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The Meaning of Work – A Link between Job Tasks, Job Demands and Job Resources among Employees at Academic Institutions

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Preface

This study emerged from a genuine interest in motivation and performance psychology. Furthermore, it was interesting to explore what provides meaning of work, especially in relations with employees working at academic institutions. Deriving from the interest in the topic a model was suggested. The model fitted the variables owned by the ARK Intervention Programme. The ARK Intervention Programme is a large-scale study on working environment and working climate surveys in knowledge-intensive organizations. The programme is owned by the Center for Health Promotion Research at the Department of Social Work and Health Science, NTNU, Trondheim. A project plan was developed through the coordinator of ARK Intervention Programme, Kirsti Godal Undebakke. The data analysis was performed by the author of this thesis under supervision of Professor Mehmet Mehmetoglu.

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Abstract

Background: Meaning of work has shown to increase levels of engagement, production and performance and is therefore of interest in a changeable work life. Job demands and job resources have been researched in case of meaning of work, while research on more complex relationships with meaning of work as an outcome has been limited. The purpose of this study is to examine such relations.

Methods: The study has a cross-sectional correlational design. The participants (N=12 170) are employees working in a knowledge-intensive working environment. The participants were recruited from Norwegian universities. The data is based on a self-report questionnaire and part of a large-scale research study by the ARK Intervention Programme. In the present study, relationship between the variables was explored by using partial least squares path modeling.

Results/Discussion: The study found significant effect on meaning of work from goal clarity, competency demands and job autonomy. The results indicated less effect from role overload and task completion-ambiguity. Goal clarity, role overload and competency demands indirectly effects via job autonomy and task completion-ambiguity on meaning of work. These effects were partially mediated. Considering individual paths, the path from job tasks and demands indirectly via job autonomy had larger effects than via task completion-ambiguity on meaning of work. These findings partly support previous research. It is suggested that clear work goals, possibility of competence development and autonomy influence meaning of work, and that job resources buffers job demands and enhances meaning of work.

Conclusion: Job tasks and demands, and job resources are important in terms of meaning of work.

Keywords: meaning of work, meaningful work, job demands, job tasks, job resources, goal clarity, role overload, overload, competency demands, job autonomy, task completion-ambiguity, The ARK Study, The ARK Intervention Programme

Contents

1   The Meaning of Work – A Link between Job Tasks, Job Demands and Job Resources among Employees at Academic Institutions

Globalization, competition and technology are some of the aspects affecting work life in the modern era. Another aspect is that there is also advancement towards a service- and knowledge-based economy, which enlarges psychosocial pressure on employees (Innstrand, Christensen, Undebakke, & Svarva, 2015). Terms such as *psychological distress* or the more general term *stress* have become increasingly popular in everyday life. These terms are commonly used in expressing overload and imbalance in a system. Challenges in work life such as high demands or workloads are well known to have detrimental health effects on employees, increase sick leaves or turnover and can further intervene by a decreased production or economic loss for organizations. In short, job demands can initiate reduced organizational outcomes (Innstrand et al., 2015).

Positive psychology was introduced by Seligman and Csíkszentmihályi (2000) as a new focus presenting positive aspects such as positive subjective experience among others. This has led to constructs such as resources and work engagement (Bakkers & Demerouti, 2007; Bakker, Schaufeli, Leiter, & Taris, 2008; Kahn, 1990). Related to these concepts are also experienced meaning of work which is referred to as both a psychological state (Hackman & Oldham, 1975, 1976) and as psychological condition (Kahn, 1990).

The traditions of the Nordic countries on occupational life have been focusing on meaning of work (Sørensen, Hasle, Hesselholt, & Herbøl, 2012). This can also be seen in chapter one in the Norwegian Act relating to work environment, working hours and employment protection, stating the importance to secure a working environment that provides a basis for a healthy and meaningful working situation (Directorate of Labour Inspection, 2013). This can further be viewed according to a Kantian perspective (Bowie, 1998). Meaning of work has long been a topic of interest, which may be understandable when observing the consequences of unemployment (Morse & Weiss, 1955) and its effect on psychological well-being (Winefield & Tiggemann, 1990), or solely by the fact that most human adults perform work related behavior in more than one-third of their waking life (Wrzesniewski, McCauley, Rozin, & Schwartz, 1997).

Rosso, Dekas and Wrzesniewski (2010) claim that the research performed on meaning of work is limited and that the field lack some overarching structures that would facilitate greater integration, consistency, and understanding of research on this theme. It does also include a lack of comprehensive view since most research have been on singular factors or

processes leading to meaning of work (Rosso et al., 2010). Further, Rosso et al. (2010) claim that there are several changes since publication of earlier literature. Firstly, the context in which work occurs in the modern world has changed due to boundaries, turnover and in case of employees' personal development and team work (Rosso et al., 2010). Rosso et al. (2010) argue that the social context is more of importance in today's society. Furthermore, it is suggested that meaningful work should be a goal of research since meaningful work can yield benefits for organizations and lead to positive work outcomes such as satisfied, engaged and committed employees, individual and organizational fulfilment, productivity, retention and loyalty (Geldenhuys, Łaba, & Venter, 2014). Geldenhuys et al. (2014) suggest that organizations should rethink productivity and performance. This may derive from a trend where people is in search for a calling in their choice of careers and that people seek more fulfillment in their role as employees (Rosso et al., 2010). Meaningful work may therefore also be important in times with worse economy or crisis.

Meaning of work could also be relevant in case of healthy organizations or preventive efforts. This can be supported by research suggesting that meaningful work characteristics negatively correlate with disengagement, exhaustion and turnover cognitions (Fairlie, 2011). Meaningful work is also related to decreased chances of forming intentions to leave the organization (Scroggins, 2008). Research on meaning of work in case of health and occupational health psychology has gained an increasing popularity in literature. This is often related to perspectives such as the salutogenesis approach, sense of coherence and development of such scales (Antonovsky, 1993) and empowerment (Spreitzer, 1995; Thomas & Velthouse, 1990). These studies show that the interest in meaning of work has been increasing in the research literature (Harpaz & Fu, 2002).

Meaningful work was included in the model designed by Hackman and Oldham (1976), they referred to it as the job characteristic model of work motivation. This model suggests that increasing motivation in form of a motivating potential score will be determined by skill variety, task significance, and task identity multiplied with job autonomy and feedback. Furthermore, the authors included meaningfulness of the work (Hackman & Oldham, 1976).

Meaning of work can be connected to several terms. There are also other models, which are central in viewing the balance for outcomes in organizational psychology such as the job demands-control model. The model states that there is a relationship between job demands and job control, and how it influences mental strain (Karasek, 1989). This model has later been revised including the relevance of job resources (Bakker & Demerouti, 2007). Hakanen, Perhoniemi, and Toppinen-Tanner (2008) found that task-level job resources predicted work

engagement, which furthermore influence personal initiative over time. Personal initiative refers to proactive and initiative-taking behavior that goes beyond the requirements of work (Hakanen et al., 2008). Furthermore, the authors claimed that personal initiative and its influence on work engagement also had a positive impact on future job resources, which further can be part of an evolving gain spiral (Hakanen et al., 2008). This finding fits the reciprocal model, where Xanthopoulou, Bakker, Demerouti, and Schaufeli (2009) claim that resources and work engagement were reciprocal and mutually related. This also include the job and personal resources such as job autonomy (Xanthopoulou et al., 2009). Work engagement has been viewed as relevant to both meaning of work and organizational commitment (Geldenhuys et al., 2014). Furthermore, transformational leadership has also been found to be of relevance to meaning of work, where transformational leadership is concluded to be a supervisor who motivates and take considerations for the employees at the individual level (Arnold, Turner, Barling, Kelloway, & McKee, 2007; Ghadi, Fernando, & Caputi, 2013).

Another aspect that has interested research is job crafting. Job crafting refers to employees crafting their job by changing cognitive, tasks or relational boundaries in case of shaping interactions and relationships with others at work (Wrzesniewski & Dutton, 2001). In the long run this process alters meaning of work among others (Wrzesniewski & Dutton, 2001). This means that job crafting may be regarded as a proactive behavior where employees can influence the level of job demands and job resources (Tims & Bakker, 2010). Further, it is suggested that job crafting leads to changes in meaning of work (Wrzesniewski & Dutton, 2001).

A question should be asked whether different perspective of work tasks could be connected with the individual drives and perception of control with meaning of work. Fairlie (2011) claims that research on meaning of work combined with work characteristics are underrepresented in models. This makes a study examining job tasks in case of contents, job demands and job resources in relation with meaning of work even more interesting to explore. Further such factors may be essential as psychosocial work environment is fundamental for employees to prosper and for the organizations to be sustainable (Innstrand et al., 2015). This is especially urgent in knowledge-intensive workplaces since the employees are in responsibility of knowledge and therefore agents of the organizational framework and competition (Innstrand et al., 2015). It is also claimed that academic staff working at universities do complex work tasks, and job demands are rising (Houston, Meyer, & Paewai, 2006). This can be related to work tasks such as teaching, research and administrative services, but also to merging expectations for measurable outcomes and performance to a larger extent

(Houston et al., 2006). It is also claimed that academics work hard, are productive in research, find their jobs satisfying, and that many of them have no job change intentions (Harman, 2003). This suggests that an academic career is a vocational calling (Bellamy, Morley, & Watty, 2003). There is also a general conception of academics to be engaged and fully involved in their work. Still, this differ from the doctoral research fellow (PhD) students where many of them are highly cautious about their situation in terms of uncertainty about their future careers, holding negative views about the university system and the academic profession, and lastly being critical of their attended courses (Harman, 2003). This may be due to job insecurity, which is predicted by factors such as employees' age, education, and temporary work for some subpopulations among others (Keim, Landis, Pierce, & Earnest, 2014). It is also found that in Belgium, 49.9% drop out from this kind of work within eight years of funding (Groenvynck, Vandevelde, & Van Rossem, 2013). A report from Norway claims the reason for this may be systematic as well as including factors in the psychosocial work environment (Kyvik & Olsen, 2009). Employees working at an academic institution will therefore be interesting in case of experienced meaning of work in an interplay with work characteristics. This thesis focus on the entire group of employees working at academic institutions including tenure academics, PhD students, technical workers, administration and management. Future studies may explore differences between PhD students and tenure academics, or in case of temporary versus permanent position.

1.1   The present study and its purpose

The job demands-resources model is basis in the Knowledge Intensive Working Environment Survey Target (KIWEST), which is a survey developed by the ARK Intervention Programme (Undebakke, Innstrand, Anthun, & Christensen, 2015). In short, the job demands-resources model captures how job demands and job resources influence levels of burnout and engagement (Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Schaufeli & Bakker, 2004), or in other words well-being (Clausen & Borg, 2011). It is also suggested that job resources may be a buffer and increase the level of engagement when job demands tend to be high since it contains a motivational potential, but this may depend on the type of job resources (Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007). The ARK Intervention Programme studies examine factors within the work context at knowledge-intensive workplace.

The purpose of this thesis is to examine factors predicting meaning of work by building a model using data from the ARK Intervention Programme. A model with job demands, job tasks and job resources in relation to meaning of work will be examined. The model approaches

an individual perspective, excluding environmental or social factors such as feedback and role conflicts. Environmental and social concepts may of course also have an effect on the outcome, but the individual prospect is of focus in this study. The main concern is how work characteristics may affect the individual's perception or experienced meaning of work. An individual approach to the experienced meaning of work has also been suggested by Hackman and Oldham (1976), but in the mentioned study meaning of work is not examined as an outcome in the model. Another study has found that experience of meaning at work is predicted by individual-level phenomena (Clausen & Borg, 2011).

The point of Rosso et al. (2010) should also be restated in case of meaning of work research. Rosso et al. (2010) claim that it is tended in research to examine singular factors or processes contributing to the meaning of work rather than taking a more comprehensive view. This has led to development of relatively distinct domains of study and many missed opportunities for these domains to build on each other. This makes it difficult to interpret the research as a whole (Rosso et al., 2010). Rosso et al. (2010) also states limited research on today's work life, which is interesting since Innstrand et al. (2015) claim that work life is more directed towards a service- and knowledge-based work life that further enlarges psychosocial pressure on employees. The present study will examine prospective extensions of this research.

1.1.1   Establishing suggested relationships in the model. Figure 1 shows the model studied in this thesis. The model includes job tasks and demands such as goal clarity, role overload and competency demands, which are considered as antecedents. Further, the focus is on job resources such as autonomy, choice of completion of job demands and job tasks, which are considered mainly as mediator variables. To summarize, the goal of this study is to explore the relationship between work tasks, demands requirements from the workplace, and how job resources influence meaning of work in employees working in academic institutions. This will contribute to a more comprehensive view of the individual's experience of meaning of work by including several job characteristics.
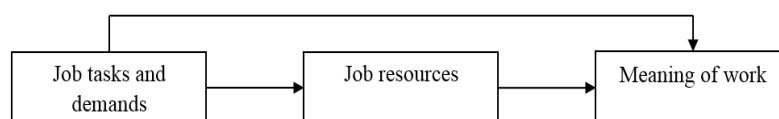

Figure 1 Proposed model for relationships influencing meaning of work

2 Literature review

2.1 Meaning of work

Meaning of work or meaningfulness is a central concept in organizational life, since people desire work that is meaningful (Steger, Dik, & Duffy, 2012). There are many terms related to the concept, for example meaningful work, meaning in work or meaning of work. The different wordings and semantics depends on whether it is related to amount of perception or experience of meaning, or the content (Dik, Byrne, & Steger, 2013). Meaningful work describes how employees make sense of their work, see the purpose and is driven toward it (Steger, Littman-Ovadia, Miller, Menger, & Rothmann, 2013). Meaning of work is hereby defined as the specific content of work that provides employees with meaning (Dik et al., 2013).

Rosso et al. (2010) found the terms *meaning of work* and *meaningful work* to be used interchangeably throughout the literature. This approach will also be adopted in the following literature review.

Meaning of work is often related with three concepts; sense of self, the work itself and sense of balance (Chalofsky, 2003). From an individual perspective, meaning of work contains underlying values, motivations and beliefs which influence how individuals interpret the meaning and meaningfulness of their work (Rosso et al., 2010). Rosso et al. (2010) describe this as how individuals see themselves, and how they are oriented toward the activity of work, which play a crucial role in the meaning of that work. It is also found that internal motivation predicts perceived meaning of work (Allan, Autin, & Duffy, 2016). Meaning of work should therefore be considered as part of psychological empowerment (Spreitzer, 1995). Experience of meaning at work involves job experiences that add purpose and significance to the lives of employees (Clausen & Borg, 2011). In their literature review, Rosso et al. (2010) examined different perspectives under which meaning of work have been researched, finding that factors in the work context have a significant influence in whether the employee perceived their work situation as meaningful. They find that the concept meaning of work is related to what an employee makes of his or her work, while meaningfulness is more about the portion of meaning they attach to it (Rosso et al., 2010). Kahn (1990) on the other hand presents a more psychological meaningfulness described as "a feeling that one is receiving a return on investments of one's self in a currency of physical, cognitive, or emotional energy". The author further notes that this make people feel themselves to be worthwhile, useful, and valuable as though they made a difference and were not taken for granted (Kahn, 1990). This may also be central to why people then invest more in their organizations as well as experiencing being more work engaged (Geldenhuys et al., 2014). Furthermore, Kahn (1990) claims that the

perception of meaningfulness are influencing perception of tasks, roles and work interactions such as the social context, which can be assumed to have a circular or spiral effect. It is among others shown that meaningfulness lead to motivation, performance and satisfaction (Rosso et al., 2010).

2.1.1   Meaning of work in connection with job tasks, job demands and job resources. Job tasks, job demands and job resources can be viewed as part of a job design. Morin (2008) claims that research on these concepts have been done since the 1960s with purpose of finding characteristics of stimulating work. She further states that the study of job design was connected to conditions of quality of work life, which is a general state of well-being in the workplace that further includes meaning of work and organizational commitment among others. Morin (2008) suggests two models, which are the sociotechnical model by Trist and Emery and the motivational model by Hackman and Oldham. In short, both models are focusing on job design that opens for the employees to be active and the experience for the work to be meaningful.

In their motivational model, Hackman and Oldham (1976) suggested that meaning of work is defined as the experience of the job as meaningful, valuable and worthwhile. It is suggested that work can be experienced as meaningful for employees if the following objectives are met. Firstly, the job should be a whole piece of work so the employee experiences that he has produced or accomplished something of relevance, and secondly the job provides the opportunity that it is accomplished by using skills and abilities which he personally values (Hackman & Lawler, 1971). In other words, job meaning extract from the meaning of tasks and activities such as the content and the meaning of evaluating those tasks and activities (Wrzesniewski, Dutton, & Debebe, 2003). A view shared by Munn (2013), who claims that finding meaning and purpose in employment is often determined on the perceived enjoyment in performing daily tasks and the identification on the utility of the work. It may also be the case where the significant work activities serve a valued, broader purpose (Steger et al., 2013).

Morin (2008) takes this further by stating that if the individual has a positive perception of work, meaning in work will be altered and further affect mental and physical health positively. A positive perception of work is influenced by daily and concrete tasks to be performed under satisfactory environmental conditions and appropriate relationship with the employees whom he or she works with. This context and attributes can further be explained by the quality of work life (Morin, 2008). Morin (2008) concludes that for work to be meaningful, the work context has to contain some main aspect such as respect of human values and evolve in a suitable environment. It must also provide satisfaction for the employee in case of

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stimulating professional development, allowing employees to achieve work goals effectively and promote decision making in problem solving and open for autonomy. Lastly, it is of importance to maintain good and professional relationships (Morin, 2008). This provides practical suggestions as fitting the job design to the individual's capacity to ensure well-being and prevent emergence of psychological distress (Morin, 2008). Further practical implications are discussed by Hackman, Oldham, Janson, and Purdy (1975). They present that several job characteristics are relevant in case of performance and experienced meaningfulness (Hackman et al., 1975). They listed three states, which are critical to performance and work satisfaction. The listed objectives were experienced responsibility, as in being personally accountable for outcomes, knowledge of results as being able to determine whether tasks are done or in other words if the outcome of work tasks are satisfactory, and lastly experienced meaningfulness in case of perceiving the work as significant or important (Hackman et al., 1975). Further, job characteristics such as skill variety in the meaning of challenging activities, task identity as perceiving work tasks as a whole with a beginning and an end, and lastly task significance which means that the work should make a difference to others (Hackman et al., 1975). Lastly, the authors also suggest personal responsibility and knowledge of the results as in getting feedback. The extended version of this model suggests a motivating potential, which is modified by growth needs among others (Hackman et al., 1975). Furthermore, it is suggested that enriched job characterized by high skill variety, autonomy and task identity require an employee to invest in the job, and in this dynamic the job also becomes the part of their identity (Pierce, Jussila, & Cummings, 2009). One outcome of such circular connections may be that the employee exercise greater control over the job and work completion (Pierce et al., 2009). This might also be reciprocal in case of the employee seeking jobs having those characteristics (Pierce et al., 2009).

Clausen and Borg (2011) have suggested that meaning of work can be promoted in organizations, both at work groups and at individual levels by boosting job resources and foster managing of work demands, and meaning of work may further be important as work-life resource.

2.1.2 Job tasks and demands related to meaning of work. The present study utilizes three constructs for job tasks and demands, which are goal clarity, role overload and competency demands. Job demands and work tasks are central in the contribution of meaningful work. Grant (2008) claims that specific job characteristics determine whether a job is experienced as meaningful. Skill variety, task identity and task significance are of importance related to meaning of work (Fried & Ferris, 1987). A study by Schnell, Höge and Pollet (2013) confirm that work role fit and task significance are related to meaning of work. This means that work designed to promote an experience of purpose and a positive impact on others increase perceived task significance and induce meaningfulness (Grant, 2008). Work characteristics and how they influence the motivational aspect are found in the study of Hackman and Lawler (1971). They suggest that work tasks, work demands, individual responsibility and decision making appear to be of considerable importance to individual job interactions in case of determining affective and behavioral reactions to jobs. Further, they claim that variety in tasks may lead to decrease in the monotony of the work and that this may change meaningfulness as the variety in tasks functions as task identity (Hackman & Lawler, 1971). Morin (2008) found that organizational commitment was determined by job characteristics and extended psychosocial work environment factors and that these perspectives result in that employee perceive their work as meaningful.

Isaksen (2000) shows that meaninglessness may be determined by both mental and physical health in case of repetitive work. The informants claimed that the work conditions made it impossible to construct meaning in work (Isaksen, 2000). The author interpreted this as the employees having low self-confidence. At the same time, this also may be related to hardiness (Isaksen, 2000; Maddi & Khoshaba, 1994). Hardiness contains the three elements; commitment, control and challenge (Maddi & Khoshaba, 1994). Isaksen (2000) also found that employees construct meaning in repetitive work despite of those work tasks cause stress symptoms as mentioned above. The author further states that meaning in work might be a function of diminishing stress (Isaksen, 2000).

2.1.2.1 Goal clarity and meaning of work. Goal clarity is suggested to have a positive effect on meaning of work. The rationale behind this is that when the goal of work related tasks is clear, it is easier to know what to do, and thereby preventing conflicts. In case of task identity, Pierce et al. (2009) describe it as knowing a whole and identifiable piece of work that gives employees an opportunity to become familiar with each of the subtasks that are needed for completing a given work task. Further, the authors suggest that it is important in sequencing

tasks, understand how they are connected and further to develop an understanding of the whole picture (Pierce et al., 2009).

Theory implies that goal clarity is of importance for well-being on work in case of both job and life satisfaction (Lent & Brown, 2008). This means that clear work goals may be an indicator for progress (Lent & Brown, 2008). Further, the authors presented a social cognitive career theory with foundations in a model where actualization of the potential and make meaning or purpose are central concepts. This implies that goal-directed behavior in general leads to structure and meaning (Lent & Brown, 2008). The theory presented here is not as specific as work task level, but it does suggest that having a clear goal may increase the level of job satisfaction and meaning.

Goal clarity is also discussed in relation with strain by Idris (2011). In this study, goal clarity was termed as role ambiguity and the study was conducted on academics. The author claims that without clear goals it was difficult for the employee to perform their duty and in worst case block important job outcomes (Idris, 2011).

Lastly, goal clarity can be compared with task identity, since task identity can be referred to perceiving a task as a whole with a clear and reachable outcome (Hackman & Oldham, 1976). Task identity has shown to have small correlational effects with internal motivation (Hackman & Oldham, 1976). It has also been shown to correlate by small effects with experienced meaningfulness of work (Hackman & Oldham, 1975). Studies retesting the job characteristic model of Hackman and Oldham (1976) found that task identity had a moderate correlational effect with meaning of work (Arnold & House, 1980; Hogan & Martell, 1987), while a meta-analytic study found small correlational effects for the same variables (Behnson, Eddy, & Lorenzet, 2000). Further, goal clarity as task identity has been found to predict experienced meaningfulness (Hackman & Oldham, 1976). A preliminary study performed by Innstrand et al. (2015) found a large significant correlational effect between goal clarity and meaning of work.

H1: Goal clarity predicts meaning of work.

2.1.2.2 Role overload and meaning of work. Role overload is suggested to have a negative effect on meaning of work, which means that when employees are experiencing time pressure the stress may lead to lower experience of meaning of work. Theory claims that role overload may predict strain over time (Idris, 2011). Idris (2011) further suggests that this effect may be influenced by tolerance, and that tolerance is about perception of the situation. In comparison, other studies found that cynicism and exhaustion had a large negative correlational

effect on meaningfulness of work, where indicators of meaningfulness were intentions to perform well in the job, subjective well-being in terms of achievements and job opportunities according to personal values (Leiter, Harvie, & Frizzell, 1998).

The interesting part is that well-known models such as the job characteristic model (Hackman & Oldham, 1976) does not focus on negative factors that may affect experienced meaning of work. It is suggested that having much work pressure might affect the perceived meaning of work negatively (Hackman & Oldham, 1976). Kahn (1990) suggested that people experienced meaningfulness when they were able to give to others and to the work itself. The author also referred to that a lack of meaningfulness was related with people's feeling that little was asked or expected of them, and when there was little room for them to give or receive in work role performance (Kahn, 1990). At the same time, challenging work also altered sense of meaningfulness (Kahn, 1990).

A study conducted on academic employees and administrative staff found that role overload are approached to have a very small correlational effect with meaning of work (Innstrand et al., 2015).

Further, role overload can be compared with work pace. Work pace represents the intensity of quantitative work demands (Kristensen, Bjorner, Christensen, & Borg, 2004). A longitudinal study on elder care workers examined the effect of work pace on meaning of work at two times, baseline and follow-up (Clausen & Borg, 2011). The authors found that there were low correlational effect between work pace and meaning of work at individual level on both baseline and follow-up, while showing a minimal significant negative correlational effect on baseline group level (Clausen & Borg, 2011). The authors further found that work pace was positively associated with meaning of work, which were contrary to their hypothesized beliefs (Clausen & Borg, 2011). These results also reflected their multilevel analysis (Clausen & Borg, 2011). Even though studies have examined overload in case of work pace (Clausen & Borg, 2011), limited studies have examined the effect role overload or work load have on meaning of work. This may be of relevance, since a finding on this relationship might imply that too much job pressure influence the experience of meaning of work. For example, if this was the case it may provide practical implications related to work task and demand management.

H2: Role overload predicts meaning of work.

2.1.2.3 Competency demands and meaning of work. Competency demand is a relatively new term, and has evolved as the work life has become more directed towards knowledge-intensive organizations. Further, competency demands can be negative in case of expanded work expectations or job demands and requirements. It can also be positive in terms of personal development and that the work place is appreciative of the employee and wants to invest in them. When establishing previous research done on the topic, competency demands need to be examined in terms of learning opportunities, skills variety or competence.

Morin (2008) researched on the topic of learning opportunities and found that it has a large correlational effect with meaning of work. This may imply that increasing opportunities at the work place for professional development may induce the experienced meaning of work.

An early model of work motivation suggested that skill variety determine experienced meaningfulness (Hackman & Oldham, 1976). Skill variety refers to the degree a job requires different activities involving various skills, which in other words mean that it requires an employee to engage in activities that challenges or stretches the skills and abilities, and further lead to meaningfulness (Hackman & Oldham, 1976). Furthermore, skill variety was found to have a medium correlational impact on internal motivation, and further that skill variety significantly predicted meaning of work (Hackman & Oldham, 1976). Skill variety has also been found to have large correlational effects with meaning of work (Hackman & Oldham, 1975; Hogan & Martell, 1987). Behnson et al. (2000) found evidence for medium correlational effects between skill variety and meaning of work, which confirms the study of Arnold and House (1980). Competency demands and meaning of work are found to have a small effect with meaning of work (Innstrand et al., 2015).

H3: Competency demands predicts meaning of work.

2.1.3 Job resources related to meaning of work. Job demands are related with sustained physical and psychological effort and are furthermore associated with a certain amount of physiological and psychological costs (Demerouti et al., 2001; Schaufeli & Bakker, 2004). Job demands in itself does not have to be negative, but instead related with potential stressors (Schaufeli & Bakker, 2004). Job resources refer to physical, psychological, social or organizational factors of the job that may reduce job demands, are functional in achieving work goals and stimulate personal growth and development (Schaufeli & Bakker, 2004). Job resources are therefore important, and have been found to play a crucial role in buffering impact of job demands or workloads and further prevent burnout in worst case (Bakker, Demerouti, & Euwema, 2005). Job resources are also known to reduce strain (Bakker et al., 2007). It has also been suggested that an organizational intervention should include an increase in job resources and management of job demands to enhance experiences of meaning at work (Clausen & Borg, 2011). In this thesis, job resources contain constructs such as job autonomy and task completion-ambiguity.

2.1.3.1 Job autonomy and meaning of work. Job autonomy is a central factor for employees. Job autonomy together with flexibility has been reported as the most important factors for both entering and remaining in academia (Bellamy et al., 2003). Autonomy has been found to have an impact on the employees' experience of job control (Pierce, O'Driscoll, & Coghlan, 2004). This implies that autonomy provides employees with an opportunity to exercise discretion, freedom and independence to make decisions at work. Further, it gives employees a chance to satisfy self-related needs such as motivation and development of a positive experience of responsibility with a sense of self-recognition (Pierce et al., 2009). The authors therefore suggest that decisions made by others would lead to less connection between the job and the employee (Pierce et al., 2009), and may further be interpreted as the employees will invest less in the work.

Job autonomy has been found to be relevant with experienced meaningfulness and also with experienced responsibility (Fried & Ferris, 1987). Further, it has shown to have a strong relationship with growth satisfaction (Fried & Ferris, 1987), and it has been found that autonomy predicts psychological distress, meaning that more autonomy leads to less psychological distress (Morin, 2008). Job autonomy has been found to have medium to large effect with meaningful work (Morin, 2008). This suggests that job autonomy and meaning of work positively affect each other.

As a motivational aspect, job autonomy is about independency and feeling of responsibility in the work outcome (Hackman & Oldham, 1976). This means that the outcome is dependent on the individual and the effort put into their task eventually leads to experienced meaning of work (Hackman & Oldham, 1976). Hackman and Oldham (1976) found that autonomy have a medium correlational effect with internal motivation. Further, it has been found that autonomy has a medium correlational effect with meaning of work (Arnold & House, 1980; Behnson et al., 2000; Hackman & Oldham, 1975; Hogan & Martell, 1987). Job autonomy is found to have a large correlational effect with meaning of work (Innstrand et al., 2015).

Influence can be compared to autonomy. This can be seen from the indicator used to measure the concept, stating: "Do you have a large degree of influence concerning your work?" (Clausen & Borg, 2011). In terms of influence, it has been suggested a very small and not substantial correlational effect between influence and meaning of work (Clausen & Borg, 2011).

H4: Job autonomy predicts meaning of work.

2.1.3.2 Task completion-ambiguity and meaning of work. Task completion-ambiguity is in this study related to the perception of having control and choice to complete work tasks. Task completion-ambiguity can therefore be seen as part of job autonomy and the individual's responsibility in task completion. Hackman and Oldham (1976) describe a related term that is experienced responsibility for work outcomes which has a quite similar content of the construct compared to task completion. The experienced responsibility is about the degree to which the employee feels personally accountable and responsible for the results of the work. It can also be connected to the knowledge of the result where the individual knows and understands how effectively the job is performed (Hackman & Oldham, 1976). The authors claim that experienced responsibility is predicted by autonomy (Hackman & Oldham, 1976). It has also been suggested that experienced responsibility have a large correlational effect in relation to experienced meaning of work (Behnson et al., 2000; Hackman & Oldham, 1975; Hogan & Martell, 1987). Another comparison can be the knowledge of results which has a medium correlational effect with meaning of work (Hackman & Oldham, 1975).

Wrzesniewski et al. (2003) claim that meaning of work depend on the characteristics of the tasks given and the role one has as an employee. A Danish report further claims that the importance of meaningful work is the experience of being productive as well as an active employee (Sørensen et al., 2012). The study conducted by Idris (2011) suggests that unclear expectations and uncertainties with the amount of authority seemed to affect the functioning of

the academics (Idris, 2011). Task completion-ambiguity is found to have a small correlational effect with meaning of work (Innstrand et al., 2015).

H5: Task completion-ambiguity predicts meaning of work.

2.2   Job tasks/demands related to job autonomy

Correlational effects have been found for task identity and skill variety with autonomy. The correlational effect between skill variety and autonomy was large, and the effect between task identity and autonomy were small (Hackman & Lawler, 1971).

The study of Hackman and Oldham (1975) suggests that there is a large correlational effect between skill variety and autonomy, and a medium effect between task identity and autonomy. As previously mentioned, skill variety can correspond to competency demands and task identity can be approached by the goal clarity construct. The study of Hogan and Martell (1987) found a large correlational effect between task identity and autonomy, and a medium effect between meaning of work and skill variety. Further, a meta-analytic review suggests a medium effect both between skill variety and autonomy, and task identity and autonomy (Behnson et al., 2000).

Correlational effects between the antecedents and mediational variables are found in a preliminary study using the KIWEST scale conducted on academic employee and administrative staff (Innstrand et al., 2015). Firstly, a medium effect is found between goal clarity and job autonomy, secondly a small negative effect is found between role overload and job autonomy. Lastly, a correlational effect between competency demands and job autonomy (Innstrand et al., 2015). Work pace has also been found to have a negative correlational relationship by medium effects in connections with job autonomy on work group level and small negative correlational effects on individual level (Clausen & Borg, 2011).

H6: Goal clarity predicts job autonomy

H7: Role overload predicts job autonomy

H8: Competency demands predicts job autonomy

2.3   Job tasks/demands related to task completion-ambiguity

Correlational effects were examined in the study of Hackman and Oldham (1975), where the nearest related concept of task completion-ambiguity was experienced responsibility. The authors found a medium correlational effect between experienced responsibility and skill variety as competency demands, and a medium effect between task identity as goal clarity and experienced responsibility (Hackman & Oldham, 1975). Other studies have found small correlational effects between task identity and responsibility (Behnson et al., 2000; Hogan &

Martell, 1987), while differing when it comes to correlational effects between skill variety and meaning of work from a small (Hogan & Martell, 1987) to medium effect (Behnson et al., 2000). The study of Arnold and House (1980) found support for medium correlational effect between task identity and responsibility, and further a small correlational effect between skill variety and experienced responsibility.

Correlational effects between the constructs are presented in a preliminary study using the KIWEST scale (Innstrand et al., 2015). Innstrand et al. (2015) found a medium effect between goal clarity and task completion-ambiguity. Interestingly, the authors found a small negative correlational effect between role overload and task completion-ambiguity. Lastly, the effect between competency demands and task completion-ambiguity were found to be non-significant (Innstrand et al., 2015).

H9: Goal clarity predicts task completion-ambiguity

H10: Role overload predicts task completion-ambiguity

H11: Competency demands predicts task completion-ambiguity

2.4 The mediating role of job resources

The research of indirect effects on meaning of work have been largely neglected in literature. This can be seen from a web search on Google Scholar, as well as in psychological databases. The reason for this may be that much research related to meaning of work has been conducted in the 1970s, a time when multivariate statistics and complex modeling was not common. This is supported by Rosso et al. (2010), who request a more comprehensive view since most research have focused on singular factors. Furthermore, meaning of work has also been more researched in case of moderating effect for example in connection with affective disposition and engagement (Steger et al., 2013), or in context of the proposed job characteristic model and meaning of work (Hackman & Oldham, 1976). The latter model also suggested that job dimensions such as skill variety, task identity, task significance, autonomy and feedback may be mediated through psychological states such as experienced meaning of work, experienced responsibility and knowledge of results towards internal motivation, general satisfaction and growth satisfaction (Hackman & Oldham, 1976). The authors also raise questions about their mediational model as autonomy and feedback might have biased the results (Hackman & Oldham, 1976). The study by Hackman and Oldham (1976) was also included in a meta-analytic study utilizing structural equation modeling analysis on existing data. They found varying results, but concluded that psychological states such as meaning of

work were of critical importance for the model since it contains valuable information (Behnson et al., 2000).

There are limited studies examining mediational effect between job tasks and demands with meaning of work. It was therefore referred to correlational effects, since these effects imply whether there is a relationship between the variables.

Indirect effects through job autonomy:

H12: Goal clarity indirectly via job autonomy predicts meaning of work.

H13: Role overload indirectly via job autonomy predicts meaning of work.

H14: Competency demands indirectly via job autonomy predicts meaning of work.

Indirect effects through task completion-ambiguity:

H15: Goal clarity indirectly via task completion-ambiguity predicts meaning of work.

H16: Role overload indirectly via task completion-ambiguity predicts meaning of work.

H17: Competency demands indirectly via task completion-ambiguity predicts meaning of work.

2.5 The main model

The main model builds on a compilation of the previous hypotheses, see figure 2. The rationale behind the model is that job tasks and demands are plausible to be mediated by job resources as part of the process towards meaning of work. Literature review shows that few studies included mediating effects on meaning of work. The model presented in figure 2 is constructed to explore this gap. Gender and age were control variables.
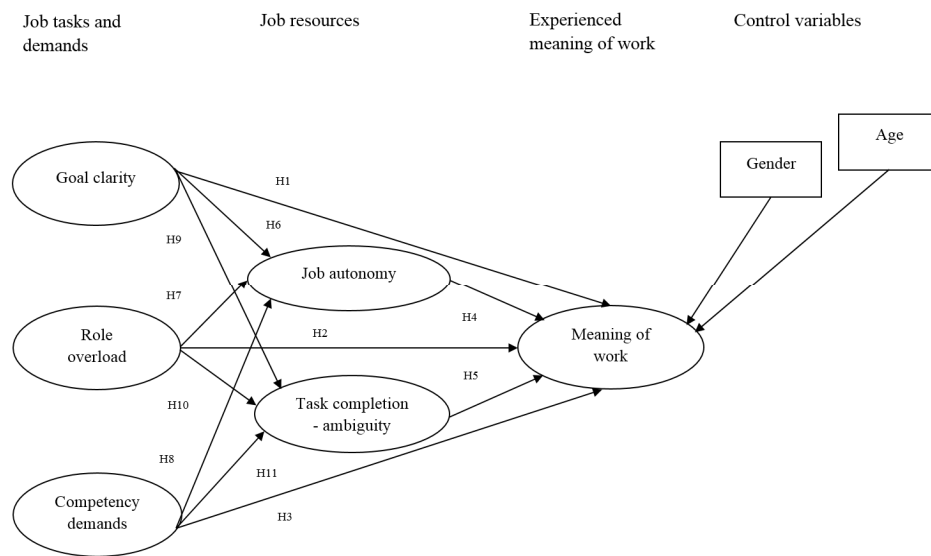
Figure 2 Hypothesized model, H12-H17 are implicit in the figure.

3 Methods

This study retrieved data from the ARK Intervention Programme (Undebakke et al., 2015), and the method section will therefore be as referred to in their studies. Some part will be due to choices and focus of this study such as the selected variables and group of participants.

3.1 Participants

3.1.1 Description of participants. The participants were employees working at academic institutions, women and men working in knowledge-intensive working environment. They worked at universities in Norway. In total 18 599 were invited to be participants in this study, and 12 170 responded. This gives a response rate of 65.4%, and a total sample size of 12 170 participants. 6527 (53.6%) were women and 5642 (46.4%) were men, while one participant did not respond to this question. The participants were mainly between the ages of 30-59 years old (73.9%). For further descriptive statistics of participants included in the study, see table 1.

3.1.2 Selection criteria of the participants. Inclusion criteria: Employees above 18 years old working at an academic institution. Further, it was a requirement that the participants had a regular payroll for minimum 20% position (ARK, n.d.). Exclusion: criteria: Employees under 18 years old, and employees working outside an academic institution.

3.1.3 Data collection. A web-based survey was used to collect data. The data collection was done by the IT department at the Faculty of Social Sciences and Technology Management, NTNU (SVT-IT), using the SelectSurvey.NET software package from ClassApps (Classapps, 2015), and exported to SPSS using a custom-made export function (ARK, n.d). ARK (n.d.) describes that the data collection of KIWEST 2.0 was done from autumn 2013 to spring 2015. Undebakke et al. (2015) describe that data collection were performed by sending an E-mail to the respective university or university colleges with a link to the online questionnaire.

3.1.4 Ethical considerations. Ethical regulations were followed throughout the study and participants were informed about their rights according to data protection law in the information section of the survey.

Table 1 Descriptive statistics for the sample

Variable	n (N=12 170)	%
Gender		
Female	6527	53.6%
Male	5642	46.4%
Unregistered/unspecified	1	0%
Age		
Under 30 years	1174	9.6%
30-39 years	2794	23%
40-49 years	3271	26.9%
50-59 years	2925	24%
60 years or more	1859	15.3%
Unregistered/unspecified	147	1.2%
Chosen language on questionnaire		
Norwegian	10754	88.4%
English	1109	9.1%
Unregistered/unspecified	307	2.5%
Terms of employment		
Permanent	8279	73.8%
Temporary	2977	24.5%
Unregistered/unspecified	214	1.8%
Job category		
Academic position (Research and teaching)	4562	37.5%
PhD/Doctoral Research Fellow	1452	11.9%
Technical and administrative	5519	45.3%
Management	637	5.2%
Percentage of full-time position		
100%	10489	86.2%
Below 100%	1676	13.8%
Missing responses on this question in the data set	5	0%
How many hours over and beyond your agreed working hours do you normally work per week?		
0	2142	17.6%
1-5	5773	47.4%
6-10	2540	20.9%
Over 10	1445	11.9%
Unregistered/unspecified	270	2.2%

3.2 Design

The study has a cross-sectional correlational design. A self-report questionnaire was used.

3.3 Measurements

The KIWEST scale was developed by collecting items from well-known studies mainly conducted in Nordic countries (Undebakke et al., 2015). It is referred to the original scale with a Cronbach's alpha from the KIWEST scale. Innstrand et al. (2015) reported that the construct reliability was within satisfactory levels, above .70 or higher, which indicate acceptable internal consistency deriving from studies by Kristensen, Hannerz, Høgh, and Borg (2005), Näsvall et al. (2010), and Pejtersen, Kristensen, Borg, and Bjorner (2010). The scales were compound and formed the KIWEST 2.0 scale that was used in this thesis. The scale is found in Undebakke et al. (2015). Likert scale with five options suggesting strongly disagree, disagree, neither/nor, agree and strongly agree was used for the entire response set. The subscales are presented below. See table 2 for a sum up of the items and dimensions of the constructs.

3.3.1 Goal clarity. This scale was developed by Näswall et al. (2010) and has three items. The scale is measuring whether the employee has clear view about the purpose of the work. Näswall et al. (2010) claim that the scale is a fusion of items suggested by Rizzo, House, and Lirtzman (1970) and Caplan (1971). Caplan (1971) had role ambiguity as focus in his studies, role ambiguity is when expectations are inadequately communicated, and cannot be predicted by the contingencies with which rewards and punishments will be administered for behaviors enacted as part of one's role. The author found an estimated reliability of .77 for the role ambiguity scale, which in this study consisted of 4 items (Caplan, 1971). Rizzo et al. (1970) defined role ambiguity in connection with role clarity and found that the measurement should contain certainty about duties, authority, allocation of time, and relationships with others; the clarity or existence of guides, directives, policies, and the ability to predict sanctions as outcomes of behavior. Näswall et al. (2010) examined goal clarity in case of whether one's work tasks were perceived as clear.

In this thesis, the scale consists of following three items: "What is expected of me at work is clearly expressed", "I have a clear understanding of which tasks constitute my job", and "I feel that the objectives of my job are diffuse and unclear". The last item is reversed.

3.3.2 Role overload. The scale has three items. It is measuring the experience of time performing work tasks. This scale is found in Näswall et al. (2010). The original scale was developed by Beehr, Walsh, and Taber (1976).

The scale used in this thesis consists of following three items: "I have enough time to do what is expected of me in my job", "It happens quite often that I have to work under heavy time pressure", and "I frequently have too much to do at work". The first item was reversed.

3.3.3 Competency demands. The scale of competency demands have three items and is suggested by Näswall et al., (2010). This scale indicates whether employees experience that job tasks require learning of new knowledge, requires continuous training and is about assigning skills. The scale has been used in several studies and previous referred to as the job challenge scale (See, Hellgren, Sjoberg, & Sverke, 1997; Vliet & Hellgren, 2002; Näswall et al., 2010). This scale is originally derived from a scale developed by Hellgren et al. (1997). In fact, competency demands may mean that there is ongoing development and may therefore be considered as both a positive challenge and as a demand (Undebakke et al., 2015).

The scale used in this thesis contains three items: "I am expected to continually develop my competence", "The nature of my work means I continually have to develop and think in new ways", and "I feel pressure to continually learn new things in order to manage my work tasks". The last item is reversed.

3.3.4 Job autonomy. The job autonomy scale refers to how much autonomy and influence on the work the employees experience to have. Näswall et al. (2010) suggested a scale containing four items. Sverke and Sjöberg (1994) claim that this scale was adopted from Hackman and Oldham (1975) and Walsh, Taber, and Beehr (1980).

This scale has four items and the items are following: "I have a sufficient degree of influence in my work", "I can make my own decisions on how to organize my work", "There is room for me to take my own initiatives at work", and "I manage my work situation in the direction I want".

3.3.5 Task completion-ambiguity. This scale is taken from the article of Näswall et al. (2010) indicating that employees can determine when their tasks are completed. The original scale was developed by Hellgren, Sverke, and Näswall (2008).

In this thesis, following three items are used as a scale: "I determine when my work assignments are completed", "I know when a task is completed", and "It is up to me to assess when I have completed a work assignment".

3.3.6   Meaning of work. This scale is measuring how meaningful employees experience their work. The scale has three items. It is found in Pejtersen et al. (2010). The authors claimed that the scale was developed by Kristensen et al. (2004) and Kristensen et al. (2005) with the intention to assess psychosocial factors at work.

The scale used in this thesis consists of following three items: "My work is meaningful", "I feel that the work I do is important", and "I feel motivated and involved in my work".

3.3.7   Descriptive statistics. Some demographic variables and other descriptive variables was included in the original scale (Undebakke et al., 2015). Variables derived from the KIWEST 2.0 scale and used in this thesis concerned gender, age group, types of position, full or temporary employment, work hours and chosen language.

3.4   Control variables

Gender and age were used as control variables. Control variables are selected to avoid bias. For example does the study by Loscocco and Kalleberg (1988) explore the relationship between age differences and meaning of work. Meaning of work was hereby presented as a concept integrated by work commitment and work values. They suggested that age is recognized as part of social stratification among others (Loscocco & Kalleberg, 1988). These issues are of both interest and concern. In the mentioned study, it was found that older men were more committed to work than younger men in both Japan and the United States, and further that this also could be applied for American women (Loscocco & Kalleberg, 1988). Besides this, they found that there was no age differences in work commitment among women from Japan (Loscocco & Kalleberg, 1988).

Another study which may highlight this point is the study of Kroska (2016). The study explored gender differences in perception of the meaning of household chores and child care, suggesting that women may experience domestic work as an obligation rather than choice compared to men (Kroska, 2016). Derived from these two examples, the control variables gender and age were selected in case of avoiding bias on the other variables.

Gender was coded 0 for women and 1 for men. Age was a single-item question where response options were under 30 years, 30-39 years, 40-49 years, 50-59 years, and 60 years or more.

Table 2 Measurements

Construct	Dimensions	Items
Goal clarity		
	3	Item 1: What is expected of me at work is clearly expressed
		Item 2: I have a clear understanding of which tasks consitute my job
		Item 3: I feel that the objectives of my job are diffuse and unclear ®
Role overload		
	3	Item 1: I have enough time to do what is expected of me in my job ®
		Item 2: It happens quite often that I have to work under heavy time pressure
		Item 3: I frequently have too much to do at work
Competency demands		
	3	Item 1: I am expected to continually develop my competence
		Item 2: The nature of my work means I continually have to develop and think in new ways
		Item 3: I feel pressure to continually learn new things in order to manage my work tasks ®
Job autonomy		
	4	Item 1: I have a sufficient degree of influence in my work
		Item 2: I can make my own decisions on how to organize my work
		Item 3: There is room for me to take my own initiatives at work
		Item 4: I manage my work situation in the direction I want
Task completion-ambiguity		
	3	Item 1: I determine when my work assignments are completed
		Item 2: I know when a task is completed
		Item 3: It is up to me to assess when I have completed a work assignment
Meaning of work		
	3	Item 1: My work is meaningful
		Item 2: I feel that the work I do is important
		Item 3: I feel motivated and involved in my work

Note. Items marked with ® after sentence are reversed.

3.5   Procedure

3.5.1   Study procedure. The procedure is as described in Undebakke et al. (2015). Firstly, they planned the questionnaire and selected the dimensions from a broad literature review. Further, qualitative interviews with 50 employees at universities and university colleges in Norway were performed as part of a risk analysis. Then these aspects were repeatedly discussed in reference and work groups. From this, 20 persons from various types of positions at the four universities reviewed the questionnaire and provided input. This process ended in a revised version. The data material and experiences were used for practical and statistical validations (Innstrand et al., 2015). The KIWEST 2.0 scale derived from this process.

3.5.2   Participant procedure. The participants will first read the project description and ethical consideration. The page led to a link with the questionnaire. The participants had to respond on choice of language before they proceeded to reading the instructions about the respond procedure.

3.6   Software

ARK (n.d) reported using the SelectSurvey.NET software package from ClassApps (Classapps, 2015), and exported data to SPSS using a custom-made export function. Further, was the data imported as a ".sav" file through IBM SPSS statistics 22 (IBM Corp., n.d.) to XLSTAT (XLSTAT, 2015). The statistical analysis was performed with XLSTAT (XLSTAT, 2015).

3.7   Statistical analysis plan

The hypotheses and the proposed path model will be conducted with partial least squares structural equation modeling (PLS-SEM) examining direct and indirect effects. This is also called partial least squares path modeling (PLS-PM) (Hair, Hult, Ringle & Sarstedt, 2014). These terms will be used interchangeably in this thesis. PLS-SEM was chosen as a statistical approach since the model is complex having several constructs and indicators. The model building process is done in two statistical procedures, which includes the measurement model and the structural model. SEM analyses is used when the underlying assumption is that "the items used to measure a latent variable are affected by the same underlying theoretical concept" (Danielsen, Samdal, Hetland, & Wold, 2009). Partial least squares structural equation modeling is also suggested for building and testing exploratory models (Hair et al., 2014). The statistical criteria's and standards were set as recommended by Hair et al. (2014).

PLS-SEM was used as a method for examining the model. In the software XLSTAT, PLS-SEM is referred to as PLS-PM (XLSTAT, 2015, 2016). The model consists of both formative and reflective measures. The first type is Mode A for reflective measures, which was used in case of multiple items, while Mode B for formative measures was used for single items. Multiple item constructs in this study was goal clarity, role overload, competency demands, task completion-ambiguity, job autonomy, and meaning of work. Single item constructs were gender and age, and these constructs were also control variables. The weighting scheme for the inner and structural model was path weighting. This approach considers directionality of the structural model (Ekinci, Dawes, & Massey, 2008) and is recommended by Hair et al. (2014). The rationale behind this recommendation is that this weighting scheme gives the highest R^2 value for the endogenous latent variable and is also applicable for all types of PLS path model estimations (Hair et al., 2014). Standardized weights on standardized MV was used for treatment of the manifest variables on the starting point. Further, iterations of 100, and convergence of 0.0001 were utilized. Bootstrap samples were done with 1000 resampling estimates, 95% CI, and the sample size was set to 12000. Other suggested features of XLSTAT were also utilized (XLSTAT, 2016).

Internal consistency reliability or composite reliability are suggested as acceptable by 0.600 to 0.700 for exploratory research, while α>0.708 is considered as a golden rule (Hair et al., 2014). Exception from this general rule should be considered in case of composite reliability and content validity (Hair et al., 2014). Further, indicator reliability for the indicator's outer loadings aims to be above 0.708 (Hair et al., 2014). Convergent validity or the average variance extracted (AVE) is recommended to be higher than 0.50, and evaluation of discriminant validity

followed the Fornell-Larcker criterion (Hair et al., 2014). These are properties of interest in evaluating the measurement model (Fornell & Larcker, 1981).

Missing values were replaced with nearest neighbor estimate function in XLSTAT. See, Acuña and Rodriguez (2004) for a discussion on missing values strategies. There were 983 missing observations (0.37%). Furthermore, it should be noted that Acuña and Rodriguez (2004) state that missing observations below 1% are considered as trivial. All participants (N=12 170) were thereby included in the data analysis.

The first completed analysis was evaluated as not satisfactory. Convergent validity was checked by 95% CI values for each item and the standardized factor loadings. Factor loading should be strived to be above 0.708 for maintaining satisfactory level following the standards of Hair et al. (2014), but mainly levels above 0.700 were considered sufficient (Hair et al., 2014). Lower standardized factor loading was found on indicator three on competency demands, having a value of 0.184. Indicator three contained the statement: "I feel pressure to continually learn new things in order to manage my work tasks". The indicator was a reversed item. This implies that item three does not represent a sufficient indicator on competency demands, and that the other more positive approaches to competency demands as development are more valid in measuring that construct. In this case it is suggested to remove the item (Hair et al., 2014), which was done before running the final analysis.

Lastly, level of effect size or the strength of association between the variables that will be used are as follows: $\beta= <.05$ is considered too small to be evaluated as meaningful, $\beta>.05$ is considered to be small, but meaningful effect, $\beta=.10$ moderate effect and lastly $\beta=.25$ is considered a large effect (Keith, 2006).

4 Results

PLS-PM was used for model building. Firstly, assessment of the model will be presented followed by analysis for the measurement model/outer model and the structural model/inner model.

4.1 Assessment of the measurement model

The data in table 3 represents standardized factor loadings and confidence intervals. Item three of the construct task completion-ambiguity has a value of 0.692, which is below 0.700. Still, it is considered as sufficient in this case, and the item maintains in this analysis. All factor loadings are nearly equal to or above the threshold of 0.7. The standardized factor loadings were significant.

Table 3 Standardized factor loadings and confidence intervals on indicators

Construct (latent variable) with items/indicators (manifest variables)	Standardized factor loadings	95% CI LL	UL
Goal clarity			
Item 1: What is expected of me at work is clearly expressed	0.827	0.819	0.835
Item 2: I have a clear understanding of which tasks consitute my job	0.817	0.807	0.826
Item 3: I feel that the objectives of my job are diffuse and unclear ®	0.848	0.840	0.855
Role overload			
Item 1: I have enough time to do what is expected of me in my job ®	0.946	0.935	0.959
Item 2: It happens quite often that I have to work under heavy time pressure	0.755	0.727	0.776
Item 3: I frequently have too much to do at work	0.765	0.739	0.787
Competency demands			
Item 1: I am expected to continually develop my competence	0.748	0.728	0.767
Item 2: The nature of my work means I continually have to develop and think in new ways	0.932	0.923	0.939
Job autonomy			
Item 1: I have a sufficient degree of influence in my work	0.809	0.800	0.816
Item 2: I can make my own decisions on how to organize my work	0.762	0.751	0.773
Item 3: There is a room for me to take my own initiatives at my work	0.775	0.763	0.785
Item 4: I manage my work situation in the direction I want	0.797	0.788	0.805
Task completion-ambiguity			
Item 1: I determine when my work assignments are completed	0.709	0.685	0.730
Item 2: I know when a task is completed	0.804	0.786	0.823
Item 3: It is up to me to assess when I have completed a work assignment	0.692	0.667	0.715
Meaning of work			
Item 1: My work is meaningful	0.890	0.884	0.895
Item 2: I feel that the work I do is important	0.845	0.836	0.854
Item 3: I feel motivated and involved in my work	0.860	0.854	0.866

Note. Gender and age were not included in the table since they are accounted as a single-item, which means a standardized factor loading of 1. Items marked with ® after sentence are reversed. CI = confidence interval; LL = lower limit; UL = upper limit.

Table 4 presents the constructs by composite reliability, convergent validity as average variance extracted (AVE) and discriminant validity.

Composite reliability was found to have acceptable levels for all constructs, $\rho_c > .70$, as suggested by Hair et al. (2014).

Convergent validity was considered. It is suggested acceptable limit is 0.50 for AVE (Hair et al., 2014). The AVE values for the constructs were all above 0.50 and thereby satisfactory.

Discriminant validity is examined by the Fornell-Larcker criterion (Hair et al., 2014). Fornell-Larcker criterion establishes that AVE exceeds the squared correlations, meaning that the construct is distinct from other constructs by empirical standards (Hair et al., 2014). The Fornell-Larcker criterion was fulfilled for all variables.

Table 4 Composite reliability, convergent reliability and discriminant validity

Construct	Composite reliability (D.G. rho)	Convergent reliability (AVE)	Discriminant validity							
			1	2	3	4	5	6	7	8
1. Goal clarity	0.870	0.690	--							
2. Role overload	0.886	0.684	0.068	--						
3. Competency demands	0.843	0.714	0.016	0.041	--					
4. Job autonomy	0.866	0.618	0.205	0.042	0.090	--				
5. Task completion-ambiguity	0.803	0.543	0.178	0.033	0.008	0.191	--			
6. †Gender	--	--	0.000	0.003	0.003	0.004	0.000	--		
7. Age	--	--	0.004	0.006	0.009	0.008	0.014	0.001	--	
8. Meaning of work	0.900	0.748	0.195	0.001	0.122	0.251	0.102	0.000	0.005	--

Note. †Gender is coded as 0 for women and 1 for men.

4.2 Structural model
The structural model examines the hypothesis for direct effects and indirect effects.

4.2.1 Direct effects. Table 5 shows that all direct effects were significant. An effect was found from goal clarity on meaning of work by $\beta=0.256$, with statistically significant results 95% CI [0.236, 0.277], competency demands on meaning of work by $\beta=0.217$ with statistically significant results 95% CI [0.198, 0.236], and lastly job autonomy on meaning of work by $\beta=0.318$ with statistically significant results 95% CI [0.294, 0.339]. These indicates large effects and these findings support hypotheses 1, 3 and 4. Furthermore, there was found an effect from role overload on meaning of work by $\beta=0.052$ with statistically significant results 95% CI [0.033, 0.069], and task completion-ambiguity on meaning of work by $\beta=0.052$ with statistically significant results 95% CI [0.033, 0.072]. These effects are small, but still considered as meaningful. Both hypotheses 2 and 5 are supported. Interestingly, role overload had a positive effect on meaning of work.

Direct effects between antecedents on job autonomy indicate that there is an effect from goal clarity on job autonomy by $\beta=0.373$ with statistically significant results 95% CI [0.355, 0.390], which is considered a large effect. Further, an effect was found from role overload on job autonomy by $\beta=-0.166$ with statistically significant results 95% CI [-0.181, -0.150], indicating a moderate effect. Lastly, competency demands on job autonomy had an effect by $\beta=0.285$ with statistically significant results 95% CI [0.267, 0.304], which is a large effect. These findings support hypotheses 6, 7 and 8.

Direct effects between antecedent and task completion-ambiguity were as following: A large effect was found from goal clarity on task completion-ambiguity by β=0.391 with statistically significant results 95% CI [0.373, 0.410], a small effect was found from role overload on task completion-ambiguity by β=-0.090 with statistically significant results 95% CI [-0.108, -0.071]. Lastly, a small effect was found from competency demands on task completion-ambiguity by β=0.055 with statistically significant results 95% CI [0.035, 0.073]. These findings support hypothesis 9, 10 and 11. The results also found effects for the control variables. Gender predicted meaning of work with a negative small, but not meaningful effect by β=-0.024 with statistically significant results 95% CI [-0.039, -0.010]. Age predicted meaning of work with a small, but meaningful effect by β=0.092 with statistically significant results 95% CI [0.077, 0.108]. See table 5 for direct effects on meaning of work.

Table 5 Results of hypotheses testing: Direct effects

			95% CI	
Hypothesis	Relationship	β	LL	UL
Direct effects (antecedent) with meaning of work (outcome)				
H1: Goal clarity predicts meaning of work	Goal clarity → Meaning of work	0.256	0.236	0.277
H2: Role overload predicts meaning of work	Role overload → Meaning of work	0.052	0.033	0.069
H3: Competency demands predicts meaning of work	Competency demands → Meaning of work	0.217	0.198	0.236
H4: Job autonomy predicts meaning of work	Job autonomy → Meaning of work	0.318	0.294	0.339
H5: Task completion-ambiguity predicts meaning of work	Task completion-ambiguity → Meaning of work	0.052	0.033	0.072
Direct effects (antecedents) with job autonomy				
H6: Goal clarity predicts job autonomy	Goal clarity → Job autonomy	0.373	0.355	0.390
H7: Role overload predicts job autonomy	Role overload → Job autonomy	-0.166	-0.181	-0.150
H8: Competency demands predicts job autonomy	Competency demands → Job autonomy	0.285	0.267	0.304
Direct effects (antecedents) with task completion-ambiguity				
H9: Goal clarity predicts task completion-ambiguity	Goal clarity → Task completion-ambiguity	0.391	0.373	0.410
H10: Role overload predicts task completion-ambiguity	Role overload → Task completion-ambiguity	-0.090	-0.108	-0.071
H11: Competency demands predicts task completion-ambiguity	Competency demands → Task completion-ambiguity	0.055	0.035	0.073
Control variables with meaning of work				
Gender predicts meaning of work	Gender → Meaning of work	-0.024	-0.039	-0.010
Age predicts meaning of work	Age → Meaning of work	0.092	0.077	0.108

Note. CI= confidence interval; LL=lower limit;UL=upper limit.

4.2.2 Indirect effects. Indirect effects of specific paths as suggested by hypotheses are evaluated by the effect size. Further, indirect effects are considered for the entire model. XLSTAT provides data on the entire model, but did not calculate data for the mediator variables separately. Indirect effect were therefore calculated manually by multiplying direct effects on the path, that is, multiplying direct effect *a* with direct effect *b*, see figure 3. Total effect *c* was calculated by adding the absolute value of direct effect *c'* and absolute value of indirect effect *ab* which can be expressed by $c = |c'| + |ab|$. The absolute value was used in calculating total effects since mediated effects can have different fore signs, which may be an issue (Kenny, n.d.). Further suggestions by Kenny (2015) were taken into account. Furthermore, the general principle by Baron and Kenny (1986) were considered in case of necessary conditions for mediations, and Preacher and Hayes (2008) suggestions regarding bootstrap on the indirect effect. Further, it should be noted that it has been discussed that the significance of the direct effect may not be a critical condition (Zhao, Lynch Jr., & Chen, 2010).
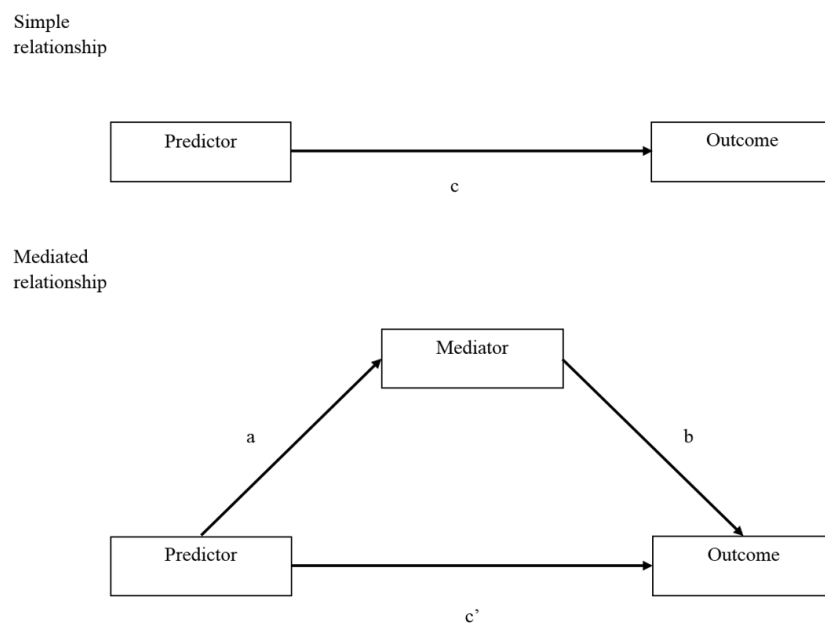

Figure 3 Illustration of a basic mediation model. The illustration is found in Field (2014)

4.2.2.1 Indirect effects through both mediator variables. In this section, indirect effects will be presented, see table 6. Total effects are also presented in table 6 in case of calculating variance accounted for values. Direct effects were presented in table 5.

For the entire model, goal clarity indirectly effects via job autonomy and task completion-ambiguity on meaning of work by 0.139, with statistically significant results 95% CI [0.129, 0.149]. Role overload indirectly effects via job autonomy and task completion-ambiguity on meaning of work by -0.057, with statistically significant results 95% CI [-0.064, -0.051]. Competency demands significant indirectly effects via job autonomy and task completion-ambiguity on meaning of work by 0.094, with statistically significant results 95% CI [0.085, 0.103]. In general, mediating effects are supported. See table 6 for indirect effects for the entire model.

Table 6 Table over indirect and total effects for the entire model

			95% CI	
Relationship	Paths	β	LL	UL
Goal clarity through job autonomy and task completion-ambiguity to meaning of work	Goal clarity → Job autonomy and Task completion-ambiguity → Meaning of work	0.139 (0.395)	0.129	0.149
Role overload through job autonomy and task completion-ambiguity to meaning of work	Role overload → Job autonomy and Task completion-ambiguity → Meaning of work	-0.057 (0.109)	-0.064	-0.051
Competency demands through job autonomy and task completion-ambiguity to meaning of work	Competency demands → Job autonomy and Task completion-ambiguity → Meaning of work	0.094 (0.310)	0.085	0.103

Note. CI= confidence interval; LL=lower limit;UL=upper limit. The values in parenthesis are total effects.

As a last step for testing mediational effects, variance accounted for (VAF) was calculated for both paths, where the formula for the simple mediational relationship provides VAF $= |ab|/ (|ab| + |c'|)$. VAF between 20% - 80% is suggested to be partial, while a value above 80% suggests a full mediation (Hair et al., 2014). VAF was calculated solely for the entire model as Hair et al. (2014) claim that for assessing VAF, the indirect effect has to be significant. Following the model, the VAF values of the three exogenous variables was calculated with both mediator variables, see table 7. Firstly, from goal clarity via both indirect effects on meaning of work, VAF= 35.2%, (0.139/0.395*100) which suggests partial mediation. A partial mediation suggests the mediating variable accounts for some of the relationship between goal clarity on meaning of work. Secondly, from role overload via both indirect effects, VAF=52.5% (0.057/0.109*100), which suggests partial mediation. This means the mediating variable accounts for some of the relationship between role overload on meaning of work Thirdly, from competency demands via both indirect effects on meaning of work, VAF=30.1%

(0.094/0.310*100), which suggests partial mediation. This further suggests that the mediating variable account for some of the relationship between competency demands and meaning of work.

Table 7 Variance accounted for (VAF) for the entire model

Indirect effects	Percentage
Goal clarity → Job autonomy and task completion-ambiguity → Meaning of work	35.2%
Role overload → Job autonomy and task completion-ambiguity → Meaning of work	52.5%
Competency demands → Job autonomy and task completion-ambiguity → Meaning of work	30.1%

4.2.2.2 Indirect effects via job autonomy. The indirect effects via job autonomy was calculated, see table 8 for further data. Firstly, moderate indirect effects were found in the paths from goal clarity via job autonomy on meaning of work (β=0.119). The effect supports hypothesis 12. The second path found was from role overload via job autonomy on meaning of work (β=-0.053) with a small effect. The effect support hypothesis 13. The third effect was from competency demands via job autonomy on meaning of work (β=0.091). The effect supports hypothesis 14. It can be drawn from the data in table 8 that the effect sizes shows greater effects via job autonomy than task completion-ambiguity. This is especially obvious through the path from goal clarity via job autonomy.

4.2.2.3 Indirect effects via task completion-ambiguity. The indirect effects via task completion-ambiguity was calculated, see table 8. The first path in case of task completion-ambiguity as mediator was from goal clarity via task completion-ambiguity on meaning of work (β=0.020). The indirect effect is too small to be evaluated as meaningful. The effect does not support hypothesis 15. The second path was from role overload via task completion-ambiguity on meaning of work (β=-0.005). The effect does not support hypothesis 16, since it is too small to be considered as meaningful. The last path was from competency demands via task completion-ambiguity on meaning of work (β=0.003). This effect is too small to be considered as meaningful. The effect does not support hypothesis 17. It can be concluded that hypothesis 15, 16, and 17 were not supported and it can be assumed from the presented results that the effects indirect via task completion-ambiguity does not have a meaningful mediational effect on meaning of work.

In general, it seems from the indirect effects that job autonomy is the mediating variables with the largest indirect effect.

Table 8 Results of hypotheses testing: Indirect effects

Hypothesis for indirect effects	Paths	Direct effect between antecedent and outcome β	Indirect effect	Total effect
Indirect effects through job autonomy				
H12: Goal clarity indirectly via job autonomy predicts meaning of work	Goal clarity → Job autonomy → Meaning of work	0.256	0.119	0.375
H13: Role overload indirectly via job autonomy predicts meaning of work	Role overload → Job autonomy → Meaning of work	0.052	-0.053	0.105
H14: Competency demands indirectly via job autonomy predicts meaning of work	Competency demands → Job autonomy → Meaning of work	0.217	0.091	0.308
Indirect effects through task completion-ambiguity				
H15: Goal clarity indirectly via task completion-ambiguity predicts meaning of work	Goal clarity → Task completion-ambiguity → Meaning of work	0.256	0.020	0.276
H16: Role overload indirectly via task completion-ambiguity predicts meaning of work	Role overload → Task completion-ambiguity → Meaning of work	0.052	-0.005	0.057
H17: Competency demands indirectly via task completion-ambiguity predicts meaning of work	Competency demands → Task competion-ambiguity → Meaning of work	0.217	0.003	0.220

The explanatory power of meaning of work is R^2=0.369, and $R^2_{adjusted}$=0.369, corresponding with the variables explaining 36.9% of meaning of work. From the explanatory power, it appears that the variables have an impact on meaning of work.

5   Discussion

Meaning of work is connected to work engagement, productivity and performance as presented in the literature review. The purpose of this thesis was to examine how job demands, job tasks and job resources influence meaning of work. Further, job resources were examined as mediators in the relationship between job demands and job tasks with meaning of work. The purpose was to explore the gap of missing complex relationships in studies in the literature (Rosso et al., 2010). As well as according to changes in type of work life (Rosso et al., 2010). In this thesis, this is explored in direction towards a service- and knowledge-based work life that further enlarges psychosocial pressure on employees (Innstrand et al., 2015). The findings of this study may contribute with relevant factors for meaning of work, which may further promote individual investment in organizations.

5.1   Meaning of work in connection with job tasks, job demands and job resources

5.1.1   Goal clarity and meaning of work. It was found that goal clarity positively predicted meaning of work. This may be expected since goal clarity should make it easier to meet demands by recognizing the work task. It is also relevant in order to sequence tasks, understand the connection and further to develop an understanding of the entire picture (Pierce et al., 2009). Clear work goals may be an indicator for progress, and derived from this point, goal-directed behavior in general leads to structure and meaning (Lent & Brown, 2008). In such a case, goal clarity establishes a guideline to reach certain job outcomes (Idris, 2011), and by this can also be suggested labeled as task identity (Hackman & Oldham, 1975, 1976). Hackman and Oldham (1976) found that task identity had a correlational effect on internal motivation, and further to correlate by small effects with experienced meaningfulness of work. Other studies have found that task identity had a moderate correlational effect with meaning of work (Arnold & House, 1980; Hogan & Martell, 1987). A meta-analytic study found small correlational effects for the same variables (Behnson et al., 2000). Goal clarity as task identity has also been found to predict experienced meaningfulness (Hackman & Oldham, 1976).

Lastly, a study by Innstrand et al. (2015) found a large correlational effect between goal clarity and meaning of work. What can be derived from the previously mentioned study in comparison with the present study is that there is a relationship, while the effect varies probably depending on sample and measurement. This study suggest that goal clarity predicts meaning of work and confirms a relationship between task identity and meaning of work. Clear work goals should therefore be part of an organizational value in case of developing meaningful work.

5.1.2 Role overload and meaning of work. In this study, it was suggested that role overload had a negative effect on meaning of work. Relevant models such as the job characteristics model (Hackman & Oldham, 1976) have not focused on negative factors, which may affect experienced meaning of work. Kahn (1990) found that lack of meaningfulness was related with people feeling that little was asked or expected of them and when there was little room for them to give or receive in work role performances (Kahn, 1990).

Other studies have examined work pace in case of workload and time pressure. In a longitudinal study, it was found that there was little correlational effect between work pace and meaning at work, but the authors on the same study argued finding that work pace was positively associated with meaning at work (Clausen & Borg, 2011). The latter finding was contrary to their hypothesis (Clausen & Borg, 2011). Another study found that role overload are approached to have a very small correlational effect with meaning of work (Innstrand et al., 2015). This study confirms these findings as the hypothesis were not supported in terms of negative relationship. The rationale behind this may be that the participants are able to meet the demands if they experience workload. Examining the longitudinal study of Clausen and Borg (2011) gives similar findings by using another scale. This is interesting since role overload may predict strain over time (Idris, 2011). At the same time it is suggested that this effect may be influenced by tolerance, and that tolerance is about perception of the situation (Idris, 2011).

In comparison to other studies it is found that cynicism and exhaustion had a large negative correlational effect on meaningfulness of work (Leiter et al., 1998). This may be related to self-confidence (Isaksen, 2000) or hardiness (Isaksen, 2000; Maddi & Khoshaba, 1994). Isaksen (2000) also claimed that meaning in work might be a function of diminishing stress (Isaksen, 2000). In such a case, it may be interesting exploring role overload in case of employees experiencing burn out symptoms.

5.1.3 Competency demands and meaning of work. Competency demands is a relatively new term referring to learning possibilities and developing competence. Morin (2008) researched on the topic of learning opportunities and found that it had large correlational effects with meaning of work.

Studies have also found that skill variety as deputy for competency demands determine experienced meaningfulness (Hackman & Oldham, 1976). This may give the employees a chance to engage in activities that challenges or stretches the skills and abilities, which further lead to a meaningfulness (Hackman & Oldham, 1976). Studies have also found that skill variety had a medium correlational impact on internal motivation, and further that skill variety predicted meaning of work (Hackman & Oldham, 1976). Other studies have found large

correlational effects with meaning of work (Hackman & Oldham, 1975; Hogan & Martell, 1987), as well as medium correlational effects between skill variety and meaning of work (Arnold & House, 1980; Behnson et al., 2000). Competency demands and meaning of work are found to have a small effect with meaning of work (Innstrand et al., 2015).

Previous studies have shown that the effect varies, but that the effect is significant. These effects were confirmed in this study, suggesting that competency demands have an impact of experienced meaning of work. This means that competency demands can be seen in regard to work challenges, which further makes employees invest more in their work place (Pierce et al., 2009). This is interesting according to knowledge-intensive organizations since such jobs requires meeting demands of knowledge acknowledging that such demands foster development and further alters the experience in meaning of work for employees.

5.1.4 Job autonomy and meaning of work. Job autonomy is a central factor for employees and with flexibility it has been reported by respondents in a study as the most important factors for both entering and remaining in academia (Bellamy et al., 2003). Further, it has an impact employees' experience of job control, because it brings freedom, responsibility and opportunities (Pierce et al., 2009). In this occasion, it has further been established that decisions made by others for example related with work demands and work task would lead to less connection between the job and the employee (Pierce et al., 2009).

Job autonomy has been found to be relevant with experienced meaningfulness and also with experienced responsibility (Fried & Ferris, 1987). From a motivational perspective, job autonomy is about independency and feelings of responsibility in the work outcome (Hackman & Oldham, 1976). It has also been shown to have a strong relationship with growth satisfaction (Fried & Ferris, 1987). Autonomy predicts psychological distress since more autonomy leads to less psychological distress (Morin, 2008). In case of effects, Hackman and Oldham (1976) found that autonomy have a medium correlational effect with internal motivation. Autonomy has further been found with a medium correlational effect with meaning of work (Arnold & House, 1980; Behnson et al., 2000; Hackman & Oldham, 1975; Hogan & Martell, 1987). Job autonomy has also been explored to have large correlational effect with meaning of work (Innstrand et al., 2015). A low effect between influence and meaning of work were found (Clausen & Borg, 2011), but this result is only comparable as it may not measure the same and specific construct. This thesis confirms previous research. Autonomy predicts meaning of work. This is important relative to that the outcome is dependent on the individual and the effort put into it, and thereby that this freedom and responsibility leads to experienced meaning of work (Hackman & Oldham, 1976). Furthermore, it may be suggested that job autonomy may interfere

with control over insecurity as well as being related to internal motivation. Implications for job autonomy is that this feature should be of focus in job design.

5.1.5 **Task completion-ambiguity and meaning of work.** Task completion–ambiguity is about the perception of having a control and choice to complete work tasks and can therefore be seen as part of job autonomy or dependency and responsibility in task completion, and at last as a job resource. Hackman and Oldham (1976) describe a related term that is experienced responsibility for work outcomes, which is about the degree to which the employee feels personally accountable and responsible for the results of the work. This can be connected to the knowledge of the result where the individual knows and understand how effectively the job is performed (Hackman & Oldham, 1976). It is claimed that experienced responsibility is predicted by autonomy (Hackman & Oldham, 1976). It has also been suggested that experienced responsibility have a large correlational effect in relations to experienced meaning of work (Behnson et al., 2000; Hackman & Oldham, 1975; Hogan & Martell, 1987). Another comparison can be the knowledge of results which has a medium correlational effect with meaning of work (Hackman & Oldham, 1975).

Wrzesniewski et al. (2003) claim that meaning of work depend on the characteristics of the tasks given and the role one has as an employee. A Danish report further claim that the experience of being productive as well as an active employee is important in case of experienced meaningfulness (Sørensen et al., 2012). The study conducted by Idris (2011) showed that unclear expectations and uncertainties with the amount of authority seemed to affect the functioning of the academics (Idris, 2011). Task completion-ambiguity are further found to have a small correlational effect with meaning of work (Innstrand et al., 2015). This thesis confirms a small effect, but in this study the effect is not substantial meaning that it does not have a distinct effect with meaning of work. Internal motivation may be the answer to why task completion is of less importance for meaning of work compared with goal clarity and job autonomy. This can be seen in the context that internal motivation predicts experienced meaning of work (Allan et al., 2016).

5.2 Job tasks, job demands and job resources

5.2.1 Job tasks/demands and job autonomy. In this thesis, it is found direct effects between goal clarity and job autonomy. This is supported by studies in case of correlational effect as task identity which has been evident in several studies (Behnson et al., 2000; Hackman & Lawler, 1971; Hackman & Oldham, 1975; Hogan & Martell, 1987; Innstrand et al., 2015).

Role overload has been shown to have a small negative predictive effect on job autonomy. In comparison with correlational studies this is supported (Clausen & Borg, 2011; Innstrand et al., 2015).

Furthermore, it is found an effect between competency demands and job autonomy in this thesis. Correlational studies support this finding, but these indications is by varying effect sizes (Behnson et al., 2000; Hackman & Lawler, 1971; Hackman & Oldham, 1975; Hogan & Martell, 1987; Innstrand et al., 2015). In comparison with these constructs, skill variety can correspond competency demands and task identity can be approached to the goal clarity construct.

5.2.2 Job tasks/demands and task completion-ambiguity. Task completion-ambiguity has been a concept more undetermined in literature related to meaning of work. A close concept was related to experienced responsibility as described in Hackman and Oldham (1975). In this study, it was found a predictive effect between goal clarity and task completion-ambiguity. This is comparable with studies that have found a correlational effect between those to constructs (Arnold & House, 1980; Behnson et al., 2000; Hackman & Oldham, 1975; Hogan & Martell, 1987; Innstrand et al., 2015).

Role overload has been shown to have a fairly small effect on task completion-ambiguity. This supports the correlational study suggesting a small negative effect (Innstrand et al., 2015).

Competency demands has in this study shown to have a very small effect on task completion-ambiguity. Still, previous correlational research find different results depending on the measurement and how the construct is approached. As experienced responsibility, it has been showed to positive effects with skill variety (Arnold & House, 1980; Behnson et al., 2000; Hackman & Oldham, 1975; Hogan & Martell, 1987), but in terms of competency demands the correlation with task completion-ambiguity were found to be non-significant (Innstrand et al., 2015). The finding of this thesis is considered as more proximal to the finding of Innstrand et al. (2015), and this may suggest that competency demands does not affect experienced responsibility.

5.3 Job resources as indirect effects

As previously mentioned, the research on indirect effects towards meaning of work has largely been neglected in literature. There are few studies on complex relationships with meaning of work and it is requested that such studies will be performed (Rosso et al., 2010). Meaning of work has been more researched related to moderating effect for example in connection with affective disposition and engagement (Steger et al., 2013), or in context of the proposed job characteristic model and meaning of work (Hackman & Oldham, 1976). Hackman and Oldham (1976) have performed research on whether there has been a path from skill variety, task identity, task significant, autonomy and feedback to internal motivation, general satisfaction and growth satisfaction. This path was suggested to be mediated by experienced meaning of work, experienced responsibility and knowledge of results towards (Hackman & Oldham, 1976). The authors also raise questions about their mediational model as autonomy and feedback might have biased the results (Hackman & Oldham, 1976). Another study found varying results for this model with a conclusion that psychological states such as meaningful work were of critical importance for the model since it contains valuable information (Behnson et al., 2000).

5.3.1 Indirect effects for the hypothesized model. For the entire model, all indirect effects were found to be significant. The paths from goal clarity, role overload and competency demands were partial mediated. The mediational effects suggests that job resources may buffer job demands, which can be related to studies on work engagement (Bakker et al., 2007). This may imply that job resources may have a motivational potential as suggested in Bakker et al. (2007), and that this further changes the level of experienced meaning of work. For the partial effects, it suggests that mediation may account for some of the effect. Comparing these three effects suggest that positive, developing and progressively job demands and resources provides meaning of work for the employees and organizations are suggested to utilize such approaches in maintaining the employees interest and investment in their workplace.

5.3.2 Indirect effects via job autonomy. A moderate effect through goal clarity indirectly via job autonomy on meaning of work was found. The correlations from previous studies have also showed a relationship firstly between goal clarity and job autonomy and further with job autonomy and meaning of work. This also provides implications for the confirmed indirect effect.

Another indirect effect was found between role overload indirectly via job autonomy on meaning of work, even though this effect was small it may be suggested that role overload can have effect through mediation with meaning of work. Still, it is suggested that role overload

does not make clear indications related with meaning of work (Innstrand et al., 2015) or in case of predicting meaning of work (Clausen & Borg, 2011). This may further apply that having much to do at work with short time pressure does not have a clear influence on meaning of work. This can also be confirmed as role overload predicts job autonomy, but in small amounts.

The path competency demands indirectly via job autonomy on meaning of work was found to have a small effect. The effect suggests that competency demands both directly and mediated by job autonomy leads to a change in meaning of work. This can be seen according to previous mentioned correlational studies that support a relationship between those variables (Behnson et al., 2000; Hackman & Oldham, 1975; Hogan & Martell, 1987; Innstrand et al., 2015). In sum, it means that job autonomy does play a role for meaning of work. This is interesting, as organizations should foster autonomy in their psychosocial work environment.

5.3.3   Indirect effects via task completion-ambiguity. The examination of paths through goal clarity indirectly via task completion-ambiguity on meaning of work was too small to be meaningful, while the two other paths role overload indirectly via task completion-ambiguity on meaning of work and competency demands indirectly via task completion-ambiguity on meaning of work indicated no effect. These results show that the importance the task completion-ambiguity may not be substantial as mediator variable in case of meaning with work. This may suggest that to be able to decide when work tasks are finished is of less importance than to experience autonomy.

5.4   General discussion

Only parts of this model was supported, but this thesis still provides some interesting remarks and implications. Since this thesis has a foundation in the job demands-resources model, it should be considered with the study of Clausen and Borg (2011). The latter study examined the combination of job demands and job resources in relations with the job demand-control model (Clausen & Borg, 2011). This thesis has extended this study as well as examining parts of the job characteristics model (Hackman & Oldham, 1976). Clausen and Borg (2011) found that job demands and job resources influenced meaning of work, and their findings can be comparable to this thesis.

The examining of the model may also support the study of Clausen and Borg (2011), suggesting that both job tasks and demands, and job resources influence meaning of work. This can be seen according to the explanatory power of the model. The demands most supportive to meaning of work are demands perceived in case of development such as competency demands. Further, showing progress and understanding the work task as in terms of goal clarity is also of

importance. Lastly, to be able to have freedom and the possibility to decide in the job also seem significant and is also a central factor for both entering and remaining in academia (Bellamy et al., 2003). Furthermore, from the indirect effects it can be seen that job autonomy has a greater impact as a mediator than task completion-ambiguity. It is therefore of importance to support the employee in their initiative, and both allow and promote autonomy. These considerations may be of interest in establishing a work environment based on development and growth and further implications for job design. Based on this thesis, goal clarity, competency demands and job autonomy are of especially importance in predicting meaning of work. It can therefore be concluded that to foster meaning of work a focus should be on resources. It should also be extracted from this thesis that future studies should examine other types of job demands and job resources, and whether an interplay between those two prospects provide indications on influential factors on meaning of work.

5.5   Limitations with this study

First, the use of single time point self-report measurement may have biased the data. Single time point measurement does not establish effects over time. A longitudinal study may for example catch up possible changes in states. Self-report measurement has several challenges such as learning effect and boredomeness that may bias the data in case of response set by either responding randomly, by learned pattern or not answering one or several questions in the survey.

Secondly, the data set are focused on employees working at academic institutions. Even though job demands are increasing in terms of expanded work tasks (Houston et al., 2006). Academics report finding their jobs satisfying (Harman, 2003). At the same time there is a noticeable effect between regular academics and PhD students as PhD students shows less satisfaction with their position and skepticism to the system (Harman, 2003). The present study examines the entire academic population and does not separate between technical/administrative staff, management, PhD students and academics. Further, the data set does not separate between temporary and permanent positions. This may bias the data, but on the contrary, it may also mirror the diversity of the university work system. It should further be noted that this thesis only examines employees working at academic institutions and not employees in other kinds of jobs. Further, this study does not describe or examine the field of research the employees are working with or the magnitude their research affects others. This may not be a big issue in this thesis, but should be considered if including for example task significance or whether the work task affects others in a similar model. Another point here is

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that the participants do not check for nationalities in this study, therefore cultural and cross-cultural views are not taken.

Third, the data were collected by convenient sample, which may be an issue since they were not selected randomly.

Lastly, a limitation of this study can be connected to operationalization of the variables. The constructs and measurements in this study seem to vary from previous studies, and even though the constructs are expressing the same feature with a construct, they may not be fully overlapping. Additional, it should also be mentioned that this study has a homogenous sample, which also may cause differences in results compared to other types of studies.

5.6   Practical implications

As practical implications, this model suggests the importance of job design, hereby represented as constructs within job tasks and demands, when improving or maintaining levels of meaning of work in employees. From this thesis, especially goal clarity, job autonomy and competency demands can be claimed to be central for meaning of work. This means that in case of increasing meaning of work for employees, a work environment should foster skill variety and demands of competency development and at the same time increase the employees influence on work tasks and demands, and in case of decision making. Practically, it suggests that a leader should provide clear work goals, with distinct expectations and understandable goal targets. Further, give the possibility for the employees to participate on courses, and have some demands related to competence at a reachable level so that the employee experiences a combination of challenge and mastery. A leader should also show trust in the skills of the employee, that the employee can have responsibility and an opportunity to take their own initiative. Further, it is proposed to add and promote job resources in case of buffering job demands to increase the levels of meaning of work. These considerations on job characteristics with meaning of work from an individual approach may be considered and evaluated in development of job design to boost meaning of work and investment in the organization.

5.7   Further research

This study has shown that more research is needed on complex relationships with meaning of work and job characteristics. For example, research should explore other kinds of relevant constructs of job tasks and demands, and job resources on meaning of work. Furthermore, similar studies should be performed on other work groups or professions since the experience with meaning of work may be perceived differently. A similar study should also

be conducted examining whether there is a difference in experienced meaning of work between professors or associate professors and PhD students. This would be interesting since it is found that PhD students are less satisfied working on the university than other academics (Harman, 2003). Another interesting aspect is whether there is a difference in temporary or full employment on experienced meaning of work.

In general, meaning of work should be researched in context of work engagement, over commitment, burnout and work-life balance in case of for example role overload or connected with leadership for examining whether the experience will increase and decrease thereafter. Transformational leadership may be of specific interest. Further, it should be examined in case of job crafting and which circumstances or factors will be relevant. Examples could be individual differences such as personality traits or positive individual resources such as self-efficacy or self-esteem. Related to this could also be work roles or identification of work roles. Future research could examine a similar model as the one presented in this study with personality traits or other individual aspects. For more external motivational focus, feedback should be examined, a connection suggested by Hackman and Oldham (1976). Lastly, job satisfaction should be researched in case of meaning of work as research often refer them together, for example in the model of Lent and Brown (2008). To conclude, future research should examine individual identification factors as well as interrelations and psychosocial environmental factors on meaning of work.

6   Conclusion

Studies on multivariate relationships with meaning of work as outcome has been neglected in the literature. Meaning of work has been studied in regards to job characteristics, and further in connection with job demands and job resources. This thesis examines the relations between job tasks and demands, job resources with meaning of work. Direct effects showed that there is an effect between goal clarity, competency demands and job autonomy with meaning of work. The effect between role overload and task completion-ambiguity and meaning of work were less evident. Furthermore, job autonomy and task completion-ambiguity were suggested as mediational effects between goal clarity, role overload and competency demands as antecedents and meaning of work as an outcome. The mediational effect was most obvious in the path from goal clarity via job autonomy on meaning of work. Furthermore, job autonomy had greater mediational effect compared to task completion-ambiguity as a mediator. These findings imply an effect between job tasks and demands, and job resources with meaning of work. It also is found that job demands indirectly effects on meaning of work via job resources. These findings may be of importance for job designs. This means in case of providing clear work goals for the employee, give the opportunity for growth in case of competence and autonomy are important in enhancing meaning of work. It is also positive and profitable to promote job resources as these both buffer job demands and stimulate meaning of work.

7   References

Acuña, E., & Rodriguez, C. (2004). The treatment of missing values and its effect on classifier accuracy. In D. Banks, F. R. McMorris, P. Arabie, & W. Gaul (Eds.), *Classification, Clustering, and Data Mining Applications. Proceedings of the Meeting of the International Federation of Classification Societies (IFCS), Illinois Institute of Technology, Chicago, 15--18 July 2004* (pp. 639–647). Berlin, Heidelberg: Springer Berlin Heidelberg. doi: 10.1007/978-3-642-17103-1_60

Allan, B. A., Autin, K. L., & Duffy, R. D. (2016). Self-Determination and Meaningful Work: Exploring Socioeconomic Constraints. *Frontiers in Psychology*, *7*(Article 71), 1–9. doi:10.3389/fpsyg.2016.00071

Antonovsky, A. (1993). The structure and properties of the sense of coherence scale. *Social Science and Medicine*, *36*(6), 725–733. doi: 10.1016/0277-9536(93)90033-Z

ARK. (n.d.). KIWEST, Round 2 (ARKKIWEST#2). Retrieved from https://hunt-db.medisin.ntnu.no/ark/#studyp369

Arnold, H. J., & House, R. J. (1980). Methodological and substantive extensions to the job characteristics model of motivation. *Organizational Behavior and Human Performance*, *25*(2), 161–183. doi: 10.1016/0030-5073(80)90062-8

Arnold, K. A., Turner, N., Barling, J., Kelloway, E. K., & McKee, M. C. (2007). Transformational leadership and psychological well-being: The mediating role of meaningful work. *Journal of Occupational Health Psychology*, *12*(3), 193–203. doi: 10.1037/1076-8998.12.3.193

Bakker, A. B., & Demerouti, E. (2007). The Job Demands Resources model: State of the art. *Journal of Managerial Psychology*, *22*(3), 309–328. doi: 10.1108/02683940710733115

Bakker, A. B., Demerouti, E., & Euwema, M. (2005). Job resources buffer the impact of job demands on burnout. *Journal of Occupational Health Psychology*, *10*(2), 170–180. doi:10.1037/1076-8998.10.2.170

Bakker, A. B., Hakanen, J. J., Demerouti, E., & Xanthopoulou, D. (2007). Job resources boost work engagement, particularly when job demands are high. *Journal of Educational Psychology*, *99*(2), 274–284. doi:10.1037/0022-0663.99.2.274

Bakker, A. B., Schaufeli, W. B., Leiter, M. P., & Taris, T. W. (2008). Work engagement: An emerging concept in occupational health psychology. *Work & Stress*, *22*(3), 187–200. doi: 10.1080/02678370802393649

Baron, R., & Kenny, D. (1986). The moderator-mediator variable distinction in social psychological research. *Journal of Personality and Social Psychology*, *51*(6), 1173–1182. doi:10.1037/0022-3514.51.6.1173

Beehr, T. A., Walsh, J. T., & Taber, T. D. (1976). Relationship of stress to individually and organizationally valued states: Higher order needs as a moderator. *The Journal of Applied Psychology*, *61*(7), 41–47. doi:10.1037/0021-9010.61.1.41

Behnson, S. J., Eddy, E. R., & Lorenzet, S. J. (2000). The importance of the critical psychological states in the job characteristics model: A meta-analytic and structural equations modeling examination. *Current Research in Social Psychology*, *5*(12). doi:10.2514/6.2000-3909

Bellamy, S., Morley, C., & Watty, K. (2003). Why business academics remain in Australian universities despite deteriorating working conditions and reduced job satisfaction: An intellectual puzzle. *Journal of Higher Education Policy and Management*, *25*(1), 13–28. doi: 10.1080/13600800305740

Bowie, N. E. (1998). A Kantian theory of meaningful work. *Journal of Business Ethics*, *17*(9), 1083–1092. doi: 10.1023/A:1006023500585

Caplan, R. D. (1971). *Organizational stress and individual strain: A social-psychological study of risk factors in coronary heart disease among administrators, engineers, and scientists*. Final Report on NASA Research Grant NGR-23-005-185 for the period July 1, 1969 to June 30, 1970. Institute for Social Research, University of Michigan.

Chalofsky, N. (2003). An emerging construct for meaningful work. *Human Resource Development International*, *6*(1), 69–83. doi: 10.1080/1367886022000016785

46

Classapps. (2015). Classapps. Retrieved from http://www.classapps.com/

Clausen, T., & Borg, V. (2011). Job demands, job resources and meaning at work. *Journal of Managerial Psychology*, *26*(8), 665–681. doi: 10.1108/02683941111181761

Danielsen, A. G., Samdal, O., Hetland, J., & Wold, B. (2009). School-Related Social Support and Students' Perceived Life Satisfaction. *The Journal of Educational Research*, *102*(4), 303–320. doi:10.3200/JOER.102.4.303-320

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, *86*(3), 499–512. doi:10.1037//0021-9010.86.3.499

Dik, B. J., Byrne, Z. S., & Steger, M. F. (2013). Introduction: Toward an integrative science and practice of meaningful work. In B. J. Dik, Z. S. Byrne, & M. F. Steger (Eds.), *Purpose and meaning in the workplace* (pp. 3–14). Washington, DC, US: American Psychological Association. doi: 10.1037/14183-001

Directorate of Labour Inspection (2013). Act relating to working environment, working hours and employment protection, etc. (Working Environment Act). Retrieved from: http://www.arbeidstilsynet.no/binfil/download2.php?tid=92156

Ekinci, Y., Dawes, P. L., & Massey, G. R. (2008). An extended model of the antecedents and consequences of consumer satisfaction for hospitality services. *European Journal of Marketing*, *42*(1/2), 35–68. doi: 10.1108/03090560810840907

Fairlie, P. (2011). Meaningful Work, Employee Engagement, and Other Key Employee Outcomes: Implications for Human Resource Development. *Advances in Developing Human Resources*, *13*(4), 508–525. doi: 10.1177/1523422311431679

Field, A. (2014). *Discovering statistics using IBM SPSS statistics* (4th ed.). London: SAGE Publications Ltd.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39–50. doi:10.2307/3151312

Fried, Y., & Ferris, G. R. (1987). The validity of the job characteristics model: A review and meta-analysis. *Personnel Psychology*, *40*(2), 287–322. doi:10.1111/j.1744-6570.1987.tb00605.x

Geldenhuys, M., Łaba, K., & Venter, C. M. (2014). Meaningful work, work engagement and organisational commitment. *SA Journal of Industrial Psychology*, *40*(1), 1–10. doi:10.4102/sajip.v40i1.1098

Ghadi, M. Y., Fernando, M., & Caputi, P. (2013). Transformational leadership and work engagement: The mediating effect of meaning in work. *Leadership & Organization Development Journal*, *34*(6), 532–550. doi: 10.1108/LODJ-10-2011-0110

Groenvynck, H., Vandevelde, K., & Van Rossem, R. (2013). The PhD track: Who succeeds, who drops out? *Research Evaluation*, *22*(4), 199–209. doi:10.1093/reseval/rvt010

Hackman, R. J., Oldham, G., Janson, R., & Purdy, K. (1975). A New Strategy for Job Enrichment. *California Management Review*, *17*(4), 57–71. doi: 10.2307/41164610

Hackman, R. J., & Oldham, G. R. (1975). Development of the Job Diagnostic Survey. *Journal of Applied Psychology*, *60*(2), 159–170. doi: 10.1037/h0076546

Hackman, R. J., & Oldham, G. R. (1976). Motivation through the design of work: test of a theory. *Organizational Behavior and Human Performance*, *16*(2), 250–279. doi: 10.1016/0030-5073(76)90016-7

Hackman, R. J., & Lawler, E. E. (1971). Employee reactions to job characteristics. *Journal of Applied Psychology*, *55*(3), 259–286. doi: 10.1037/h0031152

Hair, J. F. Jr., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). *A primer on partial least squares structural equation modeling (PLS-SEM)*. California: SAGE Publications Inc.

Hakanen, J. J., Perhoniemi, R., & Toppinen-Tanner, S. (2008). Positive gain spirals at work: From job resources to work engagement, personal initiative and work-unit innovativeness. *Journal of Vocational Behavior*, *73*(1), 78–91. doi:10.1016/j.jvb.2008.01.003

Harman, G. (2003). Australian Academics and Prospective Academics Adjustment to a More Commercial Environment. *Higher Education Management and Policy*, *15*(3), 105–122. doi: 10.1787/hemp-v15-art26-en

Harpaz, I., & Fu, X. (2002). The Structure of the Meaning of Work: A Relative Stability Amidst Change. *Human Relations*, *55*(6), 639–667. doi: 10.1177/0018726702556002

Hellgren, J., Sverke, M., & Näswall, K. (2008). Changing work roles: new demands and challenges. In K. Näswall, J. Hellgren, & M. Sverke (Eds.), *The individual in the Changing Working Life* (pp. 46–66). Cambridge University Press. doi: 10.1017/CBO9780511490064.003

Hellgren, J., Sjoberg, A., & Sverke, M. (1997). Intention to quit: Effects of job satisfaction and job perceptions. In F. Avallone, J. Arnold, & K. de Witte (Eds.), *Feelings work in Europe* (pp. 415–423). Milano: Guerini.

Hogan, E. A., & Martell, D. A. (1987). A confirmatory structural equations analysis of the job characteristics model. *Organizational Behavior and Human Decision Processes*, *39*(2), 242–263. doi: 10.1016/0749-5978(87)90040-9

Houston, D., Meyer, L. H., & Paewai, S. (2006). Academic Staff Workloads and Job Satisfaction: Expectations and values in academe. *Journal of Higher Education Policy and Management*, *28*(1), 17–30. doi: 10.1080/13600800500283734

IBM Corp. (n.d.). SPSS Software. Retrieved from: http://www-01.ibm.com/software/analytics/spss/

Idris, M. K. (2011). Over time effects of role stress on psychological strain among malaysian public university academics. *International Journal of Business and Social Science*, *2*(9), 154–161. Retrieved from http://ijbssnet.com/journals/Vol._2_No._9_[Special_Issue_-_May_2011]/19.pdf

Innstrand, S. T., Christensen, M., Undebakke, K. G., & Svarva, K. (2015). The presentation and preliminary validation of KIWEST using a large sample of Norwegian university staff. *Scandinavian Journal of Public Health, 43* (8), 855-866. doi: 10.1177/1403494815600562

Isaksen, J. (2000). Constructing meaning despite the drudgery of repetitive work. *Journal of Humanistic Psychology*, *40*(3), 84–107. doi: 10.1177/0022167800403008

Kahn, W. A. (1990). Psychological Conditions of Personal Engagement and Disengagement at Work. *Academy of Management Journal*, *33*(4), 692–724. doi: 10.2307/256287

Karasek, R. A. (1979). Job Demands, Job Decision Latitude, and Mental Strain: Implications for Job Redesign. *Administrative Science Quarterly, 24* (2), 285-308 Published by: Sage Publications, Inc. on behalf of the Johnson Graduate School of Management, Cornell University. Retrieved from: http://www.jstor.org/stable/pdf/2392498

Keim, A. C., Landis, R. S., Pierce, C. A., & Earnest, D. R. (2014). Why do employees worry about their jobs? A meta-analytic review of predictors of job insecurity. *Journal of Occupational Health Psychology*, *19*(3), 269–290. doi: 10.1037/a0036743

Keith, T. Z. (2006). *Multiple Regression and Beyond*. London: Pearson Education.

Kenny, D. A. (n.d.). Question from Julie Maloy. Retrieved from http://www.public.asu.edu/~davidpm/ripl/maloy.htm

Kenny, D. A. (2015). Mediation. Retrieved from http://davidakenny.net/cm/mediate.htm

Kristensen, T. S., Bjorner, J. B., Christensen, K. B., & Borg, V. (2004). The distinction between work pace and working hours in the measurement of quantitative demands at work. *Work & Stress*, *18*(4), 305–322. doi:10.1080/02678370412331314005

Kristensen, T. S., Hannerz, H., Høgh, A., & Borg, V. (2005). The Copenhagen Psychosocial Questionnaire - A tool for the assessment and improvement of the psychosocial work environment. *Scandinavian Journal of Work, Environment and Health*, *31*(6), 438–449. doi:10.5271/sjweh.948

Kroska, A. (2016). Investigating gender differences in the meaning of household chores and child care. *Journal of Marriage and Family*, *65*(2), 456–473. Retrieved from http://www.jstor.org/stable/3600090

Kyvik, S., & Olsen, B. (2009). *Gjennomstrømning i doktorgradsutdanningen [In Norwegian]*. Oslo. Retrieved from http://www.nifu.no/files/2012/11/NIFUrapport2009-40.pdf

Leiter, M. P., Harvie, P., & Frizzell, C. (1998). The correspondence of patient satisfaction and nurse burnout. *Social Science and Medicine*, *47*(10), 1611–1617. doi: 10.1016/S0277-9536(98)00207-X

Lent, R. W., & Brown, S. D. (2008). Social Cognitive Career Theory and Subjective Well-Being in the Context of Work. *Journal of Career Assessment*, *16*(1), 6–21. doi: 10.1177/1069072707305769

Loscocco, K. A., & Kalleberg, A. L. (1988). Age and the meaning of work in the United States and Japan. *Social Forces*, *67*(2), 337–356. Retrieved from http://www.jstor.org/stable/2579185

Maddi, S. R., & Khoshaba, D. M. (1994). Hardiness and Mental Health. *Journal of Personality Assessment*, *63*(2), 265–274. doi: 10.1207/s15327752jpa6302_6

Morin, E. (2008). *The meaning of work, mental health and organizational commitment*. Montréal (Québec). Retrieved from http://www.irsst.qc.ca/media/documents/pubirsst/R-585.pdf

Morse, N. C., & Weiss, R. S. (1955). The Function and Meaning of Work and the Job. *American Sociological Review*, *20*(2), 191–198. Retrieved from http://www.jstor.org/stable/2088325

Munn, S. L. (2013). Unveiling the Work-Life System: The Influence of Work-Life Balance on Meaningful Work. *Advances in Developing Human Resources*, *15*(4), 401–417. doi: 10.1177/1523422313498567

Näsvall, K., Låstad, L., Vetting, T.-S., Larsson, R., Richter, A., & Sverke, M. (2010). Job insecurity from a gender perspective: Data collection and psychometric properties. *Report* (Vol. 1.) Stockholm: Stockholm University. Retrieved from: http://w3.psychology.su.se/psychlib/rapporter/Report1.pdf

Pejtersen, J. H., Kristensen, T. S., Borg, V., & Bjorner, J., B. (2010). The second version of the Copenhagen Psychosocial Questionnaire. *Scandinavian Journal of Public Health, 38* (3) (suppl.), 8-24. doi: 10.1177/1403494809349858

Pierce, J. L., Jussila, I., & Cummings, A. (2009). Psychological ownership within the job design context: Revision of the job characteristics model. *Journal of Organizational Behavior*, *30*(4), 477–496. doi:10.1002/job.550

Pierce, J. L., O'Driscoll, M. P., & Coghlan, A.-M. (2004). Work environment structure and psychological ownership: The mediating effects of control. *The Journal of Social Psychology*, *144*(5), 507–534. doi:10.3200/SOCP.144.5.507-534

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, *40*(3), 879–891. doi:10.3758/BRM.40.3.879

Rizzo, J. R., House, R. J., & Lirtzman, S. I. (1970). Role Conflict and Ambiguity in Complex Organizations. *Administrative Science Quarterly*, *15*(2), 150–163. doi: 10.2307/2391486

Rosso, B. D., Dekas, K. H. & Wrzesniewski, A. (2010). On the meaning of work: A theoretical integration and review. *Research in Organizational Behavior, 30,* 91–127. doi:10.1016/j.riob.2010.09.001

Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, *25*(3), 293–315. doi:10.1002/job.248

Scroggins, W. A. (2008). Antecedents and Outcomes of Experienced Meaningful Work : A Person-Job Fit Perspective. *Journal of Business Inquiry*, *7*(1), 68–78. Retrieved from http://webprod.uvu.edu/woodbury/jbi/volume7/journals/jbi_v7_Antecedents and Outcomes of Experienced Meaningful Work.pdf

Schnell, T., Höge, T., & Pollet, E. (2013). Predicting meaning in work: Theory, data, implications. *The Journal of Positive Psychology*, *8*(6), 543–554. doi:10.1080/17439760.2013.830763

Seligman, M. E. P., & Csíkszentmihályi, M. (2000). Positive psychology: An introduction. *American Psychologist*. doi:10.1037/0003-066X.55.1.5

Spreitzer, G. M. (1995). Psychological Empowerment in the Workplace : Dimensions, Measurement, and Validation. *The Academy of Management Review*, *38*(5), 1442–1465. Retrieved from http://www.jstor.org/stable/256865

Steger, M. F., Dik, B. J., & Duffy, R. D. (2012). Measuring Meaningful Work: The Work and Meaning Inventory (WAMI). *Journal of Career Assessment*, *20*(3), 322–337. doi: 10.1177/1069072711436160

Steger, M. F., Littman-Ovadia, H., Miller, M., Menger, L., & Rothmann, S. (2013). Engaging in Work Even When It Is Meaningless: Positive Affective Disposition and Meaningful Work Interact in Relation to Work Engagement. *Journal of Career Assessment*, *21*(2), 348–361. doi: 10.1177/1069072712471517

Sørensen, O. H., Hasle, P., Hesselholt, R. R., & Herbøl, K. (2012). *Nordiske forskningsperspektiver på arbejdsmiljø: Mening, indflydelse og samarbejde* [In Danish]. København. doi: 10.6027/TN2012-525

Thomas, K. W., & Velthouse, B. A. (1990). Cognitive Elements of Empowerment: An "Interpretive" Model of Intrinsic Task Motivation. *The Academy of Management Review*, *15*(4), 666–681. Retrieved from http://www.jstor.org/stable/258687

Tims, M., & Bakker, A. B. (2010). Job crafting: Towards a new model of individual job redesign. *SA Journal of Industrial Psychology*, *36*(2), 1–9. doi:10.4102/sajip.v36i2.841

Undebakke, K. G., Innstrand, S. T., Anthun, K. S., & Christensen, M. (2015). The ARK Intervention Programme. Who-What-How. Retrieved from: http://www.ntnu.no/documents/34221120/0/2015_01_ARK_web.pdf/65dd9de7-b61f-4f0b-9829-bf87dd58cfda

Vliet, C. Van der, & Hellgren, J. (2002). *The Modern Working Life: Its Impact on Employee Attitudes, Performance and Health*. Stockholm, Sweden.

Walsh, J. T., Taber, T. D., & Beehr, T. A. (1980). An integrated model of perceived job characteristics. *Organizational Behavior and Human Performance*, *25*(2), 252–267. doi: 10.1016/0030-5073(80)90066-5

Winefield, A. H., & Tiggemann, M. (1990). Employment status and psychological well-being: A longitudinal study. *Journal of Applied Psychology*, *75*(4), 455–459. doi:10.1037/0021-9010.75.4.455

Wrzesniewski, A., & Dutton, J. E. (2001). Crafting a job: Revisioning employees as active crafters of their work. *Academy of Management Review*, *26*(2), 179–201. doi:10.5465/AMR.2001.4378011

Wrzesniewski, A., Dutton, J. E., & Debebe, G. (2003). Interpersonal Sensemaking and the Meaning of Work. *Research in Organizational Behavior*, *25*(03), 93–135. doi: 10.1016/S0191-3085(03)25003-6

Wrzesniewski, A., McCauley, C., Rozin, P., & Schwartz, B. (1997). Jobs, careers, and callings: People's relations to their work. *Journal of Research in Personality*, *31*(1), 21–33. doi:10.1006/jrpe.1997.2162

Xanthopoulou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2009). Reciprocal relationships between job resources, personal resources, and work engagement. *Journal of Vocational Behavior*, *74*(3), 235–244. doi:10.1016/j.jvb.2008.11.003

XLSTAT. (2015). XLSTAT. Your data analysis solution. Retrieved from https://www.xlstat.com/en/

XLSTAT. (2016). Create & run a basic PLS Path Modeling project. Retrieved from https://help.xlstat.com/customer/en/portal/articles/2062300

Zhao, X., Lynch Jr., J. G., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and Truths about Mediation Analysis. *Journal of Consumer Research*, *37*(2), 197–206. doi: 10.1086/651257