, pay, profit sharing) and non monetary rewards (e.g. health insurance, holidays). Their findings reveal contradictive correlations. Satisfaction with monetary reward is significantly negative related to IWB ($\beta = -.19$, $p < .01$) and show no significant relationship between satisfaction with non monetary rewards and IWB ($\beta = .07$, *n.s.*). The authors explain these results with an underpinning of the intrinsic motivation of employees. Their sample mainly consists of knowledge workers who are supposed to be rather intrinsically motivated. Extrinsic motivators like rewards can hinder their willingness to engage in IWB through a shift from a relational psychological to a transactional contract between them and their organisation. This shift may thwart discretionary behaviours such as IWB.

As previously outlined, Bysted and Hansen (2013) and Bysted and Jespersen (2013) propose that sector type matters. Hence, both studies propose different outcomes for public and private sector employees regarding the relationship between expectancy clarity and financial mechanism, respectively and IWB. In more detail, Bysted and Hansen (2013) hypothesis that public employed individuals have lesser expectancy clarity than private employed individuals. That is, they are supposed to have a rather unclear performance reward linkage compared to private sector employees. This lesser clarity is assumed to have a

positive impact on IWB. The findings confirm their hypothesis. Public sector employees show indeed lesser expectancy clarity than private employed people ($\beta = -.036, p < .01$). Moreover, the results reveal that public employees show more innovative behaviours than private sector employees (public employed \rightarrow IWB, $\beta = .029, p < .01$; private employed \rightarrow IWB, $\beta = .026, p < .05$). By reason of these results, Bysted and Hansen (2013) propose that the less clear the linkage between innovative performances and reward the more IWB. Unfortunately, the authors give no explanations for their findings. In essence, Bysted and Jespersen (2013) propose almost the same relationships, however, they call it financial mechanism and express its relation to IWB in the opposite way. Thus, financial mechanism is assumed to influence IWB negatively and they suppose, in contrast to Bysted and Hansen (2013), that financial mechanisms have a positive relation to public employed individuals' IWB. Their results reveal that financial rewards have no significant impact on idea generation ($\beta = -.02, n.s.$) but have a significant negative influence on idea implementation ($\beta = -.05, p < .01$). Thus, their first hypothesis is partly confirmed. Regarding the moderating effect of sector type, this hypothesis is also partly supported. Public employees' willingness to create new ideas is not significant affected by salary bonus ($\beta = .01, n.s.$). However, financial mechanism has a significant positive influence on public employees' willingness to implement ideas ($\beta = .03, p < .05$). The negative effect of reward on IWB, explain the researcher with the intrinsic motivation of employees. The authors argue that employees will show more innovative behaviours when they are rather intrinsically motivated than when extrinsic motivators such as reward are apparent. Since, expectancy clarity can be referred to extrinsic motivational factors, it will rather undermine the intrinsic motivation of employees. Hence, as less the connection between innovative performance and reward as more IWB employees will show. However, this relationship seems to be different for sector types. Public employed people respond well to reward although they are assumed to perceive a less clear connection between innovative performance and reward. Since private employed people view IWB as opportunity to get ahead, public employees see IWB as risky extra role behaviour wherefore they wants to be rewarded. Dorenbosch et al. (2005) call this perception of IWB 'extra role syndrome'. Therefore, a clear link between reward and innovative performance seems to encourage public sector employees' IWB. These results are completely different to those found by Bysted and Hansen (2013).

Zhang and Begley (2011) propose a positive relationship between financial and non financial rewards and IWB. Moreover, they assume that the home country of a company matters in the sense that the supposed positive influence of reward is stronger for Chinese

employees working in an American owned company in China than for Chinese employees working in a Chinese owned company in China. Their results confirm their hypothesis. Reward (financial, non financial) has a significant positive relation to IWB, and this relationship is stronger for Chinese employees working in an American owned company in China ($\beta = .27, p < .01$) than for Chinese working for a Chinese owned company ($\beta = .20, p < .05$). Zhang and Begley (2011) argue that rewarding employees' for their innovative performance can motivate them to further engage in such extra role behaviours, because they experience that their organisation recognises their effort. When employees have such feelings regarding rewards, they perceive their own extra effort as worthwhile. However, such connections are rather apparent in more individualistic cultures such as American owned companies as opposed to rather collectivistic cultures such as Chinese owned companies, which put more emphasise on group conformity than on financial and non financial rewards, respectively.

Janssen (2000) assumes an indirect effect of effort reward fairness on IWB. In more detail, he supposes that the relationship between job demand and IWB is mediated by effort reward fairness. That is, employees perceive their effort to engage in extra role behaviours, such as IWB, as fairly rewarded. Janssen (2000) describe job demands as high workload resulting from much work to do within restricted time. Their findings reveal that higher job demand is significantly positive related to supervisor ratings of IWB when employees perceive effort reward fairness ($\beta = .31, t = 2.12, p < .05$). When employees do not experience effort reward fairness, this relationship appears not be significant ($\beta = -.04, t = -.40, n.s.$). Job demand and fairness perception show an interaction effect ($F = 6.28, p < .05$). Regarding the relationship between job demand and self ratings of IWB, the results reveal the same pattern. Job demand is significantly positive related to IWB under perceptions of effort reward fairness ($\beta = .33, t = 3.19, p < .01$) and is not significantly correlated with IWB when employees felt unfairly rewarded ($\beta = .10, t = 1.18, n.s.$; interaction effect of job demand and fairness perception, $F = 5.67, p < .05$). Hence, these results confirm their hypotheses. Janssen (2000) explain this relationship with the social exchange theory. He argues that employees will engage in IWB when they perceive their efforts as fairly rewarded. Since IWB is not prescribed in job descriptions, it is seen as extra role behaviour. When organisations attend to such behaviours by rewarding them fairly, employees will much likely show such extra role behaviours. In contrast, when organisations do not attend to and reward such extra role behaviours, employees will most likely not engage in IWB again.

To embrace, the findings regarding the connections between reward and IWB are ambiguous. Four of the six above outlined articles found significant negative relationships between reward and IWB or at least to one of the two investigated dimensions of IWB. Two of them detected a significant positive linkage between financial and non financial rewards and IWB. Ramamoorthy et al. (2005) and explain the positive relationship with psychological contracts employees and employers maintain to get the best out of their relationship for both parties. Janssen (2000) agree with Ramamoorthy et al. (2005) in the sense that the mutual relationship between employer and employee provokes IWB, however he argues that feelings of reward fairness are needed for the emergence of this mutual relationship. Zhang and Begley (2011) claim that employees see their extra role behaviours as worthwhile when they get rewarded for it. According to them, reward serves as an effective motivator for employees' engagement in IWB. The negative relationships were based on the undermining of the intrinsic motivation of employees (Bysted & Jespersen, 2013; Sanders et al., 2010). Figure 7 illustrates the comprised significant correlations between reward and IWB.

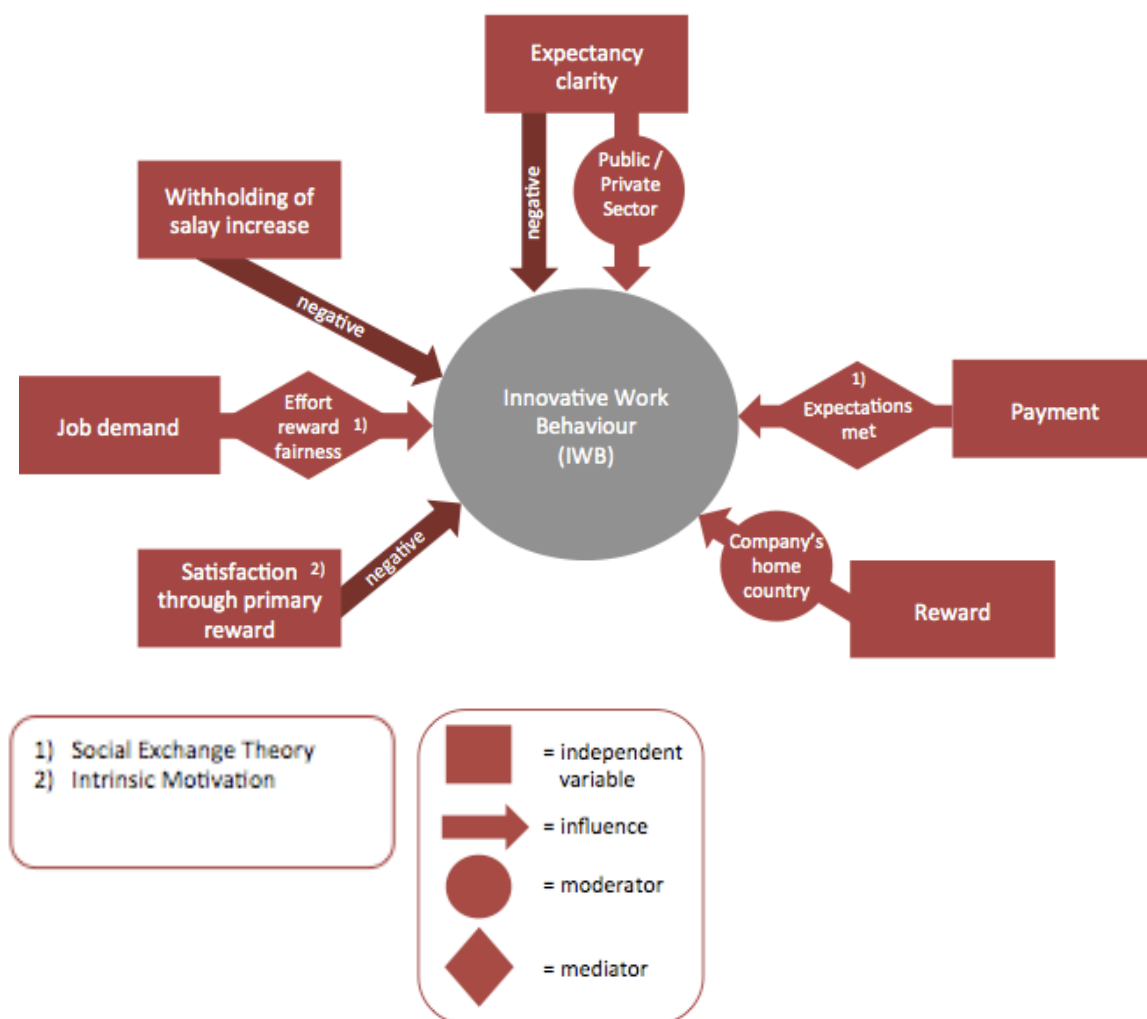


Figure 7 Various findings of reward and its relation to IWB

3.3.5 Job demand and time pressure

Six out of twenty eight researches investigated job demand and time pressure as influencing variable regarding IWB (Janssen, 2000; Martín, Salanova & Peiró, 2007; Noefer et al. 2009; Ohly et al., 2006; de Spiegelaere et al. 2012; Wu et al., 2011). Job demand and time pressure were grouped to one work practice, since job demands are often described as heavy workload resulting from much work to do within restricted time (Janssen, 2000), which could be related to time pressure. Martín et al. (2007) use a definition of Demerouti, Bakker, Nachreiner and Schaufeli (2001) who argues that job demands are “those physical, social or organizational aspects of the job that require sustained physical or mental effort and are therefore associated with certain physiological and psychological costs” (Demerouti et al., 2001 p. 501, in Martín et al., 2007, p. 622). Noefer et al. (2009), Ohly et al. (2006), de Spiegelaere et al. (2012), and Wu et al. (2011) investigated time pressure as influencing variable. However, de Spiegelaere et al. (2012) distinct job demands in two parts depending on their probable outcomes. For instance, time pressure is grouped to job challenges, since previous researches revealed mixed results regarding the outcome of time pressure. Job hindrances, the second part of job demands, could be referred to rather negative outcomes. Examples of job hindrances are role ambiguity and job insecurity.

Only the study of Wu et al. (2011) assume a indirect influence of time pressure, the other five researches propose a direct influence of job demand/time pressure on IWB, but some of them investigate also other intervening variables such as effort reward fairness, job resources, and occupational groups (Janssen, 2000; Martín et al., 2007; de Spiegelaere et al. 2012).

Martín et al. (2007) supposed that job demands predict IWB when job resources such as control over work processes and clear goals are also inherited in ones job. Here, the structure and organisation of ones job is described as part of job demands. Their results show a negative but non significant relationship between the job demand variable and IWB ($\beta = -.050$, *n.s.*) and a significant positive relationship between job resources and IWB ($\beta = .250$, $p < .001$) Further, they found a marginally significant interaction effect of job demand and job resources ($F = 3.38$, $p < .10$). Additionally, when job resources was added to the regression model of job demand and IWB, this relationship appears, even though marginally significant, but it turns it into a positive one ($\beta = .115$, $p < .10$). Therefore, Martín et al. (2007) argue that job resources might be able to rule out the negative effects of job demands on IWB. They explain these findings with the assumption that IWB serves as coping strategy to manage high job demands. This means that employees design their work processes more efficiently and

effectively to be able to cope with high job demands, however, this coping strategy seems only be possible when a job also offers (necessary) resources.

Ohly et al. (2006) investigated time pressure and expected an inverted U-shape regarding the relationship between time pressure and IWB. Their results confirm their hypothesis in the sense that creativity and innovation (measured separately) decreased when time pressure was absent or was extraordinary high (Curvilinear time pressure \rightarrow creativity, $\beta = -.17$, $p < .01$; curvilinear time pressure \rightarrow innovation, $\beta = -.17$, $p < .01$). The authors explain these findings with the activation of cognitive and behavioural resources. That means, when time pressure is too low, employees are not sufficiently activated to use their whole potential to engage in innovative behaviours. However, when employees are overstrained due to too much time pressure, they are not able to show extra role behaviours such as IWB, since they might be over activated in the sense that they are detracted from detecting opportunities not to mention implementing them. Three years later, Noefer et al. (2009) elucidate their findings in the same way although, they proposed a different effect of time pressure on IWB. More precisely, Noefer et al. (2009) assume that time pressure has a negative impact on idea generation, but a positive impact on idea implementation. Their findings are slightly different to their hypothesized relationships. The correlation between time pressure and idea generation was positive instead of negative ($\beta = .276$, $p < .01$). The expected positive relationship between time pressure and idea implementation could be confirmed ($\beta = .343$, $p < .01$). The authors argue that the cognitive and behavioural activation might lead to a greater amount of generated ideas. Moreover, they claim that balanced time pressure activates problem coping strategies, which lead to (faster) implementation of ideas in order to eliminate inefficient work processes quickly. In addition to that, Noefer et al. (2009) also proposed that supervisor feedback moderates these relationships, however, feedback will get extra attention later on.

De Spiegelaere et al. (2012) proposed a positive relationship between time pressure and IWB as a whole. Further, they suppose differences in occupational groups (white and blue collar workers as outlined earlier). Their hypotheses could not be confirmed. Although, the authors found a positive correlation between time pressure and IWB, this correlation is not significant ($\beta = .016$, $p = .574$). Further, occupational groups seem not to matter ($\beta = .063$, $p = .288$). Unfortunately, the researchers give no explanation why they believe these results occur.

Janssen (2000) proposed a positive direct relationship between job demands and IWB. However, they suppose that this relationship is mediated by effort reward fairness. Since his results were already mentioned in detail under the paragraph reward, only a short summary of

them will be presented here. Janssen (2000) found a positive relationship between job demand and IWB only when employees feel fairly rewarded for their engagement in such risky behaviour. This linkage is explained with the social exchange theory. Thus, when employees perceive that their efforts are recognised and fairly rewarded, they will most likely engage in discretionary behaviours such as IWB once again. Then, a mutual relationship between employer and employee is developed.

Wu et al. (2011) suggested an indirect effect of time pressure on IWB. They assumed that time pressure moderates the relationship between 'need for cognition' and IWB in the sense that the proposed positive impact of 'need for cognition' will decrease when employees have to work under time pressure. This assumption derives from the Control Theory (Carver & Scheier, 1982 in Wu et al., 2011), which argues that time pressure is a signal of working below an ideal level. Here, employees perceive a suboptimal work condition, which itself demands extra effort to reach desired performance. Since 'need for cognition' is supposed to provoke similar cognitive mechanism than time pressure, both occurring together might result in cognitive overload. Their results confirm their assumption. The positive relationship between 'need for cognition' and IWB was not significant when time pressure was high ($Y = .04, t = .52, p > .05$) and turned out to be stronger at low levels of time pressure ($Y = .26, t = 3.69, p < .01$). Wu et al. (2011) argue that the Interactionist Model of Personality (Endler, 1983) can additionally be applied here to explain these results. Regarding this theory, personal traits and contextual factors such as time pressure work together to form individual behaviour. This seems to be the case here as time pressure at a low level evokes a significantly positive relationship between 'need for cognition' and IWB.

Putting it all together, the linkages between job demand, time pressure and IWB are mixed. Job demand was only positively related to IWB, when reward fairness perceptions were apparent or when job resources such as structured work with clear goals were inherited in ones job. Regarding the findings of time pressure and IWB, it can be said that a balanced level of time pressure might be optimal to trigger innovative behaviours of employees, because a too high level of time pressure might lead to cognitive overload and a too low level of time pressure might not provoke enough cognitive and behavioural activation within employees to trigger their engagement in IWB. The underlying theories that explain these various relationships are the social exchange theory, the Control Theory, the Activation Theory, the Interactionist Model of Personality, and problem coping strategies. Figure 8 illustrates the significant findings of job demands, time pressure and their relations to IWB. Identical significant results are presented once only.

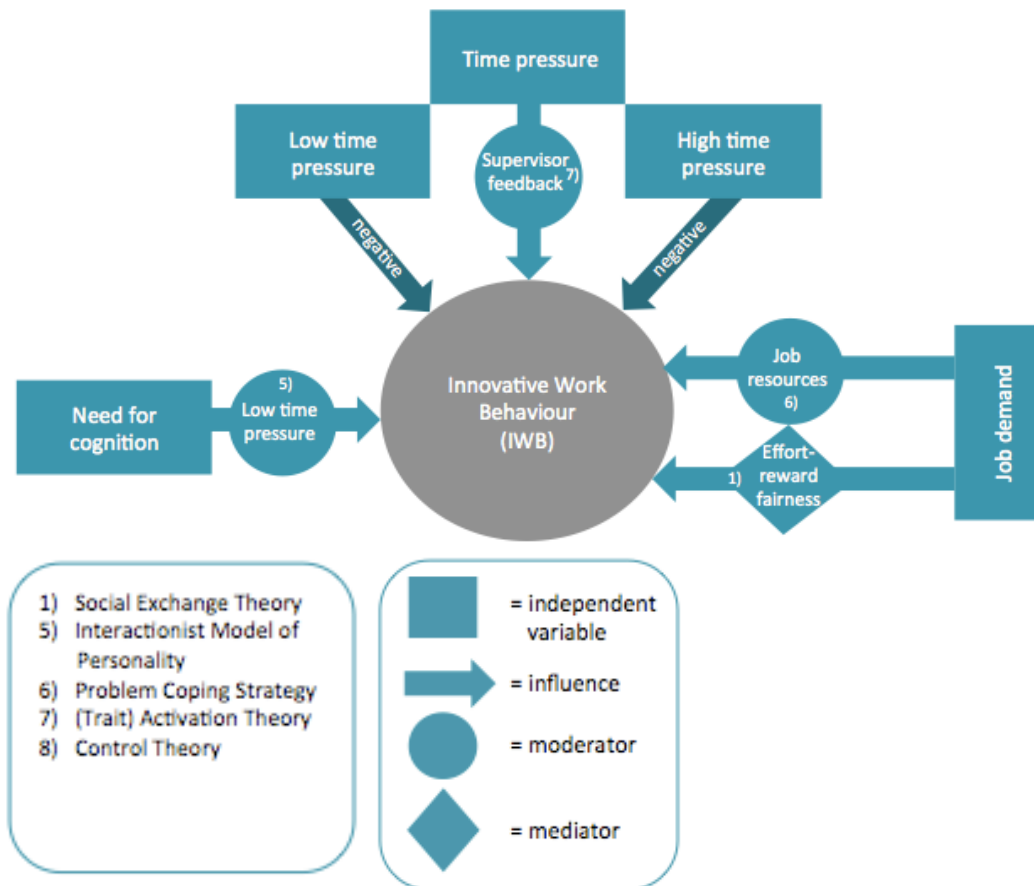


Figure 8 Significant findings of job demand and time pressure and their relations to IWB

3.3.6 Feedback

Feedback and its impact on IWB were investigated in four out of twenty eight researches (Battistelli et al., 2011; Chang, Hsu, Liou & Tsai, 2013; Knol & van Linge, 2009; Noefer et al., 2009). Feedback is proposed to be an important factor for influencing IWB for various reasons. First, feedback can be a valuable source of information regarding how tasks should be accomplished and whether the performance of an employee is appropriate to reach desired goals. Herewith, employees might be better able to detect problems and opportunities. Second, with this information, employees might be able to implement more effective and efficient ways of working, because they get some guidance to rarefy their ideas and to know how their ideas could, even if, be implemented. Since IWB is a complex pattern of behaviour, getting different views, at least from a second source, could help employees to successfully engage in such complex behaviours. Feedback can be received from different sources; for instance, from supervisors, colleagues or the job itself.

Knol and van Linge (2009) are the only authors who propose a direct relationship between feedback and IWB. They group feedback to support as an informal empowerment practice, which in turn is here referred to the higher superordinate structural empowerment practice. The term empowerment is somewhat misleading here, since employee empowerment and its relation to IWB was already outlined in a previous section. Here, feedback is understood as support given by the organisation and its agents (supervisors), respectively to give some kind of guidance whereas autonomy is meant to provide freedom to compose and organize the work on your own. Knol and van Linge (2009) hypothesise that structural empowerment practices such as feedback positively influences IWB. Their results support their assumption (feedback \rightarrow IWB, $\beta = .161$, $p < .001$). The authors argue that getting more information regarding one's job performance enhances an employee's competences and job related skills, which in turn could trigger IWB.

The other studies investigate feedback as intervening variable. For instance, Battistelli et al. (2011) suggest that feedback from the job will moderate the linkage between employees' resistance to change and IWB. In more detail, they suppose that resistance to change will be positively related to IWB when feedback is high rather than low. They argue that the job itself can be a source of feedback in the sense that particular work routines could signal the employee if they are effective or even not, due to possibly arisen extensive workload. Their results confirm their hypothesis. First, resistance to change and feedback interact with each other ($\beta = .17$, $p < .05$). And second, resistance to change and IWB are positively related when feedback was high ($M+1\ SD$, $\beta = .27$, $p < .05$) in contrast to when feedback was low ($M-1\ SD$, $\beta = -.07$, *n.s.*). The authors argue that employees who are rather resistant to change need higher levels of feedback from the job, because the (constantly) received information about one's job performance, leads to feelings of confidence and reduces stress through certainty. This could help those employees who have rather unconfident feelings in times of changes to "engage in self starting coping endeavours (i.e., innovative behaviour)" (Battistelli et al., 2011, p. 36). This relationship is explained by the trait activation approach (Tett & Guterman, 2000). According to this perspective, the linkage between personality (e.g. resistance to change) and behavioural outcomes (e.g. adapting to changes with innovative behaviours) is influenced by contextual factors (e.g. feedback from one's job).

Chang et al. (2013) also considered supervisory feedback as moderator. More precisely, the authors suppose that a high level of constructive supervisory feedback moderates the relationship between transactional contract and relational contract, respectively,

and IWB. Moreover, Chang et al. (2013) suppose that not only these psychological contracts play an important role in triggering IWB but that also motivational mechanism like work engagement are important in this regard. Therefore, they also propose that the two contracts and their particular relation to IWB are mediated by work engagement. Previous researches suppose that transactional contracts negatively predict IWB (e.g. Amabile, Hennessey & Grossmann, 1986) while relational contracts are rather seen as having a positive correlation with IWB (e.g. Ramamoorthy, Flood, Slattery & Sardesai, 2005). Their findings support the hypothesis that feedback moderates the negative relationship between transactional contract and IWB, which is mediated by work engagement (difference regarding high and low levels of feedback, $\beta = .32$, $p < .01$). Further, they found that feedback indeed strength the positive linkage between relational contract and IWB, which is also mediated by work engagement (difference regarding high and low levels of feedback, $\beta = .19$, $p < .05$). In particular, these findings mean that high levels of constructive supervisory feedback weakens the mediated (via work engagement) negative relationship between transactional contract and IWB and, that feedback also seems to be able to increases the positive mediated (via work engagement) correlation between relational contracts and IWB. The authors explain these results with the “Social Side of Innovation” perspective (Perry-Smith & Shalley, 2003), which argues that the interaction between employees, colleagues, and direct supervisors enhances work engagement and work related skills, which in turn seem to be able to trigger IWB.

As written under the part job demand and time pressure and their impacts on IWB, Noefer et al. (2009) suppose that time pressure negatively impacts idea generation and positively influences idea implementation. Further, they also supposed a direct positive linkage between skill variety and idea generation as well as between skill variety and idea implementation. We restate these hypotheses here, since they also suggest that supervisor feedback moderates the relationships between time pressure and skill variety, respectively and the two dimensions of IWB. Their hypotheses could only partly be confirmed. Supervisor feedback does not moderate the relationship between time pressure and idea generation ($\beta = .112$, *n.s.*), but moderates the linkage between time pressure and idea implementation ($\beta = .241$, $p < .05$). Moreover, supervisory feedback does not moderate the relationship between skill variety and idea generation ($\beta = .047$, *n.s.*), but has a significant impact on the relationship between skill variety and the implementation of ideas. High and low levels of feedback matters, however, idea implementation only increases when feedback was high ($M+1\ SD$, $\beta = .740$, $t < 4.890$, $p < .001$). It does not increase when feedback from supervisors is low ($M-1\ SD$, $\beta = .149$, $t < .982$, $p < .001$). The authors give no explanation why the

moderating effect of supervisor feedback on the relationships between time pressure, skill variety and idea generation could not be confirmed. Regarding the supported relationships between time pressure, skill variety and idea implementation under a high level of supervisor feedback, the authors argue that employees who use diversified skills might have problems to keep track on work proceedings, where supervisor's feedback helps them to structure their work more effectively, which also might reduce time pressure, so that they are actually able to implement their ideas.

Composited, only one of the four articles investigated feedback as direct influencing factor regarding IWB (Knol & van Linge, 2009). The other three articles executed feedback as moderating variable, meaning that factors such as time pressure, skill variety, resistance to change and psychological contract and their relation to IWB is influenced by feedback from the job itself or from colleagues or supervisors. However, all studies discovered a significant positive influence of feedback on IWB or at least to one of the two dimensions (ideation, implementation). The underlying theories used to explain the various relationships are the (Trait) Activation perspective and the idea that the social side of ones job (i.e. feedback from colleagues and supervisors) is very important since it could weakens negative effects of a transactional contract on IWB and seems to be able to increases the positive effects of a relational contract on IWB (Noefer et al., 2009). Figure 9 shows the significant relationships between feedback and IWB. Similar results are presented once only.

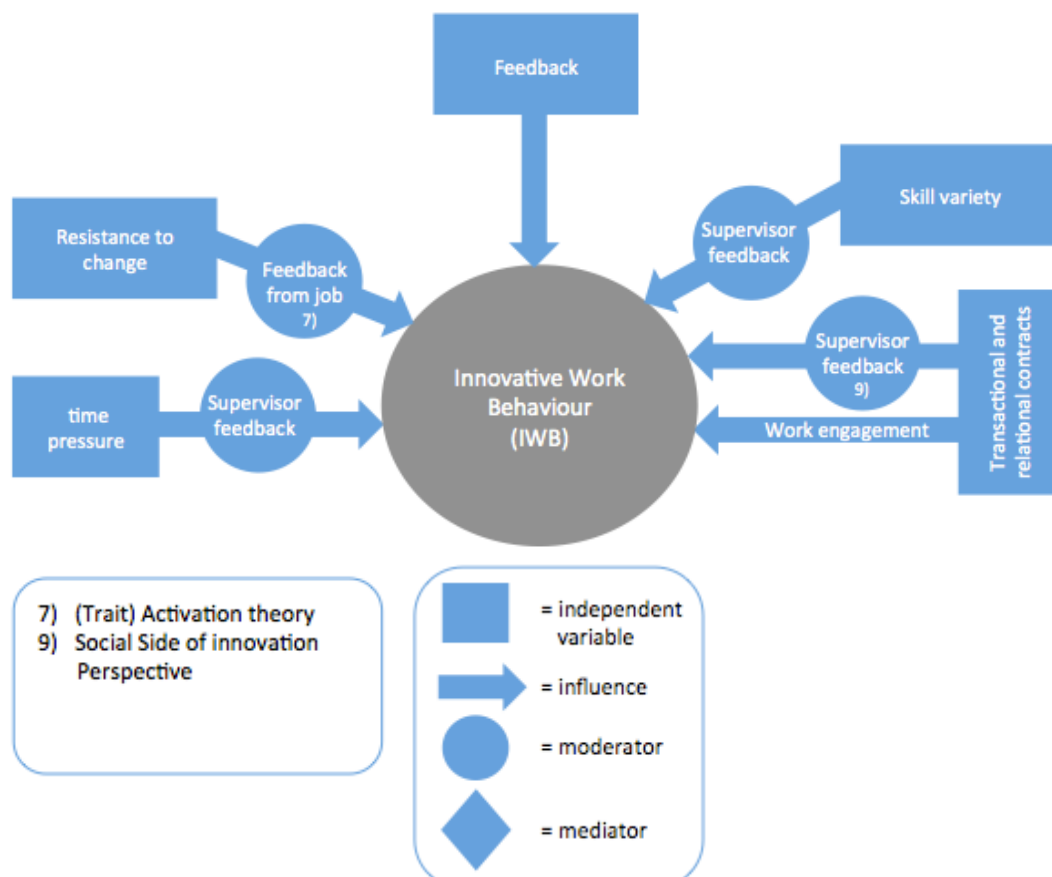


Figure 9 Various findings of feedback and its relation to IWB

3.3.7 Job (in)security

Two out of twenty eight articles studied the relationship between job (in)security and individual IWB (Bommer & Jalajas, 1999; de Spiegelaere et al., 2012). Employees can get feelings of job (in)security for different reasons. For example, employees could be afraid of being laid off by reason of downsizing or by reason of loosing their job position through a restructuring within the company. Such feelings of fear could also arise even if not an employee self is affected but for instance direct co-workers (Bommer & Jalajas, 1999).

It is supposed that feelings of threat lead to different behavioural and motivational outcomes regarding IWB. On the one hand, it is supposed that employees perform less well in the sense that they are less willing to make suggestions or fear to take risk, both aspects are important for engaging in IWB. On the other hand, it is assumed that employees are more motivated to perform well so that they will not be laid off in the future. However, the this relation is based on fear, which is in general not seen as a good motivating factor regarding IWB (Smallwood & Jakobsen, 1987; Dougherty & Bowman, 1995). De Spiegelaere et al. (2012) argue that not only lay offs can lead to feelings of fear, but also insecurity regarding ones job content. This is comparable to a replacement to less desirable positions due to possible restructuring processes within a firm. Thus, job (in)security can be referred to uncertainty of ones employment and to uncertainty about the job content, respectively.

Both studies research a direct link between job (in)security and IWB. Bommer and Jalajas (1999) hypothesise that the relationship between the threat of downsizing and the willingness to make suggestions and the willingness to take risks is negative. Further, they suppose that the threat of downsizing is negative related to employees' desire to perform well and that the linkage between threat of downsizing is positive related to performance motivated by fear. Their results support a negative relationship between the threat of downsizing and the willingness to take risks ($\beta = -.0123, p = .016$). Further, the supposed negative relationship between job insecurity and the willingness to make suggestions could also be confirmed ($\beta = -.190, p = .001$). In addition, the other two hypotheses regarding the motivation of employees to perform well are also supported by the results (job insecurity \rightarrow desire to perform well, $\beta = -.116, p = .013$; job insecurity \rightarrow good performance motivated by fear, $\beta = .205, p = .0001$). The authors explain their results with the Threat Rigidity Model introduced by Staw, Sandelands and Dutton (1981). According to this theory, individuals who feel threatened by job insecurity react with restriction of information and a successive rigidity in

responses. This in turn could lead to more habitual behaviours in the work setting where trying out new things and thinking in new ways is not common due to a high risk avoidance.

In the research of De Spiegelaere et al. (2012) job content insecurity, thus the fear that ones job content could change, is of interest. In their proposed model, they refer this variable to job hindrance and assume that such insecurity is negatively related to IWB. Moreover, they suppose that occupational groups matter, meaning that white and blue collar employees might react differently to such job hindrance. Their results could not confirm a significant negative relationship between job content insecurity and IWB ($\beta = - .003$, $p = .941$). Regarding the suggested difference between white and blue collar workers and their relation to job content insecurity, their results support their hypothesis ($F = 39.12$, $p < .001$). In their figure it is to see, that there is a strong negative linkage between job content insecurity and IWB for blue collar workers and a slightly positive relationship for white collar employees. Unfortunately, the authors do not explain why they think job content insecurity is not significantly related to IWB. However, regarding the moderating effect of occupational groups, they suppose that job content insecurity provokes a more stressful situation for blue collar employees than for white collar workers. This stressful experience might restrain blue collar employees to show IWB. Figure 10 presents the significant relationships between job (in)security and IWB.

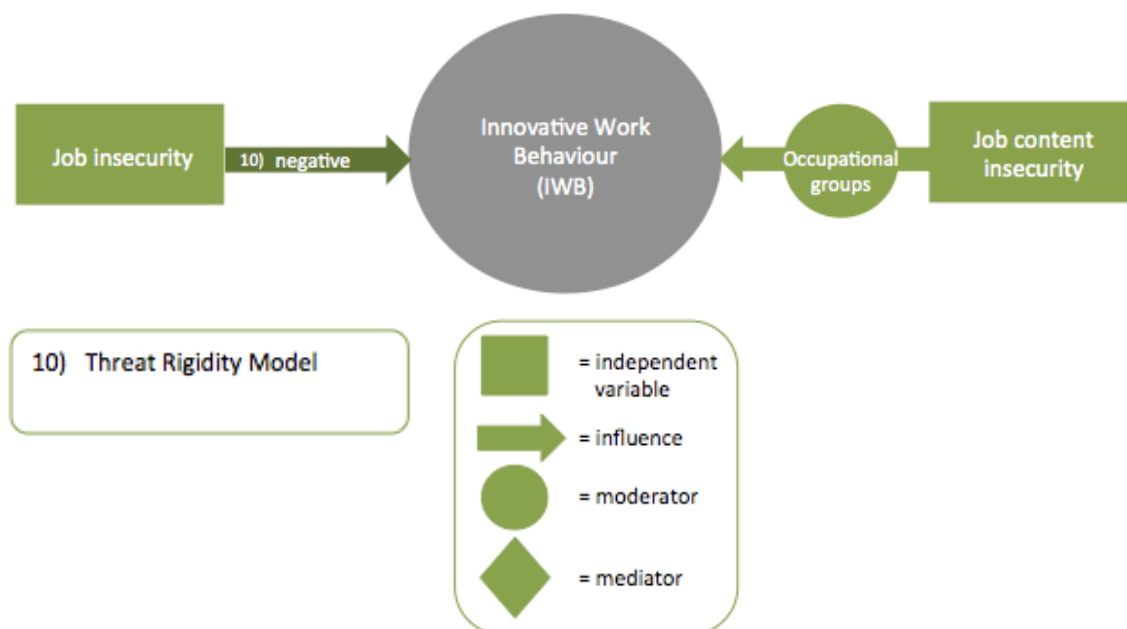


Figure 10 Illustrates the findings regarding job (in)security and IWB

3.3.8 Job rotation

One out of twenty eight articles investigated job rotation as job design variable supposed to influence IWB (Monks et al., 2012). In their qualitative research, Monks et al. (2012) do not clearly describe how they understand job rotation or how it is implemented in the firms under research, however, their results reveal a positive linkage between job rotation and IWB. This positive influence is explained by various advantages job rotation might bear. Firstly, it is seen as stimulating practice in the sense that employees get more inside in other tasks to enhance their experiences, knowledge and skills. For example, one participant said, “At lot of what we do is based upon experience, exploration and to some extent intuition and putting these things together to create a new solution” (Monks et al., 2012, p. 7). Through this job design variable, employees might be better able to detect problems and opportunities. Secondly, job rotation is intended to foster knowledge sharing, which is stated as follows by a participant “you are trusted to gain from this knowledge and bring it back into the group, share it, expand it” (Monks et al., 2012, p. 10). Thirdly, job rotation is implemented to facilitate mutual understanding. When employees understand how work processes function within other departments, it might be easier for them to work together instead of working against each other, where finding solutions is more effective. Further, it is argued that working together conduct in job satisfaction and commitment, which in turn is seen as enhancing capital for engaging in IWB (Monks et al. 2012). Figure 11 presents the relation between job rotation and IWB.

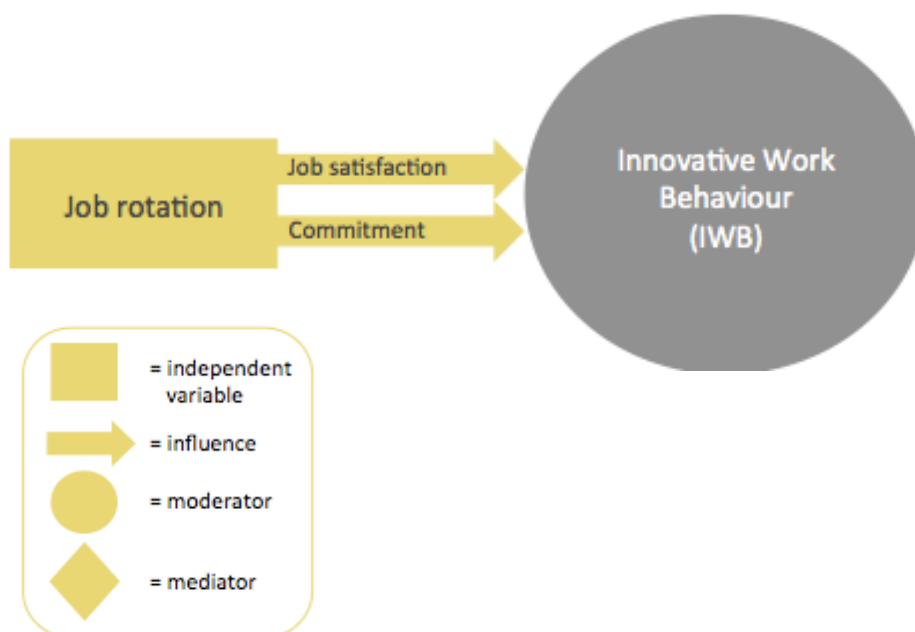


Figure 11 Job rotation and its relation to IWB

3.3.7 HR Flow

One article investigated the relationship between HR flow and IWB (Sanders et al., 2010). Sanders et al. (2010) describe HR flow as the development of employees throughout their employment within a company, thus starting at the point of recruitment and selection via development to the end of the contract of employment. They suppose that satisfaction with HR flow is positively related to IWB. In order to measure HR flow, they asked their participants to rate items such as “How satisfied are you with the guidance you were given during the first six months of your employment at this organisation?” (Sanders et al, 2010, p. 62). Opposed to their hypothesis, the authors found a negative, not significant correlation between HR flow and IWB ($\beta = -.10, n.s.$). Unfortunately, the researchers give no explanation why they found a negative as well as a non significant relationship. Since we only illustrate significant relationship, no Figure will be presented here.

3.4 Other influences regarding IWB

In this literature review, we are interested in all possible HRM practices that affect IWB. However, since some articles also investigated leadership and organisational climate/culture and their impact on IWB and propose that these two factors seems to be important for particular relationships between HRM practices and IWB, wherefore leadership and organisational climate/culture will be outlined in more detail in the next sections.

3.4.1 Leadership

Although Leadership or the relationship between employees and their supervisors is no HRM practise, it will be described here, since it seems to be an important influencing factor in the relationship between HRM practices and IWB. Five articles investigated Leadership or LMX in addition to HRM practices and their relation to IWB (Janssen, 2005; Ohly et al., 2006; Ong et al., 2003; Sanders et al., 2010; Scott & Bruce, 1994). Only Janssen (2005) considered supportive leadership as intervening variable. The other four studies propose a direct impact of leadership/LMX on IWB.

Ong et al. (2003) assume that leadership positively correlates to IWB by promoting innovation as organisations' mission and vision. In other words, when employees were supported as they show IWB, it will firstly, serves as motivation for them to further engage in such behaviours, and secondly, they will know which behaviours were valued by their organisation. Their findings do not confirm their hypothesis. Leadership shows no significant relation to creativity ($\beta = .160, p = .185$) and no significant correlation with idea implementation ($\beta = .097, p = .422$). Ong et al. (2003) claim that managers have to be well trained to be able to lead and motivate their employees in a way that they are able to encourage them to show IWB. Ong et al. (2003) argue that it is possible that their (manager) sample is not able to fulfil such a role and therewith is not able to trigger IWB among their employees. This is in line with what Ohly et al. (2006) found. They argue that supportive supervisors can foster employees' feelings of confidence and self determination, which in turn can promote self initiative (Oldham & Cummings, 1996 in Ohly et al., 2006) and, besides that are due to their supportiveness able to adumbrate which behaviour is appreciated in the company. Hence, Ohly et al. (2006) suppose that supportive supervisors positively affect employees' creativity and implementation capacity. Their results cannot support their hypothesis. Supervisor support was neither significant linked to creativity ($\beta = .00, n.s.$) nor significant related to implementation oriented behaviour ($\beta = .05, n.s.$). Unfortunately, they give no explanation why their results are contradictive to their supposed positive relationship between supervisor support and IWB.

Sanders et al. (2010) also propose that LMX is positively linked to IWB. According to them, LMX refers to the quality of the relationship between leaders and their subordinates. It is proposed that employees perceive their managers as agents for the firm they working for. Thus, when leaders are supportive, employees perceive their organisation as supportive and caring. Such feelings could lead to a mutual relationship, where employees return value back in terms of IWB (Homans, 1958). In addition, employees see their leaders often as responsible for the implementation of HRM practices. For instance, direct supervisors are usually those who transmit rewards and feedback. Therefore, Sanders et al. (2010) hypothesise that LMX is positively linked to IWB. Moreover, they assume that satisfaction with HRM practices mediates this linkage. In contrast to Ong et al. (2003) and Ohly et al. (2006), Sanders et al. (2010) found a significant positive linkage between LMX and IWB ($\beta = .19, p < .01$). Regarding the proposed mediation of satisfaction with HRM practices, their results confirm this hypothesis, too. The included HRM practices show significant effects (influence: $\beta = .19, p < .01$; work content: $\beta = .20, p < .01$; rewards: $\beta = -.22, p < .01$). The

authors explain their findings with the social exchange theory. When employees view their supervisors as agent of the company and those behave in a supportive manner, employees reciprocate these feelings with extra role behaviours such as IWB. However, not only the perceptions regarding the LMX relationship seems to be important, but also how satisfied subordinates are with implemented HRM practices in the sense that they view their managers as responsible for the realization of HRM practices. Thus, the satisfaction with HRM practices is passed on supervisors, which in turn seems to cause the degree employees engage in IWB.

Scott and Bruce (1994) also investigated leadership and LMX and its relation to IWB in addition to the earlier outlined HRM practices 'work content' and 'job variety'. Scott and Bruce (1994) suppose that the quality of LMX is positively correlated to IWB. Further, they assume that the extend a supervisor expects IWB of their subordinates is positively linked to IWB. In fact, it could be argued that effective work groups have a blend of innovative individuals and individuals whose role it is to support the innovation of others. In this context, the role is a set of expectations of the position independent of the person holding that position. Their results confirm both proposed relationships. The quality of LMX is significant positively related to IWB ($r = .20, p < .05$) and leader role expectations also appear to be significantly positively related to IWB ($r = .28, p < .01$). Besides Sanders et al. (2010), Scott and Bruce (1994) also use the Social Exchange Theory to explain their findings. Moreover, they claim that subordinates, who have a high quality relationship with their supervisors, usually receive high levels of discretion and autonomy needed for IWB. The positive relationship between leader expectations and IWB explain the researcher with the Pygmalion Effect (Livingston, 1969). According to this principle, employees are innovative due to the fact that their leaders expect such behaviours from them. This relation stems from the idea that leaders who expect high performance from their subordinates unconsciously treat them as high performers wherefore they tend to behave in such a way.

Janssen (2005) name this variable supervisor supportiveness and claim that IWB is a risky and complex behaviour where employees need support from their supervisors in the form of data, expertise, time, and legitimacy to be able to bring forward their ideas. Therefore, he hypothesises that perceived supervisor supportiveness moderates the connection between perceived autonomy and IWB. His results reveal that the relationship between perceived autonomy and IWB only shows a significant positive connection when employees perceive their supervisor as supportive ($M + 1 SD, \beta = .52, p < .001$). When employees perceive their boss as non supportive the relationship between perceived autonomy and IWB becomes non

significant ($M - 1\ SD, \beta = .11, n.s.$). Janssen (2005) explains these findings with the socio political approach (Frost & Egri, 1991), meaning that employees need social and political support to be capable of developing and implementing their ideas. Supervisors are of utmost importance within the innovation process, as they possess the resources and the influence necessary for implementing new ideas.

Summarized, three of the five articles find a significant positive relationship between leadership and LMX, respectively and IWB. Janssen (2005) investigated supportive supervisors as moderating variable and explained the conformity of his hypothesis with the sociopolitical perspective. Here, leaders are seen as those who possess resources necessary for the engagement in IWB. Sanders et al. (2010) and Scott and Bruce (1994) explain the positive direct linkage between leadership and LMX with the social exchange theory. Here, leaders are viewed as agents for the organisation and when they are supportive, employees perceive their firm as supportive and caring, too. Based on this association, employees reciprocate such positive feelings with discretionary behaviours such as IWB. In addition, Scott and Bruce (1994) investigated leader role expectations and found that employees are more innovative when their leaders expect such behaviours from them. This principle is called Pygmalion Effect. Figure 12 shows the summarized significant relationships between Leadership, LMX and IWB.

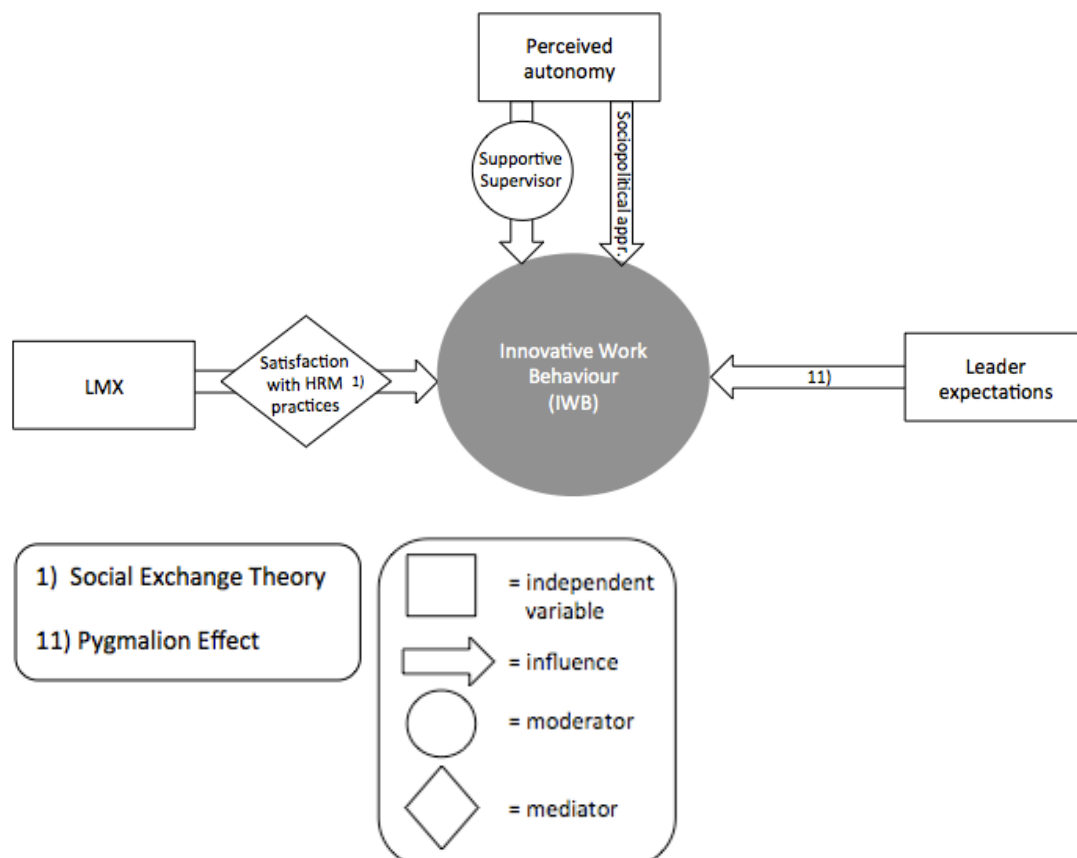


Figure 12 Significant results of the linkage between Leadership and IWB

3.4.2 Organizational culture/Organisational climate

Three out of twenty eight researches investigated organisational culture or organisational climate as influencing variable regarding IWB in addition to HRM practices and their relation to IWB (Bysted & Hansen, 2013; Ong et al., 2003; Scott & Bruce, 1994). Zhang and Begley (2011) also use the term organisational climate within their research; however, they refer empowerment, reward, and knowledge transfer to organisational climate and since the distinct practices and its relation to IWB were already outlined before and the climate construct was not investigated as single variable we do not consider it here. All three studies investigated organisational climate/culture as direct influencing variable.

Scott and Bruce (1994) describe organisational climate as medium that signals employees what is expected from them and valued by the organisation. Resources such as time, equipment, and facilities are seen as critical to IWB. Therefore, Scott and Bruce (1994) suggest that when organisations supply those resources, value differences among employees, and are open to change they were perceived as supportive. Hence, Scott and Bruce (1994) propose that the extent to which employees experience organisational culture as supportive positively affects employees' IWB. The organisational climate variable was divided in two variables namely support and resource supply. Their results reveal a significant positive relationship between support and IWB ($r = .30, p < .05$) and a significant negative linkage between resource supply and IWB ($r = -.31, p < .05$). The authors explain these partially contradictory results with a threshold, which is possibly met in their sample consisting of R&D employees. They argue that R&D employees might in general receive a high level of resources from their organisation in the sense that a greater distribution of such resources seems not to have further effects on IWB. The support variable has measured a more abstract conceptualization of innovation support such as organisation's flexibility, and openness to change. The authors argue that more support is always better than less wherefore support might actually always lead to a significant positive relation to IWB.

Almost ten years later, Ong et al. (2003) assume a nearly similar relationship. They suppose that organisational support, characterized by a culture that appreciates innovation and collaboration has a positive impact on IWB. A supportive culture here includes the provision of resources like decentralization of power, time or money to support employees who break new grounds. In contrast to Scott and Bruce (1994), Ong et al. (2003) could not discover any significant relationship neither between organisational support and idea generation ($\beta = .025, p = .862$) nor between organisational support and idea implementation ($\beta = .084, p = .554$). In order to explain these contradictory results, the authors link organisational support to

leadership. They claim that particularly leaders are responsible for providing resources in form of power decentralization and time. When leaders are not able to support their employees with such resources, maybe due to a lack of power or less qualification regarding leading employees they might not be able to facilitate employees' IWB.

Bysted and Hansen (2013) describe 'risk culture' as work environment where making mistakes is allowed and where employees do not have to fear to try out new things. According to Bysted and Hansen (2013), IWB is a risky undertaking and peppered with trial and error. Thus, when employees are afraid of doing mistakes, they will be less motivated to engage in IWB. Therefore, they assume a positive linkage between 'risk culture' and IWB. Further, they propose a difference regarding 'risk culture' for public and private organisations in the sense that public organisations are assumed to be less tolerant regarding the allowance of making mistakes than private organisations. Their results cannot support their hypotheses. Risk culture was positive, but not significant related to IWB ($\beta = .012$, *n.s.*). Moreover, no significant difference could be found for sector type ($\beta = .007$, *n.s.*). Unfortunately, the researchers give no explanation why their hypotheses could not be confirmed.

Combined, only one of the three described articles found a significant positive linkage of organisational climate/culture and IWB (Scott & Bruce, 1994). Moreover, Scott and Bruce (1994) merely found a significant positive relationship between organisational support and IWB. Resource supply shows a significant negative connection with IWB. No theory is presented to explain these findings. However, the authors assume that more support might always be better than less. Regarding resource supply, they propose that a threshold could already be met in the sense that R&D professionals might receive enough resources and that more resources like time and equipment could negatively affect IWB. Figure 13 presents the significant findings regarding organisational climate/organisational culture and IWB.

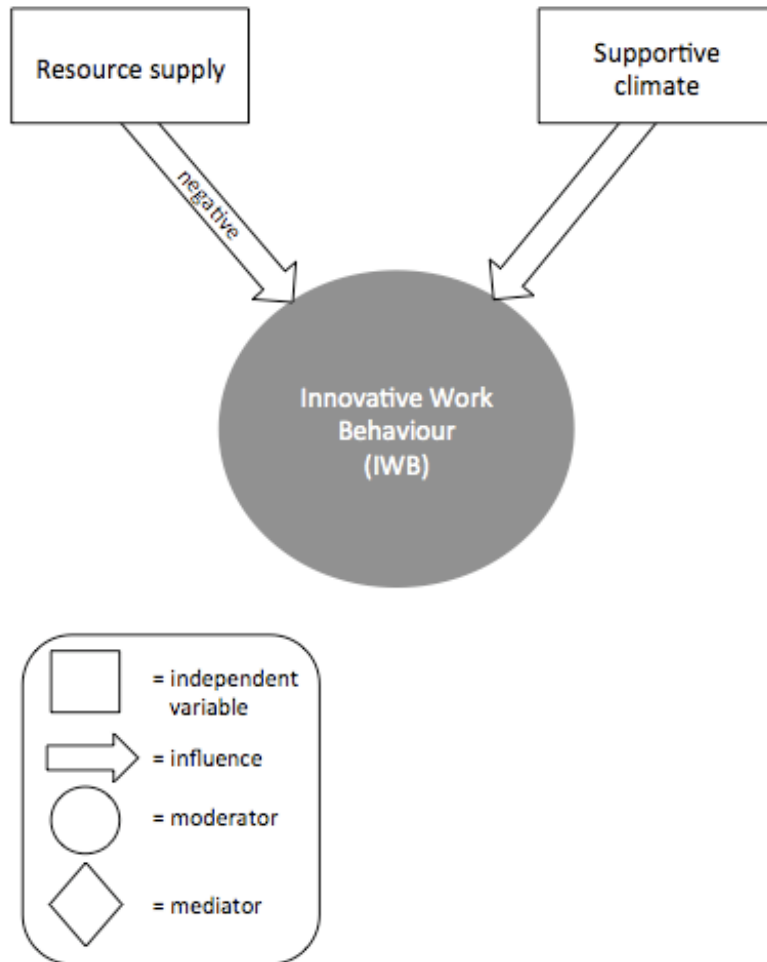


Figure 13 Results regarding organisational culture/- climate and IWB

Summarized, the results of this systematic literature review unsheathe various and distinct relationships between HRM practices and IWB. Firstly, autonomy was the most researched variable among the included articles, proposed to have an influence on IWB. Either investigated as independent variable or as moderator or mediator, autonomy exclusively affects IWB positively. Even other influences such as occupational groups, sector type or company's home country tested as moderator or mediator, could not neglect the positive impact of autonomy on IWB. Only traits like LGO and need for cognition might be able to destroy the effects of autonomy. Secondly, task composition, consisting of job variety and routinization revealed mixed results. Job variety positively influences IWB, whereas routine tasks negatively impacts IWB. However, routinization as defined by Ohly et al. (2006) delivered a positive relation to IWB, since they argue that spared cognitive resources could be an advantage for ones innovativeness in the workplace. Supervisor feedback seems to moderate the relationship between job variety and IWB and job variety in turn, partially mediates the positive linkage between LMX and IWB. Regarding job demand, the findings

detect an inverted U-curve, meaning that a too high and a too low level of time pressure and job demand influences IWB negatively. However, supervisor support, job resources provided by the organisation, and effort reward fairness moderate this relationship and are able to turn the negative effects of job demand into positive ones. Fourthly, feedback, given by supervisors, peers or received through the job itself, either investigated as independent variable or moderator, positively affects IWB. Fifthly, the direct relationship between job insecurity and IWB, thus without any intervening variable is negative, however, investigating occupational groups as moderator provides different results. Blue collar workers are less innovative when they perceive job content insecurity, whereas white collar workers although not significant, show more innovative behaviours when they are exposed to such job insecurity. Sixthly, job rotation was investigated once without any intervening variable. The results reveal a positive correlation between job rotation and IWB. Seventhly, training and development is exclusively positive related to IWB. In addition, it is also found that company's home country mediates, and that occupational groups and sector type moderate this correlation. Eighthly, reward investigated without any intervening variable, negatively affects IWB. Even when the relation between reward and IWB is tested for occupational groups as moderator, the correlation still remains negative. However, company's home country seems to make a difference and is able to turn it into a positive ones. Although Leadership and organisational climate are not HRM practices, they were also outlined in more detail here, since they appeared to be very important in the various relationships between HRM practices and IWB. LMX is via satisfaction with HR practices positively related to IWB, being a supportive supervisor moderates the relationship between perceived influence and IWB, and leader expectations directly affect IWB positively. Organisational climate reveals mixed results. A too high level of supportive climate in the form of resource supply, is negatively related to IWB, however, organisational climate examined in the sense of being open to change and tolerating mistakes is positively linked to IWB.

Figure 14 presents the results of this systematic review in form of a matrix. It comprises all significant findings. The first row (horizontal), illustrates the HRM practices, and at the end organisational climate/culture. The second row (horizontal) shows the significant direct relationships between the distinct HRM practice and IWB.

The first column reflects the used mediators, moderators, and those independent variables, where HRM practices were used as mediator or moderator. As was seen in the previous pictures, these intervening variables are illustrated with a circle (moderator) or a rectangle (mediator). The coloured symbols represent the significant influence of an HRM

HRM-Practice Other influences	Autonomy	task composition	Job demand	Feedback	Job (in)security	Job rotation	Training / develop- ment	Reward	Org- climate
Direct influence	1) 2) 3) 4) +	Job variety: + Routine tasks: - 2)	Inverted 7) U-curve 8)	+	- 10)	+	+ 1) 2)	- 2)	+ -
Psychological contracts	+			+ 9)					
Traits	+ 5)		- 5)	+ 7)					
Company's home country	+						+	+	
Trust	+ 1)								
LMX	+ 1)	+ 1) + 6)	+ 8)						+ 1) 11)
Occupational group	+ 2)				+		+ 2)		
Work content									
Job resources			+ 6)						
Public / private sector							+	-	
Effort-reward- fairness			+ 1)						

- 1) Social Exchange Theory
- 2) Intrinsic motivation
- 3) Cognitive Evaluation Theory
- 4) Cognitive Mediation Theory
- 5) Interactionist Model of Personality
- 6) Problem coping strategy
- 7) (Trait) Activation theory
- 8) Control Theory
- 9) Social Side of Innovation
- 10) Threat-Rigidity Model
- 11) Pygmalion Effect

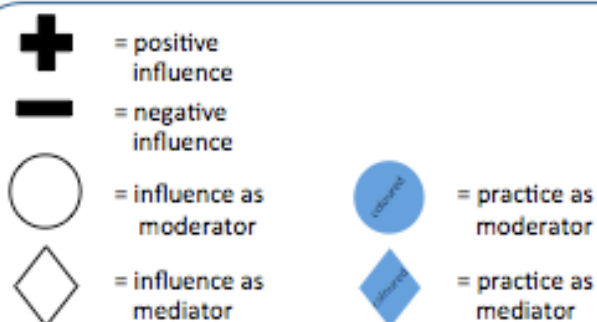


Figure 14 Matrix of comprised findings

4. Discussion

The aim of this study is to find all possible HRM practices that significantly influence IWB and how. This systematic review reveals in total eight HRM practices that were exercised and found to have a significant impact on IWB (1) *autonomy*, (2) *task composition*, (3) *training and development*, (4) *reward*, (5) *job demand*, (6) *feedback*, (7) *job (in)security*, and (8) *job rotation*. Further, two other influences were identified which are not strictly HRM practices but prove to be important for the particular relationships between distinct HRM practices and IWB, namely *leadership* and *organisational climate/culture*. This section seeks to discuss these various findings, which brings forth the answer of the main research question and also gives an overview of the limitations of this study and the projections for further research.

4.1 Why autonomy makes sense

Autonomy provides employees with independence and freedom to compose and organize their tasks and therewith extending their decision latitude and responsibility. It is proven that endowing employees with more responsibility and independence affect employees' IWB positively. However, distinct levels of effectiveness are detected. Various theories and approaches are applied to explain why distinct levels of effectiveness could be discovered and why autonomy makes sense.

In total, five approaches/theories are contemplated and used to explain how autonomy impacts IWB. These are the Social Exchange Theory (Homans, 1958), the intrinsic motivation of employees, the Cognitive Evaluation Theory (Deci & Ryan, 1985), the Cognitive Mediation Theory (Bandura & Cervone, 1986), and the Interactionist Model of Personality (Endler, 1983). These approaches/theories use different perspectives, depending on how autonomy and other proposed influencing variables are interpreted and investigated. For instance, when autonomy is taken as intrinsic motivator, for example by employees who are, due to their attitude, rather intrinsically motivated, it will foster their passion and persistence to approach their job in an innovative manner (i.e. IWB). This line of reasoning is embedded in the Cognitive Evaluation Theory, in which the distinction between intrinsic and extrinsic motivation stays central. Moreover, it is viewed as being a precursor of self-determination meaning that intrinsic motivated individuals experience a deep sense of choice, which in turn improves their well being and persistence. However, since autonomy also affects production workers' IWB and these employees are assumed to be rather extrinsically

motivated to engage in IWB, autonomy must have an effect by other reasons than intrinsically motivating employees. The Social Exchange Theory (Homans, 1958) has proven to contribute to this issue by highlighting a different point of view. It claims that when employees perceive autonomy as support and faith in them, they might get feelings of obligation to reciprocate this support and confidence by engaging in discretionary behaviours such as IWB.

The Cognitive Mediation Theory of Bandura and Cervone (1986) again, uses a quite different perspective. This theory is based on learning. According to it, individuals learn to behave in a particular manner due to contextual factors and the cognitive interpretation of those factors. More precisely, employees receive information about their self efficacy (e.g. being able to show innovative behaviours) from different resources. Physiological arousal (e.g. heart rate), previous experiences, and contextual factors such as receiving power from the employer could be a source for that information. This information is then combined and cognitively appraised. When this appraisal leads to feelings of (enhanced) self efficacy, it will lead to favourable outcomes such as IWB. Employees thus have learned that they are able to perform innovatively by cognitively assessing contextual factors and personal experiences. Hence, when employers use structural empowerment practices (e.g. providing (more) responsibility) they can foster employees' self efficacy (psychological empowerment) and in turn, the recurrence of IWB.

The Interactionist Model of Personality (Endler, 1983) argues that behaviour is shaped by the interaction of personal determinants and situational factors. For instance, when employees possess a trait, which in itself capitalizes a certain amount of cognitive resources (e.g. 'need for cognition'), a lower level of autonomy might be better for their engagement in IWB. Because job autonomy is due to a less defined work context assumed to be a challenging endeavour, which also requires cognitive resources, wherefore both, occurring on a high level will most likely not conduct in IWB. Hence, depending on an employee's traits and contextual factors he/she is exposed to, determine if certain behaviours like IWB will be executed.

Moreover, Zhang and Begley (2011) detected that cultural differences matter in the context of autonomy and IWB. According to their research, autonomy has a greater influence on employees' IWB who come from a rather individualistic culture than on employees' IWB who come from a rather collectivistic culture.

Concluding, all applied theories and approaches here have their right to exist, since each provides an explanation for the distinct relationships between autonomy and IWB. Moreover, by reason of the different interpretations and investigations of autonomy, it could not be said

that one theory is superior to others outlined here. Thus, not the quantity of a used theory is important, but the quality and logic of how it is applied. The distinction between quantity and quality should also be taken into account regarding the implementation of this HRM. In other words, the fact that autonomy and its relation to IWB are most often researched does not necessarily mean that this HRM practice has the strongest effect on IWB.

Nevertheless, it could be said that holding employees responsible for composing and executing the work will most likely lead to IWB; only the degree might differ for occupational groups and cultural differences. Therefore, organisations should consider for whom and under which conditions they implement autonomy.

4.2 The composition of tasks should be taken into account when IWB should be influenced

Stimulating employees in the sense that they fulfil complex jobs whereby they obtain a lot of job related knowledge and skills aid them to generate and implement new ideas (Noefer et al., 2009; Urbach et al., 2010). Moreover, it is supposed to satisfy employees, which in turn motivate them to engage in IWB. However, De Jong et al. (2013) do not agree with Noefer et al. (2009) and Urbach et al. (2010), since they found a negative relationship between complex tasks and IWB. They argue that employees do not exclusively perceive a diversified job as stimulating or satisfying, because it could also be understood as a predefined set of additional tasks, which could lead to work overload. Therefore, it can be argued that complex jobs should also entail routinization in the form of particular tasks, which were accomplished repeatedly and predictably. It is argued that automaticity in particular tasks could spare important cognitive and time resources, those that are needed to generate and implement useful ideas (Ohly et al., 2006). However, routinization in work content is not beneficial at all, because repetition on this dimension could lead to tedium.

In addition, leaders might play an important role in the context of employees' perception towards task composition. Since leaders are viewed as being responsible for the composition of tasks they are able to alter attitudes regarding work content by clarifying how the composition of tasks is meant (Sanders et al., 2010). A good relationship with subordinates is beneficial in order to provoke positive perceptions regarding complex jobs.

Although the findings provide no significant difference between occupational groups and their innovative reactions provoked by complex tasks, it is nevertheless argued that stimulating and challenging jobs seem to be more important and intrinsic motivational for knowledge workers' IWB (De Spiegelaere et al., 2012).

Basically, it could be argued that a too much challenging and a too low stimulating (high level of routinization) job could hinder employees to engage in IWB. Moreover, it could be claimed that leaders have an impact on how employees perceive complex and challenging tasks. Leaders should be transparent in regard to why tasks are composed as they are. Therewith, they could prevent different understandings of complex jobs.

Due to the controversial findings, further research is needed to clarify how the composition of tasks could foster IWB. The perception of employees regarding challenging and routinized jobs should then be taken into account. Because it is still questionable when employees perceive routinized tasks as boring or under which conditions they experience a complex job as additional tasks and not as satisfying. Those perceptions seem to be very important determinants for the engagement in IWB and should therefore also be considered by organisations when they want to influence the innovative behaviours of their employees.

4.3 The influence of job demand/time pressure on IWB and its distinction to task composition

Job demand and time pressure subscribed to the view of both parts of task composition (complex/routinized tasks) and their relation to IWB in the sense that excessive job demands in the form of high time pressure lead to cognitive overstraining, which is argued to hinder employees to show IWB.

While job demand challenges the individual by means of excessive workload due to time pressure, which is mostly understood in a negative way, task composition on the other hand, comprises the balance between complex and routinized tasks, causing a stimulating effect, in most cases positively perceived. In addition, complex jobs as part of task composition both require and demand a set of job related knowledge and skills, which is meant to be necessary for the engagement in IWB. Moreover, it seems to satisfy employees. In contrast, job demands are rather perceived as heavy workload (Janssen, 2000), which might impinge on IWB, when intervening factors such as effort reward fairness are not apparent.

Additionally, knowledge increase is not seen as an outcome of high job demand in contrast to fulfilling a complex job. These dissimilarities between task composition and job demand also become apparent by the applied theories. The idea that employees perceive complex jobs as stimulating and satisfying could be referred to their intrinsic motivation why they behave in a particular way (e.g. IWB). The reason why this approach could not be related to job demand/time pressure lays in the fact that job demand/time pressure is not associated with a positive stimulus and therewith does not perceived as satisfying or motivating. The

Social Exchange Theory could only serve as an explanation for the job demand IWB linkage when employees also perceive fairness regarding what they receive in relation to the effort they put in their work. When employees have no feelings of fairness, they will most likely not engage in IWB and the Social Exchange Theory will not function as explanation.

The Control Theory, the Activation Theory, Interactionist Model of Personality, and Problem Coping Strategies are used to explain why and how employees behave in a certain manner to cope with high job demands and time pressure. Time pressure could be seen as a source of feedback in the sense that employees perceive to work below an ideal level. Thus, employees have to control their behaviour in a way that they nevertheless achieve desired goals (Control Theory).

According to Martín et al. (2007), the engagement in IWB is a form of problem coping strategy. This means, that employees adapt to high job demands by working more innovatively which results in more effective and efficient work processes and therewith reduce high job demands. However, when employees are over activated due to high time pressure, they are restrained to generate and implement new ideas (Activation Theory). This circumstance is even more apparent when employees possess traits that are in themselves require a special amount of cognitive resources like ‘need for cognition’ as described in the research of Wu et al. (2011). Here, personal and contextual factors interact and determine if and which behaviour is executed (Interactionist Model of Personality). High time pressure (contextual factor) is meant to be able to turn an actual positive relationship between valuable properties (personal factor) and IWB into a negative one.

These theories are not mutual exclusive rather they build on each other and explain why and how employees behave in a certain manner under different circumstances. Based on the results, it could be concluded that when employers design jobs in a challenging and stimulating manner with moderate time pressure they will most likely provoke employees’ innovative behaviours. However, whether a limit of time pressure is exceeded is an individual perception. Therefore, it could be very difficult for organisations to achieve a moderate level, which is appropriate to foster employees’ IWB. Future research on this topic is invited to be able to provide well defined recommendations.

4.4 Training and development and its different investigations

Training and development and its linkage to IWB reveal a similar pattern as autonomy in relation to IWB. The direct link between training and development and IWB is positive and occupational groups and cultural differences seem to matter. However, here sector type makes a difference as well. Moreover, the investigations of this HRM practice differ among the articles. For instance, Zhang and Begley (2011), Ong et al. (2003), Pratoom and Savatsomboon (2010), and Knol and van Linge (2009) examined knowledge resources and knowledge management and its relation to IWB while Bysted and Jespersen (2013), Monks et al. (2010), and De Spiegelaere et al. (2012) interpret training and development as competence and career enhancing practice. These different interpretations of the scholars could in themselves provoke different results since they could carry over on the research sample, resulting in biased answers. For instance, when employees perceive training and development as competence and career enhancing practice they could interpret it as investment in them, which in turn encouraged feelings of obligation to bring the organisation value back in terms of IWB (Social Exchange Theory). When employees interpret knowledge management as regulatory mechanism, thus how knowledge is organized and shared within an organisation, cultural differences might have more influence. Moreover, the interaction effect of cultural differences also stems from the meaning knowledge has to organisations. For instance, in rather collectivistic cultures, employees seem to be more willing to share knowledge with each other, since they trust in group members. In contrast, employees from individualistic cultures see knowledge as status quo whereby sharing knowledge could mitigate their individual influence in the work place.

The different findings regarding knowledge and production workers are explained by their motivation to engage in IWB. Since training and development could be referred to intrinsic motivators, knowledge workers' IWB seems to be more affected than production workers' IWB when training and development practices are implemented. The different findings regarding sector types are explained by different understandings of IWB. For instance, Bysted and Jespersen (2013) assume that private sector employees perceive IWB (more than public sector employees) as career enhancing opportunity since IWB is here seen as a firms' measurement tool for individual performance, which is worthwhile to invest in, when they want to get ahead. Public sector employees, in contrast, are rather faced with bureaucratic rigidity where a greater engagement in IWB would not automatically help them to foster their career. By reason of these different interpretations, private employees will benefit more from knowledge and competence enhancing practices. Because these practices

are found to have a positive effect on IWB, which in turn is appreciated by private sector employees.

Again the interpretation of this HRM practice partly determines its effect on employees' IWB. In future studies, this issue should be considered by clearly defining how training & development is understood within the researched organisation and defined by the researcher. Moreover, it should be ensured that participants define and interpret it in the same way otherwise it might lead to invalid results. The different understandings of this HRM practice also play a role for the operationalization within organisations. Firstly, employers should consider how they interpret and value the acquisition and structure of knowledge and secondly, should deliberate for which occupational group training and development is designed for and if cultural differences are apparent.

4.5 Job rotation and its proposed relation to IWB

Monks et al. (2012) assume that it would be fruitful to implement job rotation in order to provoke IWB. This is argued by several reasons. Firstly, fulfilling different tasks by reason of job rotation, employees obtain a lot of work related knowledge and skills. This seems to be beneficial for encouraging IWB as outlined previously. Secondly, job rotation might foster knowledge sharing within and between different departments, which is meant to be important for the generation as well as for the implementation of new and useful ideas. Thirdly, it might be able to facilitate a mutual understanding among employees and their distinct work processes. It could be suggested that this would stimulate collaboration and a supportive workforce.

However, Monks et al. (2012) provide no clear definition how they understand job rotation. Further, it is not described how job rotation is implemented within the exercised organisations. The lack of a clear definition and operationalization is also apparent in the research of Beugelsdijk (2008) who exercised the relation between job rotation and (product) innovation at an organisational level. He also argues that it might be beneficial to implement job rotation when organisations want enhance their innovative capacity. However, he was also neither able to provide a clear definition of job rotation nor to give a profound answer on how this relationship works.

Intuitively, we agree with the assumption that job rotation could be beneficial for provoking employees' IWB, however further research is appreciated to support these

suggestions and explore how job rotation might influence IWB and for which employees it could be valuable to be implemented.

4.6 Reward and IWB--An ambiguous relationship

The findings regarding reward and its relation to IWB are controversial. Financial (e.g. bonuses) and non financial (e.g. health insurance) rewards seem to undermine employees' motivation to engage in IWB at least when their motivation is intrinsic in nature (Sanders et al., 2010). Moreover, when employees were only rewarded when a new implemented idea leads to cost effectiveness, it will most likely conduct in dissatisfaction and low moral and thus not in provoking IWB (Monks et al., 2012).

However, when employees are not intrinsically motivated to show IWB, but rather perceive IWB as extra role behaviour, they expect to be rewarded for such extra effort. Dorenbosch et al. (2005) call this perception of IWB 'extra role syndrome'. In this case, financial and non financial compensations respectively encourage employees to show IWB (Bysted & Jespersen, 2013).

Another line of reasoning could also justify the use of compensation systems. When organisations use compensation systems to signal their employees that extra role behaviours such as IWB are recognised and valued, employees will then perceive the engagement in IWB as worthwhile (Zhang & Begley, 2011). With regard to this connection, Janssen (2000) argues that such positive associations will only function when employees feel fairly rewarded for their effort. When that is the case, a mutual relationship between employer and employees arises, which is assumed to result in IWB (Homans, 1958).

However, another explanation could be assumed for these findings as well. The researcher proposed that satisfaction with reward triggers IWB. Therefore, the participants were asked to rate how satisfied they are with their salary and bonus respectively. Employees might not declare that they are satisfied with their salary and the amount of profit sharing, because they might fear that their employer will not further increase their salary. This anxiety might cause response biases, which in turn could provoke error in judgments regarding the linkage between reward and IWB.

Moreover, the effect of reward on IWB appears to be lesser for collectivistic cultures, since they put more emphasise on group conformity than on financial reward. Implementing salary bonuses in organisations with a background of a collectivistic culture might therefore not be able to trigger their employees' IWB.

It can be concluded that the impact of reward on IWB mainly depends on the attitude employees have towards IWB and how they perceive the usage of compensation systems. That means, when employees perceive IWB as extra role behaviour, organisations should reward their employees fairly otherwise they will most likely not engage in IWB. Moreover, organisations could use reward as signal that IWB is appreciated. However, they should ensure that their employees perceive it in the same way otherwise employers can run the risk to undermine the intrinsic motivation of their employees. Furthermore, employers should attend to cultural differences.

Lastly, how reward is measured in research seems to have a substantial impact on the results. Precisely, the findings might discover differences in the relation between reward and IWB, but these differences might occur due to underlying response biases. Thus, developing an appropriate measurement for the compensation variable is indispensable for getting deeper and valid insights in the relationship between reward and IWB.

4.7. Can job insecurity really provoke IWB?

Job security can just as reward are referred to extrinsic motivators (De Spiegelaere et al., 2012) and as such are assumed to affect employees who are extrinsically motivated to show IWB. De Spiegelaere et al. (2012) found that blue collar employees will less show IWB when they fear that their job content could change in the future. It is assumed that this occupational group is much less able than white collar workers to handle the high pressure usually experienced by reason of insecurity. However, white collar employees also do not respond very well to job (content) insecurity. The Threat Rigidity Model (Staw et al, 1981) could explain these findings. According to this theory, employees are in a state of shock when they are concerned with job (content) insecurity. In such a state, employees tend to react with rather habitual, risk avoidance behaviour. They adhere to previous work processes and avoid changes. These behaviours are interpreted as the opposite of innovative behaviours.

Hence, one might say that job (content) insecurity always negatively affects IWB. However, Bommer and Jalajas (1999) discovered inconsistent results. On the one hand, employment insecurity might lead to risk avoidance behaviour. On the other hand, employees might be motivated to perform well in order to avoid losing their job. Thus, job insecurity might be able to cause IWB. Nonetheless, this relationship based on fear, rather destroys commitment, job satisfaction, and trust in the organisation, factors that are assumed to be necessary for employees' engagement in IWB on a long term view.

It could therefore be concluded that employment security might be of utmost importance when employees' IWB should be fostered, at least for blue collar employees. Although it is also reasonable to assume that job insecurity might be able to provoke IWB especially when employees perceive it as measurement tool for performance and showing innovative behaviours would help them to maintain their employment, this assumption is vague and its proposed relation is still based on fear wherefore it is not recommend here to threaten employees with loosing their jobs if they will not show IWB.

4.8 Receiving and providing constructive feedback is good!

Feedback from supervisors regarding work processes or performance is found to positively influence IWB since it enhances job related knowledge, and self confidence (Knol and van Linge, 2009). Moreover, feedback is even possible to encourage IWB among employees who are rather resistant to change (Battistelli et al., 2011), because it reduces their unconfident feelings and therewith influences the adaption to changes by showing IWB (Trait Activation approach, Tett & Guterman, 2000).

In addition, Chang et al. (2013) highlights the importance of feedback for all stages of IWB by applying the 'Social Side of Innovation' Perspective (Perry-Smith & Shalley, 2003) as explanation for their significant positive findings. According to this perspective, social interaction in the form of feedback is sufficient to encourage IWB.

In the context of skill variety and time pressure, Noefer et al. (2009) could only found a significant impact of supervisory feedback on the implementation oriented stages of IWB. They argue that supervisory feedback helps employees to keep track on work proceedings, whereby employees are able to structure their tasks more effectively, which in turn reduces time pressure, so that employees are actually able to implement their ideas.

However, based on the evaluated findings, we contribute to the 'Social Side of Innovation Perspective' and conclude that feedback is valuable for all employees and at all stages of IWB. Moreover, encouraging IWB by feedback is not only a matter of supervisors but also of subordinates. Therefore, we advice to provide feedback to any employee and at any time it is asked for.

4.9 Leadership and organisational culture—Their connection and distinct influences on IWB

In the context of several HRM practices and their relations to IWB, leaders and their relation to employees might be of utmost importance for various reasons.

Firstly, supervisors who support their employees by providing resources such as time, money and power actually enable their employees to engage in IWB (Janssen, 2005). Secondly, supervisors were often perceived as agents for the organisation (Sanders et al., 2010; Scott & Bruce, 1994). Thus, when supervisors are supportive, employees perceive their organisation as supportive and caring and feel obligated to reciprocate with discretionary behaviours such as IWB. In addition, supervisors were often seen as being responsible for the implementation of HRM practices, since direct supervisors are usually those who transmit rewards and feedback, empower employees, and compose tasks. As more satisfied an employee with the implemented HRM practices as more supportive will a leader be perceived, which is also argued to pass on the organisation as a whole (Sanders et al., 2010; Scott & Bruce, 1994).

Thirdly, the expectation of leaders regarding employees' innovative work behaviours seems to play a role as well. Based on the Pygmalion Effect (Livingston, 1969), employees might show IWB due to the fact that their supervisor expects it. It is argued that managers who expect high performance of their employees, consciously or unconsciously treat them as high producers, which in turn boost employees' self efficacy, and again will motivate them to spend more effort, resulting in that expected behaviour. However, supervisors should bear in mind that this effect can cut both ways. Thus, when managers have low expectations for their subordinates, they may unintentionally harm employees' self efficacy, resulting in low performance. This is called Golem Effect.

However, Scott and Bruce obtained that a supportive leader not always affects IWB. For instance, when an organisation by itself provides a lot of resources due to its innovative mission, a given threshold regarding support already might have been met whereby no additional support of the direct leader is needed to provoke employees' IWB. However, the authors also claim that organisational support in a more abstract way like organisational flexibility and openness to change is essential for employees' engagement in IWB.

Adopted from these findings, it could be said that employers should be aware of the fact that perceptions regarding leaders and the organisation are close and interdependent. For this reason, organisations should train and develop their managers and provide them with the necessary power in the sense that they are actually able to supply resources and implement

HRM practices in a way that they foster employees' IWB. Moreover, leaders should be aware of the fact that their expectations and the way they treat their employees could have huge influences on IWB.

4.10 Why has HR flow no significant impact on IWB?

Sanders et al. (2010) found no significant effect of HR Flow on IWB (Sanders et al., 2010). To be able to explain this, a closer look must be taken to their research. In addition to HR flow, Sanders et al. (2010) considered reward (primary/secondary), work content, influence, and LMX and their distinct relations to IWB. Satisfaction with each HRM practice is proposed to have a positive impact on employees' IWB. Since only satisfaction with HR flow reveal no significant results, it could be argued that satisfaction with influence, work content, and a satisfying LMX are more important for provoking employees' IWB. These HRM practices might outweigh the impact of HR flow. The reason for that could lay in the definition of HR flow. HR flow is referred to "issues of recruitment, selection, development and ending the contract of organizational members" (Sanders et al., 2010, p. 60). Its definition already implies that it might have too much overlap with other HR practices, which often get distinct attention in research (e.g. Bysted & Jespersen, 2013). One might say that considering HR flow in addition to these HR practices might not obtain deeper and fruitful insights. Further, it is questionable if the ending of the employment contract even contributes to the encouragement of IWB.

4.11 Limitations and further research

When speaking about limitations it has to be taken into account that these can have an effect in different dimensions. Looking at the macro level of limitations, the chosen study design does not allow for causality and generalization since a longitudinal empirical study design was not applied. However, the aim of this study was not to generalize, but to find and explore all possible HRM practice that significantly influence IWB and how these relationships could be explored. In order to achieve valuable results, systematically reviewing the literature is a reasonable research design. Future researches executed with quantitative, empirical designs based on larger samples over a longer period are invited to allow for generalization and causality.

On a meso-level there are limitations in the research method. The sample collection could have limited e.g. through missing data. *ISI Web of Knowledge* and *Scopus* were chosen as they both represent one of the most comprehensive databases of peer-reviewed journals in social science. *Google Scholar* was chosen additionally since it provided a good deal more hits compared to the other both databases. Thus, it is reasonable to suggest that using more databases would not have changed the sample significantly.

While the selection criteria were sought to discover the most suitable articles with good to high quality, they also bear limitations. For instance, only peer-reviewed articles that are published in journals with an impact factor were considered here since it is argued that they have great influence in the field and as such provide valid data (Podsakoff, P.M., MacKenzie, Bacharach & Podsakoff, N.P., 2005). However, articles that were published quite recently, could have been ignored by reason of their publication date, not due to probably low quality. Nonetheless, using such selection criteria is strictly necessary to keep the data condense, thereby securing the quality of this systematic review.

On a micro level, the content of each article could have influenced the results. The discovered articles were sorted by their investigated HRM practices in order to conduct an in depth content analysis aimed at answering the research question. However, the classification could have been biased, since universally valid definitions for the particular HRM practices are still lacking and the authors used various wordings for the same HRM practice. It was tried to solve this problem by taking a closer look to the measurement of the HRM practices and therewith ensure objectivity to the highest possible degree. However, as the used items sometimes also varied from one article to another in their precise terminology they had to be interpreted by the researcher (For an overview of the used items, please see Appendix 1). This method is not free of biases, since it is influenced by previous experiences and existing knowledge and faces the risk of generalizing matters that might not exactly be meant in the same way. Therefore, in order to reduce diffusion, further research is recommended to determine the distinct HRM practices more clearly.

Moreover, a major influence of the findings concerns the different methods of measurement and interpretations of IWB in the articles. Asking employees to rate their innovative behaviours at work could lead to socially desirable answers. Especially when employees perceive IWB as measurement tool for career development, they will most likely overstate their innovative potential. Future research should address this issue by using

Triangulation in order to evaluate the innovative behaviours of employees. This will lead to more stable and ‘truly’ results.

Another point for discussion is the difference between intended and perceived HRM practices since it could cause different effects on employees’ attitudes and behaviours and therewith also on research results. Intended HRM practices are those that are delineated by policy makers of an organisation (Khilji & Wang, 2006). If intended HRM practices affect employees’ attitudes and behaviours as desired, partly depends on the subjective interpretation of these HRM practices (Wright & Nishii, 2007), usually known as perceived HRM practices. These subjective interpretations could be very different to the intention of an organisation.

As an example, the studies regarding the effects of task composition on IWB revealed controversial results. While Noefer et al. (2009) found a significant positive correlation between complex jobs and IWB, de Jong et al. (2013) could not detect a significant relationship. De Jong et al. (2013) argue that complex jobs were not necessarily interpreted as challenging and stimulating, but could also be perceived as a set of additional tasks. When organisations implement HRM practices such as composing a stimulating and challenging job, they intend to motivate their employees to engage in desired behaviours such as IWB.

However, employees might interpret this HRM practice quite differently, which could cause demotivation, resulting in absence of desired behaviour. ‘The people management-performance causal chain’ of Purcell and Hutchinson (2007) explains this relationship. According to this causal chain, the individual interpretation of an HRM practice forms employees’ attitudes, which in turn influences subsequent behaviour. Thus, perceived HRM practices seem to have greater impact on employees’ behaviour than intended HRM practices. Due to this, future studies should pay attention to these differences and should rather focus on perceived HRM practices in order to derive at valid propositions and to avoid controversial results.

Since direct leaders are most often responsible for the implementation of HRM practices at the operational level, they play an important role in how employees perceive HRM practices (Gratton & Truss, 2003; Whittaker & Marchington, 2003). It could be expected that a high quality relationship between leaders and their subordinates, based on mutual trust, loyalty, support, and professional respect will lead to more positive perceptions of HRM practices, and in turn will result in favourable behaviours (Liden & Maslyn (1998; Gratton & Truss, 2003). However, this relation can cut both ways in the sense that a low quality relationship could result in absence of favourable employee behaviours.

In the light of these connections, future research should not only focus on perceived HRM practices and their relation to IWB, but also on the relationship between leaders and their subordinates, because deeper insights in the connection between LMX and its impact on employees' perception regarding HRM practices could provide an answer to the question 'Why do similar intended HRM practices provoke different behavioural responds?'

Besides that, most articles considered IWB as one dimensional construct. Others, such as Noefer et al. (2009) investigated IWB as two dimensional construct and found differences regarding the effect of HRM practices on idea generation and idea implementation respectively. IWB explored in two dimensions could bring forth more insightful results in how HRM practices affect IWB and is therefore appreciated in further research.

Not discussed yet is the question if IWB always leads to beneficial outcomes in relation to organisational competitiveness. This thesis could have provoked the idea that encouraging all employees' IWB is always beneficial for organisations in order to maintain competitiveness.

At the beginning of this thesis, we argued that provoking IWB would contribute to innovation at an organisational level, since individuals are the cornerstones of every innovation. Moreover, throughout this thesis we highlight the role of HRM practices in influencing and shaping individual working behaviours. However, the proposition that IWB contributes to organisational innovativeness does not necessarily mean that organisations maintain competitiveness by triggering employees' IWB. Even more, it could harm the competitiveness of organisations.

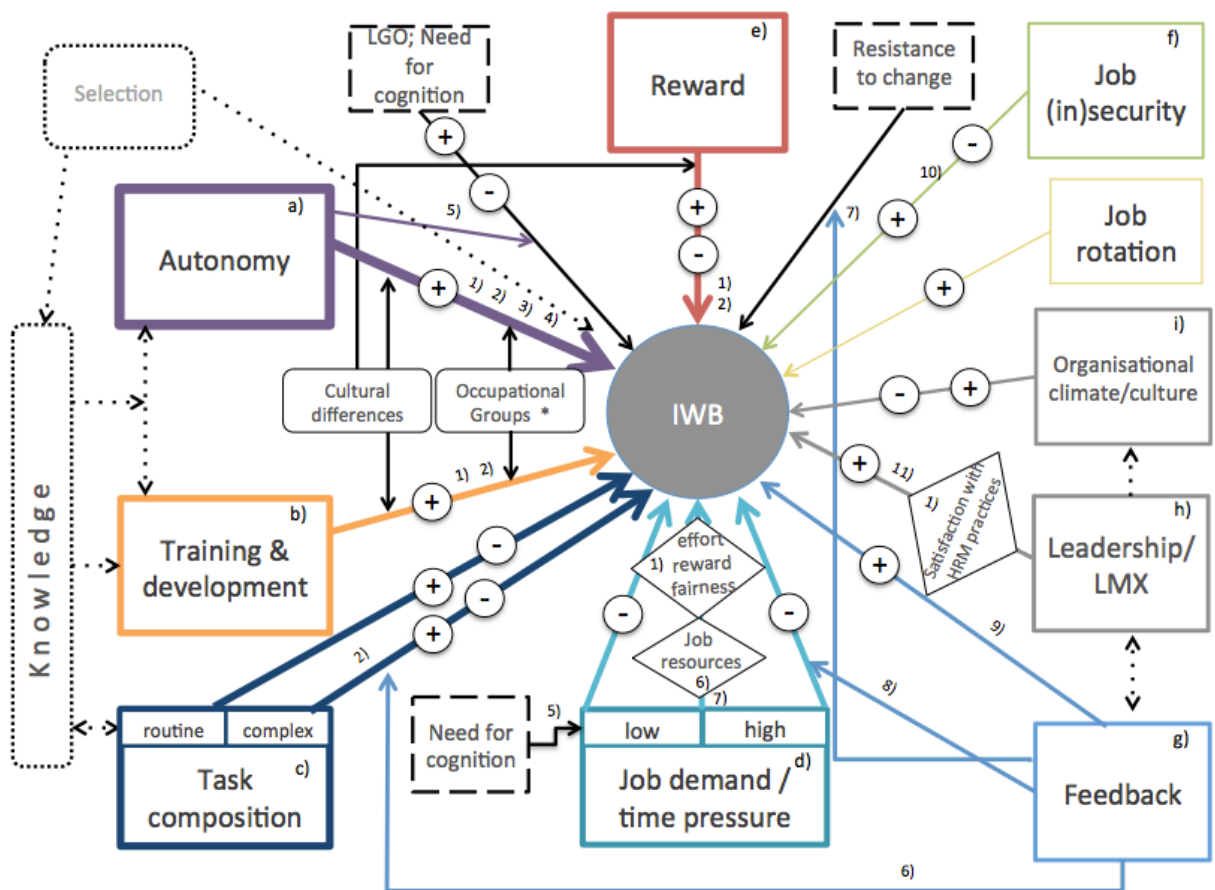
As an example, work units which are strictly regulated due to safety or quality reasons constantly change work proceeding could challenge organisational competitiveness. In addition, IWB consists of complex interrelated working behaviours and is therefore a challenging endeavour, which needs several cognitive and behavioural resources. Consequently, it could be argued that employees who exert IWB on a high level could be restrained to fulfil their prescribed job, which could lead to lesser efficiency. Therefore, we conclude that organisations should predefine how IWB could contribute to organisational competitiveness, which departments account for for organisational competitiveness in the context of IWB, and which employee type should be encouraged to engage in IWB.

Lastly, in the context of HRM practices one result also revealed certain knowledge gaps, being that no single article investigated the relationship between the selection and recruitment processes of employees and IWB, although this could be expected for various reasons: Firstly,

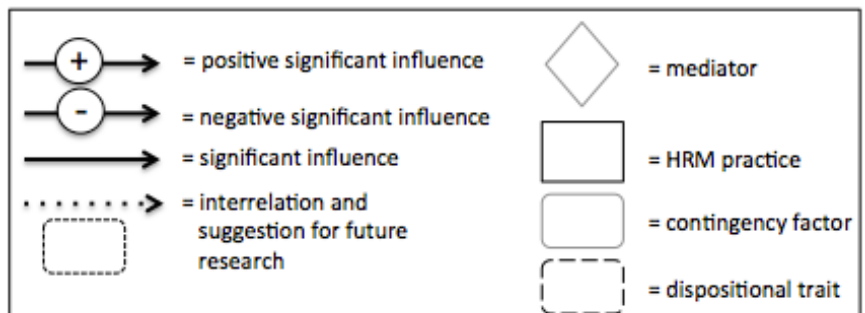
the definition regarding the use of practices to manage human resources explicitly contains selection (Boxall & Macky, 2009). Secondly, previous researches argue that selection might be able to stimulate innovation (Shipton et al., 2006; Kang & Snell, 2009). Thirdly, this review obtains some dispositional traits that might influence IWB on its own terms. It is found that dispositional traits such as ‘learning goal orientation’ (LGO) and ‘need for cognition’ could by themselves predict employees’ engagement in IWB. Therefore, it could be argued that selection might be able to influence IWB at least indirectly by deploying employees that possess particular dispositional traits. This assumption stresses the importance of future research that exercises the linkage between selection procedures and its relation to IWB, this it could offer worthwhile insights in how organisations can create their workforce more innovatively.

The discussed findings conduct in a conceptual framework that is presented by figure 15. Besides the significant findings of the included studies, it also illustrates interrelations between several HRM practices, leadership, organisational climate, and knowledge, which were not specifically tested yet, but obtained by the in depth content analysis. Thus, this conceptual framework provides an overview of rather unexplored relationships as well and could therefore serve a starting point for future research. These proposed interconnections are presented with dotted arrows.

The thickness of the arrows and rectangles (HRM practice) provides information about the amount of significant findings in relation to IWB. However, it also points out that several propositions could be made regarding the implementation of HRM practices regarding the influence on IWB and by which theory these relationships are explained (presented with numbers). The small letters refer to the different wordings used in the studies. And lastly, it reveals how complex the relationship is between HRM practices and IWB.



- 1) Social Exchange Theory
- 2) Intrinsic motivation
- 3) Cognitive Evaluation Theory
- 4) Cognitive Mediation Theory
- 5) Interactionist Model of Personality
- 6) Problem coping strategy
- 7) (Trait) Activation theory
- 8) Control Theory
- 9) Social Side of Innovation
- 10) Threat-Rigidity Model
- 11) Pygmalion Effect



Terminology:

- a) also: empowerment, voice, perceived influence, structural empowerment, psychological empowerment, perceived impact, job control, perceived autonomy, organizing tasks, job autonomy,
 - b) also: competence development, information, opportunity, knowledge management, knowledge structure, knowledge transfer, learning opportunities,
 - c) also: job variety, skill variety, routinization, job complexity, routine task, challenging tasks, stimulating tasks, work content, task type
 - d) also: Job demand, time pressure,
 - e) also: Financial mechanism, expectancy clarity, pay, effort reward fairness
 - f) also: Job content insecurity
 - g) also: Feedback from job, supervisor feedback
 - h) also: Leadership, LMX, leader expectation, supportive supervisor
 - i) also: Resource supply, organisational support, risk culture
- *public / private sector;
with/blue collar employees

Figure 15 Conceptual framework of the systematic literature review

5. Conclusion and practical implications

The aim of this study was to find and explore all possible HRM practices that significantly influence IWB and their distinct impacts are explained. An inductive research approach by systematically reviewing the literature was chosen to achieve this research objective and therewith extending the existing literature. Eight HRM practices are found that have a significant influence on IWB. Moreover, eleven theories and approaches were discovered, which elucidate these various relationships. All these findings conduct in a conceptual framework. Moreover, it visualises rather unexplored connections and could therefore serve as initial point for further research project. Job rotation and its relation to IWB, for instance, were considered once only. Although the quantity of researches not necessarily contributes to quality of effect, in this case it does matter because job rotation and its investigation were poorly designed. However, due to the assumption that job rotation might be able to enhance employees' job related knowledge and could foster the composition of employees' network in the work setting, it reasonable to assume that job rotation could have a positive impact on IWB wherefore it should be exercised in future research.

In addition, the framework uncovers particular interrelations between several HRM practices, intervening variables, organisational climate, leadership, and knowledge, which were not specifically tested yet. However, getting more insight in how these interconnections function in relation to IWB is of utmost importance in order to get a coherent picture of what else influences IWB, how these interrelations might alter the distinct relations between HRM practices and IWB, how they mutually influence each other, and why employees engage in IWB. For instance, employees' work related knowledge. One might say that job related knowledge is indispensable when employees' IWB should be triggered. Therefore, several studies explored the linked between knowledge enhancing HRM practices such as training and development and IWB. They found indeed significant positive connections. However, they elucidate this link in different ways. One research claim, that job related knowledge is needed to enable employees to detect opportunities and problems, and to enable them to discover when and how support is needed to implement an idea. However, others argue that knowledge psychologically and structurally empower employees, which in turn causes IWB. When that is the case, one might conclude that it is most important to implement knowledge enhancing practices to encourage employees' IWB. Almost the same interrelation could be proposed for task composition, knowledge and autonomy or for job rotation, knowledge and autonomy. Because, complex tasks and job rotation also can serve as knowledge enhancing practice it might be reasonable to assume that these two HRM practices can provoke

psychological and structural empowerment among employees in the same manner as the HRM practice training and development. However, due to a lack of profound evidence, causality is not allowed wherefore further research is recommended. It should focus on the link between employees' work related knowledge, its relation to autonomy, training and development, stimulating and challenging tasks, and job rotation, and exercise if they cancel each other out in the context of IWB.

Moreover, the influence of leaders on employees' IWB is not entirely clear. While Ong et al. (2003) and Ohly et al. (2006) discovered no significant impact of leadership on IWB, Scott and Bruce (1994), Janssen (2005) Sanders et al. (2010) found a significant positive relationship. Leaders are meant to have an impact on employees' behaviour by forming the perceptions regarding HRM practices, and by providing several resources needed for the engagement in IWB. Moreover, Scott and Bruce (1994) and Sanders et al. (2010) propose an interrelation between leadership and organisational climate in the sense that employees who perceive their direct manager as supportive will likely also perceive their organisation (culture of an organisation) as supportive. Thus, leaders are also supposed to influence employees' behaviour by assembling a mutual relationship between employees and the entire organisation. These propositions are in line with previous findings of the leader employee relationship. The reason, that we detected controversial results, may lay in the fact that IWB and how it could be influenced by HRM practices is a relatively new topic in science. Twenty four of the included articles were published within the last ten years. It gets more and more attention in science, however, several relationships are still lacking sufficient investigations wherefore causality and generalizability is not allowed. Besides that, the question how IWB is linked to innovative performance at an organisational level in the sense that organisations gain and sustain competitive advantage is also not entirely answered. Due to a lack of such profound knowledge it might be difficult for leaders to treat their employees in a way that they show innovative work behaviours. Even more, influencing such a complex pattern of behaviour is by itself a challenging endeavour. Deeper knowledge about the various relationships between leaders, HRM practices and their mutual influence on IWB is highly recommended.

Despite these controversial findings we could nonetheless provide recommendations for management. Before implementing HRM practices that are intended to influence employees' IWB, organisations should define what they mean by IWB and decide for which occupational group, and which unit, respectively the encouragement of IWB is most reasonable in order to

contribute to organisational effectiveness as the impact of HRM practices can differ for distinct employee types. Moreover, cultural differences might cause different levels of effectiveness.

When employers want to provoke IWB of their knowledge workers they should implement empowering practices by enlarging the decision latitude of these employees regarding the composition and organization of their tasks. Moreover, these employees should get access to knowledge enhancing practices like seminars or workshops. In addition, their jobs should be designed in a challenging and stimulating manner, which entail moderate time pressure. It might also be favourable for this employee group to provide the possibility of job rotation as it is assumed to enable employees to gain job related knowledge in different dimensions. Financial rewards should be implemented with cautious since this practice might be able to undermine the intrinsic motivation of these employees to engage in IWB.

In contrast, when organisations want to provoke innovative work behaviours of production workers, financial rewards could be beneficial. Moreover, production workers' IWB might also be influenced by job rotation and other knowledge enhancing practices, as they not exclusively meant to affect the intrinsic motivation of employees. Gaining job related knowledge might be good for all types of employees when their IWB should be influenced.

In relation to this proposition, organisations should implement a constructive feedback culture by maintaining regular meetings between employees, their co workers and supervisors. It could be argued that it will predict IWB for all employee types. At least equally important for all employees are supportive leaders. They are those who bear the responsibility that employees perceive the above mentioned HRM practices in the way they are intended. Furthermore, leaders are most often those that provide resources such as time, equipment, information, legitimacy, and money necessary to generate and implement new and useful ideas. Employers should keep in mind, which importance leaders' behaviours have in shaping employees behaviour and on these grounds train and develop them that they are actually able to fulfil such a responsible job in the best way possible. In matters of the encouragement of IWB, organisations should also establish a culture where making mistakes is allowed and differences are valued. Furthermore, job insecurity should not be utilized at all.

Basically, most of these HRM practices could be implemented in organisations of collectivistic cultures as well as of individualistic cultures when their employees' IWB should be encouraged. Only autonomy and training and development seem to differ in their effectiveness in these cultures, wherefore organisations should attend to cultural differences

when they want to implement empowerment practices and knowledge enhancing and knowledge management practices, respectively.

6. References

*Marked articles were included in the systematic review

- *Abstein, A. & Spieth, P. (2014). Exploring HRM Meta-features that foster employees' innovative work behaviour in times of increasing work–life conflict. *Creativity and innovation management*, 23(2), 211-225.
- Amabile, T. M., Hennessey, B. A., & Grossman, B. S. (1986). Social influences on creativity: The effects of contracted- for reward. *Journal of Personality and Social Psychology*, 50, 14–23.
- Amabile, T. M. (1988). How to kill creativity. *Harvard Business Review* (September-October), pp. 77–87.
- Bakker, A. B., Demerouti, E., & Euwema, M.C. (2005). Job resources buffer the impact of job demand on burnout. *Journal of Occupational Health Psychology*, 10, 170–180.
- Bandura, A. & Cervone, D. (1986). Differential engagement of self-reactive mechanisms governing the motivational effects of goal systems, *Organizational Behavior and Human Decision Processes*, 38, pp. 92–113.
- Bacharach, S. B., & Aiken, M. (1976). Structural and process constraints on influence in organizations: A level-specific analysis. *Administrative Science Quarterly*, 21, 623–642.
- Basadur, M. (2004). Leading others to think innovatively together: Creative leadership. *The Leadership Quarterly*, 15, 103 – 121.
- *Battistelli, A., Montani, F. & Odoard, C. (2011). The impact of feedback from job and task autonomy in the relationship between dispositional resistance to change and innovative work behaviour. *European Journal of Work and Organizational Psychology*, 22(1), 26-41.
- Beer, M., Spector, B., Lawrence, P.R., Quinn Mills, D. and Walton, R.E. (1984) *Managing human assets*. The Free Press, New York.
- Beugelsdijk, S. (2008). Strategic Human Resource Practices and Product Innovation. *Organization Studies*, 29(6), 821-847.
- Blau, P.M. (1964). *Exchange and power in social life*. New York: Wiley.
- *Bommer, M.S. & Jalajas, D.S. (1999). The threat of organizational downsizing on the innovative propensity of R&D professionals. *R&D Management*, 29(1), 27-34.
- Boselie, P., Paauwe, J., & Jansen, P. (2001). Human resource management and performance: Lessons from the Netherlands. *International Journal of Human Resource Management*, 12(7), 1107-1125.
- Boxall, P. & Macky, K. (2009). Research and theory on high-performance work systems: progressing the high-involvement stream. *Human Resource Management Journal*, 19(1), 3–23.
- Boyne, G. A. (2002) Public and Private Management: What's the Difference? *Journal of Management Studies*, 39: pp. 97–122.
- Bryman, A., & Bell, E. (2007). *Business Research Methods*. US: Oxford University Press.

- Burrell, G. & Morgan, G. (1979), *Sociological Paradigms and Organisational Analysis*, Hants: Ashgate.
- Butler, J. E., Ferris, G. R., & Napier, N. K. (1991). *Strategy and human resources management*. Cincinnati: South-Western.
- *Bysted, R. & Hansen, J. (2013). Comparing public and private sector employees' innovative behaviour. *Public Management Review*, 1-20.
- *Bysted, R. & Jespersen, K. (2013). Exploring Managerial mechanism that influence innovative work behaviour: Comparing private and public employees. *Public Management Review*, 16(2), 217-241.
- Cano, C.P. & Cano, P.Q. (2006). Human resources management and its impact on innovation performance in companies. *Int. J. Technology Management*, 35, Nos. 1/2/3/4, 11-28.
- Carver, C. S., & Scheier, M. F. (1982). Control theory: A useful conceptual framework for personality-social, clinical, and health psychology. *Psychological Bulletin*, 92, 111-135.
- Centers, R., & Bugental, D. (1966). Intrinsic and Extrinsic Job Motivations among different segments of the working population. *Journal of Applied Psychology*, 50(3), 193-197.
- *Chang, H.-T., Hsu, H.-M., Liou, J.-W. & Tsai, C.-T. (2013). Psychological contracts and innovative behaviour: a moderated path analysis of work engagement and job resources. *Journal of Applied Social Psychology*, 43, 2120-2135.
- Coyle-Shapiro, J. (2002). A psychological contract perspective on organisational citizenship Behaviour. *Journal of Organizational Behaviour*, Vol. 23, No. 8, pp. 927-946.
- Crossan, M.M., and Apaydin, M. (2010). A Multi-dimensional Framework of Organizational Innovation: A Systematic Review of the Literature. *Journal of Management Studies*, 47(6), 1154-1191.
- Cruz Déniz-Déniz, M. de la, & De Saá-Pérez, P. (2003). A resource-based view of corporate responsiveness toward employees. *Organization Studies*, 24(2), 299-319.
- Darroch, J., & McNaughton, R. (2002). Examining the link between knowledge management practices and types of innovation. *Journal of Intellectual Capital*, 3, 210-222.
- Deci, E.L. and Ryan, R.M. (1985) *Intrinsic Motivation and Self-Determination in Human Behavior*. Plenum, New York.
- Demerouti, E., Bakker, A.B., Nachreiner, F., & Schaufeli, W.B. (2001). The job demands – resources model of burnout. *Journal of Applied Psychology*, 86, 499-512.
- *Dorenbosch, L., Van Engen, M.L., and Verhagen, M. (2005), 'On-the-Job Innovation: The Impact of Job Design and Human Resource Management Through Production Ownership,' *Creativity and Innovation Management*, 14(2), 129-141.
- Doty, D. H., Glick, W. H., & Huber, G. P. (1993). Fit, equifinality, and organizational effectiveness: A test of two configurational theories. *Academy of Management Journal*, 36: 1196-1250.
- Dougherty, D. and Bowman, E.H. (1995) The effects of organizational downsizing on product innovation. *California Management Review*, 37, 4, 28 - 44.

- Dyer, L. (1985). Strategic human resources management and planning. In K. Rowland & G. Ferris (Eds.), *Research in personnel and human resource management*, 3: 1-30. Greenwich, CT: Press.
- Eagly, A. H. & Wood, W. (1994). Using research to plan future research. in h. cooper & L. V. hedges (Eds.), *The handbook of research synthesis* (pp. 485–500). New York: Russell Sage foundation.
- Easterby-Smith, Mark, Thorpe, Richard, and Lowe Andy (1991), *Management Research*. An Introduction, Sage: London.
- Emerson, R.M. (1976). Social exchange theory. *Annual review of sociology*, 2, 335-362.
- Endler, N. S. (1983). Interactionism: A personality model, but not yet a theory. In M. M. Page (Ed.), *Nebraska symposium on motivation 1982: Personality-current theory and research*: 155-200. Lincoln: University of Nebraska Press.
- *Fernandez & Moldogaziev (2013). Employee Empowerment, Employee Attitudes, and Performance: Testing a Causal Model. *Public administration review*, 73(3), 490-506.
- Frost, P.J., & Egri, C.P. (1991). The political process of innovation. In B.M. Staw & L.L. Cummings (Eds.), *Research in organizational behaviour* (pp. 229–295). Greenwich, CT: JAI Press.
- Golden, K., & Ramanujam, V. (1985). Between a dream and a nightmare: On the integration of the human resource management and strategic business planning processes. *Human Resource Management*, 24: 429-452.
- Graen, G., Orris, J. B & Johnson, T.W. (1973). Role assimilation processes in a complex organization. *Journal of Vocational Behaviour*, 3, 395–420, 1973.
- Gratton, L., & Truss, C. (2003). The three-dimensional people strategy: putting human resource policies into action. *Academy of Management Executive*, 17 (3), 74-86.
- Hackman, J.R. & Oldham, G.R. (1976). Motivation through the design of work: Test of a theory. *Organizational Behavior and Human Performance*, 16, 250–279.
- Hackman, J.R. and Oldham, G.R. (1980) *Work redesign*. Addison-Wesley, Reading, Mass.
- Hennessey, B.A. & Amabile, T.M. (2010) Creativity. *Annual Review of Psychology*, 61 pp. 569–98.
- Hitt, M. A., Keats, B. W. & DeMarie, S. M. 1998. Navigating in the new competitive landscape: Building strategic flexibility and competitive advantage in the 21st century. *Academy of Management Executive*, 12(4): 22-42.
- Homans, G.C. (1958). Social Behavior as Exchange. *American Journal of Sociology*, 63(6), 597-606.
- Howell, J.M., Shea, C.M. & Higgins, C.A. (2005). Champions of Product Innovations: Defining, Developing, and Validating a Measure of Champion Behavior. *Journal of Business Venturing*, 20, 641-661.
- Hughes, J. & Sharrock, W. (1997), *The Philosophy of Social Research*, 3rd edition, Pearson: Essex.
- Hui, M.K., Au, K., and Fock, H. (2004), 'Empowerment Effects Across Cultures,' *Journal of International Business Studies*, 35, 1, 46 – 60.

- Huiskamp, R., De Jong, T. & Den Hoedt, M.(2008b). HRM en innovatief werkgedrag: een verkenning, Hoofddorp: TNO.
- Huselid, M.A. (1995). The Impact of Human Resource Management Practices on Turnover, Productivity, and Corporate Financial Performance. *The Academy of Management Journal*, 38(3): 635-672
- *Janssen, O. (2000). Job demands, perceptions of effort-reward fairness and innovative work behaviour. *Journal of occupational and organizational psychology*, 73, 287-302.
- *Janssen, O. (2005). The joint impact of perceived influence and supervisor supportiveness on employee innovative behaviour. *Journal of occupational and organizational psychology*, 78, 573-578.
- Jaw, B.-S., & Liu, W. (2003). 'Promoting Organizational Learning and Self-Renewal in Taiwanese Companies: The Role of HRM,' *Human Resource Management*, 42, 3, 223 – 240.
- Jiménez-Jiménez, D. & Sanz-Valle, R. (2008). Could HRM support organizational innovation? *The International Journal of Human Resource Management*, 19(7), 1208-1221.
- Jong, J.P.J.,de, & Den Hartog, D.N. (2010), 'Measuring Innovative Work Behaviour,' *Creativity and Innovation Management*, 19(1), 23-36. 30.
- *Jong, J.P.J., de, Parker, S.K., Wennekers, S. & Wu, C.-H. (2013). Entrepreneurial Behavior in Organisations: Does job design matter? *Entrepreneurship Theory and Practice*, doi: 10.1111/etap.12084.
- Jose, G. & Mampilly, S.R. (2012). Satisfaction with HR Practices and Employee Engagement: A Social Exchange Perspective. *Journal of Economics and Behavioral Studies*, 4 (7), pp. 423-430.
- Kang, S. C., & Snell, S. A. (2009). Intellectual Capital architectures and ambidextrous learning: A framework for Human Resource Management. *Journal of Management Studies*, 46, 65-92.
- Kanter, R. (1988). 'Swimming in Newstreams: Mastering Innovation Dilemmas. *Journal of Business Venturing, Summer*, 45 – 684.
- Karasek, R. A. (1979). Job demands, job decision latitude and mental strain: Implications for job redesign. *Administrative Science Quarterly*, 24, 285-306.
- Karasek, R. and Theorell, T. (1990) *Healthy work: stress, productivity, and the reconstruction of working life*. Basic Books, New York.
- Khilji, S.E., Wang, X. (2006). 'Intended' and 'implemented' HRM: the missing linchpin in strategic human resource management research. *The International Journal of Human Resource Management*, 17(7), 1171-1189.
- *Knol, J. & van Linge, R. (2009). Innovative behaviour: the effect of structural and psychological empowerment on nurses. *Journal of Advanced Nursing*, 65(2), 359–370.
- Kogut, B. (2000), The Network as Knowledge: Generative Rules and the Emergence of Structure. *Strategic Management Journal*, 21(3), 405 – 425.
- Kogut, B., & Zander, U. (1992), 'Knowledge of the Firm, Combinative Capabilities, and the Replication of Technology. *Organization Science*, 3(3), 383 – 397.

- Konrad, A.M. (2006). Engaging employees through high-involvement work practices. *Ivey Business Journal*, 1-6.
- Kwon, K., Bae, J., & Lawler, J.J. (2010). High commitment HR practices and top performers. *Management International Review*, 50, 57-80.
- Laschinger H.K.S., Finegan J., Shamian J. & Wilk P. (2001) Impact of Structural and Psychological Empowerment on Job Strain in Nursing Work Settings. *JONA*, 31(5), 260–272.
- Laursen, K. & Foss, N.J. (2003). New human resource management practices, complementarities and the impact on innovation performance. *Cambridge Journal of Economics*, 27, 243–263.
- Leede, J., de & Looise, J.K. (2005). Innovation and HRM: Towards an Integrated Framework. *Creativity and Innovation Management*, 14(2), 108-117.
- Lepak, D. P., & Snell, S. A. (2002). Examining the human resource architecture: The relationship among human capital, employment and human resource configurations. *Journal of Management*, 28, 517-543.
- Liden, R.C. & Maslyn, J.M. (1998). Multidimensionality of Leader-Member Exchange: An Empirical Assessment through Scale Development. *Journal of Management*, 24 (1), 43-72.
- Livingston, J. (1969). Pygmalion in management. *Harvard Business Review*, 47(4), 81-89.
- Locke, E. A. (1973). Satisfiers and dissatisfiers among white-collar and blue-collar employees. *Journal of Applied Psychology*, 58(1), 67–76.
- Lopez-Cabral, A., Pérez-Luno, A. & Valle Cabrera, R. (2009). Knowledge as a Mediator between HRM Practices and Innovative Activity. *Human Resource Management*, 48(4), 485– 503.
- Lu, L. (1999), 'Work Motivation, Job Stress and Employees' Well-Being,' *Journal of Applied Management Studies*, 8(1), 61 – 72.
- *Lu, L., Lin, X. & Leung, K. (2012). Goal orientation and innovative performance: The mediating roles of knowledge sharing and perceived autonomy. *Journal of applied social psychology*, 42, 180-197.
- *Marane, B.M.O. (2012). The mediating role of trust in organization on the influence of psychological empowerment on innovative behaviour. *European journal of social sciences*, 33(1), 39-51.
- * Martín, P., Salanova, M., Peiró, J.M. (2007). Job demands, job resources and individual innovation at work: Going beyond Karasek's model. *Psicothema*, 19, 621-626.
- McClean, E. & Collins, C.J. (2011). High-Commitment HR Practices, Employee Effort, and Firm Performance: Investigating the Effects of HR Practices across Employee Groups within Professional Services Firms. *Human Resource Management*, 50(3), 341 – 363.
- Messersmith, J.G. & Guthrie, J.P. (2010). High Performance Work Systems in emergent organizations: Implications for Firm Performance. *Human Resource Management*, 49(2), 241-264.
- *Messmann & Mulder (2014). Exploring the role of target specificity in the facilitation of vocational teachers' innovative work behaviour. *Journal of occupational and organizational psychology*, 87, 80-101.

- Meyer, A.D., Tsui, A.S. & Hinings, C.R. (1993). Configurational approaches to organizational analysis. *Academy of Management Journal*, 36(6), 1175-1195.
- Miron, E., Erez, M. & Naveh, E. (2004) Do Personal Characteristics and Cultural Values That Promote Innovation, Quality, and Efficiency Compete or Complement Each Other? *Journal of Organizational Behavior*, 25(2), 175-199.
- *Monks, K., Kelly, G., Conway, E. & Flood, P. (2012). Understanding how HR systems work: the role of HR philosophy and HR processes. *Human resource management journal*, 23(4), 379-395.
- Mottaz, C. J. (1985). The Relative Importance of Intrinsic and Extrinsic Rewards as Determinants of Work Satisfaction. *The Sociological Quarterly*, 26(3), 365–385.
- Mulrow, C. D. (1994). Systematic Reviews—Rationale for Systematic Reviews. *British Medical Journal*, 309 (6954), pp. 597-599.
- Mumford, M.D. (2000), Managing Creative People: Strategies and Tactics for Innovation. *Human Resource Management Review*, 10(3), 313-351.
- *Noefer, K., Stegmaier, R., Molter, B., Sonntag, K. (2009). Great many things to do and not a minute to spare: Can feedback from supervisors moderate the relationship between skill variety, time pressure and employees' innovative behavior? *Creativity research journal*, 21(4), 284-293.
- *Ohly, S., Sonnentag, S. & Pluntke, F. (2006). Routinization, work characteristics and their relationships with creative and proactive behaviors. *Journal of organizational behaviour*, 27, 257-279.
- Oldham, G. R., & Cummings, A. (1996). Employee creativity: personal and contextual factors at work. *Academy of Management Journal*, 39, 607–634.
- *Ong, C.-H., Wan, D. & Chng, S.-H. (2003). Factors affecting individual innovation: an examination within a Japanese subsidiary in Singapore. *Technovation*, 23, 617-631.
- Osterman, P. (1994). How common is workplace transformation and how can we explain who adopts it? Results from a national survey. *Industrial and Labor Relations Review*, 47, 173-188.
- Perry-Smith, J. E., & Shalley, C. E. (2003). The social side of creativity: A static and dynamic social network perspective. *Academy of Management Review*, 28, 89–106.
- Pfeffer, J. 1994. *Competitive advantage through people: Unleashing the power of the work force*. Boston: Harvard Business School Press.
- Podsakoff, P. M., MacKenzie, S. B., Bacharach, D. G. & Podsakoff, N. P. (2005). The influence of management journals in the 1980s and 1990s. *Strategic Management Journal*, 26, 473–88.
- *Pratoom, K. & Savatsomboon, G. (2010). Explaining factors affecting individual innovation: The case of group members in Thailand. *Asia pacific journal of management*, 29, 1063-1087.
- Ramamoorthy, N. and Flood, P. (2002) Employee attitudes and behavioral intentions: A test of the main and moderating effects of individualism-collectivism orientations. *Human Relations*, 55(9), 1071–1096.
- *Ramamoorthy, N., Flood, P. C., Slattery, T. & Sardesai, R. (2005). Determinants of innovative work behaviour: Development and test of an integrated model. *Creativity and Innovation Management*, 14, 142–150.

- Remenyi, D., Williams, B., Money, A. & Swartz, E. (1998), *Doing Research in Business and Management*. An Introduction to Process and Method, London: Sage.
- Reuvers, M., van Engen, M.L., Vinkenburch, C.J. & Wilson-Evered, E. (2008) Transformational Leadership and Innovative Work Behavior: Exploring the Relevance of Gender Differences. *Creativity and Innovation Management*, 17, 227–44.
- Ronen, S., & Sadan, S. (1984). Job Attitudes Among Different Occupational Status Groups. *Work and Occupations*, 11(1), 77–97.
- *Sanders, K., Moorkamp, M., Tprka, N., Groeneveld, S. & Goeneveld, C. (2010). How to support innovative behaviour? The role of LMX and satisfaction with HR practices. *Technology and Investment*, 1, 59-68.
- Saunders, M., Lewis, P., & Thornhill, A. (2007). *Research Methods for Business Students* (Vol. 4). London: Prentice Hall.
- Schmidt, K.-H., Kleinbeck, U., Ottmann, W., & Seidel, B. (1985). Ein Verfahren zur Diagnose von Arbeitsinhalten: Der Job Diagnostic Survey (JDS). [An instrument for diagnosing work contents: The Job Diagnostic Survey (JDS)]. *Psychologie und Praxis, Zeitschrift für Arbeits- und Organisationspsychologie*, 29, 162–172.
- Schouteten, R., & Benders, J. (2004). Lean Production Assessed by Karasek's Job Demand–Job Control Model. *Economic and Industrial Democracy*, 25(3), 347 –373.
- Schroeder, R., Van de Ven, A., Scudder, G., & Polley, D. (1989). *The development of innovation Ideas. Research on the management of innovation: The Minnesota studies*, 107-134. New York: Harper & Row.
- Schuler, R. S., & Jackson, S. E. (1987). Linking competitive strategies with human resource practices. *Academy of Management Executive*, 1(3), 207-219.
- *Scott, S.G., and Bruce, R.A. (1994), Determinants of Innovative Behavior: A Path Model of Individual Innovation in the Workplace, *Academy of Management Journal*, 37(3), 580-607.
- Semmer, N. (1984). *Stressbezogene Tätigkeitsanalyse: Psychologische Untersuchungen zur Analyse von Stress am Arbeitsplatz*. Weinheim: Beltz.
- Semmer, N. (1988). *Stressbezogene Tätigkeitsanalyse: Psychologische Untersuchung zur Analyse von Stress am Arbeitsplatz [Stress related work analysis: Psychological examination for analysing stress at work]*. Weinheim, Germany: Beltz.
- Shipton, H., West, M.A., Dawson, J., Birdi, K. & Patterson, M. (2006). HRM as a predictor of innovation. *Human Resource Management Journal*, 16(1), 3-27.
- Shuck, B., Reio, T. G. & Rocco, T. S. (2011). Employee engagement: An examination of antecedent and outcome variables. *Human Resource Development International*, 14(4), 427-445.
- Smallwood, W.N. and Jacobsen, E. (1987) Is there life after downsizing? *Personnel*, 64, 42 - 46.
- *Spiegelaere, S., de, Van Guys, G. & Van Hootegem, G. (2012), Job Design and Innovative Work Behavior: One Size Does Not Fit All Types of Employees. *Journal of Entrepreneurship, Management and Innovation*, 4, 5-20.

- Spreitzer, G. M. (1995) Psychological Empowerment in the Workplace – Dimensions, Measurement, and Validation. *Academy of Management Journal*, 38(5), pp. 1442–65.
- Staw, B.M., Sandelands, L.E. and Dutton, J.E. (1981). Threat-rigidity effects in organizational behavior: A multilevel analysis. *Administrative Science Quarterly*, 26, 501 -524.
- Tang, H.K., 1999. An inventory of organizational innovativeness. *Technovation*, (19), 41–51.
- Tett, R. P., & Guterman, H. A. (2000). Situation trait relevance, trait expression, and cross-situational consistency: Testing a principle of trait activation. *Journal of Research in Personality*, 34, 397-423.
- Tidd, J., Bessant, J. & Pavitt, K. (2001). *Managing Innovation: Integrating Technological, Market and Organisational Change*, 2nd edn, John Wiley, Chichester.
- Torka, N., Van Riemsdijk, M. and Looise, J.C. (2007). “Werkgeversbetrokkenheid,” [Employers commitment] *Tijdschrift voor Arbeidsvraagstukken*, Vol. 23, pp. 45–59.
- Tranfield, D., Denyer, D. and Smart, P. (2003). ‘Towards a methodology for developing evidence-informed management knowledge by means of systematic review’. *British Journal of Management*, 14, 207–22.
- Tsui, A.S., Pearce, J.L., Porter, L.W. & Tripuli, A.M. (1997). Alternative Approaches to the Employee-Organization Relationship: Does Investment in Employees Pay Off? *Academy of Management Journal*, 40(5), 1089-1121.
- Umiker, W. (1988). ‘Applied Creativity,’ *Advanced Management Journal*, 53, 3, 9 – 12.
- *Urbach, T., Fay, D. & Gora, A. (2010). Extending the job design perspective on individual innovation: Exploring the effect of group reflexivity. *Journal of occupational and organizational psychology*, 83, 1053-1064.
- Van de Ven, A. (1986). Central problems in the management of innovation. *Management Science*, 32, 590-607.
- Veenendaal, A.A.R., Nehles, A.C., Velzen, M.J.T. van & Looise, J.C. (2011). Examining the relationship between HRM and innovative work behaviour. 7th International Conference of the Dutch HRM Network: Groningen, the Netherlands (2011, November 10 - 2011, November 11).
- Veldhoven, M., van & Meijman, T.F. (1994) The measurement of psychosocial job demands with a questionnaire: the questionnaire on the experience and evaluation of work (QEEW). Amsterdam, Nederlands Instituut voor Arbeidsomstandigheden.
- Verplanken, B., & Orbell, S. (2003). Reflections on past behavior: a self-report index of habit strength. *Journal of Applied Social Psychology*, 33, 1313–1330.
- Vogus, T.J. & Welbourne, T.M. (2003). Structuring for high reliability: HR practices and mindful processes in reliability-seeking organizations. *Journal of Organizational Behavior*, 24, 877-903.
- Wall, T.D., Jackson, P.R., Mullarkey, S. & Parker, S.K. (1996), The demands-control model of job strain: A more specific test. *Journal of Occupational and Organizational Psychology*, 69, 153-166.

- West, M.A. (2002) Sparkling fountains or stagnant ponds: An integrative model of creativity and innovation implementation in work groups. *Applied Psychology: An International Review*, 51, 355–87.
- Whittaker, S., & Marchington, M. (2003). Devolving HR responsibility to the line - Threat, opportunity or partnership? *Employee Relations*, 25(3), 245-261.
- Wolters, A.M. (1983). *On The Idea of Worldview and Its Relation to Philosophy*. Stained Glass University Press of America, pp. 14-25.
- Wright, P.M., & McMahan, G.C. (1992), 'Theoretical Perspectives for Strategic Human Resource Management', *Journal of Management*, 18(2), 295-320.
- Wright, P.M., McMahan, G.C., & McWilliams, A. (1994). Human Resources and Sustained Competitive Advantage: A Resource Based Perspective, *International Journal of Human Resource Management*, 5(2), 301-326.
- Wright, P.M., Nishii, L.H. (2007). Strategic HRM and Organizational Behavior: Integrating Multiple Levels of Analysis. *CAHRS Working Paper Series, paper*, 468, 1-24.
- *Wu, C.-H., Parker, S.K., & de Jong, P.J. (2011). Need for cognition as an antecedent of individual innovation behaviour. *Journal of management*, 1-24.
- Xanthopoulou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2007). The role of personal resources in the job demands-resources model. *International Journal of Stress Management*, 14, 121–141.
- Zhang, X. and Bartol, K. M. (2010) Linking Empowering Leadership and Employee Creativity: The Influence of Psychological Empowerment, Intrinsic Motivation, and Creative Process Engagement. *The Academy of Management Journal*, 53,107–128.
- *Zhang, Y. & Begley, T. (2011). Perceived organizational climate, knowledge transfer and innovation in China-based research and development companies. *The international journal of human resource management*, 22(1), 34-56.

7 Appendix 1 Examples of used items sorted by HRM practice

<i>Autonomy</i>	<i>Article</i>	<i>Scale.../items...</i>	<i>Numbers of used items</i>	<i>Examples of used items</i>
	Abstein & Spieth (2014)	qualitative study with semi-structured interviews	Not mentioned	no questions are mentioned
	Battistelli et al. (2011)	adopted from Morgeson and Humphrey's (2006) Work Design Questionnaire, 1 = 'strongly disagree', to 5 = 'strongly agree'	Three items	no questions are mentioned
	Bysted & Hansen (2013)	Inspired by Spreitzer (1995) and Zhang & Bartol (2010), 1 = 'fully disagree', 10 = 'fully agree'	Three items	"I have sufficient influence on my daily job tasks", "I can freely think of new ways of doing my tasks"
	Bysted & Jespersen (2013)	inspired by Zhang & Bartol (2010), 1 = 'fully disagree', 10 = 'fully agree'	Four items	"Necessary decision latitude for job decisions", "sufficient influence on job tasks"
	Fernandez & Moldogaziev (2013)	created from multiple survey items from the 2010 Federal Employee Viewpoint Survey (FEVS), 1 = 'strongly disagree' to 5 = 'strongly agree'	Not mentioned	"Employees have a feeling of personal empowerment with respect to work processes"
	Janssen (2005)	Empowerment Questionnaire developed and validated by Spreitzer (1995), 1 = 'strongly disagree', to 7 = 'strongly agree'	Three items	"I have a significant influence over what happens in my department", "My impact on what happens in my department is large"
	de Jong et al. (2013)	Morgeson & Humphrey's (2006) Work Design Questionnaire, 1 = 'strongly disagree' to 7 = 'strongly agree'	Three items	not mentioned
	Knol & van Linge (2009)	Conditions for Work Effectiveness Questionnaire II (CWEQ-II) (of Laschinger et al. 2001) with 5 point likert scale; and psychological Empowerment Instrument (PEI) (of Spreitzer 1995) with 7 point likert scale	In total twenty four items	not mentioned
	Lu, et al. (2012)	Items adopted from Bacharach & Aiken (1976), 1 = 'definitely false' to 4 = 'definitely true'	Four items	"A person can make his/her own decisions without consulting anyone else", "How things are done here is left pretty much up to the person doing the work."
	Marane (2012)	Spreitzer's (1995) Psychological Empowerment Scale (PES), 1 = 'strongly disagree' to 7 = 'strongly agree'	Twelve items	not mentioned
	Messmann & Mulder (2014)	adopted from Spreitzer (1995), 1 = 'does not apply' to 6 = 'fully applies'	Three items	"I have significant influence over what happens in my department"

	Monks et al. (2012)	qualitative study with semi-structured interviews	Not mentioned	No questions mentioned
	Ohly et al. (2006)	developed by Semmer (1984), 1 = 'practically never' to 5 = 'several times a week'	Five items	"Can you influence the way of how you accomplish your tasks?"
	Ramamoorthy et al. (2005)	developed by the authors, 1 = 'never' and 5 = 'always'	Nine items	"I have full authority in determining how much time I spend on particular tasks, "I often review my approach to getting the job done"
	Sanders et al. (2010)	combined from Torka, van Riemsdijk & Looise (2007) and van de Heuvel 1 = 'very dissatisfied' till 5 = 'very satisfied'	Six items	"How satisfied are you with the extent to which your opinion is sought regarding (changes in) your job?", "How satisfied are you with the extent to which you can co-decide on (changes in) your job?"
	De Spiegelaere et al. (2012)	adopted from Nova-Web's survey (Schouteten & Benders, 2004), 1 = 'totally agree' to 5 = 'totally disagree'	Twelve items	"I can arrange my own work pace", "I can decide myself how I work", Organizing tasks: "I discuss how the tasks are to be planned with others"
	Urbach et al. (2010)	developed by Wall, Jackson, and Mullarkey (1995), 1 = 'very low extend' to 5 = 'great extend'	Four items	"To what extent do you plan your own work"
	Wu et al. (2011)	developed by Morgeson and Humphrey's (2006) Work Design Questionnaire 1 = 'strongly disagree' to 7 = 'strongly agree'	Six items	"The job allows me to make a lot of decisions on my own and "The job provides me with significant autonomy in making decisions"
	Zhang & Begley (2011)	combined from Spreitzer (1995) and Hui, Au & Fock (2004), 1 = 'strongly disagree' to 7 = 'strongly agree'	Three items	"I have significant autonomy in determining how I do my job", "I can decide on my own how to go about doing my job"
Task composition	Article	Scale.../Items...	Number of used items	Examples of used items
	Dorenbosch et al. (2005)	based on the Job Design Survey (JDS, Hackman & Oldham, 1980), the Questionnaire on the Experience and Evaluation of Work (QEEW, van Veldhoven & Meijman, 1994) and the Job Content Questionnaire (JCQ, Karasek & Theorell, 1990), 1 = 'to a very little extent' to 5 = 'to a very large extent'	Seven items	"Your job requires learning new things", "your job requires using all your skills and talents"
	De Jong, et al. (2013)	Morgeson & Humphrey's (2006) Work Design Questionnaire, 1 = 'strongly disagree' to 7 = 'strongly agree'	Three items	Not mentioned
	Monks et al. (2012)	qualitative study with semi-structured interviews	Not mentioned	No questions mentioned

	Noefer et al. (2009)	adopted from Semmer (1988) 1 = 'strongly disagree' to 5 = 'strongly agree'	Five items	"In my job I take on a lot of routine work tasks"
	Ohly et al. (2006)	adopted from the Habit strength scale from Verplanken & Orbell, (2003), 1 = 'practically never' to 5 = 'several times a week'	Five items	Regarding routinization the participants were asked to write down three of their frequently executed tasks and thereafter to nominate the most relevant one for their work. With this in mind, the participants answer the items regarding routinization. For example "Behaviour X is something...I do automatically", regarding job complexity: "How often do you get tasks that are difficult to accomplish?"
	Ong et al. (2003)	adopted from Tang (1999), 1 = 'strongly disagree' and 5 = 'strongly agree'	Two items	"My work is intellectually stimulating" and "I frequently encounter "nonroutine and challenging work in my organisation"
	Sanders et al. (2010)	combined from Torka, van Riemsdijk & Looise (2007) and van de Heuvel 1 = 'very dissatisfied' till 5 = 'very satisfied'	Eight items	"How satisfied are you with the variation offered by your job?"
	Scott & Bruce (1994)	Scientists and Technicians were dummy coded with 0 (Technicians) and 1 (Scientists)	One item	Task type according to Scott and Bruce (1994): Jobs of scientists and engineers are rather nonroutine in contrast to the jobs of technicians, rather structured and routinized
	De Spiegelaere et al. (2012)	adopted from Nova-Webb' survey (Schouteten & Benders, 2004), 1 = 'totally agree' to 5 = 'totally disagree'	Three items	"My job is tedious"
	Urbach et al. (2010)	developed by Wall, Jackson & Mullarkey (1995), 1 = 'very low extend' to 5 = 'great extend'	Four items	"To what extent are you required to deal with problems which are difficult to solve?"
Training & Development	Article	Scale.../Items...	Number of used items	Examples of items
	Bysted & Jespersen (2013)	adopted from Spreitzer (1995) and Zhang & Bartol (2010), 1 = 'fully disagree' to 10 = 'fully agree'	Three items	"Opportunities for professional and personal development", "Continuous focus on professional advancement"
	Knol & van Linge (2009)	Conditions for Work Effectiveness Questionnaire II (CWEQ-II) (of Laschinger et al. 2001) with 5 point likert scale; and psychological Empowerment Instrument (PEI) (of Spreitzer	Not precisely mentioned	not mentioned

		1995) with 7 point likert scale		
	Monks et al. (2012)	conducted a qualitative study with semi-structured interviews		No questions mentioned
	Ong et al. (2003)	adopted from Tang (1999), 1 = 'strongly disagree' and 5 = 'strongly agree'	Two items	"My organisation creates its own intellectual assets, e.g. special techniques", "In my organisation the dissemination of information relevant to work is excellent"
	Pratoom & Savatsomboon (2010)	adopted from Darroch & McNaughton (2002), 1 = 'strongly disagree' to 5 = 'strongly agree'	Eight items	"My group provides meetings to transfer the new technology and knowledge for product development to the members" and "My group shares knowledge and experience with the university and government officials in order to fill the gaps in the local wisdom of group members"
	De Spiegelaere et al. (2012)	adopted from Nova-Webá survey (Schouteten & Benders, 2004), 1 = 'totally agree' to 5 = 'totally disagree'	Three items	"I have the opportunity to develop my professional skills", 1 = 'totally agree' to 5 = 'totally disagree'
	Zhang & Begley (2011)	adapted from Umiker (1988) and Jaw & Liu (2003) 1 = 'strongly disagree' to 7 = 'strongly agree'	Nine items	"I have work-related academic seminars, workshops, and professional meetings", "I can access the relevant and most up-to-date documents", and regarding knowledge transfer: "I proactively share my best practices", and "In my company, I would express my opinion actively"
Reward	Article	Scale.../Items...	Number of used items	Examples of used items
	Bysted & Hansen (2013)	adapted from Ennova A/S, 1 = 'fully disagree', 10 = 'fully agree'	Three items	The participants were asked to rate their perceived "connection between performance and reward (wages, salary incentives and bonuses)"
	Bysted & Jespersen (2013)	adapted from Cardinal (2001), 1 = 'fully disagree', 10 = 'fully agree'	Three items	"Clear connection between performance and financial rewards", "salary compared to similar jobs"
	Janssen (2000)	adopted from Van Yperen, 1996, 1998), 1 = 'totally disagree' to 10 = 'totally agree'	Six items	"I work myself too hard considering my outcomes", "The rewards I receive are not proportional to my investments"
	Monks et al. (2012)	a qualitative study with semi-structured interviews		no questions mentioned
	Ramamoorthy et al. (2005)	adopted from Ramamoorthy & Flood (2002), 1 = 'strongly disagree' and 5 = 'strongly agree'	Two items	"I am fairly rewarded for the amount of effort I put in", "I am fairly rewarded for the responsibilities I take on"

	Sanders et al. (2010)	combined from Torka, van Riemsdijk & Looise (2007) and van de Heuvel 1 = 'very dissatisfied' till 5 = 'very satisfied'	Fourteen items	"How satisfied are you with your salary", for monetary rewards and "How satisfied are you with the wide-ranging package of secondary terms of employment"
	Zhang & Begley (2011)	adopted from Lu (1999), 1 = 'strongly disagree' to 7 = 'strongly agree'	Five items	"I am satisfied with my salary", "My working conditions are good"
Job demand	Article	Scale.../Items...	Number of used items	Examples of used items
	Janssen (2000)	adapted from van Veldhoven & Meijman, 1994), 1 = 'never' to 4 = 'always'	Eight items	"Do you have to work fast?", "Do you work under time pressure?", "Do you have problems with the workload?"
	Martín et al. (2007)	from different sources composited (Rizzo, House & Lirtzman's (1970) role ambiguity scale and from the feedback scale of Hackman & Oldham's (1975) Job Diagnostic Survey, 1= 'a great deal' to 5= 'none'	Seven items	"The aims that I must achieve in my work are clear and specific"
	Noefer et al. (2009)	adopted from Semmer (1988), 1 = 'strongly disagree' to 5 = 'strongly agree'	Four items	"I often experience time pressure at my work"
	Ohly et al. (2006)	adopted from Semmer (1984), 1 = 'practically never' to 5 = 'several times a week'	Four items	"How often do you work under time pressure?"
	De Spiegelaere et al. (2012)	adopted from Nova-Web's survey (Schouteten & Benders, 2004), 1='very rarely' to 5= 'very frequent'	Four items	"I have to work under time pressure"
	Wu et al. (2011)	adopted from Karasek (1979), 1 = 'never' to 7= 'extremely often'	Three items	"To what extent does your job require your working fast?", "To what extent is there not enough time for you to do your job?"
Feedback	Article	Scale.../Items...	Number of used items	Examples of used items
	Battistelli et al. (2011)	adopted from Morgeson and Humphrey's (2006) Work Design Questionnaire, 1= 'strongly disagree' to 5= 'strongly agree'	Three items	"The job itself provides feedback on my performance", "The job itself provides me with information about my performance"
	Chang et al. (2013)	adopted from Bakker, Demerouti, & Euwema (2005) and Xanthopoulou Bakker, Demerouti & Schaufeli (2007), 1 = 'never' to 5 = 'always'	Three items	"I get sufficient information about my work goals from my supervisor"
	Knol & van Linge (2009)	Conditions for Work Effectiveness Questionnaire II (CWEQ-II) (of Laschinger et	Not precisely mentioned	Not mentioned

		al. 2001) with 5 point likert scale; and psychological Empowerment Instrument (PEI) (of Spreitzer 1995) with 7 point likert scale		
	Noefer et al. (2009)	adopted from the German version of the job diagnostic survey (Schmidt, Kleinbeck, Ottmann, & Seidel (1985), 1 = 'strongly disagree' to 5 = 'strongly agree'	Five items	"My supervisor lets me know how satisfied he/she is with my work"
Job (in)security	Article	Scale.../Items...	Number of used items	Examples of used items
	Bommer & Jalajas (1999)	Scale not mentioned, 1= 'extremely low' to 7= 'extremely high'	Not mentioned	"...please indicate the likelihood that you might be affected by downsizing in the future"
	De Spiegelaere et al. (2012)	adopted from Nova-Web's survey (Schouteten & Benders, 2004), 1='very rarely' to 5= 'very frequent'	One item	"I feel uncertain about the future content of my job",
Job rotation	Article	Scale.../Items...	Number of used items	Examples of used items
	Monks et al. (2012)	qualitative study with semi-structured interviews		No questions mentioned
Leadership/LMX	Article	Scale.../Items...	Number of used items	Examples of used items
	Janssen (2005)	adapted from the Supervisor as Voice Manager Scale by Saunders, Sheppard, Knight & Roth (1992), 1 = 'strongly disagree', to 7 = 'strongly agree'	Seven items	"I take ideas to my boss because he or she deals with them effectively", "My supervisor gives high priority to handling my ideas"
	Ohly et al. (2006)	adopted from Oldham & Cummings (1996), 1 = 'not True' to 7 = 'totally true'	Eight items	"My supervisor helps me solving work-related problems"
	Ong et al. (2003)	adopted from Tang (1999), 1 = 'strongly disagree' and 5 = 'strongly agree'	Two items	"Our top managers are approachable and communicative"
	Sanders et al. (2010)	adopted from Grean et al. (1973), 1 = 'disagree completely' to 5 = 'agree completely'	Twelve items	"My supervisor would come to my defence if I were 'attacked' by others", "My supervisor is a lot of fun to work with"
	Scott & Bruce (1994)	developed by the authors, supervisors rated 1 = 'role requires an innovator' to 5 = 'role requires a supporter' (reverse-coded)	One item	"Indicate the degree to which you would describe the role for each of your subordinates as being either an innovator or being a supporter of innovation."
Organisational Climate/Culture	Article	Scale.../Items...	Number of used items	Examples of used items
	Bysted & Hansen (2013)	inspired by Miron, Erez & Naveh (2004)	Two items	"In my department, we are not afraid to make mistakes"

		1 = 'fully disagree', 10 = 'fully agree'		that follow from an attempt to try something new"
	Ong et al. (2003)	adopted from Tang (1999), 1 = 'strongly disagree' and 5 = 'strongly agree'	Two items	"My organisation gives adequate resources to exploring and implementing innovative ideas"
	Scott & Bruce (1994)	Modification and extension of the innovative climate measure developed by Siegel & Kaemmerer (1978) 1 = 'strongly disagree' to 5 = 'strongly agree'	Ten items	"This organisation is open and responsible to change", "This organization can be described as flexible and continually to"