What do you do and who do you think you are?

Activities speak louder than words

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In focusing on what employees do, this dissertation provides opportunities to assess whether particular activities are congruent with who employees are, and whether, and to what extent, those activities constrain or enhance employee well-being and performance.

My research shows that each individual activity can be related to employee well-being, because not every task is equally burdensome or enjoyable. Changes in work over time may thus sometimes imply that what employees do at a certain moment no longer sufficiently reflects who employees are professionally, what makes them happy, or what they can deal with in terms of workload. Incongruence between what employees do and what the employee and/or the organization need in terms of well-being or performance may also unintentionally occur based on employees being true to themselves or their calling rather than rational decisions.

Although more research is needed to understand how to address incongruences when they occur, a greater understanding of what employees do, how they perceive these activities, and how this impacts well-being and performance is an important first step in balancing between meaningful and meaningless work.

Continuous assessment what employees do at the level of activities may provide researchers and practitioners alike information to understand how balance in work can be (unintentionally) disrupted and (intentionally) regained to optimize employees’ well-being and performance through changing what employees do, who they are, or their subjective experiences of the two.
WHAT DO YOU DO AND WHO DO YOU THINK YOU ARE?

Activities speak louder than words

Hannah Ariane Berkers
What do you do and who do you think you are? Activities speak louder than words
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ACTIVITIES SPEAK LOUDER THAN WORDS

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PROMOTIECOMMISSIE

Promotor: prof. dr. D.N. den Hartog Universiteit van Amsterdam

Co-promotores: dr. S.T. Mol Universiteit van Amsterdam
dr. G. Kismihók TIB

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Promoveren is iets wat alleen kan als je het onderzoeksonderwerp ervaren en doorleefd hebt. Aldus, dat vond ik toen ik mijn master aan het afronden was. Voor mijn scriptie deed ik onderzoek naar hoe leiders kennisdeling kunnen stimuleren binnen grote projecten. Ik ging op in het graven naar betekenis in mijn interviewdata en ontwierp een nieuw leiderschapsmodel. Ik vond onderzoek doen geweldig, maar was ook kritisch. Hoe kon ik als masterstudente de problemen rondom kennisdeling in projecten oplossen - want wie schrijft nu zomaar een scriptie - zonder zelf projectmanager te zijn (geweest)? Het meemaken was in mijn ogen van belang om echt iets te kunnen zeggen over een onderwerp en dat is wat ik wilde. Ik kon geen afdoende antwoord vinden en verliet de UvA op zoek naar een ‘echte’ baan in de ‘echte’ wereld.

Het lot dacht er echter anders over en bracht een jaar later een promotieplek aan de UvA op mijn pad. Bij toeval (let op!) vond ik een vacature, maar ik kreeg een aanbod voor een andere functie. Ik twijfelde omdat mezelf zag als een kwalitatieve onderzoeker in hart en nieren en zo graag inging op het verhaal en de betekenis achter de woorden of cijfers en dit een functie was met een focus op technologie. Toch was het een kans die ik niet kon laten gaan, mede dankzij het enthousiasme van co-promotoren Stefan Mol en Gábor Kismihók. In januari 2014 begon ik (dus toch) aan een promotietraject. Nou ja, een baan als junior onderzoeker met als missie job analysis, oftewel functieanalyse, de 21ste eeuw in te trekken. Eigenhandig uiteraard. Je moet ergens beginnen. Job analysis was niet het meest sexy onderwerp, dat bleek wel op een congres waar ik omringd was door oudere mannen. Ik was echter enthousiast door de mogelijkheid die nieuwe technologie, namelijk het analyseren van vacatures via text mining, bood om nuances binnen een beroep bloot te leggen (zie hoofdstuk 2). Ik vond ‘loopholes’ en ging verpleegkundigen in Duitsland interviewen en observeren. De kwalitatieve onderzoekster in mij was blij. Na anderhalf jaar hard werken liep ik echter vast. De reality check leerde mij dat de wereld niet binnen vier jaar te verbeteren valt, zelfs niet als men zich beperkt tot de wereld van de job analysis. Daarnaast miste ik meer van mezelf in het onderwerp dan ik aanvankelijk vermoedde.

Voorwoord
Op zoek naar nieuwe inspiratie besteedde ik een zomer lang aan lezen en reflectie. Ik worstelde met wie ik als onderzoeker wilde zijn. Weer dat vraagstuk over authenticiteit en onderzoek. Ik kon me niet volledig verbonden voelen met technologie, niet zoals ik dat zag bij mijn collega’s. Gelukkig kwam er een zeldzaam pareltje op mijn pad - weer die toeval - in de vorm van het paper van Cardador en Caza uit 2012 over calling wat mij direct raakte. Bij een calling, of het hebben van een roeping, staat de inhoud van het werk voorop samen met het willen bijdragen aan de wereld. En daar komt ‘ie, alsof het door het lot en toeval bepaald is dat je dit werk doet: dit gaat dus over mij! Nog nooit had ik zo duidelijk op papier gezien hoe ik werk ervaar. Ik herkende mij in de positieve kanten die aan een calling werden toegeschreven, maar ook in de kanttekeningen. Zo kan het hebben van een calling betekenen dat je je eigen grenzen uit het oog verliest en grote offers maakt om het werk te doen. Dit is het, dacht ik. Onderwerpen die aandacht verdienen al is het alleen voor mezelf om te begrijpen hoe ik duurzaam van werk kan genieten (zie hoofdstuk 3). En dan zouden andere mensen er hopelijk ook wat aan hebben, zeker gezien het feit dat mensen tegenwoordig steeds meer op zoek zijn naar werk wat bij hun passie past, en werken voor het geld immers voor velen achterhaald lijkt.

Met deze hernieuwde inspiratie wist ik promotor Deanne den Hartog en co-promotor Stefan te overtuigen. Ik dook vol enthousiasme de literatuur in op zoek naar antwoorden. Dit keer was het immers persoonlijk. Zo kwam ik terecht bij de literatuur over identiteit. Dat is niet raar, aangezien het hebben van een calling vaak samengaat met het (onlosmakelijk) versmelten van iemands werk met wie iemand is. Dit is ook als algemene trend waarneembaar. Het hebben van werk en wat voor werk we doen, speelt een belangrijke rol in hoe we onszelf zien en hoe anderen naar ons kijken. Niet voor niets wordt bij het voorstellen op feestjes vaak direct gevraagd naar wat iemand doet (een onmogelijke vraag overigens voor promovendi). Ik werd overonderd door een paper van Shamir uit 1991 over de krachtige motivationele drijfveer die onze identiteit kan zijn. In andere woorden, het handelen vanuit wie we zijn. Dit is een waarheid als een koe voor mij. De versmelting van identiteit en werk heeft echter ook risico’s. Werk blijft namelijk lang niet altijd meer hetzelfde. Banen veranderen en wij veranderen van baan. Wanneer werk wegvalt, kunnen we hard vallen. Zeker wanneer we de andere aspecten van onze identiteit kwijt zijn geraakt, niet hebben ontwikkeld of verwaarloosd hebben. Veranderen wie we zijn is niet makkelijk, terwijl dit in de dynamische context van het werk wel steeds vaker van ons geëist wordt. Dat
mensen hierin kunnen verschillen stond voor mij voorop, ook omdat ik erkende
dat ik zulke veranderingen emotioneel zwaar vond. Met die gedachte begonnen,
ironisch genoeg, mijn eigen grenzen radicaal te verschuiven. Ik maakte een
nieuwe schaal om de rigiditeit in iemands identiteit te meten (zie hoofdstuk 4). Ik
deed allerlei kwantitatieve analyses, vaak met veel moeite, pijn en soms tranen.
Allemaal niet mijn ding, zei maar. Dit werd vooral draagbaar gemaakt door de
geweldige hulp en het eeuwige geduld van mijn promovendicollega’s Renske van
Geffen, Inge Wolsink, Eloisa Federici en Sofija Pajic.

De gedachte dat ik met mijn switch naar calling en identiteit iets
waardevol als te pakken had, werd gesterkt door de berichten in de media. De
ongekende werkdruk en het hoge percentage burn-out klachten onder docenten
kwamen en komen nog steeds veelvuldig langs. Tegelijk was er aandacht voor de
hoge administratiedruk onder professionals. Ik werd enorm geraakt toen ik las
over een huisarts die besloot haar geliefde beroep vaarwel te zeggen vanwege
Ik begreep heel goed dat mensen die zich helemaal gaven voor bepaald werk
ongelukkig werden wanneer zij zich gehinderd zagen in de uitvoering van dat
werk, of dat nou ging om artsen of docenten. Door mijn onderzoek naar job
analysis was de link tussen de inhoud van de taak (bijvoorbeeld het doen van
administratie ten opzichte van lesgeven) en het werkplezier of juist het ervaren van
werkdruk makkelijk gelegd. Het werd mij steeds duidelijker dat het bij werkdruk
- zeker bij professionals - niet alleen gaat om de hoeveelheid werk maar ook om
de inhoud. Daarbij was het van belang dat de baan niet als één geheel bekeken
wordt, maar dat deze wordt ontleed in taken. Een teveel aan taken die niet
passen bij wie we zijn op het werk (daar hebben we die identiteit weer), maakt
ons ziek en ongelukkig (zie hoofdstuk 5). Hoewel deze boodschap mij zo helder
leek, duurde het even voor ik de juiste woorden vond. Het idee echter dat ik het
leven van zo veel bevlogen en betrokken docenten, artsen, verpleegkundigen
(en mezelf) misschien zo kunnen verbeteren als er meer kennis aan de
inhoud van banen gesleuteld zou worden, maakte dat ik het idee niet wilde
loslaten.

Mijn bevlogen boodschap begon ondertussen langzaam te landen.
Iedereen waaraan ik mijn verhaal vertelde, en dat waren er veel, zag er een stukje
van zichzelf in. Wat ik voelde toen ik het paper van Cardador en Caza las, kon ik
nu overdragen aan mijn promotoren, collega’s, stakeholders, familie, vrienden,
mensen die hebben deelgenomen aan mijn onderzoek en mijn studenten. Ik
raakte niet meer uitgepraat (overigens ook een aspect van calling). Grapjes over hoe ik mijn onderwerp was, dat mijn roeping calling onderzoeken was en dat mijn promotie een zoektocht naar antwoorden was passeerden de revue. Ondertussen leek ik, op een periode van ziek zijn in mijn tweede jaar na, aan de goede kant van het welzijnsvraagstuk te balanceren. Het afronden van mijn dissertatie bleek echter meer dan alleen maar een uitdaging om alles op tijd af te krijgen en zo kan ik nu ook uit ervaring over burn-out spreken, denken en onderzoeken. Mijn toewijding, passie en betrokkenheid die mij Hannah maken werden flink op de proef gesteld. Ik had moeite met het vinden van mijn plek in de academische wereld en raakte steeds verder van mezelf verwijderd. Ik was nu wel mijn onderwerp, de bevlogen onderzoekster die werkt vanuit haar calling, maar voelde me (soms) niet meer mezelf.

Ik vind nu nog steeds dat onderzoek doen beter wordt vanuit beleven en ervaring. Iets meemaken, ergens tegenaan lopen, verwonderd raken, overvallen worden door inzicht en weten hoe iets voelt, geeft een zekere empathie aan een verhaal. Want dat is wat onderzoek is voor mij: het vertellen van een verhaal. Hopelijk een verhaal wat zo goed is, in de grondigheid waarmee het is opgebouwd en de kracht van de boodschap, dat het mensen raakt en misschien zelfs kan helpen. Publiceren maakt dat die boodschap wijder verspreid kan worden en een grotere impact kan hebben, maar dat is niet het hoofddoel. In ieder geval niet voor mij. Ik moet terugkomen op mijn uitspraak uit 2012, ik wil nu namelijk wel promoveren. Als officieel erkend onderzoeker kan ik verhalen blijven vertellen in de vorm van gedegen onderzoek en publicaties. Hoe dat moet heb ik de afgelopen jaren geleerd onder het gedegen toezicht van Deanne, Stefan, Gábor en een heleboel anderen. Hoe ik daar vorm aan ga geven heb ik mezelf geleerd. Ik ben een bevlogen onderzoeker. Ik ben mijn onderzoeksonderwerpen, maar ik ben bovenal mezelf.

“Tegenwoordig noem ik mezelf trotse onderzoeker-verhalenverteller, omdat ik geloof dat de meest bruikbare kennis over het menselijk gedrag gebaseerd is op onze ervaringen als mens”

- Bréne Brown (en Hannah Berkers)
CHAPTER 1

Introduction
Over the past decades the nature of work has been subject to constant change (Cascio, 1995; Grant & Parker, 2009; Parker, 2014; Sparks, Faragher, & Cooper, 2001). Globalization and rapid technological changes have made work more complex, more knowledge-based, and nearly impossible to perform individually, making teamwork essential. At the same time, employees are increasingly working outside traditional organizational boundaries with the introduction of new ways of working, cross-cultural teams, and online (team)work, phenomena which simultaneously supply and demand flexibility of employees (Spreitzer, Cameron, & Garrett, 2017). This increasing need for flexibility is also evident in the increased use of flexible contracts, the emergence of the gig-economy, growing job insecurity, the shift towards boundaryless careers, and the de-jobbing of organizations (Arthur & Rousseau, 2001; Savickas et al., 2009; Singh, 2008; Sparks et al., 2001; Spreitzer et al., 2017). These changes are driven by organizations competing globally and striving to decrease their costs while increasing efficiency and creativity, which oftentimes becomes manifest in downsizing, restructuring, and outsourcing efforts (Bresnahan, 1999). Computerization and robotics are also starting to fundamentally change what employees do, and how, where, and when they do it (Frey & Osborne, 2013).

The changes that occur to what employees do may entail the addition of activities that are incompatible with who employees feel they are (professionally) or the cessation of activities that employees experience as core to their professional identity. Some physicians, for example, have quit their job upon not “feeling like a physician” anymore. That is, their image of what it means to be a physician did not match the increase in administrative work they experienced (Heijne, 2015a, 2015b). Incongruence may develop between how organizations see work (in terms of what they require employees to do) and how employees see their work or themselves at work. Such incongruence is problematic, because it is likely to negatively affect well-being and (thereby) the job performance of employees (Petriglieri, 2011; Taris & Schreurs, 2009). Not all changes to what employees do result in incongruence, because work and the way employees experience work can also change commensurably. Incongruence must be identified before it can be addressed, and this may be accomplished by reflecting on what employees (are asked to) do and how employees perceive or experience those tasks.

Researchers and practitioners alike need to reflect more on what is done in terms of work activities in order to expedite the assessment of whether
particular work activities are (still) congruent with not only what is valued by the organizations but also professional identity, especially when work activities change(d). Contemporary research, however, seldom addresses what employees do, even though detailed studies on what employees do, such as the Hawthorne studies (Sonnenfeld, 1985), formed the foundation of scientific management and the human relations movement decades ago. It is probably in part due to the mainly descriptive and qualitative nature of such studies on detailed activities that they have mostly disappeared from organizational research (Barley & Kunda, 2001). Without detailed studies on the work activities of employees, both researchers and practitioners lack critical input on how work may be organized to simultaneously optimize the performance and well-being of employees. Moreover, what employees do in terms of work activities can likely be measured more reliably than how employees experience or foresee change in their work (Voskuijl & van Sliedregt, 2002). It is thus time to redress the relative absence of studies on what employee do.

**WHAT EMPLOYEES DO AND WHO THEY ARE**

This dissertation sets out from the notion that understanding of what employees do yields the opportunity to assess whether those work activities are congruent with who employees are, so as to ensure that they do not constrain but optimize employee well-being (i.e., not doing too much) and performance (i.e., clearly contributing to the organization). To do so, I draw from three distinct literatures; job analysis, calling, and identity. Each of these literatures helps to understand what employees do, how they see their work, and how they see themselves against the back-drop of the changing nature of work. First, job analysis, in shedding light on how to collect and analyze information about jobs, may be used to address the lack of research about what employees do. Second, calling offers insights that explain why those employees, who do what they love instead of just working for money or career advancement, may unintentionally do more than they can handle in terms of well-being. Third, identity theory may be used to explain incongruences between what employees do and who they are at work and why certain employees are better equipped to deal with changes that affect identity than others. Below I introduce these literatures and suggest where more research is needed and why.
Job analysis: what employees do

Job analysis is essential to understand what employees do and is defined as the “process through which one gains an understanding of the activities, goals, and requirements demanded by a work assignment” (Sanchez & Levine, 2012, p. 398). In other words, job analysis is a process or a technique of collecting and analyzing all work-related information and data (i.e., job information) (Morgeson & Dierdorff, 2011) aimed at understanding rather than solely describing jobs. Such understanding is critical for the majority of strategic HR practices, including selection, performance management, compensation, and training (Schneider & Konz, 1989; Voskuijl, 2005). There is a wide range of job information types that can be collected (Priem, Prien, & Gamble, 2004), that are oftentimes broadly categorized either as work-oriented (i.e., referring to the objective aspects and the nature of the job) or worker-oriented (i.e., referring to the human attributes required for job performance) (Sackett & Laczo, 2003).

In spite of its centrality to HRM, job analysis has recently been criticized for its failure to address the dynamic nature of work (Sanchez & Levine, 2012). Indeed, much of the work in the job analysis literature departs from the assumption that jobs are stable and standardized entities, whereas our previous discussion on the constant change that is part of work nowadays is a clear indication that for an increasing number of employees the opposite might be true. In addition, employees nowadays are oftentimes actively encouraged to proactively change the content of their own job (Wrzesniewski & Dutton, 2001) and even those within the same occupation seldom perform exactly the same tasks (Fine, 1996). Despite some by now rather dated innovations in job analysis in the form of strategic job analysis (Schneider & Konz, 1989), competency modelling (Shippmann et al., 2000), and the creation of the Occupational Information Network (O*Net; Peterson et al., 2001), there is no method in job analysis that adequately addresses the aforementioned issues associated with the changing nature of work.

Specifically, there is an unresolved debate in job analysis about what type of job information is most suitable that has a bearing on the ability to capture dynamic and non-standardized work. It is widely acknowledged in the job analysis literature, that not all forms of job information are equally useful as some are more prone to bias than others (Dierdorff & Morgeson, 2009; Harvey & Wilson, 2000; Morgeson & Campion, 1997, 2000). Employees, for example, are likely to inflate their ratings of the abilities that are needed due to self-presen-
However, there is no agreement on which form of job information is superior in accuracy. This is reflected in the ongoing debate between proponents of detailed, context-specific forms of job information (Harvey, 2009; Harvey & Lozada-Larsen, 1988; Harvey & Wilson, 2000, 2010) and numerous proponents of abstract, general forms of job information (Peterson et al., 2001). The general preference in job analysis is for the latter more abstract and general job information, which may insufficiently capture the unstandardized and complex nature of work nowadays.

In sum, job analysis can offer relevant insights on how to collect and analyze information about what employees do. However, job analysis as a field needs to resolve several methodological issues in order to continue to inform researchers and practitioners alike about what employees do in 21st century workplaces (Sanchez & Levine, 2001, 2012). Chapter 2 of this dissertation aims to examine to what extent text mining, or “the discovery and extraction of interesting, non-trivial knowledge from free or unstructured text” (Kao & Poteet, 2007, p. 1), is a viable means of analyzing job information by comparing its output to the output obtained through current job analysis methods such as interviews and observations. In addition, I also aim to show the value of understanding what employees do in terms of well-being, by linking specific tasks collected by means of both these forms of job analysis to job satisfaction, work overload, and emotional exhaustion.

**Calling: how (some) employees see their work**

In general, three different orientations towards work are distinguished in the extant literature, namely a job, career, or calling orientation (Wrzesniewski, McCauley, Rozin, & Schwartz, 1997). Employees with a job orientation are mainly motivated by the financial aspects of their job, and employees with a career orientation are mainly driven by opportunities to advance their careers. Finally, employees with a calling orientation are mainly motivated by the work itself. Calling is defined as a relatively stable, subjective approach to work that derives from a sense of purpose, and the drive to contribute to society (Duffy & Dik, 2013). Although the experience of calling is commonly associated with certain jobs such as teachers, doctors, or priests, Wrzesniewski et al., (1997) have argued that it can actually be found in a wide variety of occupations. During the past decades the societal attention for the ideal of experiencing work as a calling
seems to be growing. This is reflected in employees who increasingly look for purposeful, enjoyable, and motivating work, the many available self-help books aimed at helping individuals find their passion, and the experienced pressure in western society to find fulfilment in work rather than in family, leisure activities, or non-paid work (Berkelaar & Buzzanell, 2015).

The literature on calling initially focused on uncovering the benefits that experiencing work as a calling has for both the individual employee and the organization. Research has shown, for example, that employees who see their job as a calling tend to be more satisfied with their job and life, experience career success, enjoy their work, are intrinsically motivated, and even appear less likely to suffer from emotional exhaustion (Duffy, Douglass, Autin, England, & Dik, 2016; Hirschi & Herrmann, 2012; Wrzesniewski et al., 1997). Furthermore, research shows that organizations benefit from employing individuals who see their work as a calling in terms of a heightened commitment and organizational identification, and lower turnover intentions of these employees as compared with employees who do not (Cardador, Dane, & Pratt, 2011; Duffy, Dik, & Steger, 2011). Still underrepresented in this stream of research about the benefits of calling are the behavioral consequences (Elangovan, Pinder, & McLean, 2010).

Recently attention in the calling literature has been shifting from uncovering the benefits of calling towards possible risks and negative consequences for both the individual employee and the organization. Indeed, there is growing evidence for a darker side to calling (Berkelaar & Buzzanell, 2015; Cardador & Caza, 2012). For example, calling is associated with employees making high sacrifices in terms of their remuneration, personal time, and physical comfort. In addition, employees with a calling appear to be more vulnerable to exploitation by their employers, and take longer to recover from work, which eventually could overshadow the aforementioned buffering effects of calling against emotional exhaustion (Bunderson & Thompson, 2009; Clinton, Conway, & Sturges, 2017; Schabram & Maitlis, 2017). Despite growing evidence supporting the risks of experiencing work as a calling, the dark side to calling is still being questioned, because negative consequences of calling have been captured almost exclusively in qualitative studies, and quantitative studies on the topic so far have yielded inconclusive results (Duffy et al., 2016).

In sum, addressing the role of work as a calling can offer relevant insights on how employees differ in their subjective experience of work and how this is associated with their well-being and performance. Previous work suggests
that calling may be a double-edged sword with both positive and negative consequences (Bunderson & Thompson, 2009). I propose that the behavior of employees may be the missing link between the positive and negative outcomes of having a calling. As is outlined in more detail below, in Chapter 3 I propose that employees with a calling are likely to be driven to continuously expand their job, which results in positive behaviors towards the organization on the one hand and work overload on the other.

Identity: how employees see themselves

Identity is defined as the answer to the question “who am I?” (Ashforth & Schinoff, 2016), and has become inextricably linked to what an individual does (Christiansen, 1999). In identity theory, it is proposed that although individuals have multiple identities, that are based, for example, on organizational membership, professional roles, nationality, and gender (Caza & Wilson, 2009; Ramarajan, 2014), they generally feel as ‘one’. However, work is an important factor that impacts how we see ourselves, especially since individuals spend most of their waking hours at work, and because work has become an ever more important part of our lives. Besides income, work provides employees with a place to learn more about who they are, a way of relating to others, and a way of finding a place in society (Selenko et al., 2018). This is reflected, for example, in how difficult it is for individuals to deal with unemployment, because they are less able to relate to the working population and as a result may suffer from a negative self-concept. The other way around, identity influences work because how employees see themselves at work helps them to make sense of their behavior, attitudes, and well-being (Ashforth, Harrison, & Corley, 2008). Identity may thus explain what employees do, why they do it, and whether they enjoy it or not. Identity is the lens through which employees make sense of the world of work and navigate life (Ramarajan, 2014).

On the one hand, identity research has shown that doing those things that are congruent with identity can be a way to verify and affirm a positive self-concept (Shamir, 1991). Tasks that are congruent with (professional) identity and that bring satisfaction and meaning are thus important because of the opportunities for self-verification and identity expression that they provide. Interestingly, however, those very tasks may become harmful when the identity affirmative nature of these tasks leads employees to continue executing them even in the face of emotional stress or work overload. On the other hand, the
identity literature has garnered evidence that doing things that are incongruent with one’s identity and the associated threat that is experienced while engaging in such tasks is stressful too (Petriglieri, 2011; Semmer, Jacobshagen, Meier, & Elfering, 2007).

Several seminal studies on the impact of (in)congruence between work and identity have been published in recent years. A study among medical residents, for example, showed that a mismatch between what physicians do and their professional identity invoked experiences of violation that needed identity adjustments by the medical residents to be resolved (Pratt, Rockmann, & Kaufmann, 2006). On the one hand, congruence between work and identity can sometimes also lead employees to wither because it limits their flexibility and creates a form of tunnel vision (Kira & Balkin, 2014). On the other hand, incongruence between identity and how others see someone at work could have positive consequences when being misidentified at work is the result of colleagues seeing someone, for example, as a leader and encouraging that employee to fill this new role (Meister, Jehn, & Thatcher, 2014). Most of the triggers for incongruence that have been discussed in the identity literature have focused on events such as role transitions or trauma (Ibarra, 1999; Maitlis, 2009; Pratt et al., 2006). Missing from this line of research, however, is work that takes into account how incongruence can be the result of changes within jobs.

Another important stream of identity research focuses on identity work, defined as all actions targeted at “forming, repairing, maintaining, strengthening, or revising one’s identity in order to strive for coherence and distinctiveness in one’s self-concept” (Sveningsson & Alvesson, 2003, p. 1165). This research is grounded in the assumption that individuals can actively and deliberately form, construct, shape, adjust, and reframe their identity (Brown, 2015). Even though individuals are subject to automatic identity processes driven by organizations or social structures (Ashforth & Schinoff, 2016) and generally strive for a relatively stable and coherent understanding of who they are at work in order to function effectively, employees are thought to constantly engage in some form of identity work (Brown, 2015). In light of the changing nature of work, organizations increasingly expect their employees to be flexible and capable of dealing with changes that may impact how they see themselves at work. It is also acknowledged in the identity literature, however, that changing one’s identity is not easy, in that it requires a lot of resources, and is associated with fear, vul-
nerability, frustration, and unhappiness (Maitlis, 2009; Winkler, 2016). Identity change may thus become a struggle for (some) employees. Surprisingly, much less is known, about why some employees appear to be better equipped than others to respond to identity-related changes.

In sum, focusing on identity can help provide insights into how employees’ self-concepts co-determine what employees do and how they feel, and how the things that employees do and how they see themselves are related. However, the identity literature has not sufficiently accounted for the fact that what many employees do is subject to constant change nowadays and that more attention is needed to account for the differences between individuals in dealing with identity-related change. I aim to make a first step in Chapter 4 with the development of the work identity rigidity scale that operationalizes the extent to which employees are reluctant to change who they are at work. Moreover, change comes with the risk of instigating incongruence between identity and work. Investigating the separate activities that make up a job in order to capture such potential mismatch between doing what you are and what you are not may be a piece in the puzzle to solving this and is depicted in an identity focused theoretical model of meaningful work in Chapter 5.

OVERVIEW AND CONTRIBUTIONS OF THE DISSERTATION

This dissertation sets out to contribute to the extant literature on job analysis, calling and identity, by examining what contemporary employees do, because it is important to determine whether work activities are sufficiently congruent with employees’ self-concept to optimize rather than constrain or damage their well-being and performance. Below I briefly introduce these chapters.

Using job analysis in Chapter 2, I set out to address the need for fine-grained studies about what employees do (Barley & Kunda, 2001). Specifically, in an effort to resolve the debate about which information is most suitable to inform researchers and practitioners alike about what employees do (Sanchez & Levine, 2012), I argue for the task based decomposition of jobs or occupations (Ilgen & Hollenbeck, 1991). Tasks capture nuanced differences in what employees do (Fine, 1996; Sanchez, 1994; Singh, 2008), can be accurately collected and analyzed (Dierdorff & Morgeson, 2009; Harvey, 2009; Morgeson & Campion, 1997, 2000), and are easy to comprehend by key stakeholders (Sanchez & Levine, 2009). The automatic discovery and extraction of insights
from unstructured text, called text mining (Kao & Poteet, 2007; Kobayashi, Mol, Berkers, Kismihók, & Den Hartog, 2017a, 2017b), offers a novel and relatively inexpensive and quick means of collecting tasks from untapped and potentially rich textual sources of job information (McEntire, Dailey, Osburn, & Mumford, 2006; Sanchez & Levine, 2001). In Chapter 2, by comparing and contrasting a text mining based job analysis to a task inventory, I aim to examine to what extent the former can inform researchers and practitioners about what employees do in terms of tasks. I also explore the value of using a task-level perspective, by showing that individual tasks differ in the extent to which they are related to employee well-being.

In Chapter 3, I aim to develop insights about how experiencing work as a calling can be stressful despite the clear associated benefits. This is relevant as employees increasingly strive to do work that they love and enjoy rather than to do work solely as a way of making a living (Berkelaar & Buzzanell, 2015). Here I specifically argue that experiencing work as a calling is an energetic and motivational force that drives employees’ behavior (Elangovan et al., 2010). Employees with a calling are expected to proactively shape their own job through bottom up, physical, and cognitive changes in their tasks and relations, which is encapsulated in the job crafting construct (Wrzesniewski & Dutton, 2001). In crafting their job, employees who see their work as a calling impact their well-being and performance by (pro)actively changing what they do. These employees are motivated and driven to contribute and take on more and more, the downside of which is that it could result in overloading themselves. Job crafting may thus explain how calling can have concomitant positive and negative outcomes for employees and their employers while simultaneously elucidating the behaviors associated with calling (Elangovan et al., 2010). Specifically, in Chapter 3, I aim to explain how employees with a calling, through job crafting, may unintentionally end up doing more than they can handle in terms of work load, even though concurrently their colleagues and the organization may benefit from their helping behavior and burgeoning contribution.

Chapter 4 sets out to address the increasing need for employees to change their identity. The dynamic context of work makes this process more difficult for employees who have a rigid and unchangeable identity. Conversely, employees who are able to actively shape their identity are found to have higher job satisfaction, lower turnover intentions, higher task performance, higher commitment, better workplace adjustment, and better health and well-being
(Lee, Park, & Koo, 2015; Swann, Johnson, & Bosson, 2009) than employees who do not. Despite the acknowledgement that changing one’s identity is difficult (Maitlis, 2009; Winkler, 2016), virtually nothing is known about why certain employees may struggle more with identity work than others. I argue that it is relevant to take into account the extent to which employees have an unfavorable attitude toward identity-related change to understand why some employees can successfully adjust who they are and facilitate those who struggle at this. Work Identity Rigidity (WIR) captures this unfavorable attitude and is defined as the extent to which employees feel reluctant and unwilling to change their work identity, even when required (Cardador & Caza, 2012). In Chapter 4, I set out to develop and in multiple studies validate the WIR scale as a measurement tool to capture this attitude.

Chapter 5 sets out to address the impact of incongruence between what employees do and who they are. Identity theory can explain why changes in work activities may have nontrivial implications for well-being and performance. However, an overarching model is missing. I argue that meaningfulness, defined as the significance that work holds (Pratt & Ashforth, 2003), forms the link between what employees do, how they see themselves, and consequently how they feel and perform. Building upon the work reported in Chapter 2, the focus is on the individual work activities as sources of meaningfulness, since some activities allow employees to make sense of who they are and/or hold significance for the organization (Rosso, Dekas, & Wrzesniewski, 2010), whereas other activities may be devoid of meaning. The nuance of simultaneously doing things that are meaningful and meaningless may explain why changes in one’s job can offset the balance between doing what you are and what you are not. Specifically, I focus on professional work, defined as work that requires a certain level of knowledge, autonomy, and altruism (Hodson & Sullivan, 2012, p. 260), as professionals tend to identify strongly with what they do (Pratt et al., 2006). In Chapter 5, I outline my model of meaningful work for professionals with ‘doing what you are’ and ‘doing what matters’ as sources of meaningfulness at the level of work activities, and propose consequences for well-being and performance for eight activity types.

In Chapter 6, I address the overall theoretical and practical implications of this dissertation and the application of the three literatures to understand (the congruence between) what employees do, how they see their work, and how they see themselves. In addition, I address the limitations of these studies and point out avenues for future research.
CHAPTER 2

Big (data) insights into what employees do
A comparison between task inventory and text mining job analysis methods

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Abstract

Although work has changed over the past decades, detailed studies on what it is that employees do in these changing jobs are lagging behind. Researchers and practitioners alike miss information about how work could best be organized to facilitate employee well-being. The development of methods such as text mining could provide a viable means of addressing the issues current job analysis methods have with uncovering what employees do in the broader context of the changing nature of work. Our findings show that it is possible to automatically extract and analyze tasks from online vacancies, which have relatively high correspondence with tasks collected using a task inventory. The text mining method generally performed better on average importance and inclusion ratings due to the lower level of detail of the automatically extracted tasks. In addition, the text mining method provided a wider variety of contextualized tasks drawn from a larger sample of jobs, whereas the task inventory yielded more detailed and more mundane tasks. Text mining thus complements rather than substitutes current job analysis methods. In addition, we showed that not all tasks were equally related to employees’ job satisfaction, work overload, and emotional exhaustion, making it worthwhile to include more task data in studies on employee well-being.
There is a need for more and better insight into what employees do in their contemporary jobs. Work has changed immensely over the past decades due to fast technological changes and globalization (Grant & Parker, 2009; Parker, 2014). A lot of work has become more complex, knowledge-based, and demanding in terms of requiring teamwork and flexibility (Ashford, George, & Blatt, 2007). Furthermore, work has changed due to downsizing and restructuring efforts aimed at decreasing costs while increasing efficiency, which has resulted in increased job insecurity, flexible contracts, work hours, and (experienced) workload (Sparks et al., 2001; Spreitzer et al., 2017). These trends, often collectively referred to as ‘the changing nature of work’, have inspired research on topics including boundaryless careers (Arthur & Rousseau, 2001), the gig-economy and alternative work arrangements (Spreitzer et al., 2017), the de-jobbing of organizations (Singh, 2008), online (team)work or teleworking (Lautsch & Kossek, 2011), and the computerization of jobs (Frey & Osborne, 2013).

Lagging behind are detailed studies on what employees actually do in these changing jobs, which means researchers and practitioners alike miss information about how work could be designed, structured, and organized (Barley & Kunda, 2001), so as to optimize employee well-being and contribution to the goals of the organization. Due to the changing nature of work, employees are increasingly exposed to stress associated with doing more and more difficult work in less time (Page & Vella-Brodrick, 2009; Sparks et al., 2001; Spreitzer et al., 2017), which in the end compromises organizational performance (Taris & Schreurs, 2009). The extent to which employees derive happiness from engaging in particular tasks, as evidenced in their job satisfaction, instead of stressed and not able to execute all their tasks considering their time, abilities, and resources (i.e., work overload) (Rizzo, House, & Lirtzman, 1970), is therefore important to organizations that strive to deploy facilitative interventions (Page & Vella-Brodrick, 2009). Few studies, however assess employee well-being at the level of tasks (cf. Taber & Alliger, 1995), even though not all work activities are equally enjoyable, important, burdensome, or meaningful. The exploration and understanding of which tasks enhance and which tasks undermine employee well-being may be pertinent to the generation of targeted interventions aimed at improving employee well-being so as to ensure that work is sustainably meaningful for employees (Michaelson, Pratt, Grant, & Dunn, 2014).

Job analysis focuses on understanding what employees do, and can be defined as the “process through which one gains an understanding of the
activities, goals, and requirements demanded by a work assignment” (Sanchez & Levine, 2012, p. 398). Job analysis is critical to HRM, since it seeks to provide accurate information about what employees do (and employee requirements or characteristics needed for job performance), and forms the basis of strategic HR practices, such as selection, compensation, job design, and training (Sanchez & Levine, 2012; Schneider & Konz, 1989; Voskuijl, 2005). The changing nature of work has challenged this strategic role of job analysis and the assumptions on which it is based are increasingly being called into question. Due to the changing environment and the (pro)active role job incumbents have in tailoring their job to their needs and desires (Wrzesniewski & Dutton, 2001), we no longer think of jobs as stable (Cronshaw, 1998) or fully amenable to standardization (Sanchez & Levine, 2012). Based likely in part on a lack of appropriate methodologies to address these challenges and therewith the dynamic nature of jobs, interest in job analysis has been steadily dropping since 1990 (Morgeson & Dierdorff, 2011; Sanchez & Levine, 2012).

The evolution of the data driven society may help address at least some of these challenges in job analysis by tackling the issue of nonstandard and dynamic jobs, as 'big data' may provide pioneering and powerful means of understanding what employees in different jobs currently do. Indeed, a big data based approach to job analysis could complement traditional methods, while addressing some of its limitations (Fine, Harvey, & Cronshaw, 2004; Sanchez & Levine, 2001, 2012). Despite technological advances in the collection, storage, and maintenance of large amounts of job data (McEntire et al., 2006), job analytical methods so far have remained virtually untouched by modern technology. Data-gathering procedures in job analysis still often rely on time consuming face-to-face interviews, (un)structured observation, and paper-and-pencil surveys. This is noteworthy in light of the vast amount of mostly untapped and potentially rich sources of job information contained in ‘big’ data, including for instance electronic records of performance monitoring (Sanchez & Levine, 2001). By building and demonstrating text mining algorithms that are able to automatically categorize job information from online vacancies, we aim to explore whether such big data sources can indeed offer valuable insights about what employees do and whether text mining can form a potentially new and useful tool in job analysis.

The purpose of this study is to examine whether text mining of vacancies can inform researchers and practitioners about what employees do in a way
comparable in thoroughness and/or complementary to current job analysis methods. In a survey study among German nurses we compare and contrast two lists of tasks, one collected by means of a task inventory and the other by means of text mining job vacancies, especially in terms of the quality of output. In addition, we aim to use explorative task level analyses to show that it is indeed worthwhile to know what employees do, by demonstrating that individual tasks can explain variance in employee well-being. The contribution of this study is threefold. First, we add to the job analysis literature by introducing a new method that could potentially help solve some of the problems the field has faced in the past decades. As such we set out to exploit the recognized potential of alternative (big) data sources (McEntire et al., 2006; Sanchez, 2000). Second, our text mining algorithm builds on the job analysis literature and its definitions of job information and we show how big data and conventional job analysis derived knowledge about what employees do can complement one another. Third, we illustrate why it is important to gain an understanding what it is that employees do, because not all tasks are equal as some tasks are related to job satisfaction and other tasks to work overload or emotional exhaustion. As argued by Barley and Kunda (2001), detailed studies on work are key in building and evaluating the fit of organizational theories to 21st century work.

THE NEED TO UNDERSTAND WHAT EMPLOYEES DO

To reinvigorate studies about what employees do, there is a need for detailed job information which encompasses all work-related information and data (Morgeson & Dierdorff, 2011). Especially work-oriented job information is needed, referring to the objective (employee independent) aspects of jobs and the nature of the work itself (e.g., tasks, general work activities, or responsibilities) (Brannick, Levine, & Morgeson, 2007; Harvey, 1991; Sackett & Laczo, 2003; Voskuijl, 2005). Moreover, tasks, defined as specific work activities (Morgeson & Dierdorff, 2011), best represent what employees do based on a negotiation between employee and employer and the initiative of the employee (Wrzesniewski & Dutton, 2001).

What employees do and how work is structured in terms of tasks are inextricably linked, as work is altered when new structures are imposed by managers, and vice versa structures must be adapted when work changes. Organizational theory must at the very least be implicitly linked to what employees do at work, as it is aimed at describing and explaining those activities. The current
changes in the nature of work thus create a need for organizational theorists and researchers alike to rethink theoretical foundations and assumptions. Studies of what employees actually do can thus inform such theory development. However, detailed studies about work have mostly become a thing of the past due to a focus on generalizability, the dominance of quantitative research, and the diffusion of theories about the nature of work across a variety of disciplines (Barley & Kunda, 2001).

Without studies on what employees do researchers miss out on valuable information about how work is performed and experienced, and how it could best be organized (Barley, 1996). The concept of emotional labor, for example, might not have been discovered without the seminal study on exactly what airline flight attendants do (Hochschild, 1983). Ethnographies among technicians helped challenge ideas about hierarchy and vertical careers in organizational theory (Barley, 1996; Zabusky & Barley, 1996), because it turned out that technicians were generally more satisfied and productive working in a horizontal structure that focused on their individual expertise. A study on what security screeners do, showed that female security screeners spend more time on emotionally and physically straining pat-downs compared to their male counterparts, which explained their higher experienced work intensity and emotional exhaustion (Chan & Anteby, 2016).

Not only researchers and their theories seem to need high quality information about what employees do, practitioners as well increasingly understand the value of ensuring that organizational decisions and practices match the reality of employees’ work. For example, putting flexible work arrangements in place for employees without the knowledge that face-to-face meetings still take place every day restricts employees to actually work from home. The growing popularity of evidence-based management, defined as the translation of principles based on evidence into practice (Rynes, Giluk, & Brown, 2007), shows that practitioners aim to base their practices on what employees actually do. Despite this, organizational decisions are often based on rather loose inferences and hunches (Chermack, 2003; McEntire et al., 2006). Studying what employees do could thus help base organizational decisions on evidence related to what employees actually do in their jobs.

Specifically, a focus on what employees do may facilitate a more detailed, and nuanced understanding of employee well-being. Researchers have rarely employed a task-level perspective on work in efforts aimed at understanding
the stress and satisfaction that employees experience at work (Taber & Alliger, 1995). An exception is the work on illegitimate tasks, that shows that tasks characterized as unnecessary and unreasonable are a specific source of stress that hinder performance (Semmer et al., 2007, 2015; Semmer, Tschan, Meier, Facchin, & Jacobshagen, 2010). That taking a task-perspective is the exception rather than the rule is surprising when one considers that employees experience tasks that are incongruent with (professional) identity (Aiken et al., 2001; Kira & Balkin, 2014; Pratt et al., 2006; Semmer et al., 2007) and tasks that require the display of emotions as stressful (Steinberg & Figart, 1999); tasks that are congruent with (professional) identity as motivational (Shamir, 1991); and tasks that show employees how they make a significant contribution in the lives of others as meaningful (Grant, 2007, 2008a, 2008c). Interventions aimed at improving employee well-being may thus need to differentiate between tasks to identify tasks that are stressors, as is done in the literature on illegitimate tasks (Semmer et al., 2007, 2010, 2015) or by Chan and Anteby (2016) in their study among security screeners. In sum, it is relevant to look at employee well-being at the level of specific tasks, because carrying out certain discrete tasks may enhance employee well-being while others may diminish it.

**Taking a task focus**

Taking a task-perspective in studies about what employees do is further supported by the usefulness of tasks. There are fundamental differences between the expression of a job in terms of objective and verifiable work behavior or hypothetical psychological traits (Harvey & Wilson, 2000). This means that based on favorable differences in observability and proneness to bias, tasks can be seen as more informative than other forms of job information (Cucina, Martin, Vasilopoulos, & Thibodeaux, 2012; Dierdorff & Morgeson, 2009; Morgeson & Campion, 1997, 2000). Below we elaborate on the usefulness of taking a task focus by focusing on the high degree of contextualization, specificity, and understandability of tasks.

*The contextualization of tasks*

First, tasks are a useful because of their high degree of contextualization. The contextualization of job information ranges from the very general to the very context-specific and determines whether the information is generalizable across virtually all jobs, such as teamwork skills or conscientiousness.
(i.e., low contextualization), or applies only to a select number of jobs, such as experience with structural equation modelling in Mplus (i.e., high contextualization) (Dierdorff & Morgeson, 2009; Harvey, 1991). Contextualization is comparable to the distinction between an idiographic and nomothetic approach to human behavior, by either focusing on its unique characteristics or on the common dimensions (Cunningham, 1996). The appropriate level of contextualization depends on the purpose for which the information is to be used (Voskuijl, 2005). Job analysis as a field has moved towards more general worker-oriented forms of job information, such as skills, to facilitate cross-job comparisons and classification. This is evidenced, for example, in the development of O*Net (Peterson et al., 2001), in which generic information types such as Generalized Work Activities (GWAs; Jeanneret & Strong, 2003) have replaced tasks as the main building block of work in job analysis (Cunnigham, 1996; Fine et al., 2004).

Highly contextualized forms of job information, however, capture the dynamic and complex nature of work better than general job information. In the contemporary workplace, what employees do is susceptible to change and differences between employees in execution of tasks or performance are present even within the same job (Sanchez, 1994; Singh, 2008). The idiosyncratic ways in which work is performed therefore harbors relevant and meaningful insights, that are simply not observable when one focusses on general job information because general job information tends to be stable over time (Harvey, 1991). Indeed, simple models usually cannot accurately capture unstable phenomena (Marion & Uhl-Bien, 2002; Regine & Lewin, 2000). Reducing complexity in work by focusing on the general aspects of jobs could facilitate understanding between jobs (e.g., comparing skills of I/O psychologists with those of truck drivers) in a more cost-efficient way, but it comes at a high price because of the loss of information (Barley & Kunda, 2001). In using GWAs to assess what teachers do, for example, one could wrongly conclude that there have been but a few changes over the past decades as teachers continue to ‘teach others’ and ‘perform administrative duties’. A focus on tasks, however, could reveal that technology has drastically affected both the way in which teachers teach (e.g., using online testing, using educational software) and how they go about their administrative work (e.g., using student tracking systems and learning analytics).

The specificity of tasks

Second, tasks are useful because of their high degree of observability.
The observability of job information ranges from the easily observable to the not-easily observable depending on the level of abstraction (Harvey & Wilson, 2000), varying from the very broad and abstract to the very narrow and detailed (Brannick et al., 2007). This distinction is also referred to as molar versus molecular, with molar referring to broad interpretations based on similarity and molecular referring to behaviorally specific reports about the job (Cunnigham, 1996). For example, general duties and responsibilities are abstract and thus not easy to observe (e.g., managing a team), whereas detailed tasks or even elemental motions (e.g., placing dishes on a tray and carrying the tray) are narrow and observable. Again, the appropriate level of abstraction depends on the purpose for which the information is used (Clifford, 1994). However, similar to the level of contextualization a trend may be discerned towards the use of more abstract and thus less observable forms of job information in job analysis over the last two decades (Dierdorff & Morgeson, 2009; Lievens, Sanchez, & De Corte, 2004; Sanchez & Levine, 2001).

Highly observable and detailed forms of job information, however, are more discernable and therefore likely to result in more accurate inferences as to the nature of work compared to non-observable and abstract job information. For instance, determining whether a task is part of a job is likely to be more clear-cut than determining whether openness to experience is required. Furthermore, differences between employees assessing general job information types do not necessarily reflect inaccuracy, but may potentially reflect systematic (social and or cognitive) sources of variance (Morgeson & Campion, 1997) or systematic differences between jobs (Campion, Morgeson, & Mayfield, 1999; Sanchez & Levine, 2000, 2009). Ability statements, for example, are more likely to be subject to inflation due to self-presentation bias compared to task statements (Morgeson et al., 2004). As a result, one could erroneously conclude that a job requires a wider range of abilities than is actually the case, which may subsequently imply the derivation of selection cutoff scores that are too strict, or overspending on training. The rating of less observable job information thus requires a bigger inferential leap than the rating of visible work components (i.e., what skills are needed for leadership responsibilities compared to assessing and recording a patient’s blood pressure) due to lacking tangibility of the former and the concomitant reliance on subjective judgment (Harvey, 2009; Morgeson & Campion, 1997, 2000). The information overload and recall problems associated with this subjective judgment are likely to result in greater inaccuracy of abstract
The understandability of tasks

Third, tasks are a highly understandable form of job information. The understandability of job information ranges from easily understandable to very difficult to grasp and indicates the ease of comprehension and communication, and the lack of ambiguity (Bowen & Ostroff, 2004; Sanchez & Levine, 2009). Job information is understandable when it is short and clearly worded. Understandability is similar to face validity, which pertains to the evaluation on the part of key stakeholders, that a specific operationalization is a credible representation of some pertinent hypothetical construct (Anastasi, 1968). Job incumbents can usually easily describe their jobs in terms of tasks, whereas it is rather uncommon, for example, to find employees who are naturally inclined to describe their jobs in terms of abilities, competencies, or traits (Dierdorff & Morgeson, 2009). The expression of job information in such job-analytic terms requires familiarity with the terminology before it can be understood and/or accepted (Clifford, 1994). Without sufficient comprehensibility to the end users (the main informants or job incumbents), it is therefore unlikely that such job information will become the language of choice for understanding work (Sanchez & Levine, 2009). Providing information about tasks, however, is likely much easier for employees, since tasks represent what they do in their jobs on a daily basis. Tasks therefore have a great potential for both research on job analysis and employee well-being, and practical applications such as work (re)design interventions.

The role of job analysis

Job analysis, then, is a technique for collecting and analyzing job information, including tasks (Sanchez & Levine, 2012), with the aim to create valuable insights for employees, organizations, policy makers, and researchers alike into what it is that employees (ought to) do. There are many possibilities when it comes to collecting job information as there is a wide variety of job data and associated methods to collect and analyze them (Prien et al., 2004). Depending on the desired job information, job analysis methods include task inventories, time-and-motion studies, the critical incident technique (Brannick et al., 2007), functional job analysis (Fine, 1955; Fine & Cronshaw, 2009), competency modelling (Shippmann et al., 2000), cognitive task analysis
Big (data) insights into what employees do

(Militello & Hutton, 1998), and the position analysis questionnaire (McCormick, Jeanneret, & Mecham, 1972). However, the available job analysis methods have struggled with the aforementioned challenges inherent in changing nature of work, (Sanchez & Levine, 2012), as these methods insufficiently take into account the fact even within the same occupation many jobs are no longer stable entities that consist of standardized tasks (Fine, 1996).

The analysis of big data, in particular the application of text mining, could form a valuable addition to the job analysis methods available to date. Text mining is the automatic extraction of information from text (Kao & Poteet, 2007). Text mining goes beyond the mere counting of word frequencies and patterns as is done in computer-aided text analysis (CATA), in that it draws on techniques from natural language processing, machine learning, and statistics (Kobayashi et al., 2017b). Considering the fact that many employees nowadays perform their jobs by generating textual information, together with the amount of untapped and potentially rich textual job information, including but certainly not limited to online vacancies, e-mails, meeting minutes, training manuals, and electronic records of performance monitoring (Sanchez & Levine, 2001), text mining may be appropriate for the analysis of 21st century jobs. Studies in the field of information technology show that it is possible to extract job information, such as skills, from online vacancies using a preselected set of keywords (Smith & Ali, 2014; Sodhi & Son, 2010). However, the emphasis in these early studies has been on technological innovation as opposed to specifically addressing the potential for job analysis through the generation of insight about what it is that employees do.

Moreover, the use of text mining to collect and analyze tasks addresses three limitations of existing job analytical methods. First, text mining, makes it possible to analyze vast amounts of job information in a cost-effective way, since the traditionally used interviews and observations are expensive in terms of invested time and effort (McEntire et al., 2006; Sanchez, 2000). Second, with the help of text mining it is possible to not only obtain easily updatable information but also information pertaining to temporal dynamism in jobs (Sanchez & Levine, 2012). Third, text mining methods could be used to reduce the bias inherent in existing job analysis methods (Morgeson & Campion, 1997; Sanchez & Levine, 2000). Inaccuracy in current job analysis ratings can reflect idiosyncrasies in performance as opposed to measurement error (Sanchez & Levine, 2012), thus challenging the assumption that jobs are standardized. With the help of text
mining, larger volumes of job information would make it possible to distinguish between what is not part of all or most jobs and what is just part of some jobs. Moreover, text mining can facilitate the analysis of contextualized tasks from a wide variety of sources and may hence offer a means to address as opposed to eschew complexity in jobs.

**METHOD**

**Context**

One particular profession that has been under pressure due to an increasing emphasis on efficiency and regulation (cf. Oldham & Hackman, 2010; Parker, 2014) is nursing. Nurses, together with teachers, are known to be relatively likely to suffer from stress and burn-out compared to other professionals (Hakanen, Bakker, & Schaufeli, 2006; Hartnett & Kline, 2005; Le Blanc, Bakker, Peeters, van Heesch, & Schaufeli, 2001; Martin, Bender, & Fore, 2002; Sherman, 2004; Vigoda-Gadot, 2007). For nurses, the push for emphasis on efficiency and control implies an increasing amount of administrative work that comes at the cost of doing the job they professionally identify with, namely taking care of patients. Nurses in the Netherlands, for example, complained that they spend 25-40% of their time on administrative tasks instead of caring for their patients (Heijne, 2015b). The same is true in Germany, where 61% of the health care organizations reported issues with filling up nursing related vacancies (Schlegel, 2015). It is therefore worthwhile to take a closer look at what tasks nurses in Germany fulfill in an effort to relate these to work overload, emotional exhaustion, and job satisfaction so as to understand what specific tasks are burdensome and could potentially be changed, outsourced, or even robotized and vice versa what specific tasks are enjoyable and need to be kept intact.

**Method for comparing two job analysis techniques**

We conducted two job analyses of nursing work to compare a text mining alternative to a current job analysis method, namely a task inventory. Each method resulted in a list of tasks that nurses (are expected to) perform that were individually validated by a Subject Matter Expert (SME). After this, both task lists were presented to job incumbents in an online questionnaire to rate these tasks on representativeness for the nursing job, frequency, and importance. Both methods are explained below, followed by an explanation of the questionnaire.
Task inventory method

The task inventory method compiles job information from interviews with, and observations of SME’s (Brannick et al., 2007). In our case, these SME’s were three nurses and one head nurse working in a German hospital, who were each interviewed for one and a half hours. The coded interview transcripts resulted in a preliminary list of 99 tasks, which were defined in terms of an action verb, the object of the action, the source of information or instruction, and the results of that action as is advocated in the job analysis literature (Morgeson & Dierdorff, 2011). The preliminary task list formed the basis for the observations of two different shifts (i.e., morning and afternoon) by one researcher who listed any additional tasks not identified through the interviews. This resulted in 22 new tasks including detailed descriptions and an extension of the descriptions of the 99 tasks.

The 121 tasks (e.g., assisting patients with eating, distributing medication, checking the temperature of patients) were clustered into 23 task clusters (e.g., patient rounds, medication, information sharing) based on the content similarity between tasks and temporal proximity (i.e., executed around the same time during the course of a shift). Based on a validation by two researchers and another SME (i.e., nurse training expert) two doubles were merged (i.e., prepare next shift was merged with prepare documentation and technical requests was merged with other requests) and one task (i.e., change clothes) was deleted, resulting in a final set of 118 tasks divided into 22 clusters and five inductively derived meta-clusters (i.e., medical care, basic care, internal management, patient management, and teamwork). The task inventory consisted of tasks such as “check the temperature of the patient with a thermometer and document temperature” and “dispose of medical waste of the isolation patient, needles and medications in a safe manner” (see Appendix B).

Text mining method

The text mining based job analysis method involved the iterative development of an algorithm that automatically analyzed the texts in nursing vacancies. Vacancies are relatively easy and inexpensive to obtain online and can be analyzed quickly and efficiently in huge quantities using text mining techniques.

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1 The interview protocol and examples of the transcripts and coding can be found in Appendix A.
2 The observation protocol and examples of the observations can be found in Appendix A.
Moreover, vacancies are likely to include task data, as it is important for employers to communicate what they expect from future employees. We performed web scraping and collected 14,712 German nursing vacancies posted in various online job boards. The raw vacancies contained elements not relevant for our purposes, hence we applied html parsing in order to get only the information relevant for job analysis. Information about the tasks is typically found within the job description therefore only the text data in the ‘job description’ part of the vacancy was used.

After parsing, only the relevant text elements remained and were subsequently transformed into structure suitable for the application of analytics (i.e., a document by term matrix in which the presence or absence of each term in the corpus was scored for each document). We used the sentence as the unit of analysis as sentences often contain a minimal ‘information unit’ about tasks as opposed to using just words or phrases and used the vector space model to represent each sentence. For an extensive elaboration on these steps see Kobayashi et al. (2017a; 2017b). A total of 50,666 sentences were obtained. After this, a training dataset was created through the manual labelling of 2,501 sentences into information pertaining to the work (i.e., tasks), information pertaining to the worker (i.e., worker attributes), or non-relevant sentences using a predetermined coding scheme based on the definitions of tasks and attributes from the job analysis literature (Sackett & Laczo, 2003). With the use of the training dataset, in which 651 sentences were labelled as tasks, various classifiers were built, namely, Naive Bayes (NB), Support Vector Machines (SVM), and Random Forest (RF) (Kobayashi et al., 2017b). We combined the predictions of the three classifiers into an ensemble approach to get a more reliable prediction and obtained an additional 528 tasks from the sentences not used in the training data set.

A total of 1,179 identified sentences containing tasks were validated by two researchers and one SME (i.e., nurse training expert), and the input was used to retrain the classifiers. The process of retraining and validation was repeated until a desired performance was reached, namely that 93.3% of the sentences automatically classified as containing task information actually contained it. These sentences were subsequently clustered to deal with duplication and similarity because some of the tasks were redundant and were mentioned in more than two vacancies. Hierarchical clustering based on Ward’s method was used and the cosine distance to measure the distance between sentences (El-
Hamdouchi & Willett, 1989). The best cut dendrogram generated 71 clusters, thus representing 71 unique tasks that were further clustered into the same five meta-clusters (i.e., medical care, basic care, internal management, patient management, and teamwork) as input for further work. Examples of these tasks include “participating in resuscitations” and “caring for patients post OP (see Appendix C).

**Participants and procedure**

An online questionnaire was used to obtain data from nurses in Germany as part of the EU funded Pro-Nursing Project\(^3\), which received approval from the ethical committee of the university. Respondents received an anonymous link to the questionnaire by email either through the Pro-Nursing network or through a Qualtrics panel comprised of nurses working in hospitals across Germany. The final sample for the questionnaire consisted of \(N = 65\) nurses working in Germany. A majority of 81.3% of the nurses who participated self-identified as female and were between 20 and 62 years old (\(M_{age} = 37.52; SD = 12.45\)). Job tenure of the nurses ranged between one and 45 years and was 15.31 years on average (SD = 11.62). The nurses in the sample worked an average of 31.05 contractual hours per week (SD = 8.96).

**Measures**

Respondents each rated 68 tasks, which represented a third of the total 199 tasks randomly assigned from the task inventory (\(N = 118\)), text mining (\(N = 71\)), and bogus task list (\(N = 10\)) in order to reduce the cognitive load placed on each respondent and to increase validity (Morgeson & Campion, 1997). The 65 respondents were thus randomly divided over three subsamples (\(N1 = 14; N2 = 22; \text{and } N3 = 29\)). The bogus tasks (i.e., tasks from network administrators and network developers obtained from online vacancies) were included to check for discriminant validity and as an attention check (Morgeson et al., 2004). Three bogus tasks were more often rated by respondents as being part of the nursing job (e.g., “translate functional needs into practical, technical solutions as part of

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\(^3\) The ProNursing Erasmus Plus project used a job training approach in an effort to modernize the learning content and curricula of nurses in order to address the shortage of nurses in Germany. The project resulted in an online ontology based test platform that can help nurses to update their knowledge and skills (see http://www.pro-nursing.eu).
the development department”), and were therefore excluded from our analyses. Each of the 68 tasks in the three subsamples was rated on inclusion, frequency of execution, and importance. In addition, respondents completed measures of job satisfaction, work overload, emotional exhaustion, and demographics including age, gender, work hours, and job tenure. All response options unless indicated otherwise ranged from 1 = totally disagree to 5 = totally agree.

Task inclusion. Respondents were asked to rate if a task was part of their job to establish whether the tasks that were collected by means of both methods correctly represented nursing work (Brannick et al., 2007). It is possible that some tasks are not part of all nursing jobs (Fine, 1996; Wrzesniewski & Dutton, 2001), but also that some tasks were wrongfully included and not really representative of what nurses do. We created a binary variable indicating whether a task was either perceived to be part of the job (1) or not (0). The inclusion rating is thus indicative of whether our methods resulted in tasks that are irrelevant or context-specific (i.e., not part of all nursing jobs).

Task frequency. Respondents were asked how often they performed a task, if a task was part of their job (i.e., inclusion rating of “1”), to establish the extent to which tasks represent what nurses do (Brannick et al., 2007). In order to adequately represent what employees do, a job analysis method should especially collect tasks that are part of the daily routine, compared to tasks that are rarely executed and thus less representative of nursing work. The frequency of each task, or ‘how often do you execute this task?’ was rated on a 5-point Likert scale ranging from 1 = less than once a month to 5 = more than once a day. The frequency rating thus indicates how big a part of the job specific (included) tasks are.

Task importance. Respondents were also asked to rate the relative importance of each task for their job, since an adequate job analysis method should mainly collect tasks that are of relatively high importance and that thus capture the core or essence of what nurses do (Brannick et al., 2007). The importance of each task, or ‘how important is this task?’ was rated on a 5-point Likert scale ranging from 1 = not at all important to 5 = extremely important.

Job satisfaction. The extent to which employees are satisfied with their job is seen as the most common conceptualization of well-being (Blanchflower & Oswald, 1999). Since happy employees are found to be productive (Taris & Schreurs, 2009), we included job satisfaction as a positive indicator of nurses’ well-being. We assessed job satisfaction using a three item measure (Tims,
Bakker, & Derks, 2013) including items such as “I am really satisfied with my job” (α = .74; in the three subsamples α ranged between .72 and .84).

Work Overload. Work overload captures the experience of employees that they have too many activities or responsibilities considering their available resources (Rizzo et al., 1970). When nurses are exposed to work overload for a longer amount of time, they may start to struggle to complete all their tasks and overload may ultimately culminate into a burnout (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). Work overload is therefore a relevant short-term indicator of stress and potentially burnout. We used the measure from Bolino and Turnley (2005), which included three items such as “it often seems like I have too much work for one person to do” (α = .84; in the three subsamples α ranged between .82 and .84).

Emotional Exhaustion. Emotional exhaustion is considered an important dimension of burnout of which nurses are at risk (cf. Sherman, 2004), and is defined as a chronic state of emotional and physical depletion (Maslach & Jackson, 1981). We used eight items from the Oldenburg Burnout Inventory (OLBI) (Demerouti, Bakker, Vardakou, & Kantas, 2003), an example item being “during my work, I often feel emotionally drained” (α = .79; in the three subsamples α ranged between .79 and .83).

Data analysis strategy
First, we rated tasks from both lists as synonyms (i.e., exactly the same), similar (i.e., different wording, same meaning), or dissimilar (i.e., different wording and meaning) based on the decision rules of Tett, Guterman, Bleier and Murphy (2000) to determine the percentages of overlapping and unique tasks. This comparison or data triangulation was validated by an SME to ensure its quality and no adjustments turned out to be necessary. The qualitative similarities and differences between the two methods were described based on this comparison (see below). Second, we used repeated-measures ANOVA in SPSS to compare the average inclusion, frequency, and importance ratings based on the within-participants variance, because it allowed us to account for the fact that respondents rated clusters for both task lists as well as bogus tasks. We used the Greenhouse-Geisser correction when Mauchly’s test for Sphericity was violated and the Bonferroni method for post-hoc tests to contrast both methods with the bogus tasks due to said violation (Field, 2009). Third, we used correlation and regression analyses to explore the extent to which individual tasks were
related to employee well-being (i.e., work overload, emotional exhaustion, and job satisfaction). Regression analyses were performed in Mplus using structural equation modelling (SEM) to account for the interrelationships between the three dependent variables.

RESULTS

Comparison between the task inventory and text mining method

Our qualitative comparison (see Table 1) established that 64.6% of tasks \((N = 189)\) from both lists overlapped, whereas 22.7% were unique to the task inventory and 12.7% were unique to the text mining method. Looking at only the task inventory tasks \((N = 118)\), 63.6% of tasks were similar to the text mining tasks and 36.4% were unique, whereas looking only at the text mining tasks \((N = 71)\), 66.2% were similar to the task inventory tasks and 33.8% were unique. The correspondence \((\geq 63-66\%)\) is much higher than the interrater reliability generally found for tasks \((.29)\) and similar to the interrater reliability for behavior \((.62)\) or job dimensions \((.60)\) (Voskuijl & van Sliedregt, 2002). The relatively high correspondence between the text mining based task list and the task inventory based task list thus established preliminary convergent validity, but also showed that the two lists are not interchangeable.

There are some noticeable differences between our task inventory and text mining method. First, the task inventory resulted in a larger number of tasks \((N = 118)\) compared to the text mining method \((N = 71)\). The task inventory, for example, produced five tasks and extensive descriptions about medication (i.e., prepare medication, arrange medication new patients, check medication, and distribute medication), whereas the text mining counterpart is restricted to only ‘administration of medication’. In other words, the level of detail of the task inventory tasks appears to be greater than that of the tasks derived through text mining\(^4\).

Second, a closer look at the unique tasks of the text mining method showed more context-specific medical care tasks (e.g., caring for patients with spine surgery, caring for mentally ill patients, assisting in surgical interventions, conducting ECG). These tasks are likely not performed by all nurses but specific to particular contexts in which nurses might work and thus represented

\(^4\) Extensive and detailed descriptions of the task inventory tasks can be found in Appendix B.
<table>
<thead>
<tr>
<th>Task Inventory Tasks</th>
<th>Text Mining Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepare medication</td>
<td>Administrating of medication</td>
</tr>
<tr>
<td>Arrange medication new patients</td>
<td>Preparing and administering of injections</td>
</tr>
<tr>
<td>Check medication</td>
<td>Providing medication on demand</td>
</tr>
<tr>
<td>Hand out medication</td>
<td>Collecting blood</td>
</tr>
<tr>
<td>Injections</td>
<td></td>
</tr>
<tr>
<td>Decide extra medication</td>
<td></td>
</tr>
<tr>
<td>Blood test</td>
<td></td>
</tr>
<tr>
<td>Document blood test</td>
<td></td>
</tr>
<tr>
<td>Smears</td>
<td>Doing laboratory tests</td>
</tr>
<tr>
<td>Urine test</td>
<td></td>
</tr>
<tr>
<td>IV/drips</td>
<td>Preparing and administering intravenous drugs</td>
</tr>
<tr>
<td>Oxygen</td>
<td>Operating the technical equipment</td>
</tr>
<tr>
<td>Gavage</td>
<td>Assisting at intake of food</td>
</tr>
<tr>
<td>Bandages</td>
<td>Realizing the wound management</td>
</tr>
<tr>
<td>O:CO balance</td>
<td>Operating the technical equipment</td>
</tr>
<tr>
<td>Monitor patients</td>
<td>Caring for critical care patients</td>
</tr>
<tr>
<td></td>
<td>Checking vital signs</td>
</tr>
<tr>
<td>Prepare surgery</td>
<td>Preparing patients for surgery</td>
</tr>
<tr>
<td>Anesthesia medication</td>
<td>Assisting and monitoring anesthesia</td>
</tr>
<tr>
<td>Post-op care</td>
<td>Caring for patients post OP</td>
</tr>
<tr>
<td></td>
<td>Caring for patients in the recovery room</td>
</tr>
<tr>
<td>Documentation surgery &amp; special care</td>
<td>Providing nursing documentation</td>
</tr>
<tr>
<td>Deal with emergencies</td>
<td>Identifying early emergency symptoms</td>
</tr>
<tr>
<td></td>
<td>Participating in resuscitations</td>
</tr>
<tr>
<td>Documentation emergencies</td>
<td>Providing nursing documentation</td>
</tr>
<tr>
<td>Emergency case</td>
<td>Realizing interventions of quality assurance</td>
</tr>
<tr>
<td>Basic check</td>
<td>Assisting at diagnostic interventions</td>
</tr>
<tr>
<td></td>
<td>Providing basic or general care</td>
</tr>
<tr>
<td></td>
<td>Monitoring the patients' therapy</td>
</tr>
<tr>
<td></td>
<td>Developing an individual care planning</td>
</tr>
<tr>
<td>Mobilisation</td>
<td>Supporting of rehabilitation</td>
</tr>
<tr>
<td>Personal attention</td>
<td>Providing psychological care</td>
</tr>
<tr>
<td>Answer questions</td>
<td>Communicating with patients, family, and staff</td>
</tr>
<tr>
<td>Advise patients</td>
<td>Giving patients and family advice</td>
</tr>
<tr>
<td>Assist eating</td>
<td>Assisting at intake of food</td>
</tr>
<tr>
<td>Medical waste</td>
<td>Preparing and disposing of materials</td>
</tr>
<tr>
<td>Mucus</td>
<td>Operating the technical equipment</td>
</tr>
<tr>
<td>Medical material</td>
<td></td>
</tr>
<tr>
<td>Disinfect material</td>
<td>Processing instruments</td>
</tr>
<tr>
<td>Task Description</td>
<td>Function</td>
</tr>
<tr>
<td>------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Order medications</td>
<td>Organizing the orders of material</td>
</tr>
<tr>
<td>Order material</td>
<td>Preparing and disposing of materials</td>
</tr>
<tr>
<td>Restock material</td>
<td>Realising interventions of quality assurance</td>
</tr>
<tr>
<td>Restock medication</td>
<td>Providing nursing documentation</td>
</tr>
<tr>
<td>Tablet system</td>
<td>Keeping the data up to date</td>
</tr>
<tr>
<td>Expire dates</td>
<td>Auditing medical transcriptions</td>
</tr>
<tr>
<td>Fridge temperature</td>
<td>Documenting of services</td>
</tr>
<tr>
<td>Closed medication</td>
<td>Creating shift schedules</td>
</tr>
<tr>
<td>Prepare documentation</td>
<td>Organizing the work on the ward</td>
</tr>
<tr>
<td>Documentation general</td>
<td>Prociding nursing documentation</td>
</tr>
<tr>
<td>Check documentation</td>
<td>Admissioning and discharging patients</td>
</tr>
<tr>
<td>Insurance memo Administration</td>
<td>Collecting patients' data</td>
</tr>
<tr>
<td>Administration</td>
<td>Giving patients and family advice</td>
</tr>
<tr>
<td>Schedule</td>
<td>Working on doctors' prescriptions</td>
</tr>
<tr>
<td>Work division</td>
<td>Collecting patients' data</td>
</tr>
<tr>
<td>Dividing patients</td>
<td>Giving patients and family advice</td>
</tr>
<tr>
<td>Scheduling beds</td>
<td>Participating in visits</td>
</tr>
<tr>
<td>Plan operations</td>
<td>Assisting at examination</td>
</tr>
<tr>
<td>Scheduling appointments</td>
<td>Communicating with patients, family, and staff</td>
</tr>
<tr>
<td>Prepare new patients</td>
<td>Participating in meetings</td>
</tr>
<tr>
<td>Prepare tests</td>
<td>Participating in training programs</td>
</tr>
<tr>
<td>Documentation new patients</td>
<td>Participating in training programs</td>
</tr>
<tr>
<td>Inform patients</td>
<td>Training and advising students</td>
</tr>
<tr>
<td>Hand out prescriptions and medications</td>
<td>Participating in hygience training</td>
</tr>
<tr>
<td>Task Inventory Task</td>
<td>Text Mining Task</td>
</tr>
<tr>
<td>----------------------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Lumbar puncture</td>
<td>Caring for patients with windpipe</td>
</tr>
<tr>
<td>Temperature</td>
<td>Assisting and conducting special therapies</td>
</tr>
<tr>
<td>Stiches</td>
<td>Conducting ECG</td>
</tr>
<tr>
<td>Catheter</td>
<td>Assisting at surgical interventions</td>
</tr>
<tr>
<td>Diabetes</td>
<td>Preparing and assisting at transfusions</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>Caring for the blind</td>
</tr>
<tr>
<td>Drainages</td>
<td>Assisting at endoscopic tests</td>
</tr>
<tr>
<td>Stoma</td>
<td>Caring for patients with neurological diseases</td>
</tr>
<tr>
<td>Prepare patients</td>
<td>Taking care of unconfined ventilation</td>
</tr>
<tr>
<td>Care for isolation patients</td>
<td>Checking and documenting vital signs at operations</td>
</tr>
<tr>
<td>Deceased patients</td>
<td>Caring for patients with spine surgery</td>
</tr>
<tr>
<td>Deal with confused or aggressive patients</td>
<td>Conducting sterile dressings</td>
</tr>
<tr>
<td>Deal with accidents</td>
<td>Caring for patients with orthopaedic diseases</td>
</tr>
<tr>
<td>Prepare examination</td>
<td>Care for patients with vascular disease</td>
</tr>
<tr>
<td>Turning patients</td>
<td>Caring for mentally ill patients</td>
</tr>
<tr>
<td>Other requests</td>
<td>Caring for children</td>
</tr>
<tr>
<td>Last round</td>
<td>Providing holistic care</td>
</tr>
<tr>
<td>Washing patients</td>
<td>Caring for the elderly</td>
</tr>
<tr>
<td>Change patients</td>
<td>Providing palliative care</td>
</tr>
<tr>
<td>Toilet request</td>
<td>Realising the nursing process</td>
</tr>
<tr>
<td>Change beds</td>
<td>Improving interdisciplinary cooperation and collaboration</td>
</tr>
<tr>
<td>Order meals</td>
<td>Working on improvements</td>
</tr>
<tr>
<td>Prepare meals</td>
<td>Working in groups</td>
</tr>
<tr>
<td>Check meals</td>
<td>Considering the latest results of nursing research</td>
</tr>
<tr>
<td>Hand out meals</td>
<td></td>
</tr>
<tr>
<td>Food/drink request</td>
<td></td>
</tr>
<tr>
<td>Clean general</td>
<td></td>
</tr>
<tr>
<td>Clean food</td>
<td></td>
</tr>
<tr>
<td>Prepare bed</td>
<td></td>
</tr>
<tr>
<td>Clean isolation room</td>
<td></td>
</tr>
<tr>
<td>Laundry</td>
<td></td>
</tr>
<tr>
<td>Order bed</td>
<td></td>
</tr>
<tr>
<td>Plan visits (after stay)</td>
<td></td>
</tr>
<tr>
<td>Revalidation</td>
<td></td>
</tr>
<tr>
<td>International patients</td>
<td></td>
</tr>
<tr>
<td>Goodbye</td>
<td></td>
</tr>
<tr>
<td>Handle visitors</td>
<td></td>
</tr>
<tr>
<td>Prepare visits</td>
<td></td>
</tr>
<tr>
<td>Consult (head) doctor</td>
<td></td>
</tr>
<tr>
<td>Report</td>
<td></td>
</tr>
<tr>
<td>Break</td>
<td></td>
</tr>
<tr>
<td>Socialize</td>
<td></td>
</tr>
<tr>
<td>Make coffee</td>
<td></td>
</tr>
</tbody>
</table>
in sub-sets of vacancies. In other words, the specificity of the text mining tasks in the medical care and to some extent the basic care clusters appears to be higher as compared to the task inventory tasks.

Third, a closer look at unique tasks of the task inventory method showed more tasks that may be characterized as mundane nursing tasks (e.g., washing patients, changing patients, cleaning beds, checking temperature). Compared to the basic care tasks from the text mining method ($N = 10$), the task inventory included a larger number of basic care tasks ($N = 28$) and different ones. In other words, the task inventory and text mining method are not equally suitable in collecting mundane or basic care tasks.

**Comparison between inclusion, frequency, and importance ratings**

We conducted a series of ANOVAs to justify the analysis of one combined rather than three subsamples before we compared our two methods. These analyses indicated that there were indeed no significant differences between the average ratings in the three questionnaires with the exception of the average frequency ratings of text mining tasks ($F(2, 62) = 8.43, p = .001$), which indicated that the average frequency of automatically extracted tasks was not equally distributed despite random assignment to the three questionnaires. Since there were no further significant differences between the questionnaires in terms of job satisfaction, work overload, or emotional exhaustion, there was sufficient evidence that the questionnaire version did not significantly affect the results and we therefore report the combined results below.

First, we compared the inclusion, frequency, and importance ratings for the task inventory, text mining, and bogus tasks with a repeated measures ANOVA (see Table 2). There was no difference between the mean inclusion ratings of the task inventory tasks and text mining tasks ($M_{\text{task inventory}} = 0.79, SD = 0.19; M_{\text{text mining}} = 0.81, SD = 0.15$), whereas in line with expectations the mean inclusion ratings of both methods were significantly higher than the inclusion ratings for the bogus tasks ($M_{\text{bogus}} = 0.70, SD = 0.32$). There was also no difference between the mean frequency ratings of the task inventory and text mining tasks ($M_{\text{task inventory}} = 3.73, SD = 0.36; M_{\text{text mining}} = 3.64, SD = 0.41$), whereas the mean frequency ratings of both methods again were significantly higher than the frequency ratings for the bogus tasks ($M_{\text{bogus}} = 2.80, SD = 1.17$). There was a significant difference between the mean importance ratings of the task inventory and text mining tasks ($M_{\text{task inventory}} = 3.43, SD = 0.65$;
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Mtext mining = 3.64, SD = 0.58), in addition to the significant differences of both methods with the bogus tasks (Mbogus = 1.96, SD = 0.98). These results indicate that our methods performed similarly when it comes to inclusion and frequency ratings, but that the tasks from the text mining method elicited slightly higher importance ratings. In addition, both methods were superior compared to the bogus tasks, which is necessary to establish the discriminant validity of our two methods.

With another repeated measures ANOVA (see Table 3), we compared the task inventory and text mining methods by comparing the mean scores for inclusion, frequency, and importance at the cluster level. The medical care tasks from the task inventory exhibited significantly higher inclusion ratings compared to the text mining method. Whereas the basic care tasks, internal management tasks, and teamwork tasks from the text mining method were all significantly more often rated to be part of the job compared to the task inventory method. There was no significant difference in the average inclusion ratings for the patient management tasks. These results indicate that for most clusters (i.e., basic care, internal management, and teamwork) nurses, on average,
provided higher ratings for tasks that were automatically extracted from online vacancies. This implies that the text mining method, on average, yielded fewer tasks that were only part of some jobs or not part of the nursing profession at all compared to the task inventory. This can be explained based on the higher level of abstraction of the text mining tasks because less specific tasks are more likely to be acknowledged to be part of one’s job. However, for the medical care tasks, the text mining method elicited more tasks that were only part of some nursing jobs as is reflected in the significantly lower average inclusion rating. This is in line with the qualitative observation that text mining tasks from the medical care cluster were more contextualized and thus likely not performed by all nurses across contexts.

The patient and internal management tasks, both most likely linked to the organizational context, from the text mining method received significantly higher frequency ratings as compared to those provided for the task inventory tasks. However, the teamwork tasks from the task inventory method received

| Table 3: Repeated Measures ANOVA Comparing Mean Values of Inclusion, Frequency, and Importance Ratings per Task Cluster between Tasks Analysis and Text Mining |
|-----------------|-------|--------|---------|---------|---------|-----------------|--------|----------|
|                 | df   | N     | \( \mu \) (SD) | \( \mu_m \) (SD) | \( \Delta \) Method | \( \eta^2 \) | \( p \) |
| **Inclusion rating** |      |       |          |          |          | Task Inventory (TI) or Text Mining (TM) |
| Medical Care    | 1    | 65    | .82 (.21) | .76 (.21) | .05     | TI .15 .001  |
| Basic Care      | 1    | 65    | .82 (.23) | .87 (.24) | -.05    | TM .08 .26   |
| Internal Management | 1    | 65    | .71 (.25) | .78 (.25) | -.07    | TM .08 .023  |
| Patient Management | 1    | 65    | .80 (.27) | .83 (.28) | -.05    | TM .03 .175  |
| Team Work       | 1    | 64    | .79 (.22) | .93 (.15) | -.14    | TM .25 .000  |
| **Frequency rating** |      |       |          |          |          | Task Inventory (TI) or Text Mining (TM) |
| Medical Care    | 1    | 63    | .35 (.70) | .35 (.71) | -.01    | TM .00 .854  |
| Basic Care      | 1    | 63    | .40 (.63) | .38 (.88) | .20     | TI .06 .052  |
| Internal Management | 1    | 61    | .36 (.58) | .39 (.62) | -.31    | TM .17 .001  |
| Patient Management | 1    | 61    | .38 (.10) | .42 (.78) | -.66    | TM .25 .000  |
| Team Work       | 1    | 64    | .92 (.78) | .35 (.71) | .52     | TI .24 .000  |
| **Importance rating** |      |       |          |          |          | Task Inventory (TI) or Text Mining (TM) |
| Medical Care    | 1    | 65    | 3.73 (83) | 3.53 (82) | .20     | TI .15 .001  |
| Basic Care      | 1    | 64    | 3.41 (81) | 3.73 (93) | -.32    | TM .15 .002  |
| Internal Management | 1    | 65    | 3.11 (79) | 3.52 (95) | -.41    | TM .22 .000  |
| Patient Management | 1    | 64    | 3.19 (90) | 3.82 (98) | -.63    | TM .34 .000  |
| Team Work       | 1    | 63    | 3.56 (.71) | 3.97 (.70) | -.41    | TM .22 .000  |

Note: 1 Rated as 1 = included in job, and 0 = not included in job. 2 Ratings based on a 5-point scale. \( \Delta \) = difference between mean scores. Dominant method is highest mean score for Task Inventory (TI) or Text Mining (TM). * \( p < .05 \), ** \( p < .01 \)
significantly higher frequency ratings compared to the text mining method. There were no significant differences between the average frequency ratings of the medical care and basic care tasks of both methods. These mixed results indicate that there is no clear difference in how nurses rated the frequency of clusters between the task inventory and the text mining methods.

The basic care, patient management, and internal management tasks from the text mining method received significantly higher importance ratings on average compared to those from the task inventory. The medical care tasks from the task inventory method, however, were rated as significantly more important compared to those from the text mining method. These results indicate that for most clusters nurses rated the relative importance for tasks that were automatically extracted from online vacancies significantly higher. This implies that the text mining method included more tasks on average that were seen as important by our sample compared to those obtained through the task inventory, which again can be explained on the basis of the higher level of abstraction of the text mining tasks (in other words the text mining tasks were more generally worded and contained fewer specific details). Less specific tasks are more likely to be more comprehensive and thus more important than specific components. However, for the medical care tasks, the task inventory elicited more tasks that were seen as important, because the automatically extracted tasks were more contextualized.

We checked these results for robustness by conservatively only including the importance ratings of the nurses who indicated that the task was included in their job. All the results of the repeated measures ANOVA remained the same. In addition, we excluded all participants who scored higher than average on the inclusion of bogus items ($M_{bogus} = 0.70$) to check whether the results would change with relatively careless responses being excluded. All results again remained the same with the exception of the comparison of the inclusion ratings between the task analysis, text mining, and bogus tasks since the average inclusion rating of the text mining tasks ($M_{text\ mining} = 0.22, SD = 0.17; M_{task\ inventory} = 0.25, SD = 0.22$) was now significantly lower than the task inventory tasks ($F (1, 33) = 4.39, p = .044$). These results indicate that the comparison is relatively robust and not influenced by unrealistic ratings of nurses who do not perform a task.
Table 4: Correlations between Inclusion, Frequency, and Importance Ratings per Cluster, Employee Well-being, and Demographics

|                      | M     | SD    | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    | 21    |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1. Inclusion MC^a    | 0.79  | 0.20  | .774**|       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 2. Inclusion BC^b    | 0.63  | 0.22  | .346**| .480**|       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 3. Inclusion IM^c     | 0.73  | 0.22  | .571**| .748**| .570**|       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 4. Inclusion TW^d     | 0.85  | 0.16  | .421**| .408**| .342**| .598**|       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 5. Frequency MC^a     | 3.53  | 0.64  | .574**| .340**| .006  | .231  | .215  |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 6. Frequency BC^b     | 3.99  | 0.63  | .287**| .322**| .315**| .280**| .085  | .311**|       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 7. Frequency IM^c     | 3.71  | 0.54  | .197  | .096  | .223  | .251* | .119  | .113  | .279* |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 8. Frequency TW^d     | 3.78  | 0.75  | .239  | .094  | .048  | .182  | .068  | .136  | .299* | .486**|       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 9. Frequency PM^e     | 3.26  | 0.57  | .135  | .079  | .115  | .027  | .120  | .397**| .185  | .218  | .408**|       |       |       |       |       |       |       |       |       |       |       |       |       |
| 10. Frequency PM^f    | 3.64  | 0.79  | .612**| .406**| .746  | .270  | .220  | .741**| .215  | .071  | .177  | .185  |       |       |       |       |       |       |       |       |       |       |       |       |
| 11. Importance MC^a   | 3.49  | 0.77  | .439**| .538**| .442**| .442**| .417**| .461**| .360**| .064  | .020  | .630**|       |       |       |       |       |       |       |       |       |       |       |       |
| 12. Importance BC^b   | 3.25  | 0.75  | .147  | .215  | .470**| .284  | .240  | .121  | .293**| .344**| .235  | .046  | .292**| .654**|       |       |       |       |       |       |       |       |       |       |
| 13. Importance IM^c   | 3.25  | 0.75  | .147  | .215  | .470**| .284  | .240  | .121  | .293**| .344**| .235  | .046  | .292**| .654**|       |       |       |       |       |       |       |       |       |       |
| 14. Importance TW^d   | 3.36  | 0.84  | .308**| .361**| .327**| .615**| .509**| .174  | .290* | .227  | .292* | .062  | .346**| .621**| .604**|       |       |       |       |       |       |       |       |       |
| 15. Importance PM^e   | 3.72  | 0.60  | .125  | .036  | .071  | .124  | .279* | .294* | .042  | .151  | .080  | .366**| .351**| .285**| .352**| .469**|       |       |       |       |       |       |       |       |
| 16. Job Satisfaction  | 3.92  | 0.72  | .083  | .284**| .094  | .214  | .051  | .000  | .025  | .091  | .096  | .090  | .053  | .050  | .253**| .093  | .145  | (.74) |       |       |       |       |       |
| 17. Work Overload     | 3.42  | 0.99  | .168  | .240  | .040  | .082  | .079  | .339**| .251**| .057  | .132  | .032  | .317**| .146  | .114  | .029  | .060  | .557**| (.84)|       |       |       |       |       |
| 18. Emotional         | 2.85  | 0.60  | .255**| .280**| .035**| .093  | .020  | .230  | .216  | .026  | .166  | .032  | .332**| .191  | .071  | .048  | .021  | .512**| .675**| (.79)|       |       |       |       |       |
| Exhuastion^a          | 37.52 | 12.45 | .148  | .198  | .008  | .055  | .075  | .195  | .357**| .120  | .175  | .094  | .061  | .098  | .083  | .039  | .120  | .297**| .141  | .225  |       |       |       |       |
| Age                   | 1.81  | 0.39  | .066  | .125  | .002  | .144  | .117  | .102  | .064  | .304* | .204  | .129  | .113  | .183  | .031  | .007  | .103  | .239  | .025  | .046  | .130  |       |       |       |
| 20. Gender            | 31.05 | 8.95  | .041  | .005  | .050  | .004  | .017  | .062  | .022  | .218  | .367**| .038  | .087  | .012  | .036  | .188  | .315**| .060  | .043  | .119  | .047  | .205  |       |       |
| 21. Work Hours        | 15.31 | 11.62 | .103  | .169  | .073  | .092  | .017  | .044  | .412**| .168  | .215  | .113  | .075  | .171  | .155  | .081  | .063  | .201  | .027  | .167  | .912**| .084  | .061  |       |

Note: N = 65. * p < .05, ** p < .01. ^Rated as 1 = included in job, and 0 = not included in job. ^ Ratings based on a 5-point scale. #Rated as 1 = male, and 2 = female. Cronbach’s alphas reported diagonally. Tasks are clustered in medical care (MC), basic care (BC), patient management (PM), internal management (IM), and teamwork (TW).
Exploring the use of task data to understand employee well-being

Table 4 shows the means, standard deviations, and bivariate correlations between the inclusion, frequency, and importance ratings of the five clusters combining the task data from the task inventory and the text mining method. There were significant correlations between job satisfaction, work overload ($r = -.56, p < .001$), and emotional exhaustion ($r = -.51, p < .001$), and between work overload and emotional exhaustion ($r = .68, p < .001$).

For the five tasks clusters, there was a significant, negative correlation between the average inclusion of basic care tasks and job satisfaction ($r = -.26, p = .035$). Job satisfaction was also positively related to the importance ascribed to the internal management tasks ($r = .25, p = .044$). Work overload was significantly correlated with the average frequency with which nurses reported performing medical care tasks ($r = .34, p = .007$) and to a lesser extent with the frequency with which nurses reported performing basic care tasks ($r = .25, p = .047$). Higher inclusion of medical care ($r = .26, p = .041$) and basic care tasks ($r = .28, p = .024$) were both significantly correlated with emotional exhaustion. In addition, the extent to which nurses rated the medical care tasks as important was also moderately and significantly related to emotional exhaustion ($r = .33, p = .007$) and work overload ($r = .32, p = .011$). The results indicate that three out of five clusters are related to nurses’ well-being, namely medical care, basic care, and internal management. The results also indicate that the frequency with which tasks were performed was not related to satisfaction and that a higher number of tasks (i.e., inclusion) was not related to emotional exhaustion, whereas the importance ascribed to some of the clusters was related to all three well-being indicators.

Table 5 presents the results of regression analyses for job satisfaction, work overload, and emotional exhaustion conducted separately for each rating type without any control variables that could obscure any explained variance (Bernerth & Aguinis, 2016). A higher average amount of basic care tasks was negatively related to lower job satisfaction of nurses, whereas a higher average inclusion rating on internal management tasks was related to higher job satisfaction. A higher average amount of basic care tasks was related to higher sense of work overload. The inclusion ratings explained 20.5% of the variance in job satisfaction ($p = .023$). A higher average frequency of basic care tasks was significantly related to higher work overload ($r = .33, p = .006$) and to higher emotional exhaustion of nurses ($r = .28, p = .023$).
The frequency ratings significantly explained 19.4% of the variance for work overload \((p = .031)\) and marginally 15.5% of the variance for emotional exhaustion \((p = .067)\). A higher average importance of medical care tasks was both positively related to work overload \((r = .35, p = .021)\) and emotional exhaustion \((r = .34, p = .027)\). In addition, a higher average importance of internal management tasks was positively related to job satisfaction \((r = .35, p = .034)\). The importance ratings significantly explained 16.6% of the variance in work overload \((p = .049)\) and marginally 16.3% of the variance in emotional exhaustion \((p = .052)\). These results indicate that in particular the inclusion or the frequency of basic care tasks is associated with less satisfaction and more overload. In addition, these results show that what one does mainly explains...
one’s satisfaction with the job, whereas the frequency with which one performs certain tasks or the relative importance one places on certain tasks helps to explain work overload.

Finally, we looked at the frequency and importance of individual tasks in order to explore which tasks might be either enjoyable, unpleasant, stress reductive, or burdensome for nurses to perform (see Table 6 and 7). First, these exploratory results indicate that some tasks are more enjoyable or unpleasant than other tasks. On the one hand, a higher frequency of some tasks was highly positively related to job satisfaction, such as assisting in special therapies ($r = .78$, $p = .002$) or collecting blood ($r = .78$, $p = .005$), whereas other tasks were negatively related to job satisfaction, such as participating in resuscitations ($r = -.47$, $p = .019$). Similarly, a higher importance of some tasks was positively related to job satisfaction, for example providing psychological care ($r = .70$, $p = .009$), negatively related for other tasks, such as showing students how to execute work ($r = -.46$, $p = .038$).

Second, the exploratory results indicate that some tasks may offer nurses resources (e.g., autonomy or knowledge) which help in dealing with workload and stress, whereas other tasks are burdensome and may require a lot of (emotional) resources. On the one hand, a higher frequency of some tasks was negatively related to work overload, including consulting the (head) doctor ($r = -.61$, $p = .006$), or to emotional exhaustion, such as creating shift schedules ($r = -.59$, $p = .001$), general documentation ($r = -.76$, $p = .002$), or participating in training ($r = .59$, $p = .006$). On the other hand, a higher frequency or importance of some tasks was positively related to work overload, such as ordering beds ($r = .55$, $p = .002$), handling visitors ($r = .52$, $p = .005$), and supervising students ($r = .40$, $p = .041$), or to emotional exhaustion, for example dealing with deceased patients ($r = .40$, $p = .044$) or preparing meals ($r = .57$, $p = .008$). All in all, these results indicate that it is potentially worthwhile to distinguish between tasks in order to understand well-being outcomes, because not all tasks are equal.
### Table 6: Correlations between the Frequency of Individual Tasks and Employee Well-being

<table>
<thead>
<tr>
<th>Source</th>
<th>Cluster</th>
<th>Dependent variable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Job Satisfaction</td>
</tr>
<tr>
<td>Deceased patients</td>
<td>TI</td>
<td>MC</td>
</tr>
<tr>
<td>Emergency case</td>
<td>TI</td>
<td>MC</td>
</tr>
<tr>
<td>Collecting blood</td>
<td>TM</td>
<td>MC</td>
</tr>
<tr>
<td>Doing laboratory tests</td>
<td>TM</td>
<td>MC</td>
</tr>
<tr>
<td>Participating in resuscitations</td>
<td>TM</td>
<td>MC</td>
</tr>
<tr>
<td>Assisting at diagnostic interventions</td>
<td>TM</td>
<td>MC</td>
</tr>
<tr>
<td>Assisting at examination</td>
<td>TM</td>
<td>MC</td>
</tr>
<tr>
<td>Providing medication on demand</td>
<td>TM</td>
<td>MC</td>
</tr>
<tr>
<td>Taking care of unconfined ventilation</td>
<td>TM</td>
<td>MC</td>
</tr>
<tr>
<td>Assisting and conducting special therapies</td>
<td>TM</td>
<td>MC</td>
</tr>
<tr>
<td>Toilet requests</td>
<td>TI</td>
<td>BC</td>
</tr>
<tr>
<td>Prepare meals</td>
<td>TI</td>
<td>BC</td>
</tr>
<tr>
<td>Food/drink request</td>
<td>TI</td>
<td>BC</td>
</tr>
<tr>
<td>Caring for children</td>
<td>TM</td>
<td>BC</td>
</tr>
<tr>
<td>Supporting of rehabilitation</td>
<td>TM</td>
<td>BC</td>
</tr>
<tr>
<td>Providing holistic care</td>
<td>TM</td>
<td>BC</td>
</tr>
<tr>
<td>Monitoring the patients' therapy</td>
<td>TM</td>
<td>BC</td>
</tr>
<tr>
<td>Caring for the elderly</td>
<td>TM</td>
<td>BC</td>
</tr>
<tr>
<td>Check documentation</td>
<td>TI</td>
<td>IM</td>
</tr>
<tr>
<td>Order bed</td>
<td>TI</td>
<td>IM</td>
</tr>
<tr>
<td>Plan visits (after stay)</td>
<td>TI</td>
<td>IM</td>
</tr>
<tr>
<td>Auditing medical transcriptions</td>
<td>TM</td>
<td>IM</td>
</tr>
<tr>
<td>Organizing the work on the ward</td>
<td>TM</td>
<td>IM</td>
</tr>
<tr>
<td>Creating shift schedules</td>
<td>TM</td>
<td>IM</td>
</tr>
<tr>
<td>Family</td>
<td>TI</td>
<td>PM</td>
</tr>
<tr>
<td>Handle visitors</td>
<td>TI</td>
<td>PM</td>
</tr>
<tr>
<td>Realizing the nursing process</td>
<td>TM</td>
<td>PM</td>
</tr>
<tr>
<td>Host head doctor</td>
<td>TI</td>
<td>TW</td>
</tr>
<tr>
<td>Consult (head) doctor</td>
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<td>TW</td>
</tr>
<tr>
<td>Cross-team meeting</td>
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<td>TW</td>
</tr>
<tr>
<td>Working on improvements</td>
<td>TM</td>
<td>TW</td>
</tr>
<tr>
<td>Working in groups</td>
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<td>TW</td>
</tr>
<tr>
<td>Participating in meetings</td>
<td>TM</td>
<td>TW</td>
</tr>
<tr>
<td>Participating in training programs</td>
<td>TM</td>
<td>TW</td>
</tr>
<tr>
<td>Considering nursing research</td>
<td>TM</td>
<td>TW</td>
</tr>
</tbody>
</table>

*Note: *p < .05, **p < .01. TI = Task inventory, and TM = Text mining. Tasks are clustered in medical care (MC), basic care (BC), patient management (PM), internal management (IM), and teamwork (TW).
Table 7: Correlations between the Importance of Individual Tasks and Employee Well-being

<table>
<thead>
<tr>
<th>Task</th>
<th>Source</th>
<th>Cluster</th>
<th>Job Satisfaction</th>
<th>Work Overload</th>
<th>Emotional Exhaustion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check medication</td>
<td>Ti</td>
<td>MC</td>
<td>-282</td>
<td>.235</td>
<td>.410*</td>
</tr>
<tr>
<td>Injections</td>
<td>Ti</td>
<td>MC</td>
<td>-.382</td>
<td>.287</td>
<td>.539**</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>Ti</td>
<td>MC</td>
<td>-.088</td>
<td>.486**</td>
<td>.418*</td>
</tr>
<tr>
<td>Drainages</td>
<td>Ti</td>
<td>MC</td>
<td>.575*</td>
<td>.288</td>
<td>.300</td>
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<tr>
<td>Gavage</td>
<td>Ti</td>
<td>MC</td>
<td>-.192</td>
<td>.504**</td>
<td>.409*</td>
</tr>
<tr>
<td>Monitor patients</td>
<td>Ti</td>
<td>MC</td>
<td>-.055</td>
<td>.461*</td>
<td>.442*</td>
</tr>
<tr>
<td>Care for isolation patients</td>
<td>Ti</td>
<td>MC</td>
<td>-.035</td>
<td>.393*</td>
<td>.280</td>
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<tr>
<td>Deal with emergencies</td>
<td>Ti</td>
<td>MC</td>
<td>-.022</td>
<td>.385*</td>
<td>.370*</td>
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<tr>
<td>Assisting and monitoring anesthesia</td>
<td>TM</td>
<td>MC</td>
<td>-.226</td>
<td>.149</td>
<td>.465*</td>
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<tr>
<td>Conducting ECG</td>
<td>TM</td>
<td>MC</td>
<td>-.072</td>
<td>.289</td>
<td>.484*</td>
</tr>
<tr>
<td>Collecting blood</td>
<td>TM</td>
<td>MC</td>
<td>-.079</td>
<td>.497**</td>
<td>.351</td>
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<tr>
<td>Doing laboratory tests</td>
<td>TM</td>
<td>MC</td>
<td>-.084</td>
<td>.373</td>
<td>.538**</td>
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<tr>
<td>Assisting at endoscopic tests</td>
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<td>MC</td>
<td>.673**</td>
<td>-.153</td>
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<tr>
<td>Caring for patients post OP</td>
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<td>MC</td>
<td>-.469*</td>
<td>.085</td>
<td>.461*</td>
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<tr>
<td>Providing medication on demand</td>
<td>TM</td>
<td>MC</td>
<td>-.280</td>
<td>.456*</td>
<td>.466*</td>
</tr>
<tr>
<td>Preparing and administering of injections</td>
<td>TM</td>
<td>MC</td>
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<td>.533**</td>
<td>.394*</td>
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<tr>
<td>Providing psychological care</td>
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<td>MC</td>
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<td>-.153</td>
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<tr>
<td>Care for patients with vascular disease</td>
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<td>MC</td>
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<td>Washing patients</td>
<td>Ti</td>
<td>BC</td>
<td>.255</td>
<td>-.459</td>
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<td>Toilet requests</td>
<td>Ti</td>
<td>BC</td>
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<td>.375*</td>
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<td>Order material</td>
<td>Ti</td>
<td>IM</td>
<td>.505*</td>
<td>-.520*</td>
<td>-.378</td>
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<tr>
<td>Restock material</td>
<td>Ti</td>
<td>IM</td>
<td>.330</td>
<td>-.438*</td>
<td>-.229</td>
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<tr>
<td>Documentation general</td>
<td>Ti</td>
<td>IM</td>
<td>.374</td>
<td>-.537*</td>
<td>-.757**</td>
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<tr>
<td>Check documentation</td>
<td>Ti</td>
<td>IM</td>
<td>.033</td>
<td>-.498*</td>
<td>-.376</td>
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<tr>
<td>Insurance memo</td>
<td>Ti</td>
<td>IM</td>
<td>.147</td>
<td>.056</td>
<td>.399*</td>
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<tr>
<td>Administration</td>
<td>Ti</td>
<td>PM</td>
<td>-.116</td>
<td>.611*</td>
<td>.436</td>
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<tr>
<td>Goodbye</td>
<td>Ti</td>
<td>PM</td>
<td>.254</td>
<td>-.537</td>
<td>-.615*</td>
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<tr>
<td>Unscheduled meetings</td>
<td>Ti</td>
<td>TW</td>
<td>.560**</td>
<td>-.304</td>
<td>-.404*</td>
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<tr>
<td>Supervise students</td>
<td>Ti</td>
<td>TW</td>
<td>-.048</td>
<td>.185</td>
<td>.4003*</td>
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<tr>
<td>Show students</td>
<td>Ti</td>
<td>TW</td>
<td>-.456*</td>
<td>.386</td>
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<tr>
<td>Break</td>
<td>Ti</td>
<td>TW</td>
<td>-.116</td>
<td>.413*</td>
<td>.414*</td>
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<tr>
<td>Participating in training programs</td>
<td>TM</td>
<td>TW</td>
<td>.416*</td>
<td>-.356</td>
<td>-.264</td>
</tr>
</tbody>
</table>

Note: *p < .05, **p < .01. Ti = Task inventory, and TM = Text mining. Tasks are clustered in medical care (MC), basic care (BC), patient management (PM), internal management (IM), and teamwork (TW).
DISCUSSION

The first aim of this study was to examine whether text mining can inform researchers and practitioners about what employees do in ways that are comparable and/or complementary to a task inventory. We showed that it is possible to automatically extract valid tasks from online vacancies using text mining (in the sense that these were recognized as such by SMEs), and that they showed a relatively high correspondence with tasks collected using an interview and observation based task inventory. The differences between the results from the methods also show they are complementary. As such, our study answers the call to apply new technologies and add a big data based approach to the field of job analysis (McEntire et al., 2006; Sanchez & Levine, 2001). Job analysis has remained relatively impervious to developments in big data and machine learning, and has continued instead to rely on interviews, observations, and surveys among SMEs to gather information about jobs (Sanchez & Levine, 2012). This study showed that text mining might be a suitable method to gather task information in a relatively quick, inexpensive, and potentially reliable way as compared to task inventories.

It is noteworthy that our comparison showed that text mining generally yielded higher inclusion and importance ratings, whereas the results were less clear for the frequency ratings. This finding can be attributed to the lower level of detail of the automatically extracted tasks compared to the richly detailed tasks collected through interviews and observations in one organization (e.g., one simplified task versus five detailed tasks about medication). The automatically extracted tasks were thus more likely to be part of most nursing jobs in our sample (i.e., higher average inclusion ratings). Although this may be due to the aggregated nature of these tasks, text mining draws from a larger, representative sample of the population than current methods, which could help to overcome the issue in job analysis that some tasks are wrongly included or excluded because they are only executed in a particular context (Morgeson & Campion, 2000; Sanchez & Levine, 2000). Moreover, the large number of vacancies that were automatically analyzed resulted in a variety of specialized nursing tasks (e.g., taking care of blind patients, dealing with aggressive patients) that did not surface in our interviews and observations executed at one particular hospital with a specific subset of nurses. Current job analysis methods often overlook these idiosyncrasies (Sanchez & Levine, 2012), because it is impossible to interview, observe, and/or survey all nurses, or even to collect data in varying
contexts. However, it is rarely the case that employees even within the same job do the same tasks across contexts (Fine, 1996), and text mining might thus be more suitable to address the nonstandard nature of work and as such could complement current forms of job analysis.

Text mining complements rather than substitutes current job analysis methods, because either method has its pros and cons. For purposes of conducting a job analysis that require all (detailed) information about what employees do within one organization, task inventories may be preferred over the use of text mining. The qualitative comparison between the two methods showed that a task inventory provided a more thorough understanding of one job within a particular context. Especially the mundane and less positive, but still very frequently occurring tasks in the nursing profession (e.g., washing patients, cleaning) did not surface in the text mining method. This could be explained by our use of online vacancies, which are aimed at recruiting employees and thus may include information aimed at advertising and/or signaling mainly the positive or enjoyable aspects of the job. Moreover, mundane tasks may not be mentioned explicitly, because they may be assumed to be known to nurses who apply to those jobs. It thus remains important to assess the purpose of conducting a job analysis prior to deciding what type of information and what method to use (Peterson et al., 2001).

Our findings contribute to the debate in the job analysis literature on the suitability of job information types. On the one hand, the overwhelming amount and variety of job information (Berkers, Mol, Kismihók, & Den Hartog, 2015; Levine, Ash, Hall, & Sistrunk, 1983; Prien et al., 2004) resulted in a standstill in the debate about the usefulness of these information types (Clifford, 1994; Peterson et al., 2001; Voskuijl, 2005). On the other hand, job analysis as a field has moved towards the use of more abstract, less detailed, and less context-specific forms of job information over the past decades (Dier dorff & Morgeson, 2009; Lievens et al., 2004; Sanchez & Levine, 2001). Abstract and general forms of job information, however, insufficiently capture the nuance and complexity in work that are part of reality (Uhl-Bien, Marion, & McKelvey, 2007), especially considering the changing nature of work. Based on the specificity, observability, and understandability of tasks (Cucina et al., 2012; Morgeson & Campion, 1997, 2000; Sackett & Laczo, 2003), we argued for focusing more on detailed rather than abstract, and contextualized rather than generic job information. The finding that tasks are not equal in their impact on employee well-being.
and performance added evidence for the usability of tasks. The automatically extracted tasks were generally more abstract and less detailed than the tasks from the task inventory, but were still understandable enough for nurses in our sample to rate them, arguably provided a sufficient overview of what nurses do, and could individually be related to employee well-being.

The second aim of this study was to investigate the value of task data for understanding employee well-being and to see whether the different tasks clusters and individual tasks were related to job satisfaction, work overload, and emotional exhaustion. Higher general inclusion and frequency ratings of basic care tasks, for example, were found to be related to higher work overload and emotional exhaustion. This could be explained by the time, energy, and physical effort some of these tasks require, such as helping patients eat or wash. At a task level, these tasks (e.g., washing patients and helping them go to the toilet) were indeed significantly related to work overload and emotional exhaustion, whereas other basic care tasks were not. The explorative task-level analyses thus showed that not all nursing tasks are equal (not even within a single cluster) supporting similar claims made in task level studies of well-being (cf. Gabriel, Diefendorff, & Erickson, 2011; Semmer et al., 2007; Taber & Alliger, 1995). More detailed and nuanced insight about employee well-being can be derived from a higher degree of specificity compared to a general, “one measure fits all”, approach, because they capture the nuance and complexity of reality (Tett et al., 2000). A higher degree of specificity in research on employee well-being (i.e., task rather than cluster, and cluster rather than whole job) may facilitate the development of theory and targeted interventions. For example, interventions aimed at decreasing experienced work overload, and thus preventing burnout, among nurses could target the problematic tasks and alleviate these instead of focusing on all basic care tasks.

**Practical implications**

There are several ways in which our text mining alternative for job analysis can be used in practice. First, automatically extracting tasks using text mining could be used in several industries to assess which tasks might be suitable to computerize or robotize. Better insights into what employees do could help ensure that the most burdensome, boring, or dangerous tasks are outsourced to computers or robots and that the most meaningful and motivating tasks are kept intact (Bresnahan, 1999; Frey & Osborne, 2013). Currently,
efforts at automation and/or robotization of work are often technology-driven rather than employee- or task-driven, implying that tasks that can be computer- or robotized are. Organizations could start to make more strategic choices that benefit employees as well by selectively looking at potential tasks and assessing their relationship with employee well-being before deciding which tasks ought to be robotized or computerized. This would prevent situations as described in the case of the metro drivers in Paris, in which unknowingly important and valued parts of the job, such as responding to emergency situations, were lost with the introduction of self-driving metros (Anteby & Nishani, 2016). Based on our study among nurses, some of the basic care tasks might be prioritized for robotization, such as adding robotized arms to reduce the physical effort and energy spent on assisting and carrying patients during washing and visits to the toilet.

Second, automatically extracting tasks using text mining could also be used in different industries to improve work (re)design based on the tasks that are performed by employees. In our study, basic care tasks proved to be the most problematic due to their positive relationship with work overload and emotional exhaustion and some of those tasks such as preparing meals are not included in all jobs, because many hospitals have dedicated kitchen services that take care of them. Hospitals can thus redesign nursing work by outsourcing, changing, or at least decreasing the frequency of tasks that exhibit a negative relationship with nurses’ well-being when possible. Organizations are argued to have a responsibility in ensuring that employees have meaningful work (Michaelson et al., 2014), and insights about what employees do offers opportunities for enrichment following the principles of job design (Hackman & Oldham, 1975).

**Limitations and directions for future research**

This study was subject to some limitations. First, the results of our comparison between a task inventory and text mining method is limited to the data used, namely online vacancies. Despite the clear advantages of using vacancy data, being readily available, easy to obtain, and the existing experience with automatically analyzing this type of text (Sodhi & Son, 2007), its quality is sometimes questionable. The quality and level of detail of task data in vacancies posted by organizations, for example, was higher than those posted by recruitment agencies. Although text mining vacancies allows a larger sample of jobs to be analyzed than current job analysis methods, not all jobs
might be advertised online (Sodhi & Son, 2007). We suggest that alternative data sources are investigated in future research to complement or substitute the online vacancies. There is still a vast amount of potentially rich sources of job information contained in other ‘big’ data, including electronic records of performance monitoring that could be exploited using state-of-the-art technology (Sanchez & Levine, 2001). Another alternative may be to supplement online vacancies with existing job descriptions, for example, retrieved from O*Net (Campion et al., 1999). The higher the quality level of the data, the better the results using text mining method (or stated conversely “garbage in is garbage out”).

Another limitation of our study is the small sample that was used to estimate the relationships between task clusters, specific tasks, and employee well-being. Due to the large number of tasks and the cognitive burden this would place on respondents, each respondent only rated a third of the total number of tasks. As a result, only a limited sample remained to assess the impact of a particular task on job satisfaction, work overload, or emotional exhaustion. The exploratory analyses of which task clusters and which specific tasks nurses experienced to be most burdensome (i.e., positively related to overload and exhaustion) or more enjoyable (i.e., positively related to satisfaction) should therefore be interpreted with caution, since some were bound to turn out significant (Hollenbeck & Wright, 2017). We suggest that future research includes a priori hypotheses about relationships between tasks and well-being and presents all tasks to all respondents. Letting those participating rate only frequency or importance might be an alternative way to reduce the cognitive burden placed on participants, which could negatively affect the reliability of the results (Morgeson & Campion, 1997). In addition, our study is limited by its cross-sectional design and thus does not clarify the direction of the relationship between specific task ratings and employee well-being. The significant positive relationship between the relative importance nurses placed on taking a break and work overload ($r = .41, p = .036$) and emotional exhaustion ($r = .41, p = .032$), for example, is more likely explained by revered causality in which higher work overload and exhaustion make that nurses perceive a break as more important than the other way around.

Another potential avenue for future research is to not only look at the impact of several tasks on employee well-being, but to also include the balance between those tasks. Aiken and colleagues (2001), for example, found that
nurses’ well-being decreased when they needed to perform tasks that directly require nurse-patient interaction. On the contrary, our results showed that by themselves some medical or basic care tasks were related to work overload and emotional exhaustion of nurses, whereas others were not or were even related to job satisfaction. It would be interesting to research whether an inverted-u might explain the relationship between specific tasks and well-being better. Both spending no time at all or too much time on certain tasks may negatively affect nurses’ well-being, either not allowing them to express their professional identity by performing congruent tasks (Pratt et al., 2006; Shamir, 1991) or draining their resources.
APPENDIX A: Examples Interviews and Observations

Interview Protocol (shortened)
Thank you for your time. We conduct these interviews as part of the Pro-Nursing project, aimed at understanding which tasks nurses perform. This interview will around half an hour. Is it okay if I record the interview? We will store the information from this interview strictly anonymously. The interview is about your job and the tasks you perform, so there are not wrong or right answers. Please try to use your own words and describe your work in such a way that we or someone else that is unfamiliar with your work can understand it as well.

1. Could you please describe in detail the work you do?
2. Could you describe a regular day at your work? What do you do on a daily basis?
3. What are tasks that you perform daily? And which tasks not?
4. What responsibilities do you have?
5. Which tools and equipment do you use in your job?
6. Do you have any questions? About the content of the study or the procedure?

Transcription and coding example [marked area is coded as task #48 toilet requests]
What else happens on a day?
The patients also have a ‘bell’ that they can use and they ring, ring, ring this bell. This is additional to all the other work. Requests about going to the toilet, helping with washing, somebody who forgot something. In between all this points that has to be done there are the patients who ring the bell and need something and that must be done directly. This is very much interruption.

Observation Protocol and examples (shortened)

<table>
<thead>
<tr>
<th>TASK</th>
<th>COUNT</th>
<th>COMMENT</th>
<th>WHO</th>
<th>SHIFT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change/Prepare</td>
<td>2</td>
<td>Change into scrubs/shoes.</td>
<td>Nurse</td>
<td>Office</td>
</tr>
<tr>
<td>Report</td>
<td>2</td>
<td>Discuss overall issues, 1 is in charge, takes the lead. Discuss every patient one by one...</td>
<td>Nurse, Doctor</td>
<td>Office</td>
</tr>
<tr>
<td>Washing patients</td>
<td>1</td>
<td>Assist patient with taking a shower. Change bandages special for shower.</td>
<td>Nurse, Patient</td>
<td>Patient room</td>
</tr>
<tr>
<td>Basic check</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prepare examination</td>
<td>2</td>
<td>Set up cart for doing rounds of patient consults. Get patient maps, medications, ...</td>
<td>Nurse</td>
<td>Hall, medical room</td>
</tr>
<tr>
<td>Check meals</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prepare meals</td>
<td>10</td>
<td>Prepare meal for each patient based on requests. Precooked dinners are heated ...</td>
<td>Nurse</td>
<td>Kitchen</td>
</tr>
<tr>
<td>Assist eating</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check medications</td>
<td>5</td>
<td>Check which medications per patient are necessary at what time. Discuss or check ...</td>
<td>Nurse</td>
<td>Hall, patient room</td>
</tr>
<tr>
<td>Document (steps)</td>
<td>20</td>
<td>Everything is noted down in the patient files. Steps taken, state of the patient, ...</td>
<td>Nurse</td>
<td>Hall, office</td>
</tr>
<tr>
<td>Blood test</td>
<td>1</td>
<td>Draw samples of blood for testing.</td>
<td>Nurse</td>
<td>Patient room</td>
</tr>
</tbody>
</table>

Representative examples provided here, but full transcriptions and observations are available upon request.
### APPENDIX B: Task List from the Task Inventory Method

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Task description</th>
</tr>
</thead>
</table>
| Medical Care  | 1. Collect the needed medications in the medical room and put on car to distribute during the patient rounds. Preparations are done the day before after all medications are taken by the patients.  
2. Arrange the medications for that day for newly admitted patients to ensure that they have all the medications they need for the rest of the day based on the information gathered during the intake.  
3. Check which medications per patient are necessary at what time and if everything is okay with the medication, check, for example, how much of the medication went through the IV. Discuss or check with patient what medications they took, brought, or need. Extra care is needed for some patients to make sure that they take all medication.  
4. Hand out medications to patients based on the documentation and preparations done earlier.  
5. Give the patient necessary injections with medications based on the decisions made by the doctor.  
6. Discuss the level of pain with the patient and decide with doctor or individual on additional pain medication. For small pains like headache, stomach ache, or problems sleeping, the nurse can decide independently. In case of doubt, consultation with a doctor is required. Come back later to check up for effects of the additional medication. |
| Medication     | 7. Draw samples of blood for testing. Prepare bottle with materials for blood test, put patient in position and adjust pillow if necessary to make sure patient is comfortable, ready, and safe, add band on arm, look for a suitable vein, inject the needle, getting blood, making sure patient is okay, put on a bandage and give instructions after everything is done.  
8. Print labels and documentation for blood samples. Add information in computer about time that the blood was taken and add labels to the blood samples to make sure everything is administered and can be send to the lab.  
9. Take samples from patient’s mouth or nose for testing. After getting the smear, package, and send to lab.  
10. Get urine sample of patient. Put urine stick in urine for first testing of the urine. In case something is wrong or requires more testing, package and send sample to the lab.  
11. Place the needle of the IV and attach the drip on the request of the doctor or based on scheduled medication. Remove drip from patient and from this room. Throw away material and provide bandage.  
12. Assist doctor with executing a lumbar puncture by preparing all material, putting the patient in place, holding the patient, and handling material during the procedure.  
13. Check the oxygen level in the blood of patients with special machine by entering blood and reading the result.  
14. Check the temperature of the patient with a thermometer and document temperature.  
15. Check the state of the stiches while removing and checking bandages. Also remove stiches based on the doctor’s request.  
16. Check the state of the catheter, clean, place, clean, and replace catheter if decided this is necessary by the doctor. Check the amount of urine in the catheter.  
17. Get the material for checking sugar and get patient ready. Puncture the skin on the finger of the patient to get a bit of blood for the test. Check the sugar results for diabetic patient and discuss results with the patient.  
18. Check blood pressure of patients, put band on patient’s arm and listen through stethoscope while pumping air. Discuss result with patient and document afterwards.  
19. Check drainage in patient’s head or back for fluid and blood.  
20. Take care of stoma.  
21. Provide patients food and nutrients byavage. In case patient cannot eat by themselves and needs nutrients in a different way, the nurse has to give food by a tube through the nose or stomach of the patient.  
22. Check the bandages to see if it looks okay and bandages are dry. Change bandages to clean and fresh ones. For more complex bandages and if doctor is there to visit, doctor performs the bandage change while nurse assists by handing material, holding the patient and cleaning up afterwards. |
Document all input, including food, liquid, and medication, of the patient compared to the output, urine, faeces, and fluids. Calculate the differences and document in patient folder.

Check and monitor the state and progress of patients who require special care. Go to them to check, measure blood pressure, see if they are present and awake. Check monitors from a distance. Nurse is the closest one to monitor progress of the patient and the one to inform and check if patients are doing worse or better.

Prepare the patients for their treatments of that day. Make sure that patients are prepared for surgery, for the visit of the doctor, special therapies, MRI scans etc.

Prepare before going in the isolation room of special patients by putting on a mask, clothes cover, hair net, shoe covers, gloves before entering the room. After entering disinfect and remove mask, hair net, gloves, clothes cover, and shoe covers.

Deal with the death of a patient after noticing that a patient has deceased.

Monitor patients who are confused, because of neurological surgery or other conditions, to make sure they do not run away or hurt themselves. In extreme cases file an official request to fixate a patient and fixate the patient to the bed.

Help patients put on the special clothing for surgery including thermos, stockings, put on name broach, check patients' medications, allergies, and diagnostics as a safety procedure, make sure that patient did not eat in preparation for the surgery, that the patient received a mark from the doctor, and put the patient in a special Bed for transfer to make sure that the patient is ready for the scheduled surgery. This is done based on the information in the operation protocol and the operation schedule in the computer.

Give patients anaesthesia medication in preparation for their operation based on the operation protocol.

Monitor and checking post-operation patients continuously. Check for pain, their state, situation, medication, and progress. Special to post-op care is checking if patients are awake, if possible wounds are bleeding, and if they have feeling in their limbs and body after neurological surgery. Post-op care is additional to basic checks with the patient to ensure that the patient is doing well after surgery.

Document additional information about the patient for patients who had surgery, or who need special care, for a couple of days. This includes blood tests, drainages, if the patient is awake, input and output, the size and state of a possible wound.

Start with providing the first aid in case of an emergency and get someone else to call the emergency number to get a special team to the location to provide specialized care such as resuscitation.

Provide first aid for accidents, for example patient who are experiencing an epileptic episode or who fell out of the bed, and then inform the doctor.

Document additional information after an emergency about the emergency, how this could happen, what has been done, and what the results were.

Check expire dates of the medication and material in the emergency case to make sure that everything in there is still valid and safe to use to guarantee quality.

Set up cart for doing rounds of patient consults with the doctor. Get patient folders, medication for each patient, and check documentation for each patient before entering the patient rooms.

Ask patients about their current state and pain level. Ask how they are doing, what they are feeling, if and where they have pain to assess their state and decide on next steps based on needs of the patient. Also check their medication, wounds, bandages etc. Discuss what is next (possible surgery, physio, doctor consultations etc.) and what the patients might need. Involve the family if present. Do tests if necessary.

Check if patients are mobile, help them walking around while checking their progress and state, help patients with getting up from bed or chair, get and adjust pillows for body and particular limbs. Put patient in wheelchair and back in bed.

Turn patients in their bed from one side to the other who have difficulty moving by themselves or are immobile, because of paralysis or paraplegia, to make sure they do not get bedsores. Is done around every two hours preferably by two nurses. This also includes moving patients back to the top of the back, because they have the tendency to slide down in the bed.

Interact with the patient and give them some attention to make them feel comfortable. Ask questions, list to them, and show interest. Be kind.

Answer any questions or requests for information from the patients about their medical situation, such as their therapy or how to shower with bandage.
Inform the patients during the patient rounds about their progress based on the information about their state received in the basic check. Advise patients about what to do, such as to take it slow. Also inform patients about the rest of the procedure and give quick check-ups at the day, for example “I will be back in 10 minutes to help you shower”.

Deal with requests from patients that are made during consults or at the initiative of the patients by pressing the button about technical issues such as Wi-Fi, television or laptops, the usage of the remote control, usage of the telephone etc. The goal of answering these requests is to ensure a pleasant stay of the patients.

45 Check if patients are ready for the night by making a final round before turning off the lights.

<table>
<thead>
<tr>
<th>Patient hygiene</th>
</tr>
</thead>
<tbody>
<tr>
<td>46 Wash patients or assist patients with taking a shower or bathe and change bandages to special ones for showering, during patient rounds in the morning shift to ensure patients are well and ready for the day.</td>
</tr>
<tr>
<td>47 Change patients who cannot use the bathroom or who are incontinent. Take care of bedpan, urine bottle, and/or diapers to ensure patients are clean.</td>
</tr>
<tr>
<td>48 Deal with requests from patients that are made at the initiative of the patients by pressing the button about visiting the toilet. Assist patients with going to the bathroom to ensure hygiene and health of patients in a safe way.</td>
</tr>
<tr>
<td>49 Change bedlinen (partly or completely) based on request of the patient or by initiative nurse to ensure a clean and hygienic environment for the patient. Sometimes done with patient still in the bed if the patient is immobile.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Food &amp; drinks</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 Ask patients about their meal preferences to write down what they want to eat and drink and at what time. Order the food from the kitchen through the computer system. Also order food, such as bread, coffee, and tea for use during the next day. Provide information to kitchen staff.</td>
</tr>
<tr>
<td>51 Prepare meals for each patient based on their individual requests. Precooked dinners are heated, put on plates with some fresh ingredients and then served. Cold dishes are made from scratch (such as salad, pickled), everything is put on a tray per patient before handing it out. Also help prepare final stops of food or small meals, including making sandwiches or coffee.</td>
</tr>
<tr>
<td>52 Check the meals prepared by the kitchen for the needs of each individual patient based on the patient documentation. Should match their needs (type of food, diabetes etc.), exclude patient who are not allowed to eat, and should be safe.</td>
</tr>
<tr>
<td>53 Bring the prepared food to the patients. Everything is put on a tray and brought to the room, where the nurse decides together with the patient where they want to eat (bed or table). The food is put down for the patient at the discussed place.</td>
</tr>
<tr>
<td>54 Deal with requests from patients that are made during consults or at the initiative of the patients by pressing the button for something to drink or eat. This is possible during the whole shift at every possible moment and interrupts the work flow. The goal of answering these requests is to ensure well-being of the patients.</td>
</tr>
<tr>
<td>55 Help patients who require extra care with eating their food. Provide the food by hand or feed the patient. Watch patients who have difficulty swallowing.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Clean</th>
</tr>
</thead>
<tbody>
<tr>
<td>56 Clean up in the rooms, do dishes, pick up dirty dishes, clean the kitchen, clean the hallways. Everything that is used needs to be cleaned and make sure the rooms look clean.</td>
</tr>
<tr>
<td>57 Pick up plates and trays used for food. Clean up everything and bring back to the kitchen for cleaning.</td>
</tr>
<tr>
<td>58 Remove old bedlinen, clean the bed with soap and disinfect, and put on new bedlinen for the new patients. Also clean complete room for new patients, disinfect all surfaces, dust room, clean the bathroom, and vacuum.</td>
</tr>
<tr>
<td>59 Clean the isolation room with even more care based on safety regulations. Change the bed every day and disinfect everything in the room. Also order a special cleaner by phone to clean the isolation room after patient has left.</td>
</tr>
<tr>
<td>60 Place laundry in the laundry basket after changing bed. Replace the laundry basket and make sure dirty laundry is ready for pick up by cleaners.</td>
</tr>
<tr>
<td>61 Dispose of medical waste of the isolation patient, needles and medication in a safe manner.</td>
</tr>
<tr>
<td>62 Take care of suctioning machines that deal with mucus in the nose and mouth. Clean and check.</td>
</tr>
<tr>
<td>63 Clean all medical material and replace plastic of medical machines, including IV, every 24 hours.</td>
</tr>
<tr>
<td>64 Disinfect all material that is used during the day, all surfaces, and medical equipment.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Internal Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventory</td>
</tr>
<tr>
<td>65 Check the inventory if any medications are needed and order new medications from the pharmacy. This is often done while preparing medication.</td>
</tr>
</tbody>
</table>
66 Check inventory if material (medical or other) is needed and order new materials.

67 Remove tablet on which medical materials, such as needles and gloves, are placed in order to make sure it is replaced by someone else with new material.

68 Place newly ordered material in stock room. Replenish cart with material and replenish closet in patient rooms with material for patient care. Make sure that everything that is needed is there at the right place. This is done late and at night to make sure everything is there for the busy morning shift.

69 Place newly ordered medication delivered by the pharmacy in the medical stock room. Also replenish the cart with medication. This is done late and at night to make sure everything is there for the busy morning shift.

70 Check the expire dates of the medication, if medications are expired or about to expire, to make sure that there are still valid and safe to consume and to guarantee the quality of medication used.

71 Check the temperature of the fridge where the medications and blood are kept. Must be at the right temperature and working to ensure quality of the medications that are used by the nurses.

72 Check expire dates of special, closed off, medication such as morphine. Check if medications are expired or about to expire, to make sure that there are still valid and safe to consume and to guarantee the quality of medication used.

73 Prepare all documentations for new patients that are admitted the next day or the next shift. Print and bind documentation and print name labels for the rooms. This is done to make sure that the next shift can start well and transmission between two shifts is efficient.

Note everything down in the patient files. Steps taken, state of the patient, if it goes better or worse, if they eat something, medication that the patient received, blood pressure, blood sugars, possible blood tests and all other test results to track progress of the patient. Everything that the nurse does is documented and signed to back up legal responsibility and for scheduling nurses and work load. Also execute and document all information that was discussed during the visit after the visitation with the doctor. This includes appointments, medications, and prescriptions. Documentation is done in time and often between other activities. After actions and at the end of the whole shift.

75 Double check all documentation. Go through all documentation of everything during the day to check if everything is written down, if anything is missing check that piece of information. This is done to make sure no information gets lost which results in a good transition between shifts.

76 Write down memo’s for the patient that are used for their insurance claims about the treatment that they received at the hospital. Write down at the end of the day what is done for each patient which is later used to create an invoice for the insurance company of the patient.

77 Administer the number of patients that the department has that date. Document the in and out flow of patient for the hospital.

78 Discuss who is working which shift and make a work schedule for the different shifts.

79 Discuss which task(s) need to be done and who does what. Give a specific request to colleague to perform task. Objective is to make sure the work is done efficiently and timely.

80 Divide the patients over the nurses that are working that shift. Each nurse, if more nurses are working during that shift, will be made responsible for the care of a number of patients at the beginning of shift.

81 Discuss the occupation of the rooms and beds for that day, check who is admitted that day and who is leaving to decide which patient will be placed in which bed and room. Take into account the planning of operations and scheduling of patient admissions. Adjust information about the patient placement on the board in the nurses’ office.

82 Order a clean bed for the new patient.

83 Schedule the surgery of the patient. Inform patient about the appointment and check with the doctor during consult or by phone. After the doctor visits, the planning of the appointments is done in the computer and everything is written down for administrative reasons.

84 Organize the appointments of the patients for the next day. Plan the visits of the doctors, appointments for treatments, examinations, or tests. For example book a time slot at the MRI.

85 Schedule and discuss the doctor appointments of the patients. Schedule for example the physiotherapy session of a patient for the next day or next week. Inform patient about the appointment and check with the doctor during consult or by phone. After the doctor visits, the planning of the appointments is done in the computer and everything is written down for administrative reasons.

86 Request revalidation for patients by filling out forms and arranges everything between the patient and revalidation centre.
**Patient Management**

<table>
<thead>
<tr>
<th>International patients</th>
<th>87</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prepare documentation of new patients coming in. Create a file and personal folder with the provided information. Make sure everything is ready for arrival of the patient. This is often done at night to release pressure from the busy morning shift to make sure all documents and checklists are ready. Also prepare documentation of patients for next days or next week by transferring information to new pages.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Take-over patient from another (regular) hospital brought by ambulance or from another section in the hospital (IC or INT). Discuss paper work with patient and ambulance or hospital personnel.</strong></td>
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</tr>
<tr>
<td><strong>Welcome new patients who arrive at the ward and take care of their arrival. Provide the patients with a room, show how everything works (phone, buzzer etc.) and provide them with clothes. Give patients time to settle in and change in to their patient clothes before returning for the official admitting part. Gather information about the patient, this includes their medical condition, the treatment they will receive or received, why they are there, their doctor's information, what medications they are on, if they require assistance, and personal information such as allergies. Create a new personal patient map (if not ready yet). Go through all the information with the patient to check. Also answer questions from patients about their stay and treatment.</strong></td>
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</tr>
<tr>
<td><strong>Prepare test and handle administration before after receiving a request for a test from doctor by telephone or in person during consultations and when patient first arrives. Fill out forms with information about the new patient, including their medical condition, the treatment they will receive or received, why they are there, their doctor's information, what medications they are on, if they require assistance, and personal information such as allergies. Add information in the computer by clicking boxes and answering additional questions about the patient, for example “Is there a risk that the patient will fall in the hospital?”. Write a patient note about the patient, why the patient is here, and what kind of help the patient requires. This last document is needed for reporting and sharing information between staff.</strong></td>
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<tr>
<th>Intake patients</th>
<th>91</th>
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</thead>
<tbody>
<tr>
<td><strong>Inform leaving patients about their progress in recovering, the medications they need to take and how often they need to take their medication, any next steps that need to be made in their recovery, future appointments, what to do (in case of an emergency), how to apply bandages is necessary. Ask patients to call or come by if anything is problematic or not going well to make sure that they are okay continuing their recovery at home.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Give prescriptions to patients for needed medications with instructions for usage. Also provide information about future appointments at the hospital on paper and bandages or medication for the coming few days to make sure that they are okay continuing their recovery at home.</strong></td>
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</tr>
<tr>
<td><strong>Say goodbye and give best wishes to leaving patients and their family. Clean up the patient folder by removing papers and binding together in another folder for administration. If there is a request to do so, take care of additional documentation for patients such as copies of medications, lab results, CT scan etc. for their own general practitioner. These requests are made during consults.</strong></td>
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<tr>
<th>Transfer</th>
<th>98</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Call the place of the appointment, examination, including MR, CT-scan, and X-ray, or surgery to discuss the transfer or pick-up of a patient.</strong></td>
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</tr>
<tr>
<td><strong>Call the transport service for patients who are leaving and cannot get home alone. Order transport specialized for the patient, bed or wheelchair, and write the protocol for the transport.</strong></td>
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</tr>
<tr>
<td><strong>Transfer patients to and from the operation room (OR), to and from appointments or examinations such as X-ray or CT scan. Put patient in bed or wheelchair and accompany them to their location.</strong></td>
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<table>
<thead>
<tr>
<th>Visitors</th>
<th>101</th>
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</thead>
<tbody>
<tr>
<td><strong>Interact with family members and visitors of the patient. Ask family members questions, talk with them, socialize, make them feel at ease. Also answer questions that family members might have about progress, state of the patient, and the next steps in the procedure. Keep contact point between patient, family, and the doctor. Conversations form also input for considerations with the doctors.</strong></td>
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<tr>
<td><strong>Handle visitors of patients by showing them the room after welcoming them. In case of visitors of an isolated patient, extra information has to be provided to visitors on how to behave and how to prepare. Assist with putting on gloves, mask, hair covers, shoe covers etc.</strong></td>
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<tr>
<th>Doctor consultations</th>
<th>103</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quick check of the patient and the current state before the doctor has a consult with the patient to make sure they are there and not in too much pain. Also get patient maps with documentation and form with information for the patients that will be visited by the doctor to make sure the visits of the doctor go as efficient as possible.</strong></td>
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</table>
Visit patients per doctor (depends per doctor at what time) once a day to discuss patient's state, medication, and procedures. Nurse facilitates and provides information to both patients and doctor.

Discuss with doctor per patient before entering the patient room. Provide information and get information during the consult with the doctor about state, medication, pain, steps, procedures, and appointments. Information should be documented afterwards.

Visit patients with the head doctor to discuss the patient's state, medication, and procedures. One (head) nurse facilitates this visit and provides information about what happened to the patient and what will happen next.

Check with doctor about how to proceed with patient or discuss patient request or question about medical treatment. Initiative can come from doctor and nurses. Objective of consulting is to ensure quality of treatment of the patients and to share responsibility.

Teamwork

Report important information to close of one shift and hand over to the next one to ensure a smooth transition between shifts. Discuss per patient, led by one nurse taking the lead, so that every nurse knows about each patient what happened in the previous shift and what needs to happen in the next hours of the new shift. The current state of the patient is discussed in overall ("doing well") and by lab results and at medical level (blood pressure, wounds, sugar etc.), followed by the steps and actions that have been taking during the shift (therapy, surgery, doctor visits etc.) and the medication that the patient received and still needs to take. Also discuss which doctors are treating which patients. Discuss new patients and the patients that are leaving the clinic. This is done with the use of folders with documentation per patient. Each nurse takes own notes per patient on a form that they keep during their shift. This is important to make sure no information about the patient is lost for good continuation of the treatment of each patient.

Information sharing

Inform the doctor by phone about patients who need acute help for example after an incident or because the patient is rapidly doing worse or a wound is not looking well.

Answer internal (mainly) and external calls requesting information or about the pickup and transfer of patients. Also make quick calls to check by initiative of nurses about patients, information, and visiting times of doctors.

Have quick, unscheduled meetings to share information with one or multiple colleagues considering the work. Discuss incidents and how to prevent, what is happening, updates of the content, and execution of the work. This kind of meetings are only done when necessary to improve performance during that particular day.

Discuss what is going on with each patient from the department with all involved personnel. This includes nurses, doctors, physiotherapists, psychologists, and assistant doctors. Everybody who is involved with that patient. Discuss the patient, who is coming in, who is going, what is going on, and what needs to be done right. For example if there is a patient who cannot sleep we discuss it there. This is done to make sure all information is shared and that there is an opportunity to share ideas between the occupations.

Have and attend team meetings with whole nursing team to discuss the work, functioning of the team, how the week has gone, what went well, and what could be improved. This is done as a moment of evaluation. This can also be used as a moment to share new techniques and medications.

Student education & Training

Introduce themselves, the team, and hospital to new students and plan when student will come and what they will do. Match the students with a nurse who will be responsible for them during that day.

Facilitate learning by doing of students who are doing an internship or traineeship at the hospital. Be responsible for that student during the shift and show them how everything works, supervise students practicing their skills, function as a point of contact, and provide guidance.

Organize additional education for nurses around a topic (such as urology). Get a doctor involved who can share expertise, arrange a time and plan the education session in the schedule.

Work recovery

Have a break ranging from quick breaks for tea or water to a moment to eat.

Talk about work to decompress emotions of the shift, work in total, share personal information (vacation plans) etc.

Make coffee for the nurses who are starting their shift.
## APPENDIX C: Task List from the Text Mining Method

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Task</th>
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<tbody>
<tr>
<td><strong>Medical Care</strong></td>
<td>1. Assisting and monitoring anesthesia</td>
</tr>
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<td></td>
<td>2. Caring for patients with windpipe</td>
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<td></td>
<td>3. Checking vital signs</td>
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<td>4. Administrating of medication</td>
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<td>5. Realising the wound management</td>
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<td></td>
<td>6. Assisting and conducting special therapies</td>
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<td></td>
<td>7. Conducting ECG</td>
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<td></td>
<td>8. Collecting blood</td>
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<td>9. Preparing and administer intravenous drugs</td>
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<td></td>
<td>10. Assisting at surgical interventions</td>
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<td></td>
<td>11. Doing laboratory tests</td>
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<td>12. Participating in resuscitations</td>
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<td>13. Assisting at diagnostical interventions</td>
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<td></td>
<td>14. Preparing and assisting at transfusions</td>
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<td></td>
<td>15. Operating the technical equipment</td>
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<td>16. Caring for the blind</td>
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<td>17. Assisting at endoscopic tests</td>
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<td>18. Caring for patients with neurological diseases</td>
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<td>19. Assisting at examination</td>
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<td>20. Caring for critical care patients</td>
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<td>21. Caring for patients in the recovery room</td>
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<td></td>
<td>22. Identifying early emergency symptoms</td>
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<td>23. Caring for patients post OP</td>
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<td></td>
<td>24. Providing medication on demand</td>
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<td></td>
<td>25. Preparing and administering infusions</td>
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<td></td>
<td>26. Taking care of unconfined ventilation</td>
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<tr>
<td></td>
<td>27. Checking and documenting vital signs at operations</td>
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<td></td>
<td>28. Caring for patients with spine surgery</td>
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<td></td>
<td>29. Conducting sterile dressings</td>
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<td>30. Preparing and administering of injections</td>
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<td>31. Providing psychological care</td>
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<td>32. Preparing patients for surgery</td>
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<td></td>
<td>33. Caring for patients with orthopaedic diseases</td>
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<td></td>
<td>34. Care for patients with vascular disease</td>
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<tr>
<th>Cluster</th>
<th>Task</th>
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<tbody>
<tr>
<td><strong>Basic Care</strong></td>
<td>35. Caring for mentally ill patients</td>
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<td>36. Caring for children</td>
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<td>37. Assisting at intake of food</td>
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<td>38. Supporting of rehabilitation</td>
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<td></td>
<td>39. Providing holistic care</td>
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<td>40. Accompanying patients</td>
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<td>41. Monitoring the patients therapy</td>
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<td>42. Caring for the elderly</td>
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<td>43. Providing basic or general care</td>
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<td>44. Providing palliative care</td>
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<tr>
<th>Cluster</th>
<th>Task</th>
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<tbody>
<tr>
<td><strong>Internal Management</strong></td>
<td>45. Providing nursing documentation</td>
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<tr>
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<td>46. Auditing medical transcriptions</td>
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<td></td>
<td>47. Organizing the work on the ward</td>
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<td>48. Processing instruments</td>
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<td>49. Organizing the orders of material</td>
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<td>50. Preparing and disposing of materials</td>
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<td></td>
<td>51. Keeping the data up to date</td>
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<td></td>
<td>52. Realising interventions of quality assurance</td>
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<td></td>
<td>53. Documenting of services</td>
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<td></td>
<td>54. Creating shift schedules</td>
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<thead>
<tr>
<th>Cluster</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patient Management</strong></td>
<td>55. Giving patients and family advise</td>
</tr>
<tr>
<td></td>
<td>56. Working on doctors’ prescriptions</td>
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<tr>
<td></td>
<td>57. Realising the nursing process</td>
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<td></td>
<td>58. Developing an individual care plan</td>
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<td></td>
<td>59. Collecting patients’ data</td>
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<tr>
<td></td>
<td>60. Transitioning of patients into home care</td>
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<tr>
<td></td>
<td>61. Admisioning and discharging patients</td>
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</tbody>
</table>

<table>
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<tr>
<th>Cluster</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Teamwork</strong></td>
<td>62. Improving interdisciplinary cooperation and collaboration</td>
</tr>
<tr>
<td></td>
<td>63. Communicating with patients, family, and staff</td>
</tr>
<tr>
<td></td>
<td>64. Participating in visits</td>
</tr>
<tr>
<td></td>
<td>65. Working on improvements</td>
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<td></td>
<td>66. Working in groups</td>
</tr>
<tr>
<td></td>
<td>67. Participating in meetings</td>
</tr>
<tr>
<td></td>
<td>68. Participating in training programs</td>
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<td></td>
<td>69. Participating in hygiene training</td>
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<tr>
<td></td>
<td>70. Considering the latest results of nursing research</td>
</tr>
<tr>
<td></td>
<td>71. Training and advising students</td>
</tr>
</tbody>
</table>

Big (data) insights into what employees do 57
CHAPTER 3
Call to craft?
The influence of calling on OCB and work overload through enhancing job crafting

Hannah A. Berkers¹, Stefan T. Mol¹, & Deanne N. Den Hartog¹

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Abstract

More research is needed to understand the simultaneous positive and negative effects of seeing work as a calling. Specifically, little is known about the mechanisms explaining calling as a double-edged sword. Enhancing job crafting could be as such a behavioral mechanism that can explain why calling is related to organizational citizenship behavior (OCB) and work overload. Doing more than required is a common theme in enhancing job crafting, OCB, and work overload, and likely driven by calling. We hypothesize that employees with a calling will help others and have more opportunities to do so after they have exhausted possibilities to engage deeper in their job through enhancing job crafting. We also hypothesize that employees with a calling will experience work overload, because enhancing job crafting requires resources. In a multisource study, a sample of 100 employee-supervisor dyads completed surveys. The results supported our hypotheses and indicate that employees with a calling engage in more enhancing job crafting, which in turn is related to both higher supervisor-rated OCB and higher experienced work overload. These findings suggest that for employees with a calling engaging in enhancing job crafting behavior may at times be harmful to themselves even if they are benefitting others.
Since people increasingly strive to do work they love, the study of callings may enhance our understanding of how employees experience work (Berkelaar & Buzzanell, 2015; Dempsey & Sanders, 2010; Duffy & Dik, 2013). A calling is defined as a subjective approach to work that is motivated by enjoyment that comes from the work itself. Having a calling is often contrasted with approaches to work focused on either financial benefits or possibilities for career advancement (Wrzesniewski et al., 1997). A growing number of studies on calling explore the many positive outcomes associated with having a calling, including high intrinsic motivation, job satisfaction, career success and well-being, and increased identification and commitment (Cardador et al., 2011; Duffy, Dik, et al., 2011; Duffy et al., 2016; Hirschi & Herrmann, 2012).

Despite research providing evidence that having a calling can function as a buffer against burnout (Duffy et al., 2016; Hagmaier, Volmer, & Spurk, 2013), it is increasingly recognized that the deep investment and identification of employees who see their job as a calling might also have a downside in that it is neither predictably nor necessarily only beneficial (Berkelaar & Buzzanell, 2015; Cardador & Caza, 2012). Calling, for example, has been found to be associated with high sacrifices in pay, personal time, and physical comfort, higher risk of exploitation, and lower work recovery (Bunderson & Thompson, 2009; Clinton et al., 2017; Schabram & Maitlis, 2017). Bunderson and Thompson (2009) thus proclaim calling to be a double-edged sword. There are, however, few quantitative studies that simultaneously capture both the positive and negative effects of calling, and those that have have yielded inconclusive results (Duffy et al., 2016).

Moreover, little is known about the mechanisms that can explain why seeing work as a calling is related to both positive and negative outcomes, as most research has focused on explaining only one of the two (Duffy & Dik, 2013). In addition, this stream of research has mainly evoked attitudinal explanatory mechanisms, including career commitment (Duffy, Dik, et al., 2011), perceived organizational instrumentality (Cardador et al., 2011), organizational commitment (Rawat & Nadavulakere, 2015), occupational self-efficacy (Park, Sohn, & Ha, 2016), disengagement (Hagmaier et al., 2013), and detachment (Clinton et al., 2017). The lack of attention to potential behavioral mechanisms is surprising, because there is almost no empirical evidence for how callings drive behavior even though it is likely that a calling functions as an energetic and motivational force (Berkelaar & Buzzanell, 2015; Elangovan et al., 2010). Specifically, we
propose that seeing work as a calling instigates enhancing job crafting, defined as the bottom up, proactive changes employees physically and cognitively make to expand and increase the number and complexity of tasks and interactions at work (Wrzesniewski & Dutton, 2001).

We propose that enhancing job crafting is especially relevant in understanding the simultaneous positive and negative outcomes of calling, because as a positive motivational force calling drives employees to do more which may be beneficial for the organization but unintentionally harmful to employees’ well-being. Previous related findings show that calling is indeed related to working longer and even un-paid hours (Bunderson & Thompson, 2009; Clinton et al., 2017; Serow, 1994; Wrzesniewski et al., 1997). In that way, enhancing job crafting can on the one hand relate calling to organizational citizenship behavior (OCB), because employees with a calling will likely focus on the next most salient target by helping others after they exhaust possibilities to engage deeper in the job they love through enhancing job crafting (Belschak & Den Hartog, 2010). The drive of employees with a calling to do more is thus expected to spill-over from taking on additional work to showing more OCB, as the discretionary nature of OCB implies sufficient flexibility to go the extra mile. Enhancing job crafting can on the other hand explain how employees who see their job as a calling become overloaded, because additional resources are required for the extra effort they need for adding tasks, responsibilities, and complexity to their job (Bergeron, 2007).

The purpose of this study is to explain how calling can simultaneously result in OCB and work overload through enhancing job crafting. We use a quantitative, multisource survey comprised of 100 employee-supervisor dyads to test our hypotheses. The contribution of this study to the extant literatures on calling and job crafting is threefold. First, we contribute to a better understanding of calling as a double-edged sword, by quantitatively investigating both a positive and negative outcome (Duffy & Dik, 2013; Duffy et al., 2016). Second, we offer initial evidence for a behavioral explanation of calling as a double-edged sword, and test whether the relationships of calling with both OCB and work overload are mediated by enhancing job crafting behavior (Duffy & Dik, 2013). Third, this study contributes to the literature on job crafting, a construct which has mainly been portrayed in a positive light (Wang, Demerouti, & Bakker, 2016), whereas we test whether a darker side to crafting might exist while elucidating calling as a motivational driver of job crafting (Wrzesniewski & Dutton, 2001).
SEEING WORK AS A CALLING

Calling has been interpreted in many different ways, which has led to a lack of consensus on the definition of the concept (Dobrow & Tosti-Kharas, 2011). Here we adopt the definition of Wrzesniewski and colleagues (1997) of a calling as an approach to work in which work is inseparable from someone’s life and brings fulfillment by itself. This definition of calling is often contrasted with the other two approaches to work namely that it can either be focused on the material benefits rather than the enjoyment of work itself (i.e., job orientation), or on the possibilities of advancement in the occupational structure and the status and power that comes with it (i.e., career orientation) (Bellah, Madsen, Sullivan, Swidler, & Tipton, 1985; Wrzesniewski et al., 1997). Seeing work as a calling thus encompasses a subjective approach to work that is motivated by the work itself or the enjoyment of doing something that is fulfilling and that is usually seen as socially valuable.

Calling is conceptualized as a work orientation, a mind-set, or a perspective (Duffy & Dik, 2013) and is highly personal and subjective in nature (Hall & Chandler, 2005). The degree to which people endorse work as a calling can vary along a continuum (Dobrow & Tosti-Kharas, 2011; Duffy & Dik, 2013). Although having a calling is typically associated with occupations such as teachers, doctors, or priests (and often studied in those contexts), it can actually be found in a wide variety of occupations (Wrzesniewski et al., 1997). Calling is relatively stable over time, compared to the more momentary connections to work that are encapsulated in the work engagement and flow constructs (Bakker, Schaufeli, Leiter, & Taris, 2008). Having said that, calling is also not completely static and immutable (Dik & Duffy, 2009; Dobrow, 2013; Hall & Chandler, 2005). Calling is conceptually similar to constructs such as commitment (Allen & Meyer, 1990), job involvement, work centrality (Paullay, Alliger, & Stone-Romero, 1994), passion (Vallerand et al., 2003), and career salience (Greenhaus, 1971). Although each of these constructs refers to the importance employees place on their work and careers and their emotional involvement with both, calling is unique as it is directed towards a particular field of work, occupation, or job rather than work in general (Dobrow & Tosti-Kharas, 2011).

Calling and OCB

Calling is often seen as a desirable orientation towards work with benefits for both employees and their organizations. Employees who see their
job as a calling tend to show greater organizational and career commitment, higher organizational identification, higher job satisfaction, lower withdrawal intentions, lower absenteeism, and higher subjective career success (Cardador et al., 2011; Duffy, Allan, & Dik, 2011; Duffy, Dik, et al., 2011; Elangovan et al., 2010; Hall & Chandler, 2005; Wrzesniewski et al., 1997). Calling is also related to occupational identity, person-job fit, occupational self-efficacy, life satisfaction, enjoyment, fulfillment, and work engagement (Berg, Grant, & Johnson, 2010; Duffy et al., 2016; Harzer & Ruch, 2012; Hirschi, 2012; Hirschi & Herrmann, 2012). The positive outcomes of calling can be explained by the meaning those with a calling attribute to work (Dik & Duffy, 2009; Dobrow & Tosti-Kharas, 2011; Duffy & Dik, 2013; Wrzesniewski et al., 1997). This experienced meaningfulness promotes psychological health and well-being by buffering against anxiety and depression (Dik & Duffy, 2009; Duffy, Douglass, Autin, & Allan, 2014). Calling has therefore been found to buffer the effects of exploitation and burnout on job satisfaction (Duffy et al., 2016; Hagmaier et al., 2013).

In light of the lack of studies that have investigated behavioral outcomes of calling, here, we focus on one particular positive outcome exhibited by employees who see their job as a calling, namely affiliative OCB. OCB is beneficial for the organization, tends to exceed an employee’s job description or formal role requirements, and is usually discretionary rather than enforced (Organ, 1988, 1997; Podsakoff, MacKenzie, Paine, & Bachrach, 2000). Affiliative OCB, including helping, is an interpersonal form of extra-role behavior focused on strengthening relationships and cooperation. Employees with a calling will likely engage in helpful behavior toward co-workers based on their willingness to go beyond their self-interest (Rawat & Nadavulakere, 2015), because they want to act in accordance with their self-concept and try to do good (Young, Chakroff, & Tom, 2012). As a result, employees with a calling are likely driven to make a positive contribution to the lives of others (Elangovan et al., 2010; Dik & Duffy, 2009; Duffy & Dik, 2013), which may not only include the direct beneficiaries of their work but also their colleagues and organization. A sense of calling is thus expected to foster more prosocial behavior (Cardador & Caza, 2012) and a more active investment in the organization (Cardador et al., 2011), especially in the form of more OCB. Although the empirical evidence is limited, the positive relationship between calling and OCB has received some preliminary empirical support in a sample of South Korean salespersons (Park et al., 2016).
Calling and work overload

The potential negative ramifications of calling are far less studied than the positive ones (Berkelaar & Buzzanell, 2015; Bunderson & Thompson, 2009; Cardador & Caza, 2012; Clinton et al., 2017; Duffy & Dik, 2013; Duffy et al., 2016; Hagmaier et al., 2013; Schabram & Maitlis, 2017). Cardador and Caza (2012) differentiate between the healthy and unhealthy pursuit of callings. The unhealthy pursuit is characterized by increased strain on personal relationships inside and outside work, and an increase in personal sacrifices. These personal sacrifices, in the form of time, energy, pay, physical comfort, and personal relations, were indeed found in studies among zookeepers (Bunderson & Thompson, 2009), employees in animal shelters (Schabram & Maitlis, 2017), church ministers (Clinton et al., 2017), and social entrepreneurs (Dempsey & Sanders, 2010). These negative effects can be explained by the strong sense of commitment associated with calling, which might result in an overestimation of the benefits of a job, while underestimating costs (Berkelaar & Buzzanell, 2015; Elangovan et al., 2010). Calling can therefore be associated with workaholism (Keller, Spurk, Baumeler, & Hirschi, 2016) and career inflexibility (Lysova, Jansen, Khapova, Plomp, & Tims, 2017) or career tunnel vision, defined as career pursuit against negative advice (Dobrow & Tosti-Kharas, 2012).

Here, we focus on work overload, a particularly vexing outcome for employees who see their job as a calling, especially when they are exposed to it for a longer time periods. Work or role overload is defined as the experience that too many activities or responsibilities are expected of the employee considering the available time, resources, and abilities of that employee (Rizzo et al., 1970). Employees who see their job as a calling tend to work more hours and make sacrifices in their energy and time to carry out their job (Clinton et al., 2017; Wrzesniewski et al., 1997; Serow, 1996). As a result, employees with a calling may become overwhelmed by the time and energy they feel they have to invest. As a result they may start to struggle to complete all their tasks and feel overloaded (Bolino & Turnley, 2005). However, to the best of our knowledge, the relationship between calling and work overload has not yet been studied.

The mechanism behind the relationships between calling, OCB, and work overload

The pursuit of a calling is an energetic and focused motivational force (Elangovan et al., 2010). We argue that this force drives employees’ decisions to engage in certain behaviors at work. Indeed, a high level of intrinsic motivation
or drive to engage in the job is part of how calling is defined (Wrzesniewski et al., 1997). According to self-determination theory, intrinsic motivation causes individuals to actively engage in behaviors solely out of interest (Deci & Ryan, 2000). Since the work itself is the interest of employees with a calling, they are likely to be naturally drawn to engage in work activities. The intrinsic motivation associated with calling can be seen as autonomous, which implies that employees integrate activities into their sense of self and initiate their own actions (Deci & Ryan, 2000; Elangovan et al., 2010). Employees with a calling are also known to strongly identify with their work (Bunderson & Thompson, 2009). Shamir (1991) underscores how identity affirmation is as an intense motivational force, especially when that identity is indispensable to defining who one is.

Calling is expected to motivate ‘enhancing’ (Bindl, Unsworth, & Gibson, 2014) or ‘expansion-oriented’ job crafting behavior (Laurence, 2010), characterized by increasing the number and complexity of tasks, the quality and/or quantity of interactions at work, seeking resources, and seeking challenges. The high intrinsic motivation of employees with a calling may instigate the use of enhancing job crafting as a way to get more deeply involved and engage in more novel and challenging work activities (Wrzesniewski & Dutton, 2001). Thus, employees who see their job as a calling are likely to take on more responsibility and increase their number of tasks. Behaviors such as enhancing job crafting can be anticipated especially because employees are most motivated to engage in proactive behavior instrumental to the highest valued target (Belschak & Den Hartog, 2010), which in the case of employees who see their work as a calling is the work itself rather than material benefits or career advancement (Wrzesniewski et al., 1997). While the specific relationship between calling and enhancing job crafting has not yet been studied, it is in line with previous related findings that show these employees are inclined to work longer and go through great lengths to do their job (Bunderson & Thompson, 2009; Clinton et al., 2017; Serow, 1994; Wrzesniewski et al., 1997).

Enhancing job crafting could be the behavioral mechanism that links calling to OCB. It is still unclear why employees with a calling engage in more affiliative OCB. Employees with a calling may tend to see themselves as “good people” who make a difference in others’ lives, and their job provides a means to act on this part of who they are, which is a strong motivational force (Shamir, 1991). It is likely, however, that these employees use this motivational drive from their calling to first show more enhancing job crafting behavior. As said,
enhancing job crafting is an opportunity to contribute and further enact the work role that they enjoy and love. In addition to and after taking on extra core task work through enhancing job crafting, employees with a calling will likely focus on the next most salient target given their prosocial nature (Belschak & Den Hartog, 2010), namely helping others. Their drive will spill-over from taking on additional role prescribed work to showing more affiliative OCB. Enhancing job crafting behavior will likely manifest itself in OCB, as its discretionary nature implies there is most opportunity to take on extra work. At a daily level, enhancing job crafting, in particular seeking challenges, has already been found to be related to another form of affiliative OCB, namely altruism (Demerouti, Bakker, & Halbesleben, 2015).

Enhancing job crafting could also be the behavioral mechanism that links calling to work overload. Enhancing job crafting pertains to adding tasks, responsibilities, and complexity, and therefore requires additional resources on the part of an employee with a calling, who, like all employees, is constrained in time and energy (Bergeron, 2007). In addition, it is likely that these employees do not stop doing more and more, despite their actions creating an escalation of commitment to a potentially ineffective course of action (i.e., not being able to complete all tasks). In other words, employees with a calling might be limited in balancing their resource investments across different life domains, because that would be inconsistent with their self-concept (Brockner et al., 1986; Shamir, 1991). Moreover, the enhancing job crafting of employees with a calling is driven by the motivation to engage more in their job rather than to (strategically) lessen their workload. However, as a result, the enhancing job crafting behavior is likely to leave employees with a calling feeling overloaded. We thus hypothesize:

*Hypothesis 1: Enhancing job crafting mediates the positive relationship between calling and a) OCB and b) work overload.*

**METHOD**

**Procedure**

Participants responded to an email including a personalized link (i.e., to allow matching employee and employee data), which directed them to a consent form and communication about the approval of the ethical committee of the University Economics and Business faculty. Participants who provided consent were then directed to an online questionnaire available in Dutch (translated using a back and forth translation method) and English. Supervisors answered
questions for every focal employee separately in a different online questionnaire (\(N = 13\) supervisors rated more than one employee), also available in both Dutch and English. A raffle of gift cards for a Dutch online retailer was used to stimulate participation and to show appreciation for the invested time and effort. Two reminder e-mails were sent. In total 413 questionnaires were distributed of which 277 were completed by participants and their supervisors (response rate of 67.07%). Only participants (\(N = 100\)) who worked at least three days per week and whose supervisor participated (\(N = 81\)), were included in the final sample.

**Participants**

The sample of 100 employee-supervisor dyads working in the Netherlands was recruited as part of a larger data collection effort through the undergraduate program of a Dutch university. Of the employees (\(N = 100\)) who participated 50.6% self-identified as female (\(M_{\text{age}} = 36.40; SD = 13.37\)). The average tenure of employees was 6.49 years (\(SD = 8.44\)) and the average contractual work hours per week were 33.27 (\(SD = 13.23\)). Participants held a wide variety of job titles, including consultant, dental assistant, software engineer, teacher, nurse, chef, bartender, and HR advisor, and were working in a variety of sectors (e.g., 16% in education, 12% industry, 10% consulting and financial services, 10% health care, 7% IT, 6% government, 6% retail and hospitality, 5% construction, 4% non-profit, and 24% other). The supervisors (\(N = 81\)) who participated included 44% who self-identified as female (\(M_{\text{age}} = 43.44; SD = 11.47\)).

**Measures**

Focal employees completed measures of calling, enhancing job crafting, work overload, and demographics, and their supervisors rated the OCB of the focal employee, affective regard, and their demographics. All response options unless indicated otherwise ranged from 1 = *totally disagree* to 7 = *totally agree*.

*Calling*. Calling was measured with the scale of Leana, Appelbaum, and Shevchuk (2009), who used the conceptualization of calling and adapted the items from Wrzesniewski et al. (1997). The scale for calling consisted of four items, which we supplemented with the two items for job orientation because these can be seen as counter-indicative items for calling (Wrzesniewski et al., 1997). Examples are “I would choose my current work life again if I had the
opportunity” (indicative) and “when I am not at work, I do not think much about my work” (counter-indicative). The item “my work is a chance to give back to the community”, did not function as expected (when included $\alpha = .598$; item-total correlation $r = .23$). The differential reaction of Dutch respondents to this item might be explained from a societal and cultural perspective, since the Netherlands has a strong governmental social system and Dutch people have a rather “down to earth” attitude based in a Calvinistic moral system. As claiming that you are contributing to society is not very modest, participants may have scored lower on this specific item ($M = 4.26, SD = 1.70$), compared to the other items (e.g., $M = 5.40, SD = 1.35$ for “I would choose my current work life again if I had the opportunity”). After excluding this item, reliability improved but was still somewhat low ($\alpha = .60$).

**Enhancing job crafting.** We used the 14 items from the Job Crafting Questionnaire (Bindl et al., 2014) to measure Enhancing job crafting. The questionnaire included items such as “I actively took on more tasks in my work”, and “I thought about how my job contributed to the organization’s goals” ($\alpha = .90$).

**Work overload.** We used the three item measure for work overload from Bolino and Turnley (2005). The measure included items such as “it often seems like I have too much work for one person to do” ($\alpha = .86$).

**Affiliative OCB.** Supervisors rated the OCB of the focal employee with six items from Van Dyne and LePine (1998) and that cover helping behavior, such as “this employee helps others in this team to learn about the work” ($\alpha = .85$). We focused on helping behavior, defined as the small acts of consideration that helps to build and preserve relationships, as something that extends task performance and that could be rated by supervisors because of its direct and clear affiliative nature (Van Dyne & LePine, 1998).

**Affective regard as a control variable for OCB.** Previous research has shown that the quality of the relationship between employee and supervisor impacts appraisal given by the supervisor (Lefkowitz, 2000). To control for this on our dependent variable OCB, we measured affective regard of the supervisor for the employee (Wayne & Ferris, 1990) with four items such as “supervising this employee is a pleasure” ($\alpha = .73$). Affective regard was indeed significantly related to OCB ($r = .21, p = .037$).

**Intention to stay as a control variable for OCB.** OCB is driven by a variety of predictors, including employees’ commitment (Schappe, 1998). It is possible that OCB is not influenced by the enhancing job crafting of employees with a
calling, but by organizational commitment which is confounded with calling (Duffy, Dik, et al., 2011). We control for this organizational driven aspect through including intention to stay with the organization as an indicator of commitment, measured with two reverse coded intent-to quit items (Becker, 1992) (α = .68). Intention to stay indeed significantly correlated with calling ($r = .43, p = .000$) and marginally with OCB ($r = .17, p = .084$), which is in line with previous research (Becker, 1992).

**Age as a control variable for Work Overload.** Previous research found a significant relationship between age and work overload and controlled for it (Bolino & Turnley, 2005), because being exposed to too much work for a prolonged period of time is more likely the case for older employees (Brewer & Shapard, 2004). Age significantly correlated with calling ($r = .26, p = .011$) and work overload ($r = .24, p = .016$). Following the recommendations of Bernerth and Aguinis (2016), we therefore also control for age.

**Data analysis**

We used Mplus to perform SEM with robust maximum likelihood estimation to test for full mediation (specified in model 1) and partial mediation (specified in model 2) using the scale means. We used the chi-square statistic ($\chi^2$), the root mean square of error of approximation (RMSEA), the comparative fit index (CFI), the Tucker-Lewis index (TLI), and the standardized root mean square residual (SRMR) to assess model fit using the conventional cut-off values of these fit indices based on Hu and Bentler (1999) (i.e., $\chi^2$ non-significant, RMSEA < .06, CFI > .95, TLI > .95, SRMR < .08). In addition, we used the Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) for comparing the two models, with lower values indicating a more parsimonious model. To account for the complex sampling features created by the indices in which supervisors ($N = 13$) rated the performance of multiple employees we used a sandwich estimator (i.e., Type = Complex).
RESULTS

Table 1: Correlations between Calling, OCB, Work Overload, and Control Variables

<table>
<thead>
<tr>
<th>Construct</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Calling</td>
<td>4.95</td>
<td>0.91</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Enhancing Job Crafting</td>
<td>4.97</td>
<td>0.93</td>
<td>.294**</td>
<td>(.90)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. OCB</td>
<td>5.78</td>
<td>0.72</td>
<td>.155</td>
<td>.232*</td>
<td>(.85)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Work Overload</td>
<td>3.34</td>
<td>1.47</td>
<td>.190</td>
<td>.229*</td>
<td>.025</td>
<td>(.86)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Affective Regard</td>
<td>5.76</td>
<td>0.75</td>
<td>-.120</td>
<td>.026</td>
<td>.209*</td>
<td>-.157</td>
<td>(.73)</td>
<td></td>
</tr>
<tr>
<td>6. Intention to Stay</td>
<td>5.26</td>
<td>1.43</td>
<td>.429**</td>
<td>-.071</td>
<td>.174</td>
<td>-.020</td>
<td>-.131</td>
<td>(.68)</td>
</tr>
<tr>
<td>7. Age</td>
<td>36.40</td>
<td>13.37</td>
<td>.256**</td>
<td>-.068</td>
<td>-.001</td>
<td>.242*</td>
<td>-.157</td>
<td>.244*</td>
</tr>
<tr>
<td>8. Gender</td>
<td>1.52</td>
<td>0.50</td>
<td>-.042</td>
<td>-.070</td>
<td>-.092</td>
<td>-.016</td>
<td>-.067</td>
<td>-.056</td>
</tr>
</tbody>
</table>

Note: N = 100 (correlations with age N = 98). * p < .05, ** p < .01. Gender is rated as 1 = male, 2 = female. Cronbach’s alphas are reported diagonally. 1 Items scored by supervisors.

Descriptive statistics

Table 1 shows the means, standard deviations, and bivariate correlations between all included variables. Calling significantly correlated with enhancing job crafting (r = .29, p = .003), but not with work overload (r = .19, p = .059) nor OCB (r = .16, p = .124), which by itself is insufficient evidence to reject the existence of any indirect effects (Hayes, 2009). Enhancing job crafting significantly correlated with OCB (r = .23, p = .020) and work overload (r = .23, p = .022). These results indicate that calling may be only indirectly related to OCB and work overload through enhancing job crafting behavior, which we test below.

Model 1

In the first model we simultaneously examined whether enhancing job crafting behavior mediated the relationships between calling and OCB, and calling and work overload. This fully mediated model showed that all hypothesized paths were significant (including the control variables affective regard, intention to stay, and age) and that the fit of the model was good (see Figure 1) (χ² (df =9) = 10.288, p = .332; TLI = .940; CFI = .964; RMSEA = .037; SRMR = .054). A higher degree of experienced calling related to more enhancing job crafting behavior, which in turn was positively associated with higher supervisor rated OCB and higher experienced work overload.
Figure 1: Fully Mediated Model including Calling, Enhancing Job Crafting, OCB, and Work Overload

Note: * $p < .05$, ** $p < .01$. Standardized coefficients are reported. Estimator = MLR, maximum likelihood parameter estimates with standard errors and chi-square test statistics that are robust to non-normality. Model fit indices showed good fit $\chi^2 (9, N = 100) = 10.288, p = .332$ (TLI = .940, CFI = .964, RMSEA = .037, and SRMR = .054). We controlled for the relationship between Affective Regard and OCB ($r = .24, p = .028$), Intention to Stay and OCB ($r = .27, p = .004$), and Age and Work Overload ($r = .26, p = .004$). The indirect effect of calling on OCB (estimate = .078, 95%CI = [.001, .154]) and Work Overload (estimate = .072, 95%CI = [.005, .138]) were significant. We explained 8.5% of variance in Enhancing Job Crafting ($p = .176$), 18.8% in OCB ($p = .011$), and 13.6% in Work Overload ($p = .048$). Without control variables all coefficients remain the same and significant, however, model fit cannot be estimated (overfitted).

Model 2

In the second model we included the direct effects of calling on OCB and work overload to examine the difference between a fully and a partially mediated model. This partially mediated model showed that calling was not significantly related to OCB nor work overload (see Figure 2). In addition, the fit of the partially mediated model was only acceptable according to the SRMR, but not to the CFI, TLI, and RMSEA indices ($\chi^2 (df = 7) = 9.717, p = .205$; TLI = .830; CFI = .921; RMSEA = .060; SRMR = .053). In order to formally evaluate the performance of both models, we compared the change in model fit, which turned out to be not significant ($\Delta \chi^2 = .571$, $\Delta df = 2$, $p = .752$), meaning that the fully mediated model 1 does not show significant better fit than the partially mediated model 2. However, both the AIC (815.478) and BIC (846.498) of model 1 were slightly lower compared to model 2 (AIC = 818.877; BIC = 855.067), indicating that model 1 was somewhat more parsimonious. In combination with the inadequate model fit and insignificant direct effects of calling on OCB and work overload, we find more support for the fully than for the partially mediated model.
Figure 2: Partially Mediated Model including Calling, Enhancing Job Crafting, OCB, and Work Overload

Note: * $p < .05$, ** $p < .01$. Standardized coefficients are reported. Estimator = MLR, maximum likelihood parameter estimates with standard errors and chi-square test statistics that are robust to non-normality. Model fit indices showed reasonable fit $\chi^2 (7, N = 100) = 9.717, p = .205$ (TLI = .830, CFI = .921, RMSEA = .060, and SRMR = .053). We controlled for the relationship between Affective Regard and OCB ($r = .21, p = .029$), Intention to Stay and OCB ($r = .25, p = .007$), and Age and Work Overload ($r = .24, p = .011$). The indirect effects of calling on OCB (estimate = .074, 90%CI = [.009, .139]) and Work Overload (estimate = .066, 95%CI = [.001, .130]) were significant. We explained 8.5% of variance in Enhancing Job Crafting ($p = .176$), 18.7% in OCB ($p = .012$), and 13.8% in Work Overload ($p = .040$). Without control variables the coefficients remain the same, however, model fit cannot be estimated (overfitted).

Hypothesis testing

Finally, we tested the significance of the indirect effects of calling on OCB and work overload through enhancing job crafting in model 1 (see Figure 1). The standardized 95% confidence interval (CI) did not include zero for the indirect effect of calling on OCB (estimate = .078, 90%CI = [.009, .139]) and work overload (estimate = .072, 95%CI = [.005, .138], $p = .034$). We thus find support for our mediation hypotheses 1a and 1b.

DISCUSSION

The aim of this study was to contribute to the emerging literature on calling as a potentially double-edged sword. Most research to date has touched upon the positive side of calling and much less research has focused on the downside or on specific behavioral outcomes of calling. Moreover, the mechanisms that explain why calling is simultaneously related to positive and negative outcomes are mainly unknown. Here we did not find direct relationships with these outcomes, but we did find indirect ones and showed that enhancing job crafting is one such mechanism that connects calling to more distal outcomes, because it explains the relationship of calling with both OCB and work overload. Employees who see
their work more as a calling spend additional time and energy to help others around them as they expand their own job. It seems, however, that this process of expanding one’s job also instigates the experience of being overloaded.

First, these findings contribute to a better understanding of both the bright and the dark sides of calling and go beyond the outcomes normally studied in association with calling, such as commitment and job satisfaction (Berkelaar & Buzzanell, 2015; Duffy & Dik, 2013). This study provides behavioral evidence for the bright side of calling by evidencing the direct relationship of calling with enhancing job crafting behavior and the indirect one with OCB. However, our results also indicate that seeing work as a calling is not solely beneficial. Employees with a calling also experience a higher work overload as a result of their enhancing job crafting behavior. The findings suggest that the experience of overload is specific to these employees, which may be because they tend to overinvest and feel more obliged than those low on calling to keep doing more even when they are confronted with their own time and energy limits. This is in line with the evidence for the high personal sacrifices made by employees who pursue their calling (Bunderson & Thompson, 2009; Clinton et al., 2017; Dempsey & Sanders, 2010; Schabram & Maitlis, 2017). In other words, a calling can be consuming (Dobrow & Tosti-Kharas, 2011) and can motivate employees to behave in a way that can result in the experience of being overloaded despite their good intentions.

Second, there are still many questions to be answered about the mechanisms underlying the relationship between calling and its outcomes (Duffy & Dik, 2013). Most research has suggested attitudinal mechanisms. Positive outcomes of calling, such as satisfaction and attachment, have been explained through various mechanisms including career commitment (Duffy, Dik, et al., 2011), organizational instrumentality (Cardador et al., 2011), vocational identity (Hirschi & Herrmann, 2012), occupational self-efficacy (Park et al., 2016), and (lower) disengagement (Hagmaier et al., 2013). Whereas negative outcomes of calling, such as lower recovery from work and willingness to sacrifice, have been explained by detachment, sleep quality (Clinton et al., 2017), and moral duty (Bunderson & Thompson, 2009). Our findings suggest that enhancing job crafting forms an alternative behavioral mechanism through which calling affects OCB and work overload. Whereas attitudes are likely to be aligned with calling to create consistent self-concepts (Shamir, 1991) and prevent cognitive dissonance, behavior such as enhancing job crafting, could explain (in)effective
courses of action that may be typical for employees who score high on calling.

Third, we contributed to the literature on job crafting by showing that calling may be an antecedent that motivates enhancing job crafting behavior. Wrzesniewski and Dutton (2001) already theorized that employees with a calling would be motivated to craft. However, empirical support for the relation between calling and job crafting was to the best of our knowledge not yet available. Leana et al. (2009), for example, did not find a relationship between the calling and individual or collaborative job crafting of childcare workers. These non-significant findings may have been due to the lack of differentiation made between enhancing and limiting job crafting, because employees with a calling are unlikely to drastically limit their tasks and relationships. This is in line with other studies that have shown that employees with a calling indeed tend to do more (Clinton et al., 2017; Wrzesniewski et al., 1997; Serow, 1996). We also contributed to the job crafting literature by showing that at least for employees with a calling, job crafting is not solely beneficial. Research showed that job crafting is sometimes related to more emotional exhaustion and counterproductive work behavior (Demerouti et al., 2015; Petrou, Demerouti, & Schaufeli, 2015), and this could help to further nuance the mainly positive view on job crafting and proactive behavior in general.

**Future research**

The results of our study offer several potential directions for future research. First, if calling is related to at least short-term feelings of work overload through enhancing job crafting behavior, more evidence is needed on what the long-term effects may be. Over time, feelings of work overload can come at the cost of general well-being and work-life balance (Bunderson & Thompson, 2009), eventually undermining the positive and buffering effects of calling (Cardador & Caza, 2012; Hagmaier et al., 2013), and gradually escalating into a burnout (Schabram & Maitlis, 2017). As the negative effects may exacerbate over time, it could become increasingly difficult to sustain the positive effects of calling over the course of one’s career. Nurses and teachers, for example, often have a calling but also often suffer from these increasingly negative effects, which translates in high rates of burnout and turnover (Hakanen et al., 2006; Hartnett & Kline, 2005; Sherman, 2004; Vinje & Mittelmark, 2007, Bakker et al., 2005). It would therefore be useful to longitudinally study these effects to better understand how the downward spiral that Schabram and Maitlis (2017) report on in their
qualitative study unfolds over time.

Second, we argued that calling affects behavior through its motivational aspects, however, more research is needed to support this explanation, as we did not directly measure (intrinsic) motivation. Alternatively, employees with a calling may see helping their colleagues as instrumental to achieving the meaningful goal of their calling (Cardador et al., 2011). Some animal shelter workers with a calling, for example, supported their colleagues if they aimed to lead change in their shelters (Schabram & Maitlis, 2017). We, however, argued based on the work of Shamir (1991) that doing more in the job (i.e., enhancing job crafting) and for others (i.e., OCB) even without sufficient resources (i.e., work overload) occur as this is in line with how employees with a calling see themselves. Bunderson and Thompson (2009) showed that the sense of moral duty of employees with a calling plays an important role in their work experience. More research that connects this sense of moral duty to self-concepts and work motivation would potentially lead to a better understanding of what drives these employees to engage in behavior that is not necessarily goal-oriented or instrumental. To study these deep underlying decisional processes and cognitions, qualitative research may be most suitable.

Third, more research is needed to understand potential moderators that assess the specific circumstances under which employees with a calling can suffer from higher work overload. Following Cardador and Caza (2012), one could distinguish between the healthy and unhealthy pursuit of calling. Similar results were found in research on passion, where a distinction is made between harmonious and obsessive passion (Vallerand et al., 2003). Only obsessive passion is associated to mixed outcomes including both negative affect, anxiety, positive affect, and intrinsic motivation (Birkeland & Buch, 2015; Curran, Hill, Appleton, Vallerand, & Standage, 2015; Vallerand et al., 2003). The reason underlying these mixed outcomes of obsessive passion is an unstoppable urge to self-validate one’s identity through engaging in activities linked to one’s passion. It would be interesting to study whether a similar distinction can be observed for obsessive and harmonious calling. More research about the similarities and differences between employees with harmonious and obsessive calling, would make it possible to uncover traits or behavior of employees who manage to find sufficient balance to avoid the aforementioned downward spiral and offer guidance for those who have not managed that.
Practical implications

The practical implications of this study include that organizations need to take a certain responsibility towards their employees who see their work more as a calling. Our results showed that while organizations might benefit from the expanding job crafting and prosocial behavior that callings elicit, the employee is also at risk to overinvest and become overloaded. Similar to Bunderson and Thompson (2009), we showed that individuals who see their work as a calling might be vulnerable to exploitation as they work ever more and continue to help others even in the face of being overloaded. Organizations should try to ensure that these employees can keep doing their job in a sustainable and healthy way by helping these employees set boundaries and not take on too much. If these employees keep doing more and more based on their intrinsic motivation, in the long run they may abandon their calling and employers could benefit from preventing the overburdening of these highly committed employees to keep their motivation levels high (Hartnett & Kline, 2005). Further teasing out how seeing work as a calling can be a double-edged sword allows for customized interventions that protect the positive effects while safeguarding against the costs for employees with a calling.

Limitations

This study has some limitations. First, this study cannot test the direction of causality due to its cross-sectional design. Although the multisource design allowed us to limit common source bias for some relationships by asking supervisors rather than employees themselves to rate OCB, all other variables were measured at one moment in time and self-rated by the focal employees. Calling as a subjective way of viewing work and experienced work overload are best measured by self-report measures. Enhancing job crafting as well is only measured through self-report measures, because the behavior is by definition not always visible for other parties such as supervisors or colleagues. This is in line with other studies on job crafting (Laurence, 2010; Leana et al., 2009; Slemp & Vella-Brodrick, 2013; Tims, Bakker, & Derks, 2012).

Second, we did have some unexpected problems with the Leana et al. (2009)’s scale for calling. Although the scale previously showed sufficient reliability, our study showed that scale properties may be different in the Netherlands. In particular, the item pertaining to giving back to the community did not function as expected, potentially because of cultural and institutional
differences in the Netherlands compared to the United States. In future studies we will need to address this and use a scale more culturally appropriate for the Dutch context. The presence of Calling subscale from the Brief Calling Scale (Dik, Eldridge, Steger, & Duffy, 2012) is, for example, successfully used by Lysova and colleagues (2017) in a survey among Dutch employees. Moreover, the item that had to be dropped was an adaptation made by Leana et al. (2009) that did not appear among the original items of Wrzesniewski et al. (1997), which may explain why the item did not performed as intended. Although this was not an option for this study because we intended to look at a wide variety of jobs across industries, another possibility for future research is to use the domain-specific scales of Bunderson and Thompson (2009) or Dobrow and Tosti-Kharas (2011) which might not instigate similar problems. These challenges with quantitatively capturing calling and its double-sided outcomes show that much more can be done to advance the field of calling. It would be interesting to see if more research could show whether “actions speak louder than attitudes” for employees with a calling.

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6 The use of the same calling measure by Leana et al. (2009) in Study 1 of Chapter 4 among a sample in the US, however, showed sufficient reliability (α = .77). This indicates that it is more likely that the issue with the particular item in this sample is due to cultural differences.
CHAPTER 4

When changing who you are feels unbearable

Development and validation of the work identity rigidity scale

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Abstract

Despite the fact that employees increasingly have to adjust ‘who they are’ at work, little is known about why certain employees might be more successful in doing so than others. We propose that Work Identity Rigidity (WIR) is a relevant unfavorable attitude towards identity-related change that captures such differences between employees. This chapter describes the development and validation of a scale to measure WIR. In Study 1, exploratory analyses indicated that WIR is a unidimensional construct. Study 2 and 3 confirmed the factor structure and demonstrated that WIR can be measured reliably in different settings and both in heterogeneous (Study 1 and 3) and homogeneous samples (Study 2). We established construct validity by showing that WIR is associated with personality traits that capture resistance to change in general, the inability to cope with change, and problematic identification with the job. Also, WIR is associated with contextual factors such as autonomy and employees’ profession. Study 3, established preliminary evidence for the scale’s predictive validity by showing its negative (and indirect) association with supervisor-rated performance through emotional exhaustion. The scale can be used to account for the difficulties that some employees might experience when confronted with identity-related change.
Changing work environments increasingly require employees to adjust their work identity, defined as the subjective meaning of who one is at work (Ashforth et al., 2008). Due to the high-paced technological change and increases in knowledge work, work has become more complex and dynamic over the last decades (Grant & Parker, 2009; Parker, 2014). Employees are expected to be flexible, and capable of dealing with such changes that oftentimes have a direct bearing on their work identity (Savickas et al., 2009). Nurses and doctors, for example, face increasing loads of administrative work that may make them feel like administrators or managers rather than nurses or doctors (Heijne, 2015a, 2015b). The introduction of self-service check in, luggage intake, and customs clearing is fundamentally changing the work of ground staff at airports and is thereby affecting their identity. Similarly, teachers have seen increased technology usage in and outside the classroom and are facing major educational reforms requiring them to renegotiate their professional identities (Vähäsanteranen & Eteläpelto, 2009).

Dealing with changes in one’s work identity is part of the reality of employees entering an organization or job and a vital part of adaptive performance at work (Ashforth et al., 2008).

Being able to successfully work on identity is related to important work outcomes such as job satisfaction, turnover intentions, task performance, organizational and team commitment, workplace adjustment, and health and well-being (Lee et al., 2015; Swann et al., 2009). However, the situational demand for work identity flexibility that employees regularly face does not imply that adjusting ‘who one is at the workplace’ is easy or always successful. Winkler (2016) reiterates that a wide variety of negative emotions such as fear, helplessness, vulnerability, worry, frustration, irritation, and unhappiness are associated with both the events triggering identity-related change and especially to less successful changes to work identity. In particular, identity-related changes may pose a threat to individuals’ resources, because of individuals need resources to adjust their identity or conserve resources when faced with potential loss concerning who they are at work. In line with the conservation of resources (COR) theory of Hobfoll (1989), individuals may thus experience stress which complicates dealing with change as well as exhausts employees.
thus hampering their performance.

Little is known, however, about why certain employees may struggle more with having to adjust their identity than others. Although our understanding of the consequences of unsuccessful identity-related change is limited (Ashforth & Schinoff, 2016), the associated negative emotions and potential stress indicate that changing one’s identity can be a struggle for employees (Brown, 2015; Winkler, 2016). As in most processes, it is likely that not all employees struggle equally with identity-related change, and that some are more adept at this than others. However, to date, the mostly qualitative studies aimed at understanding the processes of identity construction and the adaptation of work identity, individual differences have not been taken into account. In a study among medical residents there were, for example, no indicated differences in how well individual residents dealt with identity customization (Pratt et al., 2006). Reviews about identity-related change neither discuss nor suggest that not all individuals might be equally equipped to deal with such changes (Ashforth & Schinoff, 2016; Brown, 2015; Winkler, 2016). This is surprising considering that individuals differ in how they typically deal with change in general, as is captured, for example, in the resistance to change scale (Oreg, 2003).

We propose that differences in how well individual employees manage to deal with identity-related change is explained by Work Identity Rigidity (WIR). WIR is an unfavorable attitude toward identity-related change that captures the extent to which employees feel reluctant and unwilling to change their work identity when the situation requires them to adapt who they are at work. Caradador and Caza (2012) defined WIR as the degree to which individuals are unwilling to engage in a deliberate comparison of their work identity to other possibilities and a reluctance to change the meaning attached to work when necessary. Employees with a rigid work identity tend to cling to their idea of who they are at work and are unwilling to compromise their aspirations, which constrains their opportunities to adapt. On the contrary, employees with a flexible work identity deploy adaptive strategies to respond to challenges and changes, and more readily adjust their self-concept as the context changes. Work identity rigidity and work identity flexibility can be considered as two opposites on a continuum.

The purpose of the research presented in this chapter is to develop a work identity rigidity scale in an effort to operationalize the extent to which employees are reluctant and unwilling to change their work identity. Beyond the development of this scale, the contribution of this research is twofold. First,
we believe that WIR, as an unfavorable attitude toward changing who one is at work, may enhance our understanding of identity-related work outcomes. With the exception of the theoretical work and definition of WIR by Cardador and Caza (2012), virtually nothing is known about why certain employees experience more difficulties in dealing with work identity-related changes compared to others. Identity specific constructs are needed that complement general personality traits associated with the ability to deal with change (Hogan & Roberts, 1996), because it would provide organizations with opportunities to develop evidenced-based interventions depending on how individuals differ in their ability to deal with identity-related change. In this way organizations can support employees facing the need to adapt their identity, which is likely to be more frequent considering the changing nature of work (Ashforth et al., 2008; Savickas et al., 2009). Second, using COR (Hobfoll, 1989) as a theoretical foundation, we show that emotional exhaustion may be a mechanism by which WIR affects job performance.

In Study 1, we discuss WIR, related constructs (e.g., intolerance for ambiguity, resistance to change) as the foundation for scale development and initial construct validation. In Study 2, we confirm the factor structure of the WIR scale and provide evidence for its contextual antecedents (i.e., autonomy and profession). Finally, in Study 3 and using a multisource survey we show that WIR is related to different supervisor-rated performance constructs through emotional exhaustion. Combined these three studies support WIR as a relevant individual construct when considering identity-related change.

STUDY 1: DEVELOPMENT AND INITIAL CONSTRUCT VALIDATION OF THE WORK IDENTITY RIGIDITY SCALE

Earlier, we defined WIR as the degree to which employees feel reluctant and unwilling to change their work identity (Cardador & Caza, 2012). WIR is positioned as an unfavorable attitude toward changing who one is at work that has the potential to augment research on how employees deal with identity-related changes by pinpointing those employees who are more likely to shun adjustment and struggle. While WIR is expected to be relatively stable attitude and related to traits that capture a general resistance to change or inability to deal with change, we do expect it to be amenable to change in response to the organizational environment in which the individual resides and, thus not to be a stable trait. As an attitude towards identity-related change, WIR also differs from identity work, defined as all actions targeted at “forming, repairing, maintaining,
strengthening, or revising one's identity in order to strive for coherence and distinctiveness in one's self-concept” (Sveningsson & Alvesson, 2003, p. 1165). WIR is distinct from identity work in the sense that it does not reflect those behaviors that actually comprise identity change, but rather the extent to which identity change is positively or negatively evaluated by the focal individual. As a result, employees who score low on WIR, and are more flexible, could be expected to engage in more identity work.

**The nomological network of WIR**

We position WIR in its nomological network and discuss the expected relationships between WIR and (dis)similar constructs, including personality, strain, and ways of experiencing work and identity to develop hypotheses about convergent, divergent, and discriminant validity.

**WIR and associated personality constructs**

In the nomological network, WIR is anticipated to be positively related to personality constructs that capture rigidity or reluctance to change in general. We expect WIR to be positively associated with rigidity, a personality trait defined as the tendency to be behaviorally consistent and inflexible in one's ways (Mudrack, 2004). Rigid individuals are skeptical of any type of change, including identity-related changes, and tend to cling to their ideas of who they are at work. In this light, WIR also bears similarities to the personality traits that comprise resistance to change, defined as the tendency of individuals to avoid, resist, and devalue changes in general (Oreg, 2003). Along similar lines, we expect WIR to be positively related to the belief that who one is as a person is something fixed (see Chiu, Hong & Dweck's 1997 implicit person theory).

WIR is also expected to be positively related to intolerance for ambiguity, because individuals who are intolerant to ambiguity are more likely than individuals who are tolerant to perceive situations that require identity changes as threatening. Supporting this argument is the finding that managers' tolerance for ambiguity was found to be positively related to coping with organizational change (Judge, Thoresen, Pucik, & Welbourne, 1999), a finding that may generalize to coping with identity-related change because both require the individual to adapt to changing circumstances.

On the contrary, we expect a negative relationship between WIR and openness to experience, as individuals with a rigid work identity are not expected
to welcome new and unusual experiences into their lives which is a central feature of the openness to experience construct. For example, openness to experience has also been found to be positively related to coping with organizational change (Judge et al., 1999) and negatively to resistance to change (Oreg, 2003).

WIR may also be postulated to be related to personality constructs that capture the (in)ability to cope with identity-related changes. Specifically, we expect that WIR is negatively related to positive affectivity and positively related to negative affectivity. Employees with a tendency to experience positive emotions (Watson, Clark, & Tellegen, 1988) are expected to have better coping strategies to deal with change. Vice versa, employees with the tendency to experience negative emotions (Watson et al., 1988) are expected to see change as threatening since they tend to focus and dwell on potential harm and stress.

Moreover, we expect WIR to be negatively related to self-esteem. The extent to which individuals believe they are capable, worthy, and successful (Coopersmith, 1967), that is high self-esteem, could be considered a resource that helps employees deal with identity-related change. Specifically, we expect that individuals with high self-esteem have more trust in their abilities to change who they are when required and are therefore more likely to engage in changing their identity as well as succeeding at it.

**WIR and associated strain constructs**

In the nomological network, WIR is proposed to be positively related to strain indicators. Specifically, we expect employees who score higher on WIR to experience more stress as a result of their inability to effectively cope with change. Emotional exhaustion, defined as a chronic state of emotional and physical depletion (Maslach & Jackson, 1981), closely resembles stress and results from workplace stressors (Demerouti et al., 2003). COR states that stress can be considered a reaction to either a perceived or actual net loss of resources or the lack of resource gain. When confronted with stress individuals will strive to minimize their resource losses by protecting themselves (i.e., the protection mechanism) or by further enriching their resource pool to guard against future losses (i.e., the accumulation mechanism) (Hobfoll, 1989). WIR is likely to be related to framing identity-related changes as a loss and experience higher emotional exhaustion based on the emotional resources that are spent in dealing with such a loss situations. Whereas opportunities for identity expression, such as self-reflective identity badges, were found to reduce emotional exhaustion
(Grant, Berg, & Cable, 2014), being restricted to a limited and unadjusted identity may thus imply that WIR is likely to be positively related to emotional exhaustion (Kira & Balkin, 2014).

**WIR and associated ways of experiencing work and identity**

In the nomological network, WIR is at least somewhat related to the way employees experience their work and their identity, because employees who see their work as an essential part of who they are, are likely to want to hold on to that specific identity. Specifically, we expect that WIR is positively related to obsessive passion, defined as the strong inclination toward work resulting from controlled internalization of that activity into one’s identity (Vallerand et al., 2003). Obsessive passion is associated with the uncontrollable urge to engage in the activity and be rigidly persistent. Employees with an obsessive passion have the tendency to keep doing what they love even when this is hurting them (Birkeland & Buch, 2015). Having an obsessive passion may thus be expected to be related to having a pre-set unfavorable attitude towards change as captured by the WIR construct.

We do not expect harmonious passion, defined as the voluntary inclination toward work resulting from autonomous internalization of work (Vallerand et al., 2003), to exhibit a similar positive relationship with WIR. Employees with harmonious passion choose rather freely to engage in an activity rather than being compelled to do so, which allows them to change their course of action when needed. It is not the emotional attachment to work itself but rather the fixated and disproportionate part unique to obsessive passion that implies rigidity concerning one’s work identity. Along similar lines, we do not expect to find a relationship between WIR and the degree to which employees incorporate their professional identity in their self-concept (Ashforth, Joshi, Anand, & O’Leary-Kelly, 2013) nor do we expect a relationship between WIR and calling, defined as the subjective orientation to work driven by the work itself rather than financial benefits or career advancement (Wrzesniewski et al., 1997). Although research shows that stronger identification makes change harder (Maitlis, 2009), this does not necessary reflect an employee’s (un)favorable attitude towards identity-related change. In this vein, Cardador and Caza (2012) argue that work identity flexibility is separate from calling in that WIR helps distinguish between the healthy and unhealthy pursuit of calling. In sum, because WIR reflects a resistance toward redefining who one is, as opposed to the attachment to one’s
work itself, we propose that it is positively associated with obsessive passion and distinct from harmonious passion, calling, and professional identification.

**Method**

**Sample and procedure**

A US-based Qualtrics panel was used to obtain data by means of an online questionnaire. The questionnaire was distributed to potential respondents who were employed the majority of the work week for at least a year in the US by invitation only using unique and verified email addresses. The use of targeted invitations in a panel minimizes bias through self-selection and professional survey takers, while obtaining similar reliability as traditional methods and even slightly more demographically diverse samples. In total 887 respondents participated. We excluded 83 incomplete responses. Another 360 were excluded from further participation in the survey because they did not meet preset criteria pertaining to their employment (i.e., 115 self-employed or unemployed respondents), their residency (i.e., 8 non-US residents), job tenure (i.e., 138 respondents with experience under one year), and their work hours (i.e., 99 respondents with work weeks below 24 hours per week). Finally, 68 responses were excluded based on careless response checks, including two instructed response items (i.e., “please respond with strongly disagree for this item”), uniform response patterns (e.g., only “7”), and a far below average response time.

The final sample consisted of 376 respondents of which 68% self-identified as female \(M_{age} = 40.55; SD = 12.13\). Most respondents had a permanent contract (94.9%) for an average of 39.10 hours per week \(SD = 5.61\) and had an average job tenure of 8.68 years \(SD = 7.87\). Of the respondents, 56.1% had a Bachelor’s degree or higher, and the minimum educational level was a high school diploma. Respondents held a wide variety of jobs (e.g., paralegal, marketing director, assistant professor, teacher, hostess, dental assistant, housekeeper, web designer, truck driver, school nurse, personnel director).

**Measures**

Unless otherwise indicated a 7-point Likert scale was used ranging from 1 = *completely disagree* to 7 = *completely agree*. Cronbach’s alpha coefficient
(above .70) was used to assess internal consistency (Nunnally & Bernstein, 1994). In addition, we asked for demographic variables, including age, gender, country of residence, education, contracted work hours, job tenure, and contract type (i.e., permanent or temporary).

**Work identity rigidity.** The extent to which individuals feel reluctant and unwilling to change their work identity was measured using our self-developed scale (see Appendix D). Items were deductively derived from definitions found in the existing literature (Cardador & Caza, 2012). This resulted in an initial set of 45 items, which were then evaluated for overlap, content domain coverage, and inconsistency in three pilot studies. Based on these pilot studies, all items with item-total correlations less than .40, factor loadings below .35, or that were too difficult to understand by respondents were dropped (Hinkin, 1998). We retained eleven items, of which seven items were indicative of WIR and four were counter-indicative (i.e., indicative of work identity flexibility). Example items are “I get upset when I have to change my work identity” and “who I am at work is flexible” (counter-indicative). Respondents were introduced to the work identity construct with a short introductory text (including examples) which ended by asking them to formulate who they are at work (i.e., used as a synonym for work identity). Respondents were asked to keep this formulation in mind in replying to the eleven items. The often elaborate responses to the open question indicated that respondents were motivated, and capable of describing their own work identity and understanding the concept sufficiently to answer the items about WIR (see Appendix E). Scale analyses are presented below.

**Rigidity.** Trait rigidity refers to individuals’ tendency to be behaviorally consistent and inflexible in their ways and was measured with six items (Mudrack, 2004), such as “I am guided in my conduct by certain principles which I have accepted” ($\alpha = .71$).

**Resistance to change.** The general tendency of people to avoid, resist, and devalue changes was measured with the four dimension resistance to change scale developed by Oreg (2003). The first dimension, cognitive rigidity, was measured with four items, including “I don’t change my mind easily” ($\alpha = .61$). The second dimension, routine seeking, was measured with five items.

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8 Students from an executive and undergraduate program at a large Dutch University, who were employed on a part-time basis participated in the three pilot studies (N = 50; N = 116; and N = 57). Details about the pilot studies can be found in Appendix E.

9 See Appendix E.
including “I’ll take a routine day over a day full of unexpected events any time” ($\alpha = .68$). The third dimension, emotional reaction to change, was measured with four items, such as “when I am informed of a change of plans, I tense up a bit” ($\alpha = .83$). The fourth dimension, short-term thinking, was measured with four items, for example “I sometimes find myself avoiding changes that I know will be good for me” ($\alpha = .82$). Because the reliability of some dimensions was rather low, we also included the computed overall resistance to change as an average across the 17 items ($\alpha = .88$).

**Implicit person theory.** The extent to which people believe that who one is as a person is something fixed was assessed with three items that capture implicit person theory (Chiu et al., 1997). An example item is “people can do things differently, but the important parts of who they are can’t really be changed” ($\alpha = .78$).

**Intolerance for ambiguity.** The degree to which people are intolerant to ambiguity was measured with the MSTAT-II developed by McLain (2009). This most recent version of the MSTAT consists of 13 items, including “I try to avoid situations that are ambiguous” and “I generally prefer novelty over familiarity” (counter-indicative) ($\alpha = .84$).

**Openness to experience.** The extent to which people are open to new and unusual experiences was measured with the mini-IPIP scale for intellect/imagination (Donnellan, Oswald, Baird, & Lucas, 2006). The scale included four items, such as “I have a vivid imagination” and “I am not interested in abstract ideas” (counter-indicative) ($\alpha = .82$).

**Affectivity.** Positive and negative trait affectivity of the PANAS short version (Watson et al., 1988) were included to assess individuals’ tendency to experience positive and negative emotions. Respondents were asked to rate the degree to which they generally experienced five positive emotions (e.g., inspired, active) ($\alpha = .79$) and five negative emotions (e.g., upset, nervous) ($\alpha = .80$) on a 5-point Likert scale ranging from 1 = never to 5 = always.

**Self-esteem.** The extent to which individuals believe they are capable, worthy and successful was measured with the ten item Rosenberg Self-Esteem Scale (Rosenberg, 1965). Example items are “on the whole, I am satisfied with myself” and “all in all, I am inclined to think that I am a failure” (counter-indicative) ($\alpha = .82$).

**Emotional exhaustion.** Emotional exhaustion was measured with the Oldenburg Burnout Inventory (OLBI) (Demerouti et al., 2003). The measure
consisted of eight items, such as “during my work, I often feel emotionally drained” ($\alpha = .86$).

*Passion.* Obsessive passion was measured with seven items developed by Vallerand et al. (2003) and included items such as “I cannot live without my work” ($\alpha = .86$). Harmonious passion was also measured with seven items, for example “for me work is a passion that I still manage to control” ($\alpha = .86$).

*Calling.* Calling was measured with the scale developed by Leana et al. (2009) based on Wrzesniewski et al. (1997) and consisted of four items such as “my work is one of the most important things in my life” ($\alpha = .77$).

*Professional identification.* The extent to which professional identity has become part of one’s self-concept was measured with a scale developed by Lammers, Atouba, and Carlson (2013). The scale consisted of four items, for example “I feel I have a lot in common with others in my profession” ($\alpha = .72$).

**Results and discussion**

*Structure validation of the WIR scale*

Prior to subjecting the WIR items to exploratory factor analysis, the inter-item correlation matrix was used to discard three items with correlations below .40 (Hinkin, 1998). We used parallel analysis (Patil, Singh, Mishra, & Donavan, 2008) to determine the number of factors to retain in the principal axis analysis (Ford, MacCallum, & Tait, 1986). A one factor solution was retained for the remaining eight items, because only the Eigenvalue of the first factor (3.968) was greater than the Eigenvalue of the corresponding value provided by web-based parallel analysis (1.214). Subsequently, two more items were discarded for factor loadings below .40 (Ford et al., 1986; Hinkin, 1998). The final one factor solution consisting of six items is presented in Table 1 and explained 53.8% of the variance. The Cronbach’s alpha coefficient for the WIR scale was .87. These preliminary results indicate that WIR is a unidimensional construct that can be measured reliably.

*Construct validation of the WIR scale*

The means and standard deviations of all measures along with the intercorrelations that were used to assess convergent, divergent, and discriminant validity of the WIR scale are found in Table 2. As expected, WIR was significantly and positively and moderately to strongly correlated with personality traits that capture the reluctance to change in general, namely rigidity ($r = .30$, $p < .001$),
When changing who you are feels unbearable implicit person theory ($r = .26, p < .001$), and intolerance for ambiguity ($r = .45, p < .001$). WIR also correlated negatively and moderately with openness to experience ($r = -.27, p < .001$). WIR had relatively strong, positive correlations with the dimensions emotional reaction ($r = .56, p < .001$) and short term thinking ($r = .53, p < .001$) of the resistance to change scale with which it was strongly correlated ($r = .52, p < .001$). WIR was also moderately correlated with personality traits that capture the capability to cope with change, namely negative affectivity ($r = .30, p < .001$), self-esteem ($r = -.32, p < .001$), and to a lesser extent positive affectivity ($r = -.10, p = .043$). In addition, WIR was positively and moderately related to emotional exhaustion ($r = .43, p < .001$). As expected, WIR was only correlated with obsessive passion ($r = .17, p = .001$) and not with harmonious passion, calling, or professional identification. With regard to the demographic variables, finally, WIR was only correlated with age ($r = -.19, p < .001$) and not with gender, education, job tenure, contracted work hours, or contract type.

These results provided evidence for the construct validity of the WIR scale as the data supported all the expected relationships as hypothesized in the nomological network.

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Table 1: Work Identity Rigidity Scale Factor Loadings for the Exploratory Factor Analysis in Study 1

<table>
<thead>
<tr>
<th>Item</th>
<th>M</th>
<th>SD</th>
<th>Factor correlation</th>
<th>Inter-item correlation</th>
<th>α if item deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>I get upset when I have to change my work identity</td>
<td>3.52</td>
<td>1.49</td>
<td>.763</td>
<td>.702</td>
<td>.845</td>
</tr>
<tr>
<td>I dislike changing who I am at work</td>
<td>4.17</td>
<td>1.56</td>
<td>.622</td>
<td>.575</td>
<td>.867</td>
</tr>
<tr>
<td>I get restless when I constantly have to change my identity at work</td>
<td>3.73</td>
<td>1.50</td>
<td>.808</td>
<td>.743</td>
<td>.838</td>
</tr>
<tr>
<td>I find it hard to change my work identity even if it is necessary</td>
<td>3.76</td>
<td>1.52</td>
<td>.667</td>
<td>.616</td>
<td>.860</td>
</tr>
<tr>
<td>Adjusting who I am at work makes me feel uneasy</td>
<td>3.73</td>
<td>1.57</td>
<td>.794</td>
<td>.730</td>
<td>.840</td>
</tr>
<tr>
<td>It costs me too much energy to change my work identity</td>
<td>3.73</td>
<td>1.51</td>
<td>.729</td>
<td>.676</td>
<td>.850</td>
</tr>
</tbody>
</table>

Note: $N = 376$. KMO Measure of sampling adequacy = .878. Bartlett’s Test of Sphericity $p < .001$. Cronbach’s alpha = .87.
STUDY 2: CONFIRMATION OF THE FACTOR STRUCTURE AND INVESTIGATION OF CONTEXTUAL ANTECEDENTS

Study 2 was conducted to confirm the factor structure of the WIR scale and further establish its construct validity. Specifically, we set out to build evidence for the role of context in WIR (i.e., profession and autonomy) by assessing the factor structure and reliability of the scale among two professionally homogeneous groups, namely teachers and accountants. Although potential contextual antecedents were not yet addressed in Study 1, we argue here that WIR is likely at least somewhat context dependent since WIR is defined as an unfavorable attitude towards identity-related change rather than a personality trait. We therefore expect that WIR also in part depends on the profession of the individual. Professionals in general require a certain level of knowledge, autonomy, and altruism (Hodson & Sullivan, 2012, p. 260) and they tend to have a strong and clear professional identity because of the high work investment and specialized education (Beijaard, Meijer, & Verloop, 2004; Pratt et al., 2006; Warren & Parker, 2009). However, as argued and found in Study
When changing who you are feels unbearable

We do expect that in certain professions it might be harder to change, adjust, and deconstruct identity than in others. Specifically, we expect this to be the case when the meaning associated with one’s work identity is generally shared between individuals, which potentially makes work even more central in defining who one is. From childhood on individuals have experience with teachers and thus a concept of what it means to be a teacher, something that may not necessarily be true of accountants.

In addition, we expect that autonomy, as a job characteristic, is negatively related to WIR. Research on work design shows that employees in jobs high on autonomy, develop more elaborate mental models, also with regard to their identity (Wall, Jackson, & Mullarkey, 1995). This implies that employees who have more autonomy have a better understanding of who they are at work. In addition, autonomy may provide room for employees to experiment with provisional selves (Ibarra, 1999), providing more flexibility in work identity and identity development (Kernis, 2000). In addition, autonomy may make it easier to cope with identity-related change induced stress and strain, because it offers employees control over how, when, or what they do (Bakker & Demerouti, 2014; Karasek, 1979).
Autonomy may thus be a resource that can both stimulate identity development as well as reduce the stress associated with identity-related changes.

Method
Sample and procedure
An online questionnaire was used to collect data from teachers and accountants in the Netherlands. Respondents received an anonymous link to the questionnaire, available in Dutch only (translated using a translation - back translation method), by email or through social media. A gift card for a Dutch online retailer was raffled to stimulate participation and to show appreciation for respondents’ time and effort.

The final sample consisted of \( N = 164 \) teachers of which 62.8\% self-identified as female (\( M_{age} = 43.45; \ SD = 13.33 \)) and \( N = 89 \) accountants of which 31.5\% self-identified as female (\( M_{age} = 34.22; \ SD = 11.93 \)). Average tenure was 15.92 years (\( SD = 12.56 \)) for teachers and 10.18 years (\( SD = 9.84 \)) for accountants. On average, teachers worked 29.99 hours contractually per week (\( SD = 10.34 \)), whereas on average accountants worked 39.33 hours contractually per week (\( SD = 5.50 \)). Most teachers worked in either secondary (49.4\%) or primary education (36.6\%), followed by higher vocational education (10.4\%), intermediate vocational education (1.8\%), and universities (1.8\%). Most accountants worked for an accountancy office (70.8\%), followed by accountants who worked in a business role (19.1\%), in a governmental position (6.7\%), as internal accountant for a company (2.2\%), or were self-employed (1.1\%).

Measures
The WIR scale and the measures for emotional reactions to change (part of the resistance to change scale) were the same as those used in Study 1. With the exception of the WIR scale, all items were rated on a 5-point Likert scale ranging from 1 = completely disagree to 5 = completely agree. We included age, gender, contractual work hours, and job tenure as demographic variables.

Identity centrality. We used the extent to which one’s work identity was central to the respondent’s self-concept to capture whether one’s professional identity as a teacher or accountant extends beyond the workplace, making it more difficult to adjust. We measured identity centrality with one item (Vignoles, Regalia, Manzi, Golledge, & Scabini, 2006), namely “being a teacher/accountant plays an important role in defining who I am in general”.
Autonomy. We used the four item subscale for decision-making autonomy (Morgeson & Humphrey, 2006). A sample item is “the job allows me to make a lot of decisions on my own” ($\alpha = .84$).

Data analysis

To confirm the factor structure of the WIR scale, we used Mplus to perform SEM with maximum likelihood estimation and followed Hu and Bentler’s (1999) recommendations as to indices and associated cut off values to assess model fit (i.e., $\chi^2$ non-significant, RMSEA < .06, CFI > .95, TLI > .95, SRMR < .08). We used an independent-samples t-test to compare means between teachers and accountants.

Results and discussion

Structure validation of the WIR scale

A confirmatory factor analysis (CFA) was applied to validate the scale’s structure. The one-factor solution consisting of all six WIR items demonstrated a good fit to the data (see Table 3). Alternative models also showed good fit, however, a comparison of the different models showed that $\Delta \chi^2$ was non-significant. Based on the good fit for the overall sample, we confirmed the factor structure found in Study 1 and decided to retain the unidimensional structure of the WIR scale. Moreover, the findings show that WIR can be reliably tested among relatively homogeneous groups and across cultures (i.e., US in Study 1 and Netherlands in this study). We also performed a CFA separately for the teachers and the accountants. Although the fit of the unidimensional model for the teachers was good $\chi^2$ (9, N = 157) = 17.564, $p = .041$ (TLI = .960; CFI = .976; RMSEA = .078; SRMR = .041), the fit for the accountants was less good, $\chi^2$ (9, N = 82) = 4.075, $p = .906$ (TLI = 1.043; CFI = 1.000; RMSEA = .000; SRMR = .027).

Table 3: Confirmatory Factor Analysis of the Work Identity Rigidity scale in Study 2

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$</th>
<th>df</th>
<th>p-value</th>
<th>CFI</th>
<th>TLI</th>
<th>RMSEA</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 1-factor WIR</td>
<td>14.608</td>
<td>9</td>
<td>.102</td>
<td>.990</td>
<td>.984</td>
<td>.051</td>
<td>.030</td>
</tr>
<tr>
<td>2 2-factor WIR</td>
<td>14.339</td>
<td>8</td>
<td>.073</td>
<td>.989</td>
<td>.979</td>
<td>.057</td>
<td>.030</td>
</tr>
<tr>
<td>3 3-factor WIR</td>
<td>10.578</td>
<td>6</td>
<td>.102</td>
<td>.992</td>
<td>.980</td>
<td>.056</td>
<td>.027</td>
</tr>
</tbody>
</table>

Note: N= 243. 1WIR scale. 2WIR split into a negative attitude component and incapability component. 3WIR split into an emotional response component, negative attitude component, and an incapability component. Estimator = ML, maximum likelihood parameter estimates with standard errors and chi-square test statistics that are robust to non-normality. Use of the conventional cut-off values of these fit indices (i.e., $\chi^2$ non-significant, RMSEA < .06, CFI > .95, TLI > .95, SRMR < .08).
.022), which may be explained by the small sample size for accountants (Kenny, Kaniskan, & McCoach, 2015; Marsh, Balla, & McDonald, 1988). Please refer to Table 4 for the factor loadings of the combined sample.

### Table 4: Work Identity Rigidity Scale Factor Loadings for the Confirmatory Factor Analysis in Study 2

<table>
<thead>
<tr>
<th>Item</th>
<th>M</th>
<th>SD</th>
<th>Estimate Teacher</th>
<th>Accountant</th>
</tr>
</thead>
<tbody>
<tr>
<td>I get upset when I have to change my work identity</td>
<td>3.82</td>
<td>1.51</td>
<td>.603</td>
<td>.659</td>
</tr>
<tr>
<td>I dislike changing who I am at work</td>
<td>4.60</td>
<td>1.56</td>
<td>.728</td>
<td>.730</td>
</tr>
<tr>
<td>I get restless when I constantly have to change my identity at work</td>
<td>4.58</td>
<td>1.69</td>
<td>.795</td>
<td>.839</td>
</tr>
<tr>
<td>I find it hard to change my work identity even if it is necessary</td>
<td>3.86</td>
<td>1.55</td>
<td>.731</td>
<td>.758</td>
</tr>
<tr>
<td>Adjusting who I am at work makes me feel uneasy</td>
<td>4.25</td>
<td>1.61</td>
<td>.854</td>
<td>.844</td>
</tr>
<tr>
<td>It costs me too much energy to change my work identity</td>
<td>3.66</td>
<td>1.39</td>
<td>.461</td>
<td>.432</td>
</tr>
</tbody>
</table>

Note: N = 243. Standardized estimates are reported. Teacher estimates N = 157. Accountant estimates N = 82. All loadings were significant at p < .001.

**Construct validation of the WIR scale and differences between teachers and accountants**

Table 5 shows the means, standard deviations, and bivariate correlations between all variables included in Study 2 for the combined sample. Table 6 shows these correlations for the teacher and accountant sub-samples.

### Table 5: Correlations between Work Identity Rigidity, Emotional Reaction, Identity Centrality, Autonomy, and Demographic Variables in Study 2

<table>
<thead>
<tr>
<th>Construct</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. WIR</td>
<td>4.13</td>
<td>1.19</td>
<td>(.86)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Emotional reaction</td>
<td>2.74</td>
<td>0.73</td>
<td>.389**</td>
<td>(.67)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Identity centrality</td>
<td>4.70</td>
<td>1.57</td>
<td>.156*</td>
<td>.164**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Autonomy</td>
<td>3.74</td>
<td>0.64</td>
<td>-.162*</td>
<td>-.188</td>
<td>-.018</td>
<td>(.73)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Gender</td>
<td>1.55</td>
<td>0.52</td>
<td>.171**</td>
<td>.169**</td>
<td>.059</td>
<td>-.063</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Age</td>
<td>40.21</td>
<td>13.57</td>
<td>.048</td>
<td>.016</td>
<td>.056</td>
<td>.063</td>
<td>.018</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Tenure</td>
<td>13.88</td>
<td>11.97</td>
<td>.019</td>
<td>.085</td>
<td>.129*</td>
<td>.073</td>
<td>.102</td>
<td>.816**</td>
<td></td>
</tr>
<tr>
<td>8. Work hours</td>
<td>33.05</td>
<td>10.04</td>
<td>-.083</td>
<td>-.103</td>
<td>-.104</td>
<td>.118</td>
<td>-.221**</td>
<td>-.284**</td>
<td>-.190**</td>
</tr>
</tbody>
</table>

Note: N = 253. * p < .05, ** p < .01. Gender is rated as 1 = male, 2 = female. Cronbach’s alphas are reported diagonally.

In line with Study 1, WIR was significantly correlated with employees’ anticipated emotional reactions to change (i.e., dimension of general resistance to change) in the combined sample (r = .39, p < .001), and for the two professions separately (r = .36, p < .001; and r = .39, p < .001 respectively). This result provided further construct validation and showed that the association between WIR and trait-based affective resistance to change is the same in two different professions.
professional contexts, as would be expected. Contrary to Study 1, WIR was not significantly correlated with age, but a small to medium correlation was found for gender ($r = .17$, $p = .007$). It should be noted, however, that when addressed in the subsamples, the relationship between WIR and gender was only significant for accountants ($r = .23$, $p = .031$).

For the contextual factors, we used an independent-samples t-test to investigate whether there was indeed a significant difference in WIR between teachers and accountants ($t = 2.89$, $p = .003$). The teachers in the sample had a mean WIR score of 4.29 ($SD = 1.13$), whereas the accountants had a mean WIR score of 3.83 ($SD = 1.23$). Equal variances were assumed based on Levene’s test ($p = .298$). This finding suggests that WIR is at least partially dependent on an individual’s profession. The differences in WIR between teachers and accountants could potentially be explained by the significant higher identity centrality, or the extent to which one’s professional identity is central to one’s general self-concept, of teachers ($M = 4.90$; $SD = 1.52$) compared to the identity centrality of accountants ($M = 4.32$; $SD = 1.59$) ($t = 2.86$, $p = .005$; equal variances assumed based on Levene’s test $p = .132$). Following this difference between teachers and accountants, a small but positive correlation between WIR and identity centrality ($r = .16$, $p = .013$) was only found in the combined sample. Identity centrality was not related to WIR in the separate samples, because there identity centrality may reflect individual differences in the strength of professional identity rather than the centrality of identity across professions that may be associated with difficulty to change similar to obsession passion as found in Study 1. Moreover, WIR was correlated with the autonomy of the employee ($r = -.16$, $p = .010$). However, in the separate samples the relationship between WIR and autonomy was only significant for teachers ($r = -.25$, $p = .002$)$^{10}$. These results indicate, that the relationship between autonomy and WIR may be better assessed across than within professions as autonomy as a job characteristic may depend more on the context (or may imply different things for individuals in some contexts than in others) than on the individual employee within a similar professional context.

$^{10}$ Additional analyses on data not reported in Study 1 and 3 showed a similar negative correlation between WIR and autonomy ($M_1 = 5.17$; $SD_1 = 1.22$; and $M_3 = 3.74$; $SD_3 = 0.87$) in Study 1 ($r = -.16$, $p = .002$) and in Study 3 ($r = -.34$, $p = .001$) as was found in the combined sample in Study 2.
These results provided further construct validation for the WIR scale based on the relationship between WIR and emotional reaction, and provided some preliminary evidence for potential contextual antecedents/correlates of WIR such as profession, identity centrality, and autonomy.

**STUDY 3: FIRST INDICATIONS OF PREDICTIVE VALIDITY OF THE WIR SCALE**

To further validate the WIR scale we set out to test the link between WIR and employee performance (e.g., in-role performance, OCB, and workplace deviance) and propose that emotional exhaustion mediates the relationship between the two. Study 1 showed that WIR is positively related to emotional exhaustion, which we explained based on the conservation of resources (COR) theory of Hobfoll (1989). The depletion of emotional resources makes that employees can no longer engage with the work psychologically, which leads to the expectation of a negative relationship between WIR and performance.

Employees who score high on WIR are more likely to appraise a situation or change concerning their work identity as a threat or loss based on two reasons. First, employees who score high on WIR are likely to focus on how change may negative impact them. Indeed, study 1 found a positive relationship between WIR and the short-term thinking dimension of the resistance to change scale, which suggests that for employees with a rigid work identity the short-term inconvenience predominates over the long-term benefits of change (Oreg, 2003). Employees who score lower on WIR are likely to be more reflective and pragmatic about change than employees who score higher on WIR. The first are expected to shape their attitudes regardless of the positive or negative aspects of that change. The stress that employees with a high WIR score experience based on their increased sensitivity to perceive loss thus resulted in our expectation of a
positive relationship between WIR and emotional exhaustion.

Second, employees who score higher on WIR are expected to deplete more emotional resources compared to employees who score lower on WIR. Study 1 showed that there was a strong positive relationship between WIR and the emotional reaction dimension of the resistance to change scale, which suggests that employees with a rigid work identity are likely to expend more emotional resources. The stress that employees with a high WIR score experience based on their expenditure of such resources to protect themselves (i.e., their work identity) and to minimize their resource losses thus suggests a positive relationship between WIR and emotional exhaustion.

The increase in emotional exhaustion associated with WIR is likely to be related to the employee’s performance as ample research has shown that emotional exhaustion, as a form of stress, is negatively related to in-role or job performance (Bakker, Demerouti, & Verbeke, 2004; Cropanzano, Rupp, & Byrne, 2003; Halbesleben & Bowler, 2007; Keijsers, Schaufeli, Le Blanc, Zwerts, & Miranda, 1995; Parker & Kulik, 1995; Swider & Zimmerman, 2010; Taris, 2006; Wright & Cropanzano, 1998). We expect that the emotional exhaustion associated with WIR triggers strategies to conserve energy. As a result, in-role performance of employees who score high on WIR is expected to be lower than that of employees who score low on WIR, because they are more likely to experience emotional exhaustion. We thus hypothesize:

\[ H1a: \text{Emotional exhaustion mediates the negative relationship between WIR and in-role performance.} \]

Enacting OCB, broadly defined as the affiliative and challenging positive organizational behaviors that extend in-role performance (Organ, 1997; Van Dyne & LePine, 1998) also consumes resources. The availability of resources affects whether or not employees engage in OCB (Bergeron, 2007; Bolino, Harvey, & Bachrach, 2012; Koopman, Lanaj, & Scott, 2016; Rubin, Dierdorff, & Bachrach, 2013). We therefore expect that employees reduce their OCB in order to conserve energy, because they are emotionally exhausted and lack resources due to their rigid work identity (Bolino, Hsiung, Harvey, & LePine, 2015; Chang, Johnson, & Yang, 2007; Chiu & Tsai, 2006; Cropanzano et al., 2003). We thus hypothesize:

\[ H1b: \text{Emotional exhaustion mediates the negative relationship between WIR and OCB.} \]
WIR also influences workplace deviance through emotional exhaustion. Workplace deviance is defined as the “voluntary behavior that violates significant organizational norms and, in doing so, threatens the well-being of the organization or its members, or both” (Bennett & Robinson, 2000, p. 349). Workplace deviance, especially behaviors such as withholding effort and working slower, could be a way for high WIR employees to protect themselves against threats and deal with a lack of resources resulting from emotional exhaustion. Emotional exhaustion has indeed been shown to be related to workplace deviance (Maslach & Jackson, 1981; Mulki, Jaramillo, & Locander, 2006; van Jaarsveld, Walker, & Skarlicki, 2010). We thus expect that employees who score high on WIR show more withdrawal behavior, because the emotional exhaustion of high WIR employees likely requires them to use protection-focused strategies. We hypothesize:

\[ H1c: \text{Emotional exhaustion mediates the positive relationship between WIR and workplace deviance.} \]

**Method**

**Sample and procedure**

A multisource survey was used to obtain data by means of an online questionnaire. Respondents from the Netherlands who met the same requirements as set in Study 1 and their supervisor both received a personal invitation by email. Questionnaires were available in Dutch (translated using a translation-back translation method) and English to allow members of the expat population in the Netherlands to participate. Gift cards for a Dutch online retailer were raffled to stimulate participation and to show appreciation for the invested time and effort. In total 156 of the 205 distributed questionnaires were completed by employees (response rate 76.1%) and 121 of the 160 questionnaires by their supervisors (response rate 75.6%). Completely matched data was obtained for \( N = 100 \) employee-supervisor dyads.

The employee sample (\( N = 100 \)) was 52% self-identified as female (\( M_{age} = 36.40; \ SD = 13.37 \)). Average job tenure was 6.49 years (\( SD = 8.44 \)). Respondents worked 33.27 hours contractually per week on average (\( SD = 13.23 \)). The respondents held a wide variety of job titles, including consultant, dental assistant, software engineer, nurse, chef, administrator, sniper, bartender, bartender,
and HR advisor, and were working in a variety of sectors (e.g., 16% education, 12% industry, 10% consulting and financial services, 10% health care, 7% IT, 6% government, 6% retail and hospitality, 5% construction, 4% non-profit, and 20% other). The supervisor sample (N = 100) 44% self-identified as female (Mage = 43.44; SD = 11.47).

**Measures**

The WIR scale and measure for emotional exhaustion were the same as those used in Study 1 and were answered by the focal employees. Unless otherwise indicated a 7-point Likert scale was used ranging from 1 = *completely disagree* to 7 = *completely agree*. We included age, gender, contractual work hours, job tenure, and industry as demographic variables. The performance constructs were rated by the supervisor of the focal employee.

**In-role performance.** Supervisors rated the in-role performance of their employee(s) using a four item scale (Van Dyne & LePine, 1998). A sample item is “this employee adequately completes responsibilities” (α = .89).

**Organizational Citizenship Behavior.** Supervisors rated the extent to which employees went beyond their in-role performance by evaluating their OCB. We focused on helping behavior, defined as the small acts of consideration that help to build and preserve relationship at work, because it clearly complements in-role performance and can be accurately rated by supervisors because of its visibility and direct and clear affiliative nature (Van Dyne & LePine, 1998). In addition, affiliative OCB is expected to deplete resources whereas challenging OCB can offer employees a way to restore their resources (Hobfoll & Freedy, 1993). We used the six items for helping behavior (Van Dyne & LePine, 1998), for example “this employee helps others in this group with their work responsibilities” (α = .85).

**Workplace deviance.** Supervisors rated the extent to which they saw employees voluntarily violating organizational norms (Bennett & Robinson, 2000). We focused on organizational deviance and in particular on withdrawal behavior, because these small acts of going against the organization are clearly undesirable but could be rated by supervisor without eliciting too much social desirability bias. Furthermore, withdrawal is more likely aligned with WIR, than other more vindictive deviant behaviors such as stealing. We selected those seven items from the organizational deviance scale that reflected withdrawal (Bennett & Robinson, 2000), such as “this employee came in late to work without permission” (α = .80).
Data analysis

To test our hypotheses and to re-examine the factor structure of the WIR scale, we used Mplus to perform SEM with robust maximum likelihood estimation. We used the same fit indices and cut-off values as in Study 2. As the performance of some respondents was rated by the same supervisor (N = 13) (i.e., data were nested), we took into account complex sampling features by using a sandwich estimator in Mplus (i.e., Type = Complex).

Results and discussion

Descriptive statistics

Table 7 shows the means, standard deviations, and bivariate correlations between all variables included in Study 3. As expected and in line with Study 1, WIR was moderately to strongly correlated with emotional exhaustion (r = .40, p < .001). The result that employees who score higher on WIR are more likely to experience higher emotional exhaustion supports the assumption that WIR reflects an unhealthy approach to work (Cardador & Caza, 2012). No significant correlation was found between WIR and in-role performance, OCB, or workplace deviance. Contemporary thinking about mediation, however, does not require a significant relationship between the independent and dependent variables (Hayes, 2009; Hayes & Rockwood, 2016). Emotional exhaustion, as expected, was negatively correlated with in-role performance (r = -.22, p = .026), OCB (r = -.21, p = .032), and positively with workplace deviance (r = .20, p = .048). The demographic variables did not significantly correlate with WIR, emotional exhaustion, or performance (except for an unexpected negative correlation between age and in-role performance; r = -.20, p = .045). We do not control for

Table 7: Correlations between Work Identity Rigidity, Emotional Exhaustion, Supervisor rated Performance, and Demographics in Study 3

<table>
<thead>
<tr>
<th>Construct</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. WIR</td>
<td>3.52</td>
<td>0.95</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Emotional exhaustion</td>
<td>3.14</td>
<td>0.95</td>
<td>.403**</td>
<td>(.75)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. In-role performance†</td>
<td>5.97</td>
<td>0.76</td>
<td>.038</td>
<td>-.222*</td>
<td>(.89)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. OCB</td>
<td>5.78</td>
<td>0.72</td>
<td>.001</td>
<td>-.214*</td>
<td>.605**</td>
<td>(.85)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Workplace deviance‡</td>
<td>1.85</td>
<td>0.75</td>
<td>.142</td>
<td>.198*</td>
<td>-.365**</td>
<td>-.198*</td>
<td>(.80)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Gender</td>
<td>1.52</td>
<td>0.50</td>
<td>.026</td>
<td>.157</td>
<td>-.143</td>
<td>-.092</td>
<td>.195</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Age</td>
<td>36.40</td>
<td>13.37</td>
<td>.041</td>
<td>-.010</td>
<td>-.203*</td>
<td>-.001</td>
<td>-.097</td>
<td>.195</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Job tenure</td>
<td>6.49</td>
<td>4.44</td>
<td>.000</td>
<td>.038</td>
<td>-.143</td>
<td>-.007</td>
<td>.164</td>
<td>.150</td>
<td>.560**</td>
<td></td>
</tr>
<tr>
<td>9. Contractual work hours</td>
<td>33.27</td>
<td>13.23</td>
<td>.181</td>
<td>.059</td>
<td>.099</td>
<td>-.128</td>
<td>-.096</td>
<td>-.226*</td>
<td>-.107</td>
<td>-.195</td>
</tr>
</tbody>
</table>

Note: N = 100. * p < .05, ** p < .01. Gender is rated as 1 = male, 2 = female. †Rated by supervisor. Cronbach’s alphas are reported diagonally.
these variables in our further analyses (including age as we did not hypothesize this relationship) in order to increase statistical power and offer better interpretable results (Bernerth & Aguinis, 2016).

**Structure validation of the WIR scale**

See Table 8 for a CFA of the WIR scale in which we augmented the employee sample with the unmatched employees \((N = 56)\) to gain power as some of the model fit indices are less suitable for small sample size such as RMSEA, SRMR, and TLI (Kenny et al., 2015; Marsh et al., 1988)\(^{12}\). The factor structure of WIR with a one-factor solution consisting of six items showed good fit (Hu & Bentler, 1999). Alternative models showed overfitting, indicating that the two- or three-factor solutions were more complex than needed. In addition, a comparison of the different models showed that \(\Delta \chi^2\) was non-significant. Based on these results we again confirmed the results found in Study 1 and decided to maintain the unidimensional structure of the WIR scale. Please refer to Table 9 for the factor loadings.

**Table 8: Confirmatory Factor Analysis of the Work Identity Rigidity scale in Study 3**

<table>
<thead>
<tr>
<th>Model</th>
<th>(\chi^2)</th>
<th>df</th>
<th>p-value</th>
<th>CFI</th>
<th>TLI</th>
<th>RMSEA</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 1-factor WIR(^1)</td>
<td>9.580</td>
<td>9</td>
<td>.386</td>
<td>.997</td>
<td>.996</td>
<td>.020</td>
<td>.029</td>
</tr>
<tr>
<td>2 2-factor WIR(^2)</td>
<td>7.153</td>
<td>8</td>
<td>.520</td>
<td>1.000</td>
<td>1.007</td>
<td>.000</td>
<td>.026</td>
</tr>
<tr>
<td>3 3-factor WIR(^3)</td>
<td>3.416</td>
<td>6</td>
<td>.755</td>
<td>1.000</td>
<td>1.028</td>
<td>.000</td>
<td>.018</td>
</tr>
</tbody>
</table>

Note: \(N = 156\). \(^1\)WIR scale. \(^2\)WIR split into a negative attitude component and an incapability component. \(^3\)WIR split into an emotional response component, negative attitude component, and an incapability component. Estimator = ML, maximum likelihood parameter estimates with standard errors and chi-square test statistics that are robust to non-normality. Use of the conventional cut-off values of these fit indices (i.e., \(\chi^2\) non-significant, RMSEA < .06, CFI > .95, TLI > .95, SRMR < .08).

**Table 9: Work Identity Rigidity Scale Factor Loadings for the Confirmatory Factor Analysis in Study 3**

<table>
<thead>
<tr>
<th>Item</th>
<th>(M)</th>
<th>(SD)</th>
<th>Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>I get upset when I have to change my work identity</td>
<td>3.11</td>
<td>1.35</td>
<td>.731</td>
</tr>
<tr>
<td>I dislike changing who I am at work</td>
<td>3.92</td>
<td>1.46</td>
<td>.508</td>
</tr>
<tr>
<td>I get restless when I constantly have to change my identity at work</td>
<td>3.83</td>
<td>1.64</td>
<td>.687</td>
</tr>
<tr>
<td>I find it hard to change my work identity even if it is necessary</td>
<td>3.46</td>
<td>1.37</td>
<td>.550</td>
</tr>
<tr>
<td>Adjusting who I am at work makes me feel uneasy</td>
<td>3.75</td>
<td>1.44</td>
<td>.644</td>
</tr>
<tr>
<td>It costs me too much energy to change my work identity</td>
<td>3.40</td>
<td>1.39</td>
<td>.679</td>
</tr>
</tbody>
</table>

Note: \(N = 156\). All loadings were significant at \(p < .001\).

\(^{12}\) CFA based on only the matched data showed overfitting, \(\chi^2 (9, N = 100) = 7.342, p < .602 (\text{TLL} = 1.027; \text{CFI} = 1.000; \text{RMSEA} = .000; \text{and SRMR} = .034)\).
Hypothesis testing

To test our hypotheses, we examined the model in which emotional exhaustion fully mediated the relationship between WIR and in-role performance, OCB, and workplace deviance. The mediated model showed that all hypothesized paths were significant and that the model fit was good (see Figure 1). As expected, employees who reported higher emotional exhaustion were more likely to receive lower ratings on in-role performance (β = -.22, p = .027) and OCB (β = -.21, p = .018), and higher ratings on workplace deviance (β = .20, p = .039) from their supervisors. We tested the indirect effects of WIR on in-role performance, OCB, and workplace deviance through emotional exhaustion for significance using bootstrapping. The confidence interval (CI) did not include zero for both the indirect effect of WIR on in-role performance (bootstrap estimate = -.090, 95%CI [-.139, -.004]) and OCB (bootstrap estimate -.086, 95%CI [-.128, -.004]). For workplace deviance a significant indirect effect could only be found using a CI of 90% (bootstrap estimate .080, 90%CI [.006, .132]). Hypotheses 1a and 1b were therefore both supported, whereas hypothesis 1c only received marginal support.

![Figure 1: Mediated Model including Work Identity Rigidity, Emotional Exhaustion, In-Role Performance, OCB, and Workplace Deviance in Study 3](image)

Note: * p < .05, ** p < .01. Standardized coefficients are reported. Estimator = MLR, maximum likelihood parameter estimates with standard errors and chi-square test statistics that are robust to non-normality. Model fit indices showed good fit χ² (3, N = 100) = 4.218, p = .239 (TLI = .934; CFI = .980; RMSEA = .064; and SRMR = .037). The indirect effects of WIR on in-role Performance (estimate = -.090, 95%CI [-.139, -.004]) and OCB (estimate = -.086, 95%CI [-.128, -.004]) were significant. The indirect effect of WIR on Workplace Deviance was only marginally significant (estimate = .080, 90%CI [.006, .132]). We explained 16.3% of variance in Emotional Exhaustion (p = .019), 4.9% in In-role Performance (p = .270), 4.6% in OCB (p = .236), and 3.9% in Workplace Deviance (p = .303).

This study provided initial evidence for the predictive validity of the WIR scale by establishing its predictive qualities for supervisor-rated in-role performance, OCB, and workplace deviance through its positive relationship with emotional exhaustion. The expected relationship between WIR and workplace deviance only received marginal support.
GENERAL DISCUSSION

The aim of this investigation was to develop and validate a scale to assess WIR, defined as the extent to which employees are reluctant and unwilling to change their work identity. The results of three studies indicate that WIR, of which the structure was established in Study 1 and validated in Study 2 and 3, can be measured reliably in both heterogeneous (Study 1 and 3) and homogeneous samples (Study 2) and across cultures (i.e., US and the Netherlands). Study 1 established construct validity by showing that WIR is associated with personality traits that capture the resistance to change in general and the inability to cope with change, strain in the form of emotional exhaustion, and problematic identification with the job. Study 2 provided initial evidence on contextual factors associated with WIR including profession and autonomy. Finally, Study 3 provided preliminary evidence for the scale’s predictive validity by showing its negative association with supervisor rated performance through emotional exhaustion.

The research presented here contributes to the literature on identity, specifically the literature on identity-related change and identity work, by showing that WIR could help explain why some employees have more difficulty to construct, adapt, and change their identity at work than others. As identity is increasingly important in the work context (Ashforth et al., 2008) and the successful adaptation of one’s identity is playing an increasingly important role in the adaptive performance of employees (Lee et al., 2015; Swann et al., 2009), having a reliable and valid measure that can be used to assess identity-specific differences between employees (Hogan & Roberts, 1996) is important. Research so far has focused on uncovering rich processes that explain how, why, and when employees change who they are at work (Ashforth & Schinoff, 2016; Brown, 2015; Winkler, 2016). However, little was known about why some individuals struggle more in this process than others, even though there is clearly pain associated with identity work (Maitlis, 2009; Winkler, 2016). Our work on WIR starts to bridge this gap and expands our understanding of how employees deal with identity-related change by showing that (for different reasons) employees may not have an equally favourable attitude to begin with, which affects their potential success in adjusting who they are at work.

This chapter also contributed to the literature on identity and identity work by providing some preliminary evidence for the potential consequences of unsuccessful identity-related change due to employees’ reluctance and unwillingness to change (i.e., WIR) (Ashforth & Schinoff, 2016), which were theorized.
but not empirically supported so far (Cardador & Caza, 2012). Although there are indications that changing one’s identity can be a struggle for employees (Brown, 2015; Winkler, 2016), little is known about the consequences of this struggle or the underlying mechanism. Our results provide preliminary evidence for the predictive qualities of WIR in explaining how an unfavorable attitude toward identity-related change may impede the performance of employees who score high on WIR. We argued, based on COR (Hobfoll, 1989), that the emotional reactions of and use of emotional resources of high WIR employees to protect themselves increases emotional exhaustion. We indeed found this relationship and emotional exhaustion, in turn, was negatively related to the supervisor-rated performance of employees. WIR may thus be a novel antecedent to the relatively well established relationship between emotional exhaustion, in-role or job performance (Cropanzano et al., 2003) and OCB (Bolino et al., 2015; Cropanzano et al., 2003). Moreover, emotional exhaustion received initial evidence as one mechanism that could explain the potential negative outcomes of unsuccessful identity work.

Limitations and avenues for future research

The studies in this chapter are limited by their cross-sectional nature. Although the multisource design in Study 3 limited common source bias by having supervisors rate employees’ in-role performance, OCB, and workplace deviance both WIR and emotional exhaustion were measured at the same time and reversed causality cannot be excluded as an alternative explanation for the findings. WIR is defined as a relatively stable, but still malleable attitude rather than a fixed personality trait. This suggests that the experience of emotional exhaustion at work may also negatively influences one’s WIR. However, following Lazarus and Folkman’s (1984) cognitive phenomenological model of stress and coping, the way change is appraised by the individual likely influences coping more than the other way around. It is therefore more likely that the causality predominantly runs in the direction we proposed in Study 3, because WIR is presented as the unfavorable attitude towards identity-related changes that acts as a personal resource for coping with that change. Longitudinal research would, however, is needed to establish causal flow and to better understand how WIR is related to change and work outcomes over time.

Another limitation of the studies in this chapter is the lack of identity-specific outcomes, such as behaviors related to dealing with change which
was difficult to assess in the cross-sectional heterogeneous samples that were used. That the WIR scale, independent of specific cases of identity-related change, was associated with a number of personality traits that capture the unwillingness and inability to change in general across different samples as expected, suggests that WIR itself is also likely to be relatively stable. However, we would expect that WIR would explain even more variance when it comes to attitudes and behaviors directly related to changes affecting one’s work identity, as those better align with the specificity of the WIR construct (Hogan & Roberts, 1996). Future research on WIR should therefore include behaviors more directly related to identity-related changes, for example identity work, because this would support the need for a construct like WIR that complements general personality traits that capture reluctance and inability to change. In addition, future research would benefit from studying WIR during (identity-related) change to explore which events potentially trigger WIR and its consequences.

Practical implications

This chapter provides organizations a way to facilitate successful identity-related change by highlighting why certain employees may struggle more with making such changes than others. Employees with a rigid work identity might be less likely to take part in change initiatives and less likely to succeed in changing their identity, because WIR as an unfavorable attitude towards such changes is associated with reluctance to engage with such identity changes, emotional reactions to them, and the (perceived) inability to deal with such changes. Helping employees who score high on WIR to successfully adjust their identity at work despite their unfavorable attitude is important, because identity work has been related to positive work outcomes such as in-role performance, workplace adjustment, job satisfaction, and employee health (cf. Lee et al., 2015; Swann et al., 2009).

In order to prevent negative outcomes, such as emotional exhaustion and subsequent lower performance, when employees need to change their work identity, it is important to take into account the WIR of employees and the emotional toll that they pay. Specifically, organizations could facilitate successful identity work through interventions aimed at providing resources to employees with a rigid work identity, which could include letting employees develop a growth mindset (Dweck, 2015; Paunesku et al., 2015), providing employees more autonomy to deal with change, helping employees to frame
their work as less central and internalized in their identity and using multiple identities to substitute and strengthen their self-concept (Caza & Wilson, 2009; Maitlis, 2009), or providing extra time and other resources that help employees to overcome the loss of emotional resources. Although these interventions need to be evidenced in future research, we hope to have provided a first step in this direction by enhancing our understanding of the differences between employees in their unfavorable attitude towards identity-related change, the related personality constructs and contextual factors, and the potential consequences for employee well-being and performance when changing who you are at work feels unbearable.
APPENDIX D: The Work Identity Rigidity Scale

Who we are at the workplace is defined by our roles (e.g., supervisor, colleague, expert, hairdresser), the groups we belong to (e.g., department, organization, gender), and our personal characteristics (e.g., hardworking, loner, team player, slacker).

As a result someone might describe themselves as follows: “at work I am a hardworking female consultant at [company name] who is a loner” or as “at work I am an intelligent young accountant at the tax department of [company name]”.

Similar to this example, please take a moment to complete the following sentence “at work I am …”

Please keep this sentence about who you are at work in mind in answering the below questions!
To what extent do you agree that the following statements apply to your work identity?

1. I get upset when I have to change my work identity.
2. I dislike changing who I am at work.
3. I get restless when I constantly have to change my identity at work.
4. I find it hard to change my work identity even if it is necessary.
5. Adjusting who I am at work makes me feel uneasy.
6. It costs me too much energy to change my work identity.
APPENDIX E: Pilot studies Work Identity Rigidity Scale

**First pilot.** A sample of $N = 50$ undergraduate students ($M_{\text{age}} = 21; 74\%$ male) with a part-time job ($M_{\text{hours}} = 12.4$) participated in the first pilot consisting of nine items for WIR (see Table). The results showed that the wording of some items was unclear, for example “I am convinced that I am the best version of myself at work” could be interpreted as both indicative of someone who always tries to adjust to be his/her best or as indicative of someone who thinks change is unnecessary. Based on these results the wording of the indicative items was adjusted.

**Second pilot.** A sample of $N = 60$ MBA students ($M_{\text{age}} = 31; 65\%$ male) with a full-time job ($M_{\text{hours}} = 36.7; SD = 3.91$) with an average tenure at their current job of 3.1 years ($SD = 3.25$) and $N = 56$ undergraduate students ($M_{\text{age}} = 21; 58.9\%$ male) with a part-time job ($M_{\text{hours}} = 11.2; SD = 7.59$) with an average tenure at their current job of 2.1 years ($SD = 1.77$) participated in the second pilot (online and on paper) consisting of eight items for WIR (see Table). We combined the two samples ($N = 116$), because an independent-samples T test showed no significant differences on the WIR items. Based on these results, we decided to write additional items that would better cover only WIR.

**Third pilot.** A sample of $N = 18$ MBA students ($M_{\text{age}} = 29; 56.3\%$ male) and $N = 39$ undergraduate students ($M_{\text{age}} = 22; 71.8\%$ male) participated in the third pilot consisting of 25 items (see Table). We again combined the two samples ($N = 57$), because an independent-samples T test showed no significant differences on the WIR items. These eleven items were used in Study 1 and formed the basis of the final WIR scale consisting of six items (see Appendix D).

<p>| Results of Pilot Studies 1, 2, and 3 for the Development of the Work Identity Rigidity Scale |</p>
<table>
<thead>
<tr>
<th>Pilot Study 1: Items</th>
<th>$M$</th>
<th>$SD$</th>
<th>EFA</th>
<th>$\alpha$ if item deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am interested to know how others experience me at work (R)</td>
<td>5.24</td>
<td>1.19</td>
<td>.821</td>
<td>.569</td>
</tr>
<tr>
<td>I often use self-reflection to improve my work identity (R)</td>
<td>4.76</td>
<td>1.17</td>
<td>.829</td>
<td>.567</td>
</tr>
<tr>
<td>My work identity is dependent on the situation (R)</td>
<td>4.52</td>
<td>1.43</td>
<td>.587</td>
<td>.653</td>
</tr>
<tr>
<td>I enjoy adjusting my work identity based on feedback from others (R)</td>
<td>4.14</td>
<td>1.55</td>
<td>.674</td>
<td>.708</td>
</tr>
<tr>
<td>I get upset when I have to change my work identity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I dislike changing who I am at work</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I do not need feedback on my work identity, because I know best</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am who I am at work regardless of the situation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am convinced that I am the best version of myself at work</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Items dropped based on the recommendations for scale development of Hinkin (1998)
**Pilot Study 2: Items**

<table>
<thead>
<tr>
<th>Item</th>
<th>M</th>
<th>SD</th>
<th>EFA</th>
<th>α if item deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>I dislike changing who I am at work</td>
<td>4.61</td>
<td>1.36</td>
<td>.776</td>
<td>.506</td>
</tr>
<tr>
<td>I get upset when I have to change my work identity</td>
<td>3.75</td>
<td>1.42</td>
<td>.819</td>
<td>.498</td>
</tr>
<tr>
<td>I am who I am at work even if the situation requires me to change</td>
<td>4.04</td>
<td>1.55</td>
<td>.560</td>
<td>.516</td>
</tr>
<tr>
<td>I dislike feedback on my work identity, because I know best</td>
<td>5.31</td>
<td>1.22</td>
<td>.729</td>
<td>.547</td>
</tr>
<tr>
<td>I adjust my work identity based on feedback from others (R)</td>
<td>4.62</td>
<td>1.30</td>
<td>.843</td>
<td>.562</td>
</tr>
</tbody>
</table>

**Pilot Study 3: Items**

<table>
<thead>
<tr>
<th>Item</th>
<th>M</th>
<th>SD</th>
<th>EFA</th>
<th>α if item deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am who I am at work even if the situation requires me to change</td>
<td>4.05</td>
<td>1.58</td>
<td>.463</td>
<td>.843</td>
</tr>
<tr>
<td>I get upset when I have to change my work identity</td>
<td>4.60</td>
<td>1.43</td>
<td>.658</td>
<td>.816</td>
</tr>
<tr>
<td>I dislike changing who I am at work</td>
<td>3.86</td>
<td>1.48</td>
<td>.686</td>
<td>.825</td>
</tr>
<tr>
<td>I get restless when I constantly have to change my identity at work</td>
<td>3.67</td>
<td>1.31</td>
<td>.716</td>
<td>.845</td>
</tr>
<tr>
<td>I find it hard to change my work identity even if it is necessary</td>
<td>4.32</td>
<td>1.28</td>
<td>.734</td>
<td>.835</td>
</tr>
<tr>
<td>Adjusting who I am at work makes me feel uneasy</td>
<td>4.32</td>
<td>1.23</td>
<td>.834</td>
<td>.836</td>
</tr>
<tr>
<td>It costs me too much energy to change my work identity</td>
<td>4.23</td>
<td>1.27</td>
<td>.749</td>
<td>.830</td>
</tr>
<tr>
<td>Who I am at work can be very different in different situations (R)</td>
<td>4.77</td>
<td>1.23</td>
<td>.659</td>
<td>.841</td>
</tr>
<tr>
<td>Who I am at work is flexible (R)</td>
<td>5.00</td>
<td>1.17</td>
<td>.884</td>
<td>.840</td>
</tr>
<tr>
<td>I am open to change my work identity (R)</td>
<td>4.81</td>
<td>1.23</td>
<td>.764</td>
<td>.833</td>
</tr>
<tr>
<td>I change who I am at work based on the situation</td>
<td>4.75</td>
<td>1.06</td>
<td>.825</td>
<td>.843</td>
</tr>
</tbody>
</table>

*Note: N = 50. KMO Measure of sampling adequacy = .883. Bartlett’s Test of Sphericity sig. = .000. Total Variance Explained = 53.98%. α = .69. *2 Note: N = 116. KMO Measure of sampling adequacy = .637. Bartlett’s Test of Sphericity sig. = .000. Total Variance Explained = 51.81%. α = .58. *3 Note: N = 57. KMO Measure of sampling adequacy = .700. Bartlett’s Test of Sphericity sig. = .000. Total Variance Explained = 57.68%. α = .85 (factor 1 α = .84; factor 2 α = .80). These eleven items from pilot studies 2 were used in all studies in Chapter 4.*
APPENDIX F: Examples of Work Identity

“At work I am” .... (Sample of responses from Study 1)

An individual who takes my job seriously but does not take it home.
A social butterfly.
The lone manager of the geography section.
A hard working individual who goes beyond my own job to help others finish theirs.
Exhausted.
A dedicated organized and self-sufficient project manager.
In charge of how my days will go and how much work I will accomplish.
An experienced and respected it director.
Happy to be there and able to help students learn new things daily.
A compassionate counselor who carries others problems with me daily.
A talented young analyst respected by her peers and often asked to take on the most challenging assignments because my superiors know that I can handle the pressure.
Hard worker.
Responsible for maintaining all home insurance policies for the agency and also any new business for home insurance that comes in or generate myself
A man who takes his job seriously but likes to keep it light hearted with my staff a man that knows what I do makes a difference in the lives of others
The go to guy.
A bubbly motivated and hardworking server who enjoys meeting new people.
A hard working bored male underwriter for a workers comp department.
The one that makes sure everything gets done right.
Intelligent and like to help others but I work from home so I do not have a team to work with (it can be lonely).
A strong woman with a lot of knowledge.
A jack of all trades.
A small timid female who struggles in a world of men.
A cheerful team player
A leader of people who are somewhat un-employable and I am looking to leave.
CHAPTER 5

Doing what you are and what matters

Meaningful work for professionals

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Abstract

Current changes in professional work seem to be eroding its meaningfulness, which is the amount of significance work holds for professionals. Here we present a model of meaningful work based on the work activities professionals engage in. We argue that what professionals do provides a unique insight to explain experienced meaningfulness, because not all work activities are equally meaningful. Our model is based on two sources of meaningfulness, namely doing what you are and doing what matters. ‘Doing what you’ are pertains to the execution of work activities that are congruent with professional identity and that allow professionals to affirm and express that identity (i.e., intrinsic meaningfulness). ‘Doing what matters’ pertains to the execution of work activities that have a positive impact on the goals of the organization (i.e., extrinsic meaningfulness). We present eight work activity types that their uniquely map on the two sources of meaningfulness. Each activity type impacts the well-being and performance of professionals leading professionals to thrive, wither, persevere, or succumb. We outline how the balance between meaningful and meaningless work activities influences work itself, the way work is perceived by key stakeholders, and professional identity. Working with this model can help professionals and organizations, to address and potentially prevent the imbalances that arise as a result of change that otherwise may result in meaningless and thus demotivating professional work.
“I do what I am” (Ik doe wat ik ben)  
- Griet op de Beeck*

Professional work, which requires a certain level of knowledge, autonomy, and altruism (Hodson & Sullivan, 2012, p. 260), is increasingly prevalent in the labor market (Anteby, Chan, & DiBenigno, 2016). There is a lot to be gained in the understanding of professional work, especially in light of recent changes in professional work that seem to be eroding its meaningfulness, defined as the amount of significance work holds to the focal employee (Pratt & Ashforth, 2003). Many professionals nowadays face a paradoxical tension between their autonomy and organizations’ and regulators external control of professional work aimed at cost efficiency and consistency (Parker, 2014). For example, physicians are increasingly confronted with constraints in the usage of diagnostic tests, judges are progressively obliged to specify and justify their sentences, and teachers face increasing external involvement in the pedagogic choices they make (Oldham & Hackman, 2010). Some of such changes represent misconceptions of others about what professional work entails (Vough, Cardador, Bednar, Dane, & Pratt, 2013), and show that the meaningfulness of professional work is at risk of being eroded. Specifically, many contemporary changes to professional work undermine the flexibility and autonomy that professionals require to do their work, are at odds with the notion of job enrichment, and often imply increased bureaucracy work for professionals (Oldham & Hackman, 2010). Organizational researchers’ concern about meaningful work is thus shifting from front-line workers to professionals, who are increasingly at risk of burnout and turnover (cf. Hakanen et al., 2006; Hartnett & Kline, 2005).

Professional work is comprised of a set of work activities or tasks (Ilgen & Hollenbeck, 1991). Given that not all work activities are likely to be equally meaningful (Gabriel et al., 2011), we propose that a focus on what it is that professionals do is important to explaining professionals’ experience of overall meaningfulness of work. Hence, the focus is thus on the specific work activities professionals choose and are required to undertake and the meaning those activities provide (Wrzesniewski, Dutton, & Debebe, 2003). Professionals tend

* (answering why she was happy as a writer)
to identify more strongly with what they do than other employees (Anteby et al., 2016; Ashforth & Kreiner, 1999; Carnevale, Rose, & Cheah, 2013) or as Pratt et al. (2006, p. 236) state, professionals “are often defined by what they do”. Drawing on the identity literature we argue that how professionals define and see themselves in the context of their work (Ashforth et al., 2008), both emotionally and cognitively, guides them in engaging in work activities and the meaningfulness they experience from these. Meaningfulness as value for the (professional) self is found in work activities that are congruent with professional identity (Kira & Balkin, 2014; Shamir, 1991). Henceforth we will refer to this as ‘doing what you are’, that is the execution of those work activities that professionals see as representative of their occupation.

Professionals, however, do not function in a vacuum (Anteby et al., 2016; Briscoe, 2007). They also (have to) engage in work activities that are expected and valued by the organization. Work activities professionals see as congruent with organizational goals create vicarious meaningfulness for them through the value that these activities generate for the organization (Grant, 2008c; Hackman & Oldham, 1976). Henceforth, we will refer to such activities as ‘doing what matters’, that is the execution of work activities that positively impact the organization even if they are less or not congruent with professional identity. By positioning professional work activities on the axes of doing what you are (not) and doing what does (not) matter, we define eight types of activities, namely raison d’être activities, necessary obligations, divergent duties, imposed evils, mindless work (Elsbach & Hargadon, 2006), illegitimate tasks (Semmer et al., 2007), prosocial passions, and career development activities (see Figure 1). The aggregate orientation of doing what you are and what matters across the complete set of a professional’s work activities ultimately determines whether professionals experience (sufficient) meaningfulness at work.

We argue that each work activity (type) through its inherent impact on the experience of meaningfulness affects both the well-being and performance of professionals. Doing what you are is an opportunity for self-expression and self-verification for professionals (Shamir, 1991; Stets, 2005). Vice versa, doing what you are not threatens professional identity and is stressful, because professionals’ expectations are violated (Petriglieri, 2011; Semmer et al., 2007; Thoits, 1991). Doing what matters is an opportunity for professionals to reap benefits in terms of well-being and performance due to the contribution they feel they made to the collective (Grant, 2008c; Hackman & Oldham, 1976;
Morgeson & Humphrey, 2006). Conversely, doing what does not matter, is likely to be perceived as stressful and demotivating by professionals due to the lack of purpose (Ariely, Kamenica, & Prelec, 2008), the experience of time wasted, and the perceived lack of appreciation (Siegrist, 1996).

Our contribution is threefold. First, we use identity to complement and integrate sources of meaningfulness (Rosso et al., 2010) and suggest that how professionals define themselves offers critical insights into their experienced meaningfulness. Second, we show the value of taking into account the premise that not all work activities are equal in that variation exists in the degree to which activities are appraised by professionals as meaningful depending on the value they have for the self and the organization. Even though research has shown that this approach is insightful (Aiken et al., 2001; Taber & Alliger, 1995), this has yet to be recognized in the identity and meaningful work literatures. Third, we contribute a dynamic perspective to the meaningful work literature by arguing that self-chosen or imposed changes in (prescribed) activities can tip the balance between meaningful and meaningless work either incrementally until a threshold is exceeded or more radically at once (Selenko et al., 2018). We suggest that both professionals and organizations possess the agency to change situations that, likely unintentionally, result in imbalances and offer recommendations for interventions by both the professional and the organization that ought to contribute to the long-term sustainability of meaningful work.

Our argumentation proceeds in three steps. First, we present our model of meaningful work activities by defining doing what you are and doing what matters, followed by the definition of our eight types of work activities. Second, we delineate both proximal and distal consequences of each of these types in terms of professionals’ well-being and performance. Third, we discuss the dynamics in and balance between meaningful and meaningless work and suggest ways in which both professionals and organizations can attain and maintain the sustainable experience of meaningful work for professionals.

 Meaningful Work Activities for Professionals

Professions are socially constructed over time through human interaction about work, a profession’s members, activities that comprise a professional role, and the institutional and cultural systems that uphold a profession. Professional work is defined as work within a specific occupation that is characterized by a certain degree of specialized knowledge, autonomy, authority over clients
or subordinates, and altruism (Hodson & Sullivan, 2012, p. 260). Professions thus encompass a subset of all occupations and are usually situated in the service sector, hence the altruistic nature of professional work (Evetts, 2003). Professional work, although growing in prominence is studied relatively rarely despite the aforementioned paradoxical tension that threatens the work experience of professionals (Oldham & Hackman, 2010; Parker, 2014). Here we look at professional work from a 'doing' perspective (Anteby et al., 2016) and focus on the work activities professionals undertake and how this affects their experience of meaningful work.

Meaningfulness can be defined as the amount of significance that something, in this case work, holds (Pratt & Ashforth, 2003). Meaningfulness is subjectively perceived or experienced and can thus vary between individuals and depart from that which is meaningful or valuable to the organization. Both individuals and organizations alike have a stake in fostering meaningfulness, as it relates job satisfaction (Fried & Ferris, 1987; Wrzesniewski et al., 1997), well-being (Campbell, Converse, & Rodgers, 1976), engagement (May, Gilson, & Harter, 2004), occupational identification (Bunderson & Thompson, 2009), organizational commitment and identification (Cardador et al., 2011), organizational citizenship behavior (Piccolo & Colquitt, 2006), and job performance (Fried & Ferris, 1987; Grant, 2008c; Hackman & Oldham, 1976). Based on its relationship with these positive outcomes, meaningfulness usually carries a positive valence, in that more meaningfulness is considered to be better (Rosso et al., 2010). In our model of meaningful work, we focus on meaningfulness in relation to separate work activities rather than the job as a whole as the perceived meaningfulness of different work activities that make up a job is variable (Bailey & Madden, 2016). Meaningful work activities are thus those activities that are significant to professionals.

We propose that professionals derive meaningfulness from two sources. First, the extent to which professionals experience that what they do (i.e., their work activities) matches who they are professionally (i.e., their professional identity) is a self-focused source of meaningfulness which we label ‘doing what you are’ (i.e., intrinsic meaningfulness). Second, we argue that the extent to which professionals experience what they do (their work activities) to contribute to organizational goal is an other-focused source of meaningfulness which we call ‘doing what matters’ (i.e., extrinsic meaningfulness).
Doing what you are

The first source of meaningfulness of professional work activities, represented on the vertical axis in the model (see Figure 1), is based on the congruence of a particular work activity with one’s (professional) identity. Professional identity is how professionals define and see themselves in the context of their work and ultimately answers the question “who am I as a professional?” (Ashforth et al., 2008; Ashforth & Mael, 1989; Ashforth & Schinoff, 2016; Dutton, Roberts, & Bednar, 2010). Professional identity provides individuals with a sense of meaning in the sense of enabling the expression of who they are, which fosters a positive self-concept and guides professionals’ values and expectations (Miscenko & Day, 2015; Van Knippenberg, 2000), attitudes (Ashforth et al., 2008), decisions, career changes (Khapova, Arthur, Wilderom, & Svensson, 2007), the specific work activities that professionals engage in, and their experienced meaningfulness.

We argue that the expression of one’s professional identity through the execution of particular work activities forms a crucial intrinsic source of meaningful work for professionals and we propose augmenting Rosso et al. (2010)’s ‘self as source of meaning’ category (which they see as being comprised of values, motivations, and beliefs about work) with identity. Indeed, Rosso et al. (2010) and other scholars working on meaningfulness, acknowledge that a congruence between work activities and individuals’ self-concept is associated with the experience of intrinsic motivation and brings about experienced meaningfulness (Cardador, Pratt, & Dane, 2006; Hackman & Oldham, 1976; Kira & Balkin, 2014). Identity theory helps to explain how such congruence functions as a source of meaningfulness (Burke, 1991). Engaging in congruent work activities affirms, expresses, and strengthens professional identity (Kira & Balkin, 2014). The expression of one’s professional identity is seen as a powerful motivating force, which could make work activities that are by themselves not seen as pleasant both meaningful and intrinsically motivating as long as they are aligned with the individual’s self-concept (Shamir, 1991).

For professionals, the professional role will likely be the most frequently salient identity category compared with other identities pertaining to organizational membership, team membership, nationality, gender, personal characteristics (e.g., intelligence, hardworking), or work roles (e.g., leader) (Ashforth & Schinoff, 2016; Caza & Wilson, 2009; Miscenko & Day, 2015; Ramarajan, 2014). Work plays a major role determining who employees are (Christiansen, 1999),
what professionals do is expected to be an even more determining factor in their identity. Indeed, professionals appear to generally have higher commitment towards their profession than their organization as they are more likely to switch employer than profession (Anteby et al., 2016; Khapova et al., 2007). We label the congruence between work activities and professional identity intrinsic meaningfulness, because here meaningfulness derives from those actions that are directed primarily toward the self (Lips-Wiersma & Morris, 2009; Rosso et al., 2010). Professionals want to engage in activities that are congruent with professional identity, because they are allow the affirmation of the identity and are enjoyable, interesting, and/or satisfying. Parker, Bindl, and Strauss (2010) argue for including the reason to or the ‘why’ aspects of actions, which in this case is focused on the self rather than the organization. Because doing what you are is intrinsically motivating, or driven by professional identity, the salient beneficiary is the self.

A work activity is congruent with professional identity when it is prototypical for the profession, which is the extent to which a particular activity has characteristics that are representative for the profession (Rosch, 1999; Rothbart & Lewis, 1988). A work activity is incongruent with professional identity when it is not typically perceived to be part of the profession or is not part of the formal training for that profession. In other words, professionals experience intrinsic meaningfulness when a work activity is represented in their claims about what constitutes their work (Dutton et al., 2010; Wrzesniewski & Dutton, 2001).

**Doing what matters**

The second source of meaningfulness, captured on the horizontal axis in the model, is based on the congruence of a particular work activity with organizational goals. Following the literature on job design and task significance (Hackman & Oldham, 1976), we consider a work activity to be congruent with organizational goals when professionals perceive that activity to have a positive impact on the organization as the main beneficiary. Significance attained through the execution of particular work activities provides individuals with a sense of purpose, defined as a sense of intention and directionality (Ryff, 1989). Doing what matters may thus be placed in Rosso et al. (2010)’s ‘work context as a source of meaning’ category and is compatible with the design of tasks that Rosso and colleagues define therein. There is ample evidence that experienced significance in work is
related to greater experienced meaningfulness (Bunderson & Thompson, 2009; Fried & Ferris, 1987; Hackman & Lawler, 1971; Hackman & Oldham, 1976). For example, Grant (2008c) has shown that when fundraising callers’ perceptions of significance increased after making explicit how their efforts contributed to financing student scholarships, their sense of purpose and meaningfulness and subsequent performance increased.

As professionals typically work in organizations, their contribution to organizational goals is expected to be relevant to them (Anteby et al., 2016; Briscoe, 2007). Professionals also perform activities because they are ‘part of the job’ and expected by the organization, which at times may make professionals feel like they ‘have to do’ instead of ‘want to do’ these activities, particularly when those activities are not aligned with professional identity. Professionals can recognize and accept that an activity is important for the effective functioning of the organization (i.e., identified motivation) and thus draw upon this external source of meaningfulness (Parker et al., 2010). When work activities matter more to the organization than to the professional him- or herself, the experienced meaningfulness transcends the self (Bailey & Madden, 2016). Because the salient beneficiary is the organization, doing what matters is driven by an extrinsic sense of purpose and significance. Extrinsic meaningfulness or doing what matters thus falls in the category meaningfulness found through actions directed toward others (Lips-Wiersma & Morris, 2009; Rosso et al., 2010).

A work activity is perceived as significant when it has a positive impact on the organization, even when that activity is incongruent with professional identity. Work activities are perceived as less significant when they do not have a positive impact or could even damage the organization, directly or indirectly (e.g., by creating inefficiencies). In other words, professionals experience extrinsic meaningfulness when their work activities matter to the organization.

**Deconstructing professional work**

In each quadrant of our model we define two types of work activities that are distinguished based on whether professionals are motivated to engage in activities primarily because they ‘want to’ or primarily because they ‘have to’. For example, in the first quadrant we distinguish raison d’être activities and necessary obligations which are both intrinsically and extrinsically meaningful. However, to a nurse medical activities such as examining heart rates (i.e., a
raison d’être activity) is something they want to do whereas cleaning beds (i.e., necessary obligation) may be something they have to do. The model is shaped as a pie chart to reflect the idea that more time spent on one type of activity generally comes at the cost of time spent on another. Although professionals may temporarily work above or below their contractual workload, we assume that the (daily, weekly, monthly) time available to engage in work activities is generally relatively fixed and finite. Our model presupposes that the deconstruction of work into the eight types is idiosyncratic to the individual professional, and that a given professional may spend more time on some of the task types and less on others relative to his or her peer group. Furthermore, professionals in the same profession can experience activities differently (e.g., what is an imposed evil to one doctor, may be a raison d’être activity for another) and the experience can change over time for individual professionals, thus individuals’ pie charts are likely to differ from each other and over time. Although individual or context-specific decompositions of professional work can thus vary both between individuals and over time, we provide an example of how a professional might experience their activities in Figure 1 and illustrate our definitions of the activity types using examples from the teaching context, as this is likely a professional context with which readers will have at least some familiarity.

Figure 1: Professional work deconstructed into eight types of intrinsically and extrinsically meaningful work activities
‘Raison d’être’ activities are activities that belong to the core of the profession and are (proto)typically associated with the profession. For example, teaching classes tends to be a raison d’être activity for teachers. Carrying out raison d’être activities is a way of maintaining, expressing, and building one’s professional identity, with which they are congruent, and are thus an intrinsic source of meaningfulness. Raison d’être activities are also a source of extrinsic meaningfulness, as these activities tend to represent the core of the profession and are therefore crucial to the organization (a school implies that there are teachers who teach). Finally, executing raison d’être activities may be seen as something that professionals want to do, because professionals were motivated by and chose to execute those work activities when they pursued (training in) that particular profession.

‘Necessary obligations’ are activities that typically belong to a profession and cannot be ignored, but do not define its purpose. An example would be grading exams and assignments, something that teachers may not aspire to do but that is an institutionalized ‘part of the job’. Necessary obligations thus do affirm one’s professional identity and are at least somewhat intrinsically meaningful, but differ in the sense from ‘raison d’être’ activities that the motivation to engage in necessary obligations is more externally driven (i.e., have to do) than raison d’être activities. Necessary obligations form a source of extrinsic meaningfulness, as professionals do perceive the value of such activities to organizational goals.

‘Divergent duties’ are activities that are not typically perceived to belong to one’s profession at the onset but become part of a professional’s job based on interest or availability. Divergent duties show similarities to OCB, in that both are likely to be perceived as valuable to the organization by professionals yet neither is likely to be formally required (cf. Organ, 1988). An example of both would be a teacher who takes on the training of a new teaching assistant although this is not part of his formal job description. Divergent duties, however tend to become adopted as part of one’s job, because they are delegated or included through job crafting (Wrzesniewski & Dutton, 2001). Although not all professionals need to execute divergent duties as these ‘leftover tasks’ are not formally assigned to a particular (professional) job role, the execution of these activities is perceived to be valuable in the eyes of the professional and clearly aligned with organizational goals as ‘someone needs to do it’ (i.e., extrinsic meaningfulness). An example would be a teacher who is also the IT coordinator for the school.
Based on her own preferences and expertise from her former job. Based on the atypicality of divergent duties, they do not provide meaningfulness through the expression of professional identity. However, professionals are expected to still want to engage in divergent duties, because adding these unique activities is a way to distinguish oneself from other professionals (Brewer, 1991) and/or to include other aspects of the self in the current job (Berg et al., 2010).

*Imposed evils* are activities focused on administration for regulatory, monitoring, and efficiency purposes. Imposed evils are not aligned with professional identity, because the external control over professional work clashes with the autonomy and authority aspects of how professional work is defined (Hodson & Sullivan, 2012). However, imposed activities can provide extrinsic meaningfulness, because they are focused on increasing organizational efficiency (e.g., the provision data to inform managerial decision making) and thus likely to be perceived by professionals as contributing to the organization. Administering student grades in an online system, for example, might be useful to the school’s administration, but can make teachers feel like administrative personnel rather than teachers. Similar to necessary obligations, professionals see imposed evils as something they have to do, and is thus associated with a lack of perceived autonomy.

*Mindless work* includes activities that are not challenging or representative of the profession but that offer a way of dealing with other challenging tasks such as highly cognitive and creative work and/or a high work load. Mindless work activities are low in cognitive demand and performance pressure (Elsbach & Hargadon, 2006) and are not aligned with professional identity because mindless work is not typical for any profession. It can, for example, be relaxing to clear one’s desk after a stressful day of teaching for a teacher, but also for an accountant, or a detective. Rather than providing a sense of intrinsic meaningfulness, mindless work helps to create the conditions under which the other tasks may be accomplished. Mindless work activities also do not provide extrinsic meaningfulness as they are too simple to be perceived as a valuable contribution. However, because it helps professionals to feel in control, engaging with easy tasks that are at least somewhat useful or can form a needed distraction, professionals will sometimes want to do mindless work.

*Illegitimate tasks* are activities that reasonably should not be required of professionals and/or are not at all necessary in the eyes of the professional. By definition, illegitimate tasks are ill-aligned with professional identity, because
they fall far outside the range of one’s occupational role. In addition, illegitimate tasks offer no extrinsic meaningfulness, because these activities are, compared to imposed evils, seen as inefficient (Semmer et al., 2015). Even though some activities need to be done and serve a purpose, they could be done by someone else - whose profession it fits better - or should not be done at all. For example, a teacher might see completing two identical forms for the transfer of a student as unnecessary and a waste of time. Daily vacuuming the classroom is an illegitimate task for a teacher, but legitimate for a professional cleaner. Due to the clear lack of value and incongruence with professional identity, professionals are unlikely to execute illegitimate tasks if given the choice. Professionals often, however, have to execute illegitimate tasks because of supervisors expressing power, the incompetency of others, or because of organizational mistakes.

‘Prosocial passions’ are activities that are not formally expected by the organization, but are performed because they are congruent with professional identity and the altruistic nature of many professions (Hodson & Sullivan, 2012). Employees might feel that as a professional they have to rather than want to do perform these professional passions in order to avoid negating their professional identity. An example is a teacher who goes above and beyond the call of duty and makes house calls to a very sick student. The drive to engage in this behavior is found in the prosocial motivation to help and benefit others, the organization, or society at large (Grant, 2007, 2008a). Despite intentions to contribute to others, in executing prosocial passions professionals are likely to perceive conflict with organizational goals and the lack of extrinsic meaningfulness. Going above and beyond the call of duty means directing time and effort to activities that are incongruent with the organization’s mission or insufficiently acknowledged as such by the organization. Professionals may be burdened with the sense that in the eyes of the organization they could spend their time and energy more wisely. Prosocial passions differ in that respect from OCB, defined as behavior not formally required but clearly perceived as valuable for the organization (cf. Organ, 1988).

‘Career development activities’ are those activities that contribute to the sustainable employability and (intra-and extra-organizational) mobility of the professional. Career development activities provide a means to strengthen the awareness of and pride in who one is professionally (Savickas et al., 2009). Following a course on special education needs can be an intrinsically meaningful activity for teachers, for example. However, career development activities are
less likely to be perceived as valuable to the organization by professionals, because they are targeted at the career of the professional in general rather than their direct value to the organization. Indeed, by increasing one’s employability more broadly, the chances of the professional leaving the organization may increase, although empirical evidence for this ‘employability paradox’ remains limited (Nelissen, Forrier, & Verbruggen, 2017). Nevertheless, engaging in career development activities is likely more strongly aligned with the professional’s own goals than those of the organization.

CONSEQUENCES OF (NOT) DOING WHAT YOU ARE AND WHAT MATTERS

Below, we delineate the potential consequences in terms of professional’s affect, well-being, and performance of engaging in doing what you are and what matters (see Figure 2). Engaging in work activities that are both intrinsically and extrinsically meaningful (i.e., quadrant I) or neither (i.e., quadrant III) is relatively unambiguous as uniform cues are conveyed. The two sources of meaningfulness or lack thereof likely interact and strengthen one another creating relatively enduring positive or negative consequences for professionals. However, work activities that either are intrinsically or extrinsically meaningful (i.e., quadrant II and IV) are relatively ambiguous as they entail contradictory cues

**Figure 2: The consequences of doing what you are and doing what matters and potential shifts between balance and imbalance in meaningful work (including propositions)**
as to their value and meaningfulness. Professionals simultaneously experiencing the presence and the lack of meaningfulness are likely to face both positive and negative consequences, depending on the role of time (i.e., during and immediately after execution versus the long-term).

**Doing what you are and what matters**

Work activities that are both intrinsically and extrinsically meaningful to professionals are unambiguously associated with primarily positive consequences (i.e., quadrant I; raison d’être activities and necessary obligations). Following the ideas of self-expression and self-verification, professionals, like all individuals, tend to strive for and aim to maintain a positive self-concept (Shamir, 1991). As professional work often is an important part of one’s self-concept, professionals in particular are expected to have the tendency to positively value their professional role (Semmer et al., 2010). The identity affirming nature of doing what you are, provides an opportunity for professionals to express what they value by engaging in those activities that will make them feel proud and that will fuel their self-esteem (Stets, 2005; Thoits, 1991). We expect that activities that reflect both doing what you are and what matters enhance professionals’ positive emotions based on the congruence with identity, because identity processes may be considered to entail ‘emotional endeavors’ (Winkler, 2016, p. 4) and positive self-regard is considered a key affective component of identity (Dutton et al., 2010). Professionals feel positive (enthusiastic, energized, concentrated, and happy), as is captured in positive affect (e.g., Watson et al., 1988), when they build a positive self-concept by doing what they are. Based on the positive self-concept, we thus propose the following:

*Proposition 1a: If a work activity is intrinsically and extrinsically meaningful, professionals are likely to feel positive during and immediately after execution.*

The immediate positive effects of doing what you are and what matters are expected to accumulate over time. First, doing what you are and what matters is likely to drive professionals’ job satisfaction and enhance their performance. Indeed, congruence between (professional) identity and work activities was shown to be related to higher job satisfaction, commitment, creativity, job performance, and prosocial behaviors, and lower absenteeism (Grant, 2008a; May et al., 2004; Polzer, Milton, & Swarm Jr, 2002; Swann, Gómez, Seyle, Morales, & Huici, 2002).
2009; Thatcher & Greer, 2008). This relationship may be explained by identity theory and the desire of individuals to have a positive, professional identity (Stets, 2005; Thoits, 1991). Professionals have the tendency to choose and appreciate work activities that are consistent with their self-concept (Korman, 1970; Shamir, 1991), will be energized by the positive affect associated with doing what you are, and will show self-determined behavior to maintain that positive state (Porath, Spreitzer, Gibson, & Garnett, 2012; Spreitzer, Sutcliffe, Dutton, Sonenshein, & Grant, 2005). In other words, professionals will endeavor to spend time and energy to continue to do what they are and what matters. As a result, generally professionals will become better at executing these activities and continue to have positive experiences (i.e., upward spiral) (Kira & Balkin, 2014). Second, doing what you are is less likely to induce problematic forms of stress among professionals and may potentially even buffer against stress deriving from other less meaningful activities, as long as it is not overdone\(^{13}\). Peeters, Schaufeli, and Buunk (1995), for example, found that stressors aligned with one’s profession were seen as trivial. Doing what you are and what matters thus allows professionals to build a positive self-concept and become better at their job, while experiencing limited stress due to the professional legitimacy of these work activities. In sum, we expect that professionals sustain the short-term positive consequences of doing what they are and what matters over time (i.e., thrive) in terms of their well-being and performance and propose the following:

**Proposition 1b:** Over time, professionals who engage in work activities that are both intrinsically and extrinsically meaningful thrive in terms of well-being and performance.

**Neither doing what you are, nor what matters**

Work activities that are neither intrinsically nor extrinsically meaningful to professionals, are unambiguously associated with primarily negative consequences (i.e., quadrant III; illegitimate tasks and mindless work). Based on identity theory, we argue that the more a professional engages in doing what they are not and what does not matter, the more stress he or she will experience because he or she is likely to perceive those work activities as a threat to professional identity (Petriglieri, 2011; Semmer et al., 2007), without

\(^{13}\) Overdoing it, for example, employees with calling who become overloaded after enhancing their job and/or cases of expertise entrenchement or destruction of passion of professionals discussed later in this chapter.
any satisfaction or significance from doing what matters to counterbalance these negative feelings. Identity threat is “an experience appraised as indicating potential harm to the value, meaning, or enactment of an identity” (Petriglieri, 2011, p. 644) and is unsettling for individuals who, again, strive for a positive self-concept. Work activities perceived by the professional as falling outside his or her professional boundaries and also not clearly benefitting the organization feel threatening and even insulting (Semmer et al., 2010; Stocker, Jacobshagen, Semmer, & Annen, 2010), because the activities send a signal of disrespect and make professionals sense a failure in living up to their professional standards (Semmer et al., 2015). The experience of having one’s professional identity questioned or degraded by others immediately brings about negative emotions, such as anger, fear, guilt, and nervousness (Meister et al., 2014; Williams, 2007), captured in the overarching construct of negative affect (e.g., Watson et al., 1988). Self-discrepancies, such as incongruence between professional identity and activities, have been found to be related to disappointment and sadness as well as fear (Higgins, 1987). In addition, professionals experience negative affect doing what they are not and what does not matter, because it is demotivating and frustrating to do something that is experienced as futile (Ariely et al., 2008). Illegitimate tasks, for example, were found to be a distinctive stressor (Semmer et al., 2015) associated with more episodes of anger within the same workday (Eatough, Meier, Igic, Elfering, Spector, & Semmer, 2016). Based on the experienced identity threat of incongruent work activities and the frustration of doing something futile, we propose:

Proposition 2a: If a work activity is neither intrinsically nor extrinsically meaningful, professionals likely feel negative during and immediately after execution.

The immediate negative effects of neither doing what you are nor what matters, over time and cumulatively, are likely to translate into longer lasting negative consequences for professionals if they are unable to change this situation. First, professionals’ feelings of identity threat are likely to intensify when these work activities take up a significant proportion of a professional’s job, which is, in turn, likely to make professionals wither in terms of well-being. Professional identity encompasses one’s own, subjective interpretation of what it means to be a police officer, doctor, or teacher. This interpretation becomes threatened if those meanings are unlikely to be found in relation to one’s
professional identity in the future (Petriglieri, 2011), creating an unbridgeable gap over time between who one wants to be professionally and who one will be. Given that activities are not perceived to be of value to the organization either, this is not off-set by an extrinsic source of meaning. Incongruent work activities may thus form a barrier to the enactment of one’s professional identity (Petriglieri, 2011). Maitlis (2009), for example, describes the painful situations in which professional musicians are not able to play their instruments anymore after experiencing severe trauma. Activities that are in the category of ‘neither doing what you are, nor what matters’ entail a similar threat to professionals’ well-being, because they limit the time and resources available for meaningful activities. The carrying out of illegitimate tasks by Swiss armed forces, for example, was shown to be associated with lower job satisfaction and higher resentment (Stocker et al., 2010).

Second, the combination of frustration and experienced identity threat that persists after engaging in not doing what you are nor what matters, is likely to result in withdrawal behaviors and lower task performance. Identity theory posits that individuals will defend themselves against identity threats and retaliate to reaffirm a damaged identity, restore justice, or vent negative emotions (Aquino & Douglas, 2003). The associated immediate negative affect (Eatough et al., 2016) is likely to further fuel negative forms of work behavior such as withdrawal and workplace deviance (Fox & Spector, 2006) as negative affect hinders the control of negative reactions (Mohr, Müller, Rigotti, Aycan, & Tschan, 2006). Individuals who felt their identity threatened at work, for example, lowered their efforts to comply with company rules (Elsbach, 2003), deliberately obstructed change efforts (Nag, Corley, & Gioia, 2007), showed more interpersonal and organizational counterproductive work behavior (Semmer et al., 2010), exhibited more antisocial behavior directed toward other employees (Aquino & Douglas, 2003), were inclined to leave the organization (Trevor & Nyberg, 2008), and performed worse (Steele, 1997). In sum, we expect that the short-term negative consequences of neither doing what you are nor what matter amass over time (i.e., professionals wither) in terms of both their well-being and performance and propose the following:

Proposition 2b: Professionals who engage in work activities that are neither intrinsically nor extrinsically meaningful wither over time in terms of well-being and performance.
Doing what matters, but what you are not

Work activities that are only extrinsically meaningful to professionals are ambiguously associated with both positive and negative consequences (i.e., quadrant II; divergent duties and imposed evils). On the one hand, professionals may experience negative affect during or immediately after engaging in such activities due to the incongruence between these work activities and professional identity. Following identity theory, as previously discussed, a violation of professionals’ expectations is threatening and associated with negative affect (Eatough et al., 2016; Higgins, 1987), because doing what you are not takes away resources from the adequate fulfillment of those activities that do fall within those boundaries (Semmer et al., 2007; Thoits, 1991). Semmer (2000), for example, found that nurses experienced more stress searching the archives for an x-ray when done to support a doctor’s publication (i.e., threatening professional boundaries) than when it was done to treat a returning patient. Although in general work activities that contribute to (organizational) goals have been found to be related to (daily) positive and activated affect (Gabriel et al., 2011; Harris, Daniels, & Briner, 2003; Henkel & Hinsz, 2004), the conflicting experience of negative and positive affect associated with engaging in extrinsically, but not intrinsically meaningful work, creates an experience of emotional ambivalence (Fong, 2006; Larsen, McGraw, & Cacioppo, 2001). As threats to identity are especially difficult to handle (Petriglieri, 2011) and individuals ruminate more over negative situations (Kahneman, Knetsch, & Thaler, 1991), we propose:

Proposition 3a: If a work activity is only extrinsically meaningful, professionals likely feel ambivalence or negative during and immediately after execution.

These types of tasks likely do have more positive effects in the longer run, once the task is finished. The immediate negative affect associated with engaging in an activity that is incongruent with professional identity fades, while the positive feeling of having contributed something valued to the organization may remain, especially if reinforced through positive feedback or appreciation.

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We emphasize that the focus here is on how particular activities are perceived by a given individual professional. It is very well possible, that the same activity may be differentially construed across individuals, or even by a single individual over time or for different purposes.
expressed by others in the organization. Over time professionals are thus potentially able to reap the benefits in terms of well-being and performance due to the experienced contribution made to the organization’s mission of doing what matters, which may however take some time. First, experiencing task significance and feeling appreciated is likely to be associated with higher well-being of professionals. Ample research on job design and the role of task significance has shown that the experience that one’s job has a positive impact on others is motivational and makes work more meaningful (cf. Grant, 2008c). Contributing to the organization makes these work activities worth the effort, despite the incongruence with professional identity, because this contribution is likely to be seen and appreciated by the organization. The perceived congruence between the work activity and the goals of the organization offers professionals an alternative opportunity to build a positive self-concept by being valued by the organization and being similar to other employees who fit and perform in the organization (Dutton et al., 2010). Second, the increased motivation that derives from work that is extrinsically meaningful for professionals is likely to translate in higher job performance (Grant, 2008c). Because feeling acknowledged and appreciated at work increases motivation and job satisfaction, professionals are encouraged to work harder (Herzberg, 1974; Stocker et al., 2010). In sum, we expect that professionals turn the short-term ambivalent or negative affective consequences into positive ones over time (i.e., persevere) in terms of their well-being and performance and propose:

Proposition 3b: Professionals who engage in work activities that only extrinsically meaningful over time persevere in terms of well-being and performance.

Doing what you are, but what does not matter

Work activities that are only intrinsically meaningful are ambiguously associated with both positive and negative consequences for professionals (i.e., quadrant IV; prosocial passions and career development activities). We argue that professionals are likely to feel motivated and proud in doing what they are, even when it does not contribute to the goals of the organization. Shamir (1991, p. 411) argued that “humans are not only goal-oriented but also self-expres-sive” and thereby acknowledges that not all behavior is driven by balancing costs and benefits in a calculative manner. This allows for the possibility that some of it may not be instrumental. Professionals are thus motivated to express
their professional identity through those work activities that are congruent with their professional role even when these work activities do not directly contribute to the organization. For example, a police officer who spends hours to help a confused elderly person outside her regular hours can feel like this effort is not seen as valuable by her supervisor, but that she should do this as it fits her professional identity of helping and protecting people in need. In doing so, we expect professionals to experience pride, authenticity, and self-esteem (Stets, 2005; Thoits, 1991) as a direct outcome of engaging in such activities, resulting in the experience positive affect. However, as the effort invested in work activities from this quadrant can conflict with organizational goals or is not seen or appreciated, we again expect that professionals experience ambivalence rather than solely positive emotions (Fong, 2006). For example, they may feel proud to have helped, but also unhappy that this is not recognized by their boss or stressed if this was done in time that could (or perhaps should) have been spent on activities that are valued by the organization. We thus propose:

Proposition 4a: If a work activity is only intrinsically meaningful, professionals likely feel ambivalence or positive during and immediately after execution.

Over time professionals may not be able to sustain the benefits in terms of well-being and performance mainly due to a lack of acknowledgement and appreciation on the part of the organization. First, professionals’ reluctance to deviate from self-expressive behavior can make them over-committed (Brockner et al., 1986), which means that they exaggerate their efforts, ‘overdo it’, and become vulnerable to well-being risks (Siegrist, 1996), such as emotional exhaustion, and both psychosomatic and physical health complaints (De Jonge et al., 2000). Professionals are likely to experience stress due to the lack of reciprocity between cost and gains (Siegrist, 1996) in spending time doing what does not matter, especially when professionals incur high costs in the form of additional hours and energy in making that effort (Bakker, Killmer, Siegrist, & Schaufeli, 2000; De Jonge et al., 2000). Second, the negative effects on well-being and the reluctance to change an ineffective course of action based on identity motives is likely to negatively affect overall performance, since job performance is generally defined in terms of those work behaviors that contribute to the goals of the organization (Motowidlo, 2003). When the behavior does not lead to any rewards or is even harmful, the motivation to have a consistent self-concept may
lead professionals to persist in an anti-instrumental course of action (Shamir, 1991). For example, a zookeeper who is not spending her whole night watching over a sick animal because colleagues are already present (i.e., making the effort inefficient) could feel disappointed in herself as she believes that she should be there. To avoid negative emotional states or a negative self-evaluation, such as ‘I failed a sick animal and my colleagues’, professionals are likely to keep doing what they are even if it does not clearly contribute to the organization (Sheldon & Elliot, 1999). However, being exposed to stress for a prolonged time will negatively affect the performance of professionals (Cropanzano et al., 2003). In sum, we expect that the short-term ambivalence or positive consequences of professionals doing what they are diminish over time (i.e., succumb) in terms of their well-being and performance and propose:

Proposition 4b: Professionals who engage in work activities that are only intrinsically meaningful over time succumb in terms of well-being and performance.

BALANCING MEANINGFUL AND MEANINGLESS WORK ACTIVITIES

So far, we have focused solely on the positive and negative consequences of professionals engaging in a particular singular activity. However, in a given time period, the professional will likely engage in successive work activities that comprise doing what they are, doing what matters, doing what they are not, and doing what does not matter. It is therefore necessary to take into account whether the overall composition a professional’s job activities allows for a balance in which sufficient time is spent on meaningful work instead of viewing the aforementioned consequences of each category of work activities in isolation. The impact of only five minutes every week spent emptying out one’s trash can at work, for example, will be limited compared to having to spend many hours engaging in tasks that are experienced as futile. Below, we define (im)balance in meaningful work and delineate mechanisms that may tip the balance either incrementally until a threshold is reached or more radically at once (Selenko et al., 2018). We discuss how professionals and organizational agents may unintentionally destabilize the meaningfulness of work and how both have agency to intentionally help the professional regain the balance (see Figure 2).
Balance versus imbalance

Professionals are likely to experience balance when the majority of their time is spent on work that is meaningful either intrinsically (i.e., quadrant IV), extrinsically (i.e., quadrant II), or both (i.e., quadrant I) and that of these three categories, most time is spent doing what they are and what matters (i.e., quadrant I). Balance thus represents a cognitive and subjective, but mainly subconscious assessment of the set of work activities based on a professional’s perception of doing what they are and what matters, implicitly weighing meaningful work activities against those that they see as meaningless. This cognitive process becomes conscious either when a feeling develops that the package of activities ‘does not add up anymore’ or when there is an external trigger for conscious sense making (Morrison & Robinson, 1997). This is in line with the finding that individuals are unlikely to experience meaningfulness in the moment but rather in retrospect when reflecting on it (Bailey & Madden, 2016).

Imbalances in meaningful work are perceived once a certain threshold is surpassed either slowly over time or more suddenly at once (Selenko et al., 2018). The moment the threshold is passed, the imbalance becomes an affective state given that emotions are based on cognitive appraisals of events (Moors, Ellsworth, Scherer, & Frijda, 2013; Smith & Lazarus, 1993). Although, taking stock of meaningfulness is a cognitive activity, feeling imbalance is an emotional experience. Professionals who feel that their work activities have become unbalanced see their expectations of what their professional work constitutes violated, which is related to distress, anger, wrongful harm, disappointment, frustration, and resentment (Morrison & Robinson, 1997; Rousseau, 1989). Imbalance is thus an emotional/affective state based on the belief that the organization has failed to provide sufficient meaningful work activities congruent with both professional identity and organizational goals as expected by the professional. We therefore propose the following:

*Proposition 5: Professionals cognitively assess whether the majority of their time is spent on work that is meaningful and emotionally experience imbalance when this is not the case.*

From balance to imbalance: losing meaning

Below we discuss how changes made by organizations can create a sense of imbalance between meaningful and meaningless work activities, however professionals themselves can also be the source of imbalance. Pro-
fessionals of course do not aim to create imbalance, but their actions can result in imbalance or the overall loss of meaning. Professionals are unlikely to add meaningless work activities to their own job, but the balance between meaningful and meaningless work may be disrupted when work changes. Individuals are known to proactively change their own work activities through job crafting (Wrzesniewski & Dutton, 2001), and receive social cues, both explicit and implicit, that steer them into carrying out or more actively choosing certain work activities, thus altering their set of work activities. In addition, maturation in a job or progression in one’s professional career may naturally change the set of work activities of professionals or the perceived meaning, disturbing a previously established balance (Ibarra, 1999; Pratt et al., 2006). The magnitude of the changes made by professionals predicts whether an existing balance is incrementally or radically disrupted (Pratt et al., 2006). However, as imbalance is likely to be unintended, we expect professionals to reach their meaningless work threshold slowly and subconsciously in this case. Especially changes in ambiguous work activities (i.e., quadrant II and IV) are likely to incrementally shift the balance as the consequences are not stable over time and not directly clear due to ambiguous cues and differences in the valence of consequences over time.

In addition, professionals can trigger unbalance by losing sight of what they are or what matters to them or by shifts in what matters most. Identities change and are actively constructed together with changing work, roles, or micro-role transitions (Järventie-Thesleff & Tienari, 2016). Professional can struggle to balance their self-identity and their organizational identity and even create an anti-identity to define what is not part of being a professional (Sveningsson & Alvesson, 2003). In sum, professionals may unintentionally do or perceive fewer activities as reflective of doing what you are and what matters through changing their work activities or their professional identity (i.e., constrain) and make their appraisal of meaningfulness less inclusive. An example of professionals losing meaning is expertise entrenchment, which we discuss below.

**Expertise entrenchment.** Professionals may actively seek out congruent work activities, spend more time executing them, and avoid other tasks (Kira & Balkin, 2014). By focusing on a small part of their job and only developing competence relevant to that part, professionals run the risk of neglecting other important activities and associated competences. An academic who is
always conducting meta-analyses, for example, may miss out on opportunities to learn about and use other newly developed influential research methods. The unwillingness and potential incompetence to execute incongruent activities could make professionals less flexible and more reluctant to do what is needed (Kira & Balkin, 2014). In this way, professionals risk not being able to deal with any changes and fail to develop the broad set of resources and competences necessary to sustain the congruence between work activities and professional identity in the future. As a result, professionals may unintentionally perceive a very narrow set of work activities as meaningful, and start to see more activities as meaningless. We thus propose:

Proposition 6a: Professionals can unintentionally create imbalance between their meaningful and meaningless work activities when they constrain doing what they are and what matters.

From balance to imbalance: destroying meaning

Organizational agents do not aim to create imbalance in meaningful work for professionals either, but their actions can unintentionally constrain (the professional’s appraisal of) what is meaningful through which they destroy meaning for professionals. Organizations may trigger imbalance by making changes in the set of work activities of professionals through job (re)design. Adding one illegitimate task to a professional’s job may, for example, be sufficient to offset the balance, because it creates a sense-breaking situation in which the understanding of a professionals’ identity and their work is challenged (Ashforth & Schinoff, 2016). In general, again, the magnitude of the change predicts whether professionals see their balance as incrementally or radically disrupted (Pratt et al., 2006). The more radical a change, the more likely an immediate experience of imbalance in meaningfulness. Especially changes in unambiguous work activities (i.e., quadrant I and III) may instantly disrupt balance because the positive or negative consequences are clear.

Organizations may trigger imbalance by a lack of appreciation or a failure to reliably signal what matters to them. Professionals reconsider the importance of a work activity when they do not see their effort translated into sufficient extrinsic meaningfulness, or perceive that they are doing the wrong things through sensemaking (Wrzesniewski et al., 2003). In addition, organizational agents sometimes send mixed signals about what they consider to be important or may impose conflicting goals. Leaders may, for example, preach sustainability
in line with their organization, but role model other behavior by conducting work in a wasteful manner. As a result of these conflicting signals, professionals may reevaluate sustainability as an important goal in their work group. In sum, organizational agents may unintentionally diminish the activities seen by professionals as doing what you are and what matters (i.e., constrain) through work (re)design or by not clearly signaling what is important making professionals’ appraisal of meaningfulness less inclusive. Below we discuss destruction of passion as an example.

**Destruction of passion.** Professionals’ motivation to express their professional identity negatively affects their well-being over time when work activities are perceived to be incongruent with organizational goals. The lack of appreciation from the organization or supervisor for the effort invested in prosocial passions signals that the effort or achievement is trivial or unimportant. A nurse, for example, who spends hours of her own time tracking down an interpreter to help treat a foreign patient may see that effort as wasted time after being not being praised, but reprimanded instead for being late with her discharge papers. As a result of a lack of appreciation, professionals may not only reevaluate an activity in terms of its meaning for the organization, but also reevaluate (part of) their professional identity as negative (Petriglieri, 2011). This has a detrimental effect on professionals’ self-esteem and serves to diminish the pride that professionals associate with their identity. The nurse in our example feels less proud about her activities that were intrinsically and extrinsically meaningful before. To cope with such situations professionals may distance themselves from their profession and shrink the importance and pervasiveness of their professional identity through perceiving fewer work activities as meaningful. Thus, we propose the following:

*Proposition 6b: Organizations can unintentionally create imbalance between meaningful and meaningless work activities when they constrain doing what you are and what matters.*

**From imbalance to balance: making meaning**

Below we discuss how changes made by organizations can create the sense of balance, however professionals have agency as well in (re)gaining balance. Professionals strive for balance between their meaningful and meaningless work activities, and do so by intentionally broadening (their appraisal of) what is meaningful and thus make their own meaning. Rosso and colleagues
(2010, p. 115) state that “individuals are the ultimate arbiters of the meaning of their own work”, as meaning is shaped through their own subjective experiences and appraisals. Professionals are thus assumed to have agency in creating and maintaining meaningfulness in their work and to be motivated to do so (Lips-Wiersma & Morris, 2009; Wrzesniewski et al., 2003). However, professionals are most likely to interpret cues and signals when they encounter problematic situations that require conscious sensemaking (Weick, 1993; Wrzesniewski et al., 2003). Feeling an imbalance between meaningful and meaningless work could be such a situation that requires professionals to rethink what it means to be a doctor, nurse, police officer, accountant, or teacher.

Professionals may use identity work or customization to address the felt imbalance (Pratt et al., 2006). Some restaurant chefs, for example, framed themselves as artists and their work as an art form to include the highly skilled aspects that the context they worked in required and to distinguish themselves from chefs in fast-food restaurants (Fine, 1996). Professionals adjust what they do and who they are to reestablish balance, because having meaningful work contributes to a positive and coherent self-concept (Shamir, 1991; Wrzesniewski et al., 2003). In sum, professionals can do or perceive more activities as doing what you are and what matters (i.e., broaden) through job crafting or identity work and make their appraisals of meaningfulness more inclusive, both are addressed in more detail below.

**Job crafting.** By changing the number or form of activities, professionals influence what they do and ensure that it reflects what they are and what matters in the eyes of organizational agents. Indeed, the motivation to have a positive self-concept and do what is meaningful is a known driver for job crafting behavior (Wrzesniewski & Dutton, 2001). Professionals could, for example, choose not to engage in a divergent duty or to increase their raison d’être activities. In addition, professionals can proactively change how they see their job in order to make it a more integrated and meaningful whole using cognitive crafting. For example, a hospital cleaner may intentionally reframe his work activities from a disintegrative set of cleaning actions towards cleaning in order to help patients get better (Wrzesniewski & Dutton, 2001). Professionals may thus proactively frame their work activities in a more favorable light and broaden what they perceive to be meaningful as well. Finally, professionals can also engage in job crafting to influence what they do to make meaning on a daily basis (Demerouti et al., 2015; Petrou, Demerouti, Peeters, Schaufeli, & Hetland, 2012; Tims, Bakker, & Derks,
A nurse, for example, could choose to add some additional light cleaning tasks to her work day, because it could help her process the intense hours of work she had dealing with a patient with dementia (i.e., crafting some mindless work into the day as a distraction).

Identity work. Professionals can adjust what it means to be a professional, because identities can be formed, constructed, changed, adjusted, and crafted deliberately (Selenko et al., 2018). Identity work is defined as “the activities individuals engage in to create, present, and sustain personal identities that are congruent with and supportive of the self-concept” (Brown, 2015, pp. 23–24). Research on the adaptive process of medical residents showed that it is possible to customize professional identity to better fit with the working reality. A radiologist in training, for example, slowly shifted his/her professional identity towards being a doctor’s consultant in order to make sense of their advising work activities that replaced the patient contact activities they experienced during medical training (Pratt et al., 2006). Based on these two techniques, we propose the following:

Proposition 7a: Professionals can intentionally create or restore balance between meaningful and meaningless work activities when they broaden doing what they are and what matters.

From imbalance to balance: giving meaning

Organizational agents also strive to create balance in meaningful work for professionals given the importance of meaningful work for professionals’ well-being and performance (Michaelson et al., 2014). Furthermore, they have the agency to intentionally create meaning by broadening (the appraisal of) what is meaningful to professionals. Whereas professionals may be triggered into action, organizations aim to constantly foster and cultivate meaningfulness for their employees (Lips-Wiersma & Morris, 2009). Organizations manage meaningfulness by changing what employees do and by shaping the context within which work is performed, in which appealing to the identity of the professional is central (Pratt & Ashforth, 2003). Organizational agents have influence over what is considered part of professional work, which if done correctly means including mainly meaningful work activities (Hackman & Oldham, 1976).

In addition, as previously said, organizational agents, such as supervisors, provide cues and signals that professionals interpret and translate into meaningfulness, which if done intentionally can help professionals to see more work
activities as part of their professional role or as important to the organization (Wrzesniewski et al., 2003). Through sense-giving, leaders help professionals to understand the strategic priorities of their organization and broaden what professionals perceive to matter to the organization (Bailey & Madden, 2016; Gioia & Chittipeddi, 1991). In addition, professionals understand better why work activities matter when organizational practices and activities are aligned with organizational goals and professional boundaries (Nishii, Lepak, & Schneider, 2008). In sum, organizations can increase the activities seen by professionals as doing what you are and what matters (i.e., broaden) through work (re)design or providing a vision that augments that which is seen as meaningful and make professionals’ appraisals of meaningfulness more inclusive. Both are addressed in more detail below.

Work (re)design. Organizational agents, such as HR practitioners and direct supervisors, can ensure that professionals are doing what matters and what they are as much as viable using work (re)design to structure and modify tasks, roles, and jobs to achieve meaningfulness (Grant & Parker, 2009; Hackman & Oldham, 1976). Organizations can adjust the set of work activities of professionals in order to create the conditions for a better balance between meaningful and meaningless work and, for example, by delegating incongruent work activities to someone else, or, if possible, choosing to remove a task completely. In addition, work design allows organizations to point employees to their prosocial impact and thus allow professionals to experience the positive impact their work has on others (Grant, 2008b, 2008c). Asking firefighters to provide fire safety courses to communities, for example, is an additional task that allows these professionals to experience how their knowledge has a positive effect on others. Contact with beneficiaries and stakeholders is thus useful in letting professionals experience that their work and specific work activities matter (Grant, 2007).

Vision. Higher management can intentionally broaden the set of work activities that are perceived as meaningful by professionals by using a vision to make clear what is valuable to the organization and what not. A vision, defined as the image of the future that provides organizational members with behavioral guidelines, organizational norms, and values (Conger & Kanungo, 1987), is one way to communicate to professionals what matters. Despite the fact that visions are rather abstract compared to concrete work activities, President Kennedy, for example, used the ultimate aspiration of NASA to put a man on the moon to communicate how even daily activities such as mopping the floor contributed to
that vision (Carton, 2018). A clear vision could thus be a bright beacon, guiding professionals’ appraisal of their work activities in the right direction. Especially leaders, as managers of meaning (Gioia & Chittipeddi, 1991; Shamir, House, & Arthur, 1993), can use elements of transformational and visionary leadership, such as inspirational motivation (Bass, 1985), to ensure that the organization’s vision is effectively communicated and sufficiently shared with, supported by, and potentially even co-created by its professionals. Visionary leadership, defined as the verbal communication of a future and the persuasion of others to contribute to that future (Stam, Van Knippenberg, & Wisse, 2010; Van Knippenberg & Sitkin, 2013), can help leaders to broaden professionals’ perception of what matters. Based on these two examples of techniques organizational agents can use to positively affect meaningfulness, we propose the following:

**Proposition 7b:** Organizations can intentionally create or restore balance between meaningful and meaningless work activities when they (help professionals to) broaden doing what you are and what matters.

**DISCUSSION**

We have presented a model of how doing what you are and doing what matters explains whether professionals experience meaningfulness at the level of work activities and how this is reflected in their well-being and performance. First, our model integrates and extends sources of meaningful work when applied to the professional work context with the congruence between work activities and professional identity. Second, we contribute to identity theory by showing that identity threat and self-verification are opposite ends of the same continuum and help to explain the importance of congruence between professional identity and work activities. We show that what professionals do provides a unique means of explaining the extent to which professionals experience meaningfulness, sustain or improve their well-being, and perform well. Compared to examining the job holistically, this highlights that not all work activities are seen as equally meaningful. Third, we provide a dynamic perspective on identity and meaningfulness by showing how balance in the whole set of work activities can be disrupted and restored. Below we discuss these contributions in more detail, how they can spur future research, and how they can be translated into practice.

Whereas doing what matters has been acknowledged to constitute an important means of experiencing significance at work through feelings of purpose (Grant, 2008b, 2008c), less is known about how the consistency
between behavior and identity figures into this (Rosso et al., 2010). However, identities are closely related and shaped by what we do (Christiansen, 1999). We argued that professional identity is a salient and relevant identity category in the professional work context and added that the congruence between work activities and professional identity explicates when professionals experience their work as meaningful (Anteby et al., 2016; Pratt et al., 2006). Until now scholars of meaningfulness have often focused their attention on one source of meaningfulness at a time (Rosso et al., 2010), whereas we combine two sources and showed how extrinsic meaningfulness may complement and substitute intrinsic meaningfulness. Even when work activities are incongruent with professional identity, they are not necessarily devoid of meaning, and even work activities that are meaningful can drift towards situations in which meaningfulness and its positive consequences can evaporate incrementally over time or radically at once (Selenko et al., 2018). The quest for meaningful work will be one of constantly adjusting and shifting the balance as professional work changes in reality and includes meaningless elements as well.

Our conceptualization of doing what you are combines work on self-verification in the identity literature (Dutton et al., 2010) with ideas pertaining to identity threat (Petriglieri, 2011), which to the best of our knowledge has not been done in the identity literature so far (Miscenko & Day, 2015). We show that the possibility to express and affirm professional identity by executing professionals’ valued work activities (Shamir, 1991) is one side of the coin, and that work activities that hinder or threaten professional identity (Petriglieri, 2011) are the other. We build on Shamir’s (1991) work on self-concept as a motivational force and illustrate that not being able to do what you are negatively affects professionals’ well-being. Our focus on professional identity in combination with the significance for the organization allowed us to explain how relatively small changes in the work of professionals can have big consequences. In doing so, we add that changes in work activities form a trigger for identity work, whereas the literature on identity work until now has been preoccupied mostly with radical triggers (Selenko et al., 2018), such as entering a new professional role (Ibarra, 1999; Pratt et al., 2006), a new organization (Beyer & Hannah, 2002), transitioning from unemployment (Koen, Van Vianen, Klehe, Zikic, & Klehe, 2016), or suffering trauma or identity loss (Maitlis, 2009).

What individuals do in terms of their work activities is rarely investigated as an antecedent of identity formation, well-being and performance despite of
the aim in organizational behavior research to explain behavior (Barley & Kunda, 2001). Our eight distinguishable types of work activities explain how what professionals do contributes to the overall experience of meaningfulness in the eyes of the professional, and subsequently their well-being and performance. We add to the ‘doing’ lens (Anteby et al., 2016) by showing how professionals can differ in the experience and evaluation of their own unique set of work activities. This is rarely taken into account despite the knowledge that not every individual in the same profession either experiences their job in the same way or even engages in the same activities (Fine, 1996; Parker, 2007). Exceptions on activity level research are the work on illegitimate tasks (Semmer et al., 2007, 2015, 2010), and a study by Aiken and colleagues (2001) that distinguished between tasks that do directly require nurse-patient interaction and tasks that do not require such interaction to predict the well-being of nurses. We add to the concept of illegitimate tasks or the distinction between direct and non-direct nursing tasks the myriad of work activities that fall in between meaningful and meaningless work based on identity theory, because illegitimate tasks and raison d’être activities only capture the extremes.

**Directions for future research**

Our model of meaningful work for professionals suggests many research opportunities. First, in order to empirically assess the eight types of work activities and their unique impact on professionals’ well-being and performance, a key area in need of development is operationalization. Since illegitimate tasks and mindless work are based on existing concepts including validated scales (Elsbach & Hargadon, 2006; Semmer et al., 2015), it should be possible to measure the other six types of work activities as well. The job analysis literature could provide critical insights as to how to incorporate tasks in research and how to assess to what extent professionals perceive their tasks as meaningful (Sanchez & Levine, 2012). More generally as well, more research should incorporate tasks or work activities in order to explain behavior and well-being, as this can provide valuable and actionable insights yet is under-researched (Barley & Kunda, 2001). Chan and Anteby (2016), for example, found that female security screeners experienced higher work intensity and emotional exhaustion due to the greater amount of time spent on emotionally and physically straining pat-downs compared to their male counterparts.

In future research, scholars could also focus on how professionals use
both job crafting and identity work to re-establish balance in the meaningfulness of their work activities. We argued that professionals have agency in creating meaningful work situations for themselves by changing (the time spent on) their activities, how they appraise their activities, and therewith reconstructing their professional identity. However, little research has taken both processes into account. Pratt and colleagues (2006), for example, focus incongruence between activities and professional identity, which only triggered identity customization because these medical professionals lacked job discretion to craft their jobs. It is assumed that with sufficient discretion job crafting is preferred, because identity work entails a higher emotional burden than job crafting (Winkler, 2016). Research including both strategies of agency over meaningful work experiences could offer new insights, such as whether job crafting and identity work can be done simultaneously or alternately, and whether they may complement, substitute, or interact with one another.

A closer look at the smaller and different changes in work that influence the experience of meaningful work, in particular when mismatched to professional identity, can shed light on the interaction between work and identity. In our model we focus on what professionals do, which can elucidate how incremental and subtle changes in the content of one’s job could be triggers for identity work. The rapid technological developments over the past years, for example, may be expected to impact both the content of professional work (Bresnahan, 1999; Frey & Osborne, 2013) and professional identity (Eriksson-Zetterquist, Lindberg, & Styhre, 2009). The increasing use of computers and robotization may not only destroy the meaningfulness of work and cause job polarization (Aghion & Howitt, 1994), but may also help organizations get rid of routine tasks (Autor, Levy, & Murnane, 2003). It would be interesting and worthwhile to study whether these trends may actually facilitate meaningful work for professionals, by reducing their time spent on illegitimate tasks and increasing their time spent on the complex and social aspects of the job. However, negative implications are likely as well, especially when these changes occur without regard for those activities that are appraised as (intrinsically) meaningful by their incumbents.

There are boundary conditions as to whether professionals experience their work as meaningful, which could be delineated in future research so as to facilitate the creation of meaningful work situations. It is likely that professionals can proactively create their own balanced set of meaningful work activities provided they are given sufficient autonomy to do so (Fay & Frese, 2001; Grant
& Ashford, 2008; Parker, 2007; Wrzesniewski & Dutton, 2001). Organizations could also cultivate meaningfulness by enhancing individuals sense of belongingness, shifting the importance from professional identity to organizational identity (Michaelson et al., 2014). Another potential boundary condition on reaping the benefits of doing what matters but what you are not is the availability of resources. With scarce resources, professionals will have to make choices about the allocation of their time and may experience role conflict, because some expectations felt by professionals or their organizations may not be fulfilled (Heiss, 1990; Jackson & Schuler, 1985; Nielsen, Bachrach, Sundstrom, & Halfhill, 2012; Troyer, Mueller, & Osinsky, 2000). Extra-role behaviors can, for example, be experienced as particularly overwhelming when individuals already struggle to find the time to perform their in-role behaviors (Bergeron, 2007).

**Practical implications**

Our model of meaningful work, can aid organizational agents in facilitating and sustaining meaningful work. Professional work, like all work, is expected to become increasingly dynamic and susceptible to change (Grant & Parker, 2009). It will thus be evermore critical that bilateral communication about which work activities are intrinsically and extrinsically meaningful is incorporated in the dialogue between supervisors (as organizational agents) and professionals. By including what professionals actually do into conversations about topics such as work load, stress, meaningful work, or engagement at work, organizations can engage in dialogue with their professionals about whether their work is balanced and meaningful. Our model facilitates this discussion, as work activities classified in this manner are likely to be readily understandable for both parties. The use of our model as a communication tool could in that way create meaningful work situations and reduce noise or disagreement about what matters and what falls within professional boundaries. Performance appraisal could form a useful moment for this dialogue as it naturally focuses on what is expected, what is done, and what matters to who.

Supervisors may increase intrinsic and extrinsic meaningfulness by explicating to professionals what falls within the profession’s boundaries and what not and which work activities are valuable contributions and why. Indeed, Eatough and colleagues (2016) acknowledge that supervisors have a role in reducing the potential for certain work activities to be seen as ill-fitting the professional boundaries. Sometimes the experienced lack of respect for professional roles
might be subtle and due to oversights in organizational inefficiency (e.g., requiring professors to empty trash bins) or communicating about the appropriateness of tasks, rather than blunt and offensive. Especially the subtle signals that are sent by organizational agents and that violate professional boundaries might require additional diligence of managers. Communication about what can and what cannot be expected of the professional could potentially help to detect and prevent such situations (Björk, Bejerot, Jacobshagen, & Härenstam, 2013).

In addition, organizational agents can strive to explicitly communicate the rationale for asking professionals to execute particular work activities, particularly when these are not in line with professional identity. Taking the time and effort to explain potentially difficult decisions could aid in demonstrating adequate respect for professionals, create understanding for such decisions, and reduce feelings of stress and identity threat (Eatough et al., 2016). Following the literature on organizational justice, supervisors are advised to provide adequate justification for including illegitimate tasks or imposed evils in their subordinates’ professional role when there is no other option (Cropanzano, Byrne, Bobocel, & Rupp, 2001). Explicit communication and reasoning for making a particular decision might prevent professionals ending up feeling offended, because it showcases respect for professionals and their specialized knowledge (Semmer et al., 2010). But even when there are no other options, it could be useful to explain how work activities matter to the organization by reframing activities in light of the organization’s mission to help professionals experience more task significance.

Professionals too have an active role in the dialogue about doing what you are and what matters. Supervisors may not always realize that particular work activities are incongruent with the professional identity of their subordinates (Semmer et al., 2010) and professionals are thus best positioned to signal experienced imbalances as experts in their professional field. In addition, it is increasingly difficult for supervisors to adjust work for professionals based on its changing nature (Grant & Parker, 2009). Supervisors can be made aware of the potential negative consequences by voicing concerns or issues. However, professionals who feel offended by being asked to execute said activities might not always proactively share their feelings due to the negative repercussions that critical upward voicing might have (Milliken, Morrison, & Hewlin, 2003; Morrison, 2014; Morrison & Milliken, 2003). This is prevented when organizations create a climate in which voicing is appreciated and professionals are encouraged to share such feelings about what they are doing and asked to do.
CHAPTER 6
Discussion
THEORETICAL CONTRIBUTIONS

This dissertation set out to address that understanding of what employees do provides opportunities to assess whether those activities are congruent with the employee’s self-concept, and optimize rather than constrain their well-being and performance. I have built on three literatures to understand what employees do, how they see their work, and how they see themselves. I use job analysis to shed light on how to understand what employees do, calling to provide insight on the vulnerability of employees who do what they love, and identity theory to investigate why it is problematic when what we do and who we are at work become disconnected. Below I combine the insights of the studies presented in the previous chapters and review the theoretical implications for each of these three literatures.

Job analysis: what employees do

Job analysis is the process of collecting and analyzing information to understand both what employees do (that is, which tasks they undertake) and what is required for satisfactory performance in a given job, and as such forms the foundation for the majority of HR practices. However, recently job analysts have been criticized for not capitalizing on technological developments, such as big data, and for their lack of attention to the changing nature of work (McEntire et al., 2006; Sanchez, 1994; Sanchez & Levine, 2001). In Chapter 2, I show that it is possible to automatically extract tasks from online vacancies. Comparing the output of text mining to a more traditional way of collecting and analyzing job information, showed that text mining techniques can be implemented in the job analysis field, yielding a new means to collect valid job information. Specifically, on the basis of the text mining method it was possible to collect tasks from a wider variety of contexts in which nurses operate, thereby enhancing both context-specificity and generalizability as compared to a task inventory.

In addition, this dissertation contributes to the ongoing debate about what type of job information is (most) useful, since the status quo in the job analysis literature seems to be that there is no one superior job information type (Harvey & Wilson, 2000, 2010; Morgeson & Campion, 1997; Sanchez & Levine, 2009). With the plethora of job information types available nowadays (Berkers, Mol, Kismihók, & Den Hartog, 2015; Prien et al., 2004), practitioners and researchers alike often include a variety of job information types in their job analysis, without clearly explaining the bases for doing so. I provided argumenta-
tion in favor of detailed as opposed to abstract, and contextualized as opposed to generic job information. While the job analysis literature seems to have moved toward the use of abstract and general forms of job information (Peterson et al., 2001), the relevance of using a fine-grained (i.e., specific and contextualized job information) understanding of the determinants of employee well-being and performance is supported by the finding that tasks are not equal in their impact on these critical outcomes in Chapter 2 and Chapter 5. Only a limited number of other studies in the job analysis area have focused on the task level, but the differential impact of tasks on different outcomes underscores the relevance of using contextualized data on what employees do (Aiken et al., 2001; Eatough et al., 2016; Semmer et al., 2015; Taber & Alliger, 1995).

To me, the fact that subjective differences exist in how tasks are perceived should be seen as an argument in favor of job analysis rather than an argument against it. One of the challenges that job analysis faced as a result of the changing nature of work is the realization that standardized jobs are increasingly a thing of the past (Sanchez & Levine, 2012). Employees even within the same job often carry out different tasks (Fine, 1996), for example as the result of their expanding job crafting behavior as we showed in Chapter 3. Even if employees perform the same tasks, there are likely differences between how employees subjectively perceive those tasks or their job (Parker, 2007). As discussed in Chapter 5, professionals may care more or less about an activity depending on the degree to which that activity represents their self-concept and contributes to the goals of the organization. The finding that not all tasks are equal provides the job analysis literature an opportunity to regain relevance by helping to uncover which tasks are crucial to determining employee well-being and performance, rather than aiming to provide a unified, standardized overview of what all employees in a specific occupation do.

**Calling: how (some) employees see their work**

Calling, a work orientation that is focused on the enjoyment of the job itself, has been associated with both positive and negative consequences for employee well-being, and, albeit to a lesser extent, for job performance (Duffy & Dik, 2013; Duffy et al., 2016). This dissertation added OCB and work overload to the known outcomes of calling. Still little was known about the mechanisms that explain how calling may function as a double-edged sword (Bunderson & Thompson, 2009; Duffy & Dik, 2013). Previous research tended to focus on
attitudinal mechanisms that explained either positive or negative outcomes of calling, including career commitment (Duffy et al., 2011), perceived organizational instrumentality (Cardador et al., 2011), occupational self-efficacy (Park et al., 2016), disengagement (Hagmaier et al., 2013), detachment (Clinton et al., 2017), and moral duty (Bunderson & Thompson, 2009). An alternative mechanism is what employees who see their work as a calling do rather than how they feel or what they think. The results in Chapter 3 suggest that enhancing job crafting constitutes a behavioral mechanism through which calling affects both OCB and work overload.

Employees may engage in work activities because this allows them express who they are as professionals, which is potentially risky in terms of workaholism or over-commitment (Birkeland & Buch, 2015; Brockner et al., 1986). In a same way, employees with a calling may unintentionally start experiencing negative implications of doing what they love because they are naturally driven to contribute more by expanding the job that they enjoy and see as important. Being true to a calling may thus entail taking on more work to ensure that everything that is needed gets done, which was found to be associated with becoming overburdened as well as helping others in Chapter 3. Experiencing work as a calling may thus be seen as a motivational force that elicits specific work behaviors. Moreover, attitudes (e.g., job satisfaction or organizational commitment) are likely to be aligned with seeing work as a calling in order to create a consistent self-concept and prevent cognitive dissonance between attitudes and calling. Despite being emotionally exhausted, employees with a calling were found to sustain their job satisfaction (Duffy et al., 2016). This suggests that attitudes may not change even if employees are exhausted, and that behavior may form a more appropriate mechanism to explain the potentially ineffective courses of action for employees with a calling. That is, what employees do (more and more) can unintentionally be contradictory to what they need (recovery).

Further support for enhancing job crafting as a behavioral mechanism that explains the double-sided consequences of calling is provided by the preliminary evidence against an alternative hypothesis provided in the calling literature, namely that employees who see their work as a calling suffer due to their restrained flexibility (Elangovan et al., 2010). The result that there is no significant relationship between calling and Work Identity Rigidity (WIR) as reported in Chapter 4, however, contradict Dobrow and Tosti-Kharas’s (2012)
finding that employees with a calling tend to have a tunnel vision, limiting their flexibility to switch careers. Only employees who had a problematic identification with their work, as reflected in high scores on obsessive passion (Vallerand et al., 2003), had a more rigid work identity and were less willing to deal with changes that pertain directly to who they are at work. In line with Cardador and Caza (2012) and based on our findings, I thus argue that it is unlikely that all employees who see their work as a calling are limited in their flexibility. Better understanding of the conditions and behavior that might suppress the positive effects of calling is thus needed, as employees are increasingly looking for work that they see as a calling (Berkelaar & Buzzanell, 2015) and can benefit from seeing work as a calling.

Identity: how employees see themselves

This dissertation augments known triggers for identity work within the identity literature, such as the experience of a trauma (Maitlis, 2009) or starting a new job (Ibarra, 1999; Pratt et al., 2006), with changes that occur to the work content that affect employees' identities. Specifically, I showed that the (in)congruence between identity and work may reside at the level of an individual’s work activities. Identifying a specific activity that does not match one’s identity can explain experienced stress (Petriglieri, 2011) and can be used as a basis for deploying relatively straight-forward and targeted interventions around that specific activity as opposed to the entire job. When, for example, the image of what it means to be a physician does not match reality due to an increase in administrative work (Heijne, 2015a, 2015b), action that help reduce this specific type of work or make it manageable to restore balance and retain meaningfulness of the job may prevent physicians from experiencing exhaustion or even (start thinking about) quitting their job.

In addition, little was known about the individual differences in employees’ ability and their willingness to deal with changes that affect their identity at work. The wide variety of negative emotions associated with adjusting who one is showed that identity work is far from easy (Winkler, 2016). Some employees are focused on these negative aspects of identity-related change, or foresee problems due to their lack of resources, and as a reaction create an unfavorable attitude toward identity-related changes. Building on the work of Cardador and Caza (2012), I defined this reluctance and unwillingness to change one’s identity as Work Identity Rigidity. The results in Chapter 4 showed that
employees indeed differ in the extent to which they have an unfavorable attitude toward identity-related changes. In this sense, WIR could, for example, help to explain why certain professionals struggle more with identity work when what they do does not match who they are as discussed in Chapter 5. By distinguishing that individuals are not all the same, also when it comes to dealing with identity, organizations can facilitate circumstances under which identity-related change is beneficial rather than detrimental to employees’ well-being and performance.

Finally, this dissertation contributed a quantitative approach to studying the differences between employees in dealing with identity-related change. Most quantitative research in the identity literature has been focused on organizational identification (Miscenko & Day, 2015), for which a reliable and validated measure exists (Mael & Ashforth, 1992). When it comes to research on individual, interpersonal, or occupational work identity, the literature is dominated by qualitative research that captures the rich and detailed processes around identity construction and identity customization (Pratt et al., 2006), identity loss (Maitlis, 2009), or compromised identities (Ashforth & Kreiner, 1999). In a recent overview of the identity literature, Miscenko and Day (2015, p. 12) argued for future empirical research “to use quantitative methodologies to further generalize and validate the qualitative findings”. This dissertation complements the aforementioned qualitative work with a quantitative measure of WIR, which received initial validation in Chapter 4. This quantitative investigation of why certain employees are more or less open towards changing who they are at work than others shows that the likelihood that individuals engage in identity work and their potential success in adjusting their identity may depend on whether their attitude toward identity-related change is positive or negative.

OVERARCHING THEORETICAL CONTRIBUTIONS

Combining insights of the chapters in this dissertation yields three overarching contributions that help build a framework for understanding (the congruence between) what employees do in their jobs and who they are, and its implications for well-being and performance. First, what employees do, in terms of work activities, helps explain how employees feel, see their work, and see themselves. Second, what employees do may not always be driven by rational decisions, which can create unintentional incongruence between what employees do and what the employee or the organization need. Third, studies on what employees do and its subsequent impact can benefit from specificity in
measuring and understanding well-being and performance. These contributions are discussed below.

First, this dissertation showed that the extent to which what employees do is reflective of who they are, how they see their work, and what matters to the organization influences how well employees feel and perform. Organizational research pays a lot of attention to behavior already, but mostly as a dependent variable, for example in research aimed at identifying the antecedents of performance or OCB (cf. Podsakoff et al., 2000). In that approach, behavior is the end stage that researchers and practitioners aim to influence rather than a process or perspective that helps to explain how employees feel about their work and themselves. In this dissertation, however, what employees do is conceptualized as forming part of an iterative process that can also help explain employee well-being and performance. For example, doing more and more (enhancing job crafting) explains why employees who see their work as a calling become overloaded while at the same time exhibiting more OCB to express their prosocial motives. I thus argue to complement using behavior as an outcome with behavior as part of an iterative process that can explain reciprocal relationships, because through action, employees make sense of their work, themselves, and their environment (Savickas et al., 2009), and vice versa their work, environment, and identity guide what employees do. This alternative approach allows for the incorporation of volatile aspects of work and explains how changes in activities may impact the well-being and performance of employees (Barley & Kunda, 2001). Moreover, this approach may help to explain counter-intuitive phenomena, such as why employees who do what they love become overburdened, or why professionals do things that do not clearly contribute to the organization. Of course, such work would need to be longitudinal in nature or use experience sampling methods to be able to follow such processes over time.

Second, the research in this dissertation suggests that what employees do can be driven by factors that extend beyond motivation or rationality, or more specifically that how employees see their work and how they see themselves are also relevant motivational forces. In organizational research, intrinsic and extrinsic motivation have been suggested as mechanisms to explain whether employees do something because it is inherently interesting or because it is related to a desired outcome (Gerhart & Fang, 2015; Ryan & Deci, 2000), and, although challenged, expectancy theory suggests that employees make weighed decisions based on expected outcomes (Van Eerde & Thierry, 1996).
These theories about motivation are grounded in the principle that individuals rationally strive to maximize their benefits. However, as noted by Shamir (1991), hedonism can insufficiently explain situations in which employees transcend their self-interest for the organization, such as for transformational leadership (i.e., pursue shared organizational goals) and OCB (i.e., doing something beyond what is required and rewarded). In this dissertation as well, hedonism cannot explain why employees with a calling craft their job as it is related to overload and it cannot explain why professionals engage in tasks that over time have negative effects on their well-being. Following Shamir, I thus suggest that more attention need to be paid to alternative motivational drivers, namely the drive of humans to be self-expressive, authentic, true to their calling, or altruistic. This would be especially relevant in situations in which the action itself is not enjoyable, rewarding, and potentially even harmful for the employee, since rationality can hardly explain phenomena such as self-sacrifice at work (i.e., situations in which an employee harms him- or herself in order to do good for others). An example being employees with a calling who remain in an ‘abusive’ relationship with their employer (Bunderson & Thompson, 2009). In addition, alternative forms of motivation might be more suitable for the current workplace, as for many employees work has become inextricably related to who employees are and these employees do not settle anymore for working solely for money (Berkelaar & Buzzanell, 2015).

Third, this dissertation advocates specificity in measuring and understanding well-being and performance, as it may be expected to augment the insights gleaned from general approaches. With some exceptions (cf. Chan & Anteby, 2016; Gabriel et al., 2011; Taber & Alliger, 1995), most previous research in this area has focused on the job level rather than task level investigations. Theories and empirical studies that examine general job satisfaction instead of the satisfaction that derives from the performance of individual tasks are easier to generalize across employees and contexts. However, abstract theories and general measures may insufficiently capture nuance and complexity (Uhl-Bien et al., 2007). The results in this dissertation showed that looking at the relationships of specific tasks with job satisfaction, work overload, or emotional exhaustion yields valuable insights. Moreover, some tasks are meaningful because professionals get to do what they are and what matters, whereas other tasks are stressful because they are seen as meaningless. I therefore echo Tett and colleagues’ (2000) plea for measurement specificity. The nuances in how

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professionals perceive ambiguous work activities that may provide as well as lack meaningfulness would be obscured in the use of general concepts or measures. A specific approach would be more suitable to capture the complexity of work and more insightful than very abstract measures of job satisfaction, for example, in interventions aimed at promoting employee well-being and performance.

**PRACTICAL IMPLICATIONS**

The insights provided in this dissertation can help practitioners address continuous changes in work activities that many employees experience in three ways. First, practitioners may employ the various findings reported in this dissertation to initiate a continuous dialogue between employees and employers about the nature of work, how in their specific context it might be changing, and what the consequences of that for the employee may be. As discussed, work is likely to keep changing in terms of the activities that are needed from job incumbents (Grant & Parker, 2009; Sanchez & Levine, 2012). Discussing work activities can offer both parties a way to reflect on what is done, whether it is done in the most efficient way, and whether work is sufficiently enjoyable in a comprehensive manner (Fine, 2004). The aim here is to strike a balance between work activities congruent with identity and those activities employees are required to perform. Employers can facilitate such dialogue, whereas employees can take initiative and signal which work activities are unduly burdensome or meaningless. Employees may, for example, map their own work activities to the model of meaningful work and identify for themselves, or with their team or supervisors, which activities they consider to be meaningful and which not. Insights from this exercise can be used to align understanding between employees and employers about what is important or congruent and why. When the rationale for certain activities insufficiently addresses incongruence and threatens well-being and performance these insights can be used to create interventions, either by employees independently (e.g., through crafting or identity work) or in consultation with their supervisor (e.g., through job redesign). Practitioners can thus intervene and ensure the sustainability of meaningful work by regularly checking whether what is done is at least to a sufficient degree commensurate with employee identity, that it matters for the organization, and that is not overburdening in terms of well-being.

Second, this dissertation has shown that individuals differ in many ways when it comes to who they are, how they experience their work, and what they do.
Taking the idiosyncratic ways in which employees work and experience work into account is important, because these differences matter to how well employees feel and how well they perform. Sensemaking is the process that creates meaning. It is linked to both action and identity, and helps to explain behavior, attitudes, and well-being (Weick, 1993; Weick, Sutcliffe, & Obstfeld, 2005). What is seen as a meaningful activity by one individual could be considered meaningless and stressful in the eyes of another. Practitioners could leverage this by adjusting their practices to match individual needs. Specifically, when it comes to those changes in work that affect identity, practitioners may, for example, use interventions that provide employees with a more rigid work identity with resources that facilitate adjusting who they are, such as training to help employees develop a growth mindset (Dweck, 2015; Paunesku et al., 2015). Expecting each and every employee to deal with change in the same way is unrealistic (Oreg, 2003). Employees have a similar responsibility in developing themselves, if needed, in order to deal with change, as resistance is futile.

Third, practitioners can use the outcomes of this dissertation to address the vulnerability of certain employees. This dissertation provided additional evidence for the dark side of calling that becomes manifest in negative consequences for the well-being of employees. Employees with a calling (Bunderson & Thompson, 2009) and professionals who strongly identify with what they do (Pratt et al., 2006) are especially inclined to make considerable sacrifices and to continue to execute activities even when they are harmful, meaningless, or insignificant. In this I see a facilitative role for employers and a proactive role for employees. On the one hand, supervisors may help employees to set boundaries by talking about what they expect, what they consider important for the organization, why certain tasks are required, and when employees should stop proactively taking on additional work. Chances of getting a burnout are notoriously high in professions in which individuals are likely to see their work as a calling (Hakanen et al., 2006), making it relevant for organizations to intervene and to try to prevent their employees from overworking themselves. On the other hand, employees may determine for themselves what is important to them, why they choose to do certain activities, and when to say no to certain (additional) tasks. This may be accomplished by reflecting on whether a task is still sufficiently meaningful, to act or speak up when issues surface, and to take action in the form of job crafting or identity work if needed.
LIMITATIONS AND FUTURE RESEARCH

While the studies in this dissertation provide a number of insights about what employees do, how they see their work, and how they see themselves, some limitations have to be taken into account in interpreting the results. First, most empirical studies were conducted in the Netherlands (e.g., exceptions are Chapter 2 and Study 1 in Chapter 4), which means that the results are most likely to generalize to employees in that particular context or similar ones, as opposed to other more culturally distant contexts. Especially the results of Chapter 3 may be less generalizable across cultures, as the measure for calling, for example, was less reliable in the Netherlands compared to the US (i.e., tested in Study 1 Chapter 4). Also the increase in the experience of work as a calling is potentially less prevalent in other societies (Berkelaar & Buzzanell, 2015). In order to fully grasp the impact of seeing work as a calling on employee well-being and performance across cultures, more research and a reliable measure for calling that is less culturally grounded are needed.

Second, none of the studies were longitudinal even though the back-drop of this dissertation was the changing nature of work. This dissertation only provides a cross-sectional view of issues relating to changes in the current workplace, which was in line with my aim to address and reflect what employees do in the moment and whether those activities are congruent with their identity and constrained by their well-being or organizational expectations. However, longitudinal studies are required, for example, to rule out non-causal explanations of our finding that job crafting mediates the relationship between calling, OCB, and work overload. Without longitudinal research it is impossible to pinpoint when employees with a calling start to become overburdened. More research on calling needs to include time, as is starting to happen in both qualitative (Schabram & Maitlis, 2017) and quantitative (Clinton et al., 2017) studies. The same call for more longitudinal research is made vis-à-vis the identity literature (Miscenko & Day, 2015). Longitudinal studies are required to, for example, examine the extent to which employees successfully adjust their identity based on their WIR.

Third, this dissertation addressed the need for more quantitative research in the identity literature with our development of the WIR scale, but I acknowledge that further qualitative research is needed as well. Qualitative research would, for example, help to support and further define what the experience of imbalance in meaningful work is like for professionals, when and
how they experience this, and what they do to resolve it. Although quantitative research is needed to establish the relationships between our meaningful work activities and critical outcomes, qualitative research may help to understand the sense-making processes behind those relationships. Qualitative research could also advance the results about calling as a double-edged sword, as it may be better able to explain why this is the case. It would also be valuable to understand why employees with a calling engage in enhancing job crafting behavior (e.g., because they enjoy it, because they feel morally obliged to, or because it reflects who they are) and what might distinguish employees with healthy and unhealthy callings, as there are still many questions to be answered. I believe it is worthwhile, for example, to distinguish between self and other driven motivations, as is done in the model of meaningful work in Chapter 5, to show that employees with a calling driven by others may be more vulnerable to harming themselves in terms of well-being by not setting sufficient boundaries.

Fourth, although we showed that not all tasks are equal in how they are experienced and how they impact employee well-being and performance, more empirical research is needed to further support this claim. It would, for example, be interesting to combine our insights from Chapter 2 and 5, and study the impact of the extent to which individual tasks represent professional identity and contribute to the organization on employee well-being, affect, and performance. In addition, research on calling could be complemented by a task-level focus. At the moment calling is seen as a job-level construct, however, based on our other studies it is likely that some tasks represent a calling better than others. It would be interesting, for example, to test whether there is a growing dislike towards tasks that do not match employees’ calling. Employees’ refusal to carry out tasks they see as meaningless may have implications for the organizations and society they work in, as those tasks potentially still need to be executed. In addition, it would be interesting to research what kinds of tasks employees with a calling craft into their job. Employees with a calling expanding their job with burdensome tasks out of moral obligation would explain the dark side of calling better than employees with a calling cherry picking tasks they enjoy.

Fifth, the impact of robotization on work needs far more attention than it has been getting to date. Computers are increasingly replacing employees in many sectors (Bresnahan, 1999; Frey & Osborne, 2013). Supermarkets, for example, are replacing cashiers with self-service check-outs and ground staff at airports is being replaced by self-serviced machines for checking in luggage.
In the near future it is predicted that jobs as diverse as loan officers, watch repairers, and insurance writers will be (increasingly) computerized (Frey & Osborne, 2013). It is possible to anticipate negative effects such as destruction of work and job polarization (Aghion & Howitt, 1994), as well as positive effects such as the computerization of routine or unenjoyable tasks (Autor et al., 2003). This development thus calls for research on what employees do and how they see their work to ensure that employees are still doing the ‘right’ things after their work is (partly) computerized. In addition, computerization is currently technology-driven, since activities that can be robotized are the most likely candidates for automatization. Better insights into what employees do and how these tasks affect them could potentially reverse this process and ensure that the most burdensome, boring, or dangerous tasks are outsourced to computers while retaining in human jobs the more meaningful tasks.

**CONCLUSION**

This dissertation departed from the notion that understanding of what employees do provides opportunities to assess whether those work activities are congruent with who employees are to ensure that those activities do not constrain employee well-being (i.e., doing too much) or performance (i.e., not clearly contributing to the organization). Each individual activity can be related to employee well-being, and as those activities change, so may the balance between doing sufficiently meaningful work and compromising well-being and performance. Incongruence between what employees do and what the employee and/or the organization need may also unintentionally occur based on employees being true to themselves or their calling rather than making rational decisions. It is thus relevant for researchers and practitioners alike to continuously assess what employees do at the level of activities and use that specific information to understand and optimize employees’ well-being and performance through changing what employees do, who they are, or their subjective experiences of the two. Together these studies suggest the importance of understanding what employees do and I hope to have inspired further investigations of whether the employee’s and organization’s image of a given job are still congruent amidst the changing nature of work.
REFERENCES


Ann Arbor, MI.


Harvey, R. J. (2009). The O*NET: Do too-abstract titles + unverifiable holistic ratings + questionable raters + low agreement + inadequate sampling + aggregation bias = (a) validity, (b) reliability, (c) utility, or (d) none of the above. Background paper prepared for the meeting of the Review of the Occupational Information Network (O*NET) panel conducted by the National Academies of Science, Washington, DC.


Harvey, R. J., & Wilson, M. A. (2010). Discriminant validity concerns with the O*NET holistic rating scales. Presented at the 25th Annual Conference of the Society for Industrial and Organizational Psychology, Atlanta, GA.


References


Qualitative Research in Accounting & Management, 6(4), 205–223.


What do you do and who do you think you are?
Activities speak louder than words

In focusing on what employees do, this dissertation provides opportunities to assess whether particular activities are congruent with who employees are, and whether, and to what extent, those activities constrain or enhance employee well-being and performance. Changes in work activities over time may sometimes imply that at a certain moment what employees do no longer sufficiently reflects who employees are professionally or what they can deal with in terms of workload. A first step in furthering understanding in this area is to study what employees (are asked to) do and how employees perceive such tasks.

After the introduction, Chapter 2 shows that it is possible to automatically extract information about what employees (are expected to) do from online vacancies with the use of text mining, and that the results are to in part comparable with and in part complementary to more mainstream job analysis methods. Text mining of vacancies provides a relatively efficient way of collecting and analyzing tasks and as such could aid in filling the lack of detailed studies about what employees do. In linking these tasks to well-being, I found that tasks differ in terms of being burdensome or enjoyable and that studying individual tasks can help in furthering our understanding of employee well-being. Chapter 3 shows that employees with a calling (i.e., employees who work for intrinsic enjoyment of the work itself rather than financial benefits or career advancement) expand their job through enhancing job crafting. This behavior can explain why employees with a calling may unintentionally do more than they can handle in terms of well-being, even though others in the organizations may benefit from their growing contribution and helping behavior. Although many employees may need to adjust who they are at work more often nowadays, the studies in Chapter 4 show that not all employees are equally equipped to deal such changes. I developed a scale for work identity rigidity, which measures the extent to which employees have an unfavorable attitude toward identity-related change and are unwilling to change who they are at work. Chapter 5 shows that (in)congruences between what employees do and who they are at work explain well-being and performance through the experienced meaningfulness at the level of work activities. The work of professionals can be divided in eight activity
types that differ in the extent to which they are congruent with professional identity (i.e., ‘doing what you are’) and the extent to which they are significant for the organization (i.e., ‘doing what matters’). The chapter also discusses how balance in the total set of work activities can be disrupted and regained by both professionals and organizational agents.

Together these studies suggest the importance of considering what employees (are asked to) do, which is guided by who they are and how they see their work, and vice versa. Each individual activity can be related to employee well-being, which means that when activities change so may the balance between meaningful and meaningless work. Incongruence between what employees do and what the employee and/or the organization need in terms of well-being or performance may also unintentionally occur based on employees being true to themselves or their calling rather than rational decisions. It is thus important for researchers and practitioners alike to continuously assess what employees do at the level of activities and use that specific information to understand and optimize employees’ well-being and performance through changing what employees do, who they are, or their subjective experiences of the two. Although more research is needed to understand how to address incongruences when they occur, I showed that a greater understanding of what employees do, how they perceive these activities, and how this impacts well-being and performance is an important first step in this process. With this dissertation I hope to inspire further investigations of what employees do, because those activities may (unintentionally) become disconnected from who employees are, what makes them happy, what they can deal with in terms of workload, and what the organization needs and expects in light of the changing nature of work.
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Dit proefschrift laat zien dat reflectie over wat werknemers doen mogelijkheden biedt om te beoordelen of deze taken voldoende in overeenstemming zijn met wie werknemers zijn en of deze activiteiten werknemers niet beperken in hun welzijn en prestaties. Taken zullen namelijk naar alle waarschijnlijkheid vaker veranderen, gelet op hoe werk in de afgelopen decennia in het algemeen is veranderd. Hierdoor is er een kans dat wat werknemers doen op een gegeven moment onvoldoende reflecteert wie ze zijn als professionals of waar ze mee om kunnen gaan in termen van werkdruk. De eerste stap in dit proces is beter begrijpen wat werknemers (gevraagd wordt te) doen en hoe werknemers deze taken ervaren.

Hoofdstuk 2 laat zien dat het mogelijk is om (semi-)automatisch informatie te vergaren uit online vacatures over wat werknemers doen met behulp van text mining en dat de resultaten tot op zekere hoogte vergelijkbaar zijn aan, en aanvullend op het gebruik van huidige functie-analysemethoden. Text mining biedt een relatief goedkope manier om taken te vergaren uit vacatureteksten, en zou daarmee kunnen helpen het gebrek aan gedetailleerde studies over wat werknemers doen aan te vullen. Bovendien heb ik gevonden dat de taken niet gelijkmatig belastend of aangenaam zijn en dat het dus interessant is om naar de individuele taken te kijken om het welzijn van werknemers in kaart te brengen. Hoofdstuk 3 laat zien dat werknemers met een roeping (dat wil zeggen mensen die voornamelijk werken vanuit een intrinsiek plezier in het werk in mindere mate vanwege de financiële middelen en/of carrièreperspectieven) hun werk uitbreiden door job crafting. Dit gedrag kan verklaren waarom werknemers met een roeping onbedoeld meer gaan doen dan ze eigenlijk aankunnen daar waar het aankomt op hun werkdruk, ondanks dat deze toenemende bijdrage en dit hulpvaardig gedrag collega’s binnen de organisatie vooruit helpen. Hoewel veel werknemers tegenwoordig regelmatig zullen moeten aanpassen wie ze zijn op het werk, laat hoofdstuk 4 laat zien dat niet alle werknemers even goed toegerust zijn voor het omgaan met zulke veranderingen. Ik heb een schaal ontwikkeld om de rigiditeit van iemands werkidentiteit te meten via de mate waarin iemand veranderingen betreffende identiteit als ongunstig beoordeelt en

Wat doe je en wie ben je?
Activiteiten zeggen meer dan woorden
Hoofdstuk 5 laat zien dat (in)congruentie tussen wat werknemers doen op het werk en wie ze zijn de betekenisvolheid op het niveau van specifieke taken kan verklaren. Het werk van professionals kan opgedeeld worden in acht soorten taken die verschillen in de mate waarin ze overeenkomen met iemands professionele identiteit, ‘doen wat je bent’, en de mate waarop ze bijdragen aan de organisatie, ‘doen wat er toe doet’. Ik laat zien hoe de balans in het gehele taakpakket uiteindelijk verstoord kan raken en hoe deze weer herpakt kan worden.

Gezamenlijk suggeren deze studies dat het belangrijk is om te kijken naar wat werknemers (gevraagd wordt om te) doen. Elke afzonderlijke taak kan gerelateerd worden aan het welzijn van werknemers en omdat taken vaker zullen veranderen kan daarmee de balans tussen het uitvoeren van betekenisvol en betekenisloos werk verschuiven. Incongruentie tussen wat werknemers doen en waar de werknemer en/of de organisatie behoefte aan heeft heeft daar waar het aankomt op het welzijn of de prestaties kan ook onbedoeld ontstaan wanneer werknemers trouw willen blijven aan wie ze zijn of aan hun roeping en hierdoor geen rationele besluiten nemen. Het is dus relevant voor onderzoekers en mensen in de praktijk om continue te blijven beoordelen wat werknemers doen qua taken om die specifieke informatie te gebruiken om het welzijn en de prestaties van werknemers te optimaliseren door te sleutelen aan wat werknemers doen, wie ze zijn, of de subjectieve ervaringen van deze twee factoren. Hoewel er meer onderzoek naar de aanpak van deze incongruenties, heb ik aangetoond dat het meer inzicht over wat werknemers doen een goede eerste stap is in dit proces. Met dit proefschrift hoop ik verder onderzoek naar wat werknemers doen te inspireren, aangezien taken (onbedoeld) los kunnen komen te staan van wie werknemers zijn, wat ze blij maakt, wat ze aankunnen qua werkdruk en wat de organisatie tegenwoordig verwacht te midden van de veranderende aard van het werk.
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“My mission, should I choose to accept it, is to find peace with exactly who and what I am. To take pride in my thoughts, my appearance, my talents, my flaws and to stop this incessant worrying that I can’t be loved as I am.”

- Anaïs Nin