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TABLE OF CONTENTS

CONTESTED TERRAIN: UNPACKING THE PLATFORM ECONOMY

Juliet Schor

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Abstract

The nature of the platform economy, and in particular, platform labor is a contested subject among researchers. Is it a vehicle for greater efficiency, prosperity and freedom, as economists argue? A site for exploitation, precarity, and algorithmic control as per sociology? Or perhaps a situational chameleon, depending on the institutional context? In this talk I will discuss and critique dominant views of the platform economy, and offer an alternative, arguing that it represents a hybrid form combining elements of a number of prior labor and accumulation regimes, as well as novel features. This formulation is based on more than ten years of multi-method research on a wide variety of platforms large and small, across skill levels and capital requirements.

SAFEGUARDING PUBLIC INTERESTS IN THE GIG ECONOMY

Koen Frenken

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Abstract

I analyse the public interests at stake with the rise of online platforms in the gig economy. I do so by first discussing online platforms as a new organizational form using institutional theory and puting the rise of gig platforms into a historical perspective. I then go into the most salient public interests which are level-playing field, tax compliance, consumer protection, labor protection, and privacy protection. I then outline four generic policies (enforce, new regulation, deregulation, and toleration) and elaborate possible new regulations into five specific options (independent contracting, employment, 3rd category, unionization, minimum tariff). My talk will build on Frenken et al. (2020a, 2020b) and Koutsimpogioergos et al. (2020).

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SENIOR EMPLOYEES AND COVID-19 MANAGEMENT IN DANISH FIRMS

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Abstract

In the spring of 2020 when the COVID-19 pandemic led to rapid closure and behavioral restrictions, the most comprehensive natural experiment in practical emergency management that Danish firms and employees have ever launched began. Especially for senior employees, the situation seemed to imply a double challenge: Older people are more likely to become seriously ill from COVID-19, and secondly, emergency management places great demands on the transition to new work conditions and situations. This article examines the impact of the COVID-19 pandemic on firm's emergency management and the implications for the working lives of senior employees, including their well-being, changes in working conditions and considerations of retiring from the labor market because of the COVID-19 pandemic.

First, the firm's emergency management during COVID-19 is analyzed. We start out by examining the association between the firms' financial situation and their COVID-19 emergency management, i.e. their use of government subsidy schemes, the amount of employee homework and the dismissals due to the COVID-19 pandemic. We hypothesize that the firms' COVID-19 emergency management only to a minor extent is explained by the firm's financial situation but rather they are determined by other factors such as the nature of the core task and the proportion of seniors in the firms.

Next, the article provides an overview and analysis of the consequences of the COVID-19 pandemic on the working lives of senior employees. From the senior employee perspective, the focus is placed on the well-being of different groups of seniors during the COVID-19 restrictions. As indicators of well-being, we use the senior employees' concern about their health, possible dismissal, and stress. We also focus on the importance of the Covid-19 pandemic for the senior employees' withdrawal considerations. Finally, we look at the extent of homework for senior employees. Our hypothesis is that seniors' well-being and the extent of homework are related to their work function, human contact, and general health situation.

The empirical analysis is based on the employer- and employee survey from the SeniorWorkingLife Study, which are two large nationwide surveys collected from summer 2020 to spring 2021. Thus, both datasets have been collected during the COVID-19 pandemic. Both are to be linked to Danish register data. While the data collection for the employee survey has been completed and contains answers from 13,000 seniors aged 50 and up, the employer survey's data collection will be completed in mid-March 2021. This survey contains responses from approximately 5,000 Danish firms.

THE FUTURE OF AGEISM IN THE POST-PANDEMIC ARENA – THE FIRST SIGNS

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Abstract

When this abstract is written we are still in a the pandemic and the post-pandemic is just a dream. Despite that it is time to reflect over life after.

The discussion and reflections take a starting point in the situation and position of elderly before the pandemic in the Swedish ageist society. Ageism has different characteristics – one is the neglect of elderly, their interests, their contributions etc and

another a systematic labelling of elderly as problems, lacks and costs which has been summarized as "in Sweden age, old age, given many negative associations". But also quit another perspective emphasizing that "70 is the new 40".

Groups and individuals challenging ageism argues along different lines – to show the contributions of elderly and to show the heterogeneity of elderly in a number of dimensions. The starting age for ´old´ is also varying with context. The contributions concern, for example an increase in individuals working after retirement age both as employees and self-employed and their great importance for third sector, social activities and organizations.

The Swedish discussion and politics to handle the pandemic use age, chronological age, as a borderline between elderly and others that is between fragile demanding protection and the majority handling the situation (this is a tendentious way of presenting). Will that influence the elderly and the construction of the elderly also in the post-pandemic situation?

I will start to elaborate these questions with the help of my earlier empirical studies of elderly self-employed and enterprises organizing elderly as an experienced supply on the market. The empirical studies concern both ways of thinking, arguing and acting. The first empirical studies will be done with former informants which will give the studies ´a flying start´ from a common ground of knowledge and trust.

The research should as soon as possible include international comparisons. Of particular interest is a comparison between the Nordic countries as they have great similarities and often act in similar ways – but this time the differences are emphasized.

1.03

WELL-BEING PROFILES AND THEIR CORRELATED FACTORS AMONG SMALL BUSINESS OWNERS – RESULTS FROM A LONGITUDINAL STUDY

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Abstract

Earlier studies have suggested that well-being around the time when people retire may predict well-being later in life. Through a longitudinal developmental adjustment process, retirees adapt to the changing aspects of their life and gain psychological comfort the years spent in retirement. According to the earlier research, there is individual variation e.g. in psychological well-being patterns during retirement transition in employees. The retirement process, including contemplating retirement, assessing time for withdraw and making concrete plans for retirement, may vary considerably among retirees. Especially, entrepreneurs compared to employees have, in general, more control over their retirement process. On the other hand, difficulty to find a successor may prolong the retirement process and delay selling the firm, or cause uncertainty to planned exit strategies. Financial aspects are often related to the retirement process. According to the resource perspective, people have various resources that help them to successfully adjust to changes and adversities, or maintain and promote their living and well-being. However, knowledge on the development of entrepreneurs' well-being and its related characteristics is restricted.

Aim of this study was to investigate whether there were longitudinal latent well-being profiles related to general life satisfaction, retirement income satisfaction, and perceived health. Furthermore, we studied whether individual (selection, optimization and compensation -strategies, self-efficacy), work related skills (entrepreneurial competence), and perceived contextual (work family balance) characteristics were associated with these developmental trajectories among retiring small business owners.

Data for this study came from the Entrepreneur retirement – retirement intentions, decision-making and adjustment to retirement (ENTRPRENEUR) -study. Baseline data (n=202) were gathered in May 2017–June 2018 among Finnish entrepreneurs who expressed their intention to retire within two years from an entrepreneurial career and employed at least one person in addition to themselves. The first follow-up was carried out in May 2019 – January 2020 and the second in June 2020–November 2020. Those who participated in at least two assessments (n=164, mean age 64.5, 81% men, 31% exited their businesses) were included in the analyses. Life satisfaction was measured with the Satisfaction with Life Scale (Diener et al., 1985), retirement

income satisfaction with five items from Keith (1993) and Adams and Beehr (1998), perceived health with a single question (Ware & Sherbourne, 1992), selection, optimization and compensation -strategies with the SOC scale (Baltes et al., 1999), self-efficacy with the General Self-efficacy Scale (Chen et al., 2001), entrepreneurial competence with four items from Chandler and Hanks (1994), and work-family balance with five items from Carlson et al. (2009). We used the latent profile analysis (LPA) to study well-being profiles and the modified Bolck-Croon-Hagenaars approach (BCH) to test equality of means across the found latent groups (MPLUS version 8.4).

According to the results, five latent profiles were found: 1) satisfied with life in general and retirement income with slightly decreasing pattern, with very good health (Group 1; 40%), 2) satisfied with life in general and retirement income with decreasing pattern, with moderate health (Group 2; 35%), 3) slightly satisfied with life in general and retirement income with slightly decreasing pattern, with very good health (Group 3; 19%), 4) slightly dissatisfied with life in general, nor satisfied or dissatisfied with retirement income, with fair health (Group 4; 3%), and 5) satisfied with life in general with stable pattern, nor satisfied or dissatisfied with retirement income with declining pattern, with excellent health (Group 5; 3%).

Belonging to a latent group was associated with SOC-strategies, $\chi^2(4)=16.03$, $p=0.003$, self-efficacy, $\chi^2(4)=50.63$, $p<0.001$, entrepreneurial competence, $\chi^2(4)=34.77$, $p<0.001$, and work-family balance, $\chi^2(4)=54.11$, $p<0.001$). Group 5 had the highest average scores in SOC-strategies and work-family balance, and Groups 5 and 1 in self-efficacy and entrepreneurial competence differing from other groups. Groups 2 and 3 did not differ from each other in studied variables and not from Group 1 in SOC-strategies and from Group 4 in entrepreneurial competence. Those belonging to Group 4 had the lowest average score in self-efficacy and work-family balance.

Our study suggests that well-being patterns measured with three central domains for aging people may vary during the retirement process of small business owners. Greater self-efficacy and entrepreneurial skills may be important both in maintaining well-being in high level and in coping when facing financial setbacks whereas SOC-strategies seem to be especially useful when facing financial setbacks. Since the number of participants was low in two subgroups, generalization of the results may be restricted. Further studies with larger number of participants are warranted in order to reinforce findings of the present study.

1.04

RETIRING SMALL BUSINESS OWNERS IN THE FACE OF GLOBAL CHALLENGES – A LONGITUDINAL STUDY

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Abstract

This study aims in describing individual-level health, well-being and financial status together with company's response to the COVID-19 pandemic by using data collected between July and October 2020 among 151 retiring small business owners. This study is a part of a longitudinal study on entrepreneur retirement process.

Entrepreneurs, especially small business owners, play a globally important role in economies. Entrepreneurship is often portrayed as means to boost dwindling economies or to offer employment for those entering the job market as well as for those who are at the end of their work career (Eurofund 2017). Global ageing affects entrepreneurs and small business owners along with the rest of the workforce (OECD 2019). In 2015, every fourth entrepreneur was over 54 years old in Finland (Statistics Finland 2015). Moreover, compared to employees, self-employed individuals (including entrepreneurs and small business owners) typically work longer and retire at an older age (Sutela & Pärnänen 2018). They may also experience difficulties in exiting their companies by selling the business, transferring it to next-of-kind or terminating the business (DeTienne & Wennberg 2014).

The COVID-19 virus outbreak was declared a pandemic on March 12 2020 by the WHO. To protect individuals who were at high-risk for severe illness from COVID-19 (i.e. age 65 and older and people with serious underlying medical conditions), social distancing and isolation measures were globally introduced (CDC 2020). These measures have had devastating effects on the global economy and especially on small and medium sized companies. The Global Financial Stability Report by the IMF

(April 2020) describes the pandemic as an unprecedented health, economic, and financial stability threat. Preliminary reports from the Finnish Chamber of Commerce (3/2020) and Family Business Network (4/2020) show that 90 to 94% of the Finnish companies expect the pandemic to have negative financial effects on their businesses, including loss of customers and sales. In addition to the negative effects on businesses, many entrepreneurs are likely to experience stress and strain caused by the crises and their inability to have control over their business, work participation and retirement and business exit process. Some owner-managers may even face isolation measures, while at the same time trying to rescue their businesses. In order to study the various experiences regarding small business owners' health (perceived health, COVID-19 exposure, resilience), well-being and financial status. Furthermore, we study the perceptions of small business owners' on how the COVID-19 pandemic has affected their companies.

Data for this study came from the Academy of Finland funded longitudinal Entrepreneur retirement – retirement intentions, decision-making and adjustment to retirement (ENTRPRENEUR) -study. Baseline data was gathered in May 2017–June 2018 among Finnish entrepreneurs who expressed their intention to retire within two years from an entrepreneurial career (worked as an entrepreneur for the last five years) and employed at least one person in addition to themselves. Non-probability sampling techniques were used to recruit entrepreneurs to the follow-up study. In 2017, there was totally 315 000 entrepreneurs in Finland (Sutela & Pärnänen, 2018). A favorable ethical statement to conduct this study was obtained from the Ethical Committee of the University of Jyväskylä in January 2017, before initiating the study. At baseline 1–1.5h baseline interview the participants were asked e.g. about their work, heath, company, retirement plans, family, and exit plans. Data for the first follow-up (wave 2) was collected among all baseline participants in 2018-2019 and the last follow-up (wave 3) was conducted between July and October 2020.

In addition to baseline measures, such as health, well-being, retirement and company exit, we asked in wave 3 several COVID-19 related questions. Health-related questions were based on the WHO 2020 COVID-19 survey tool. These questions included questions related to risk group perception, prevention, worry and resilience. Questions related to company's financial situation and operating challenges were based on a NBER survey and ILO enterprise survey (NBER, Harvard Business School 2020; ILO Enterprise Survey 2020). The entrepreneurs were asked about the company's current operations, the problems they have faced, their fragility and the financial support and e.g. tax exemptions they had received. All materials will be analysed statistically with SPSS 25.0 and Mplus. The expected results of this study will shed light on the possible effects of the COVID-19 pandemic on retiring small business owners' health, well-being, financial status and retirement and company exit process. The findings will be discussed in the light of previous studies and literature.

3.01

EMERGENCE OF NOVEL INFORMATION SPACES: EXPLORING VISIBILITY IN DEVELOPMENTAL EFFORTS AT WORK

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Abstract

One of the outcomes of digitalization and, in particular, of the Internet is *informatization*, which refers to "a social process geared to rendering mental activities and their result accessible to others" (Boes et al. 2017). These authors argue that informatization brings with it not only a new virtual social space for action, but also the locus of production and labor shifts from real tangible shop floor to a virtual information space. With data, the virtual has ever more importance in value creation. Scholars have differing perspectives on the consequences of these novel information spaces: some depict the future of medium-skilled and high-skilled work as industrialized, standardized and as 'digital Taylorisation' (Boes et al. 2017), while others see informatization leading to intellectualization or scientification (Langemeyer 2012) or increasing intellective skill (Zuboff, 1988) of workers. It is difficult to see informatization and its consequences while we all live in the midst of it.

Social and technical infrastructures give rise to connectivity between people and collectives. Connectivity makes information accessible, presentable and confrontable, and when paired with digital data, it may produce dramatic shifts in processes of organizing and give rise to behavioral visibility (Leonardi and Treem 2020). Behavioral visibility means that the behavior of people, devices or nature is performed in a format that can be observed by third parties.

The processes of behavior to data, and from data to visibility, are complex, however. In two intervention projects, workers in criminal sanctions, municipal work and social care were designing, carrying out and evaluating experiments for developing their collective work. Experiments were about a method of "change dialogue" (Heikkilä et al. 2021), recording, digital services and orientation for entering prisoners in criminal sanctions (Ylisassi et al. 2021). It is assumed that informatization, as a trend of digitalization and the Internet in work and life, was present in the experiments and in how workers talked about them. We will examine, how issues related to novel information spaces (both real and virtual) and visibility were manifested in workers' agentic discussions in evaluating the experiments in five workshops.

The findings will show the complexity of informatization and behavioral visibility. For instance, recording, present to some extent in all experiments, may help workers know better their clients and share and receive useful information, but visibility through recording also opens work for hierarchical control and potential critique from clients. The move from face-to-face to digital information sharing raises questions of coding, standardization and knowing well the actors with whom the information is shared, and for what purposes. With informatization, workers are more responsible for not only their behavior, but also the visibility of that behavior and its consequences, making them knowledge workers.

Leonardi and Treem (2020) outline three paradoxes about behavioral visibility. The connectivity paradox means that organizational efforts to combat a potential lack of connection produce overcommunication, interruptions, and interference. The performance paradox means that actors need to make their work visible, but they may lack time, skills or motivation to do so, or with time spent with visibility, they may have less chances to perform well their main tasks. The transparency paradox means that visilibility can produce high volume and diversity of information so that it becomes difficult to find or understand information. In the end, we will discuss the findings in the light of these paradoxes.

3.02

PSYCHO-SOCIAL STRESSORS OF FOOD DELIVERY PLATFORM WORK IN HELSINKI

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Abstract

Food delivery platform work is still a relatively new phenomenon in Finland though rapidly growing, attracting young immigrant workers who are disadvantaged in the Finnish labour market. They have constantly been in the spotlight, faced criticism and suffered bad press due to the ambiguity of its status in the labour market and their working conditions. As limited studies have outlined their work environment, it remains scarcely known. Coupled with notions of flexibility presented by the food delivery platforms, knowledge on their working conditions remains blurry. Therefore, to narrow this existing gap, this paper derives from 20 in-depth interviews conducted with food delivery platform workers in Helsinki. It examines their psychosocial work environment and analyses psychosocial stressors. Analysed through thematic analysis, the findings indicate a psychosocially burdening work environment due to high job demands and quite low work resources. Also, various aspects of work precarity substantially contributed to psychosocial stress among participants. These findings pose detrimental challenges to the mental health and wellbeing of food delivery platform workers.

3.03

A MACHINE LEARNING TOOL LEXIMANCER RECOGNIZES VERBS RATHER THAN NOUNS FROM INTERVIEW TEXTS: WHAT KIND OF BEHAVIORAL VISIBILITY IS THIS?

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Abstract

In the Serendipity -project (Toivanen et al. 2021), we interviewed knowledge workers from three organizations (45 interviewees). They reported noticing lucky coincidences and exploiting them in their workplace. The phenomenon of lucky coincidences is new, so we apply a data-driven approach to the study. Data-driven analysis seeks and identifies themes that emerge from the data. To help with identification, we used software called Leximancer.

First, we introduce the principles of Leximancer and identified key-themes. Second, we as human mind interpreted the central-theme "must do". Finally, we consider what kind of visibility this is.

Text segment: Leximancer analyzes text one text segment at a time. A text segment consists of two sentences in a row.

Concept: Leximancer compares text segments with each other and calculates the frequency of words in them over the entire material. A frequently repeated word in a text segment comes to the fore when another set of words repeatedly appears in connection with the "fore word", from which the concept-word develops. Leximancer first looks at the frequency of words and then the relationship of words to each other in text segments.

Theme: Leximancer looks for distinctive concept-words: One set of words runs together more often than another set of words. Concept-words continue to form themes with each other. A single theme may contain several concept words that together refer to some common denominator that connects the concept words. Leximancer offers the theme name as the concept-word that appears most in the text segments selected for the theme.

We resulted with Leximancer in 13 themes. The central theme in the discovery is "must do" and two key themes were "curry out" and "think about" (Table 1).

Table 1. Key themes with concepts-words

Key themes	Concept-words	Number of concept-words	Number of verbs as concept-words	Number of text segments used in discovering theme
Must do	**must do**, makes, should, do, know, leaves, says, should, go, take, get, made, think, certain, visit, person, tells, can	18	13	2065
Curry out	**curry out**, get, idea, know, really, do, put, done, yes, going, should, although, things	13	8	1353
Think about	**think about** ,thing, stuff, everything, let's go, know, customer, away, it says, take care, happen, customer's, look, like this, couple, let's try	16	8	1394

We continued back to the text segments of central theme "must do" and did a content analysis interpreting text.

Coincidences pop into the tension between performing and developing work. Coincidence does not come into a vacuum but into different contexts at work. Three types of "must do" issues could be identified in the tension.

• There is a need for development but work in progress needs to be done – work in progress will be a priority.
• There are development activities, but there are various obstacles to development that should be removed. For example, a supervisor or co-worker cannot promote an idea presented to them.
• The old and the new are done in parallel and both should be promoted.

As a result of the analysis, we identified the core category that covered most of the information related to lucky coincidences: *The practice of weighing things and doing (generative doubt) promotes lucky coincidences*. This type of activity can be linked to two models of organizations. One such is the practice theory (Vaara et al. 2012). According to the researchers, "practice enable an individual", i.e. practices create an opportunity for an individual to perceive something familiar differently. The second emphasize the dynamism of action (Weick 1995), in which verbs play an important role. Verbs promote things and maintain an ongoing problem-solving process. Nouns refer to static states where problems are thought to have definitive solutions.

Lastly, we discuss behavioral visibility using proposals from Leonardi & Treem (2020, pp. 1618–1619). They ask for example: To what extent does data analytic knowledge shape how something becomes visible? Do different types of quantification privilege the behavior of certain types of actors? What is different if a third-party attempt to aggregate data herself vs work with a data scientist to do so? Where is the line between pattern recognition (machine learning) and inference when third parties turn behavior into numerical indices? We can further discuss, what is the role of theory in the paradigm of behavioral visibility?

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3.04

SHEDDING LIGHT TO FUTURE WORK WITH THE CLASSICAL PANOPTICON CONSTRUCT – A CASE STUDY ON TRANSITION TOWARDS HYBRID COLLABORATION PRACTICE

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Abstract

Introduction

The collaboration over cultural, geographical and organisational boundaries is crucial for many organisations. Covid-19 has enhanced a global leap in utilising digital tools for crossing those boundaries. Even though widely applied remote working has evoked concerns (e.g., isolation, reduced creativity and stress), it has also increased the independency and freedom of employees in many organisations.

Everyone participating transparently provides clear and equal visibility to progress at work without need for separate management tasks. Digital work can be done everywhere – and any time. Does that mean physical encounters and environments lose their meaning as central settings for social and institutional context for organisations? Do we know enough about the social meanings and hidden rules previously attached to the walls of offices?

In this study we aim to shed light on the above broad questions through an empirical case study on the transition of a research organisation within the context of developing a new campus. We reflect this with the help of classical *panopticon* construct referring to the type of institutional building and a control system designed in the 18th century by Jeremy Bentham and his contemporaries brought to awareness of surveillance studies though work of Michel Foucault (Manokha, 2018). This concept has been widely used particularly in the context of technology enabled surveillance and the original ideas often misunderstood but also further developed in many fundamental philosophical and social studies (see e.g. Elmer, 2014, Galič, et.al. 2017). Panopticon is a very complicated issue within today's highly digitalised work that can enable more *vertical surveillance or even mutual horizontal practice* (Albrechtslund, 2008) and could also turn to a fear of exile (Hafermalz, 2020). We build on the basic

definition of panopticon *"a prison with cells (= rooms) arranged in a circle, so that the people in them can be seen at all times from the centre. As a result, they, like the "subjects" of the panopticon, assumed responsibility for self-discipline due to the highly visible, although very often unverifiable, political monitoring. The prisoner inside the panopticon is free in just this way, able to choose between becoming a responsible worker and citizen or not."* (Cambridge English Corpus).

Method

Our approach is established on the practice-based school of innovating, where we as researchers are part of what is being researched (Mele et al., 2017). The studied research organisation started its project in 2019 and it will last until 2024. This study covers the period from the beginning until March 2021. The project targets are focusing on cooperation, customer and employee experience as well as adaptable facilities.

The design of new buildings has four different scenarios on how to work within the selected office layout concept, framing the ambition level of the development as well as tensions related to those.

Findings and discussion

We recognised four scenario specific tensions between expectations and concerns expressed by personnel and the project targets.

1. An office mainly with individual workstations, few other space types: Maintaining individual ways of working, ownership – concerns related to old-fashion work and inflexibility
2. Activity based working office with dedicated areas for teams, mainly shared workstations: Enables small group cohesions and trust – concerns related to sub-cultures, unbalanced utilisation and inflexibility
3. Whole floor for several teams, space types for different purposes, mainly shared workstations: Risen expectations towards collaboration spaces, insecurity related to broadened collective space – and (unexpected) need for extra investments on specialised working areas
4. Event-based hybrid collaboration practice, different space types on collaboratively organised floors: Increased expectations, compared with the best at markets – need for developing the capability for organising the flexibility over organisation's boundaries

During the studied time, there was a gradual development from the threat of losing individual space towards flexibility and possibilities. The increased remote work seemed to accelerate the progress by reducing concerns related to maintaining knowledge work and management through encounters at the office. The emphasis seemed to shift towards longing for social encounters at the office, which has been difficult to reach in virtual work. The exceptional time highlighted the need for understanding the shift of hidden rules from physical to virtual rooms.

Now it is crucial to learn more about what this rapid change means for the campus project: what are the new means of leading creative knowledge work in a hybrid environment in such way that the panoptic approach serves both the motivation of "the model prisoners" and the organisational productivity measures. The findings of this study indicate, however, that there might be longer term change in "power and control balance" related to the way people are available and express that they are present challenging further the conceptualisations of panopticon and participation (cf. Galič, et al, 2017, Albrechtslund, 2008) as well as applying them in practice of organisations. This requires more research.

6.01

MINERS 4.0 – THE IMPACT OF NEW TECHNOLOGY FROM A WORK PLACE PERSPECTIVE

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Abstract

The emerging digitalization in the mining industry offers new possibilities for improved work environments, but it is a process that requires caution and reflection. Many parts of the mining industry is stilled best described as dark, dirty and dangerous,

so, if used correctly, digitalization could create attractive jobs in safe control room environments, which provide space for the employee's full expertise and creativity: The control room receives online processed information from the "rock", from personnel and from machinery, and control room equipment makes it possible to control and fine-tune the complete operation, from resource characterization to the final product. Sensors and the extensive use of cameras and image techniques even permit "live performances" in the control room. However, we must remember that these developments are not deterministic, that the final effects of technology in large will depend on how we manage and implement technology. Thus, the positive effects described above also come with risks, such as privacy issues, increased stress and questions of work-life boundaries.

To ensure that we benefit as much as possible form technology, we must ask ourselves a number of questions: Will jobs disappear? What are the effects on competence and skill requirements? How is the physical and psychosocial work environment affected? Will digitalization open up for a new gender order? What is the human's role in a more digitalized production system? What will happen to trade unions and other power systems? These questions can be condensed into a broader issue that more clearly highlight the width and the dynamics of the development: *How will it be to work in the future digital mine?*

The presentation is based on our experiences about work and workplaces in future mining industry that we have gathered and compiled by means of literature studies, mine site studies and interviews (mainly conducted with representatives from European mining companies and trade unions) in connection to three large European projects: the Swedish-Polish project *The Smart Mine of the Future* (Bäckblom et al. 2010), the European Union project *Innovative Technologies and Concepts for the Intelligent Deep Mine of the Future* (*I²mine*) (Hejny 2010) and the European Union project *Sustainable Intelligent Mining Systems* (Lööw & Johansson 2020). The presented results stem from the analyses of the gathered data, which was conducted by continuous discussions within our project team where different ideas have been tested against previous research and our empirical observations.

The results are summarized in two visions, one dystopic and one utopic. To this we have added six recommendations that can be considered a beginning of a roadmap to lead the concept of Mining 4.0 towards the utopic scenario.

- First, there is the economic bottom line. A mine must turn a profit to survive. It must thus be able to produce at costs that are determined by international competition. But it cannot do this at the expense of everything else, and the economic bottom line must be weighed against other factors. More ways measuring success is required, ways that capture e.g. social factors.
- Mining 4.0 will cause a reduced need for traditional labor. Any reduction in the workforce must be managed with great transparency and in close cooperation with the trade unions. While letting go of redundancies might be beneficial in the short-term, this also means letting go of lots of knowledge and experience. Retraining, rather than replacing, the workforce is the favorable option.
- New competencies will be needed. Mining companies must involve all employees in this competence development, leaving no one behind. There is a lot of potential in the old workforce.
- Create a flat organization based on a sociotechnology that empowers employees and encourages their creativity. To ensure that the new technology works on everyone's terms the surrounding community has to be involved. This might be especially important in securing a licence to operate.
- Handle privacy and integrity issues in close cooperation with the trade unions. Data collection of this kind can play an important role in safety and organizational learning, but there are also many pitfalls. Most concerns are legitimate and can be used to form more effective technology.
- Embed all changes in a context of great social responsibility. The mine is not limited to the mine site. Changes in the mine affects larger parts of society, especially due to the increased interconnectedness that digitalization offers. Conscious management of these issues may be even more important in the future.

The study is reported in the article "Mining 4.0—the Impact of New Technology from a Work Place Perspective", *J. Mining, Metallurgy & Exploration.* Vol 36, 701-707 (2019).

The dystopian and utopian visions can be seen on the two YouTube-links below.

Dystopi: https://www.youtube.com/watch?v=8MkzlgEU1y8
Utopia: https://www.youtube.com/watch?v=7dLVnFzIRks

6.02

FOUR FACES OF AUTOMATION: EXPLORING WORK PRACTICES INVOLVING HUMANS AND ROBOTS

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Abstract

Potential trade-offs of the increasing level of automation of work are raising public concern. While the discussion focuses on the impact of algorithms and artificial intelligence on work and organizing (e.g. Faraj, Pachidi, & Sayegh, 2018; Kellogg, Valentine, & Christin, 2019; Ziewitz, 2016), we tend to ignore the pervasiveness of automated processes across organizations. For example, the volume of tax decisions made with automation annually exceeds 15 million in Finland and the automation rate has been about 80 % for several years. More mundane technologies may provide important insights into potential consequences of hybrid practices that combine human and machine work (Suchman, 2007; Suchman & Weber, 2016) to organizations and societies. Analysis of sociomaterial relations that emerge through the automation of work allows not only to make visible the human work that enables automation (Kellogg et al., 2019) but also to explore various kinds of human-machine relations beyond dichotomies (Raisch & Krakowski, 2020).

This study draws on ethnographic research to explore automation in three different settings and with three kinds of robot technologies. (1) Industrial robots in a packaging company, where human operators control and take care of machines that manufacture packages. (2) Robotic process automation in public administration, where humans program software robots to process monotonous tasks, provide input for the robots and control or process their output. (3) Automated minibuses in public transportation, where humans control semi-autonomous vehicles as operators, rely on their performance as passengers and try to make sense of their behaviour as drivers, pedestrians or cyclists. The analysed data covers fieldnotes from observations (122 hours of observation), interviews with people involved in automation efforts (26 interviews) as well as documents and reports covering automation and the particular technologies (200 documents).

The industrial robot. The automated manufacturing of food packages made of paperboard and plastic relies on collaboration between human operators and the manufacturing equipment. Trial runs with prototype packages are a critical phase of the product development process; the work is experimental in nature, a process of trial and error as the operators keep adjusting the parameters and examining the packages the equipment produces. The relationship changes in production runs as the equipment is working on its own while the operators deliver materials to the machine and control the quality of the packages the equipment produces.

The software robot. Robotic process automation (RPA) is a software-based substitute for monotonous, structured and repetitive tasks previously done by humans that involve the use of information systems. Before taking them into use, humans programme these robots to run their tasks in a predefined way – unlike applications of artificial intelligence, RPA does not learn things on the go. The introduction of RPA at the Finnish Tax Administration instigated several changes in the organization. For example, the organization needed to devise policies for tracing the workings of the robots since they were accomplishing parts of civil servants' work, who are held accountable for their decisions.

The robot bus. The development of automated public transport is bringing robot buses to the street across the world. Street trials with the buses have shown that the technology is still underdeveloped and the operation of the buses requires frequent intervention from their human operators. While the automation technology improves, the relationship between operators and the buses is changing; the buses will need less help from humans who are expecting to have them under control.

Preliminary findings of the analysis suggest that the relationship between human and machine work in organizations is more complex than a distinction between automation (machines taking over a human task) and augmentation (human-machine collaboration on a task) (Raisch & Krakowski, 2020). They also demonstrate that the automation of particular work processes may generate jobs or occupation beyond curation, brokerage and articulation identified by (Kellogg et al., 2019). The study elaborates relations of *care, concern, control and collaboration* entailed in the automation of work practices. Care refers to human efforts to construct an enabling environment for the robot to operate, for example the adjustment of traffic arrangements for the robot buses – and maintaining infrastructures in which the robot is embedded. Concern refers to novel issues that are raised due to the introduction of robots – such as questions of accountability in public administration. Control refers to needs to monitor the robot's work and outputs, for example the quality of packages produced by the industrial robot and the interventions of the operators to steer the robot bus pass an obstacle. Collaboration refers to the accomplishment of

tasks through hybrid work practices that engage both humans and robots. For example, the trial runs of the package with the industrial robot and the programming of the software robots represent such hybrid practices.

6.03

COMING TO TERMS WITH ROBOTS: THE INTEGRATION OF SOFTWARE ROBOTICS INTO WORK

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Abstract

In many fields, especially in financial and administrative sectors, organizations are automating tasks and processes through utilization of software robotics. This may considerably change the contents and nature of work, as well as work methods and practices. In the software robotics adaptation, technological aspects are just a small part of the changing work. Robotization of tasks and processes affects various aspects of organizational life, such as collaboration and interaction, and organization of work. The robotization process both requires and inflicts learning, unlearning, and coming to terms with the new technology and changing work. Hence, it is important to pay broader attention to how software robotics are integrated into everyday work and how robotics become part of work communities' practices.

In this presentation, our aim is to examine how software robotics are integrated into work communities' practices, and the learning practices related to this process. The data were gathered in three financial administration organizations. The data consist of 28 individual interviews and nine workshops (three per organization) carried out between March 2019–January 2020. The number of workshop participants varied between nine and 22. Both the interviews and workshop discussions were recorded and transcribed. The method of thematic analysis was applied to the research data.

The data analysis indicates that the integration of software robotics into work communities' practices takes place in various intertwined forms and contexts. We identified three main dimensions of integration: strategic, work practices', and interactional dimension. Strategic dimension depicts the role of management in the integration of robotics into work communities' practices. This includes, for example, strategic decisions on how the robotization process is approached (e.g., internal vs. external developers), providing appropriate resources, and organizational communication. The learning practices related to the strategic dimension are mainly formal, such as courses and training or changes in job descriptions. Work practices' dimension refers to how software robotics are incorporated into work tasks. This may include completely new tasks as well as adjusting and modifying current tasks or approaching them in a new way. Practical examples of these are taking a critical look at one's work to identify potential tasks or processes to be robotized, writing task descriptions, as well as standardizing work processes to enable the operation of robots. The work practices' dimension includes both formal and informal learning, such as documentation (mostly formal) and standardization of practices (formal and informal entwined). Interactional dimension refers to how work communities make sense of the robotization process and changing work. This includes informal learning practices, such as solving problems together, seeking and sharing information, discussions, and peer support.

In conclusion, all these dimensions can be seen as intertwined. Strategic dimension acts as a foundation by determining framework and providing possibilities and resources for adaptation of new practices and learning in work communities. Work practices' dimension covers integration of robotics in process level: how it affects work tasks and interdependence in work processes. Interactional dimension depicts how work communities together navigate, negotiate, and process robotization-related changes. All in all, the findings indicate that the integration of software robotics into work communities' practices is constructed in intertwining learning practices and processes across organizational levels. Fostering opportunities for collaboration both in and between work communities is key, as collective understanding of robotization is constructed in continuous interaction in the workplace.

6.04

AI RESHAPES WORK LIFE: EXPLORING AND DEVELOPING THE SKILLS OF KNOWLEDGE WORKERS REQUIRED FOR THE DIGITAL TRANSFORMATION

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Abstract

The rapid development of artificial intelligence (AI), robotic process automation (RPA), internet of things and related new technologies are reorganizing and transforming work roles and practices, impacting the skills needed to excel. New kinds of competencies are required from organizations to understand the potential benefits of new technologies transcending professional boundaries. Knowledge workers in support functions form an important category of employees in respect to the digitization processes, as they typically work at the nexus of organizations' internal and external networks at the mid-levels of organizations. Employees in supporting functions are specialists with solid knowledge of the organization and its people; and are integral for organizations' strategic processes, such as adoption of new technologies [1].

The role of supporting knowledge workers in adopting technology is essential but has remained scarce and siloed according to previous research. Our research project "AI is here – support, competence and cooperation are the key" ("Tekoäly tulee – Tuki, osaaminen ja yhteistyö kuntoon" in Finnish) funded by The Finnish Work Environment Fund (FWEF) answers the call for better understanding of new views and approaches to planning work from the perspectives of human-machine cooperation [2,3].

We studied personal experiences and individual views of knowledge workers regarding new technologies and how they reshape work life. We hypothesized that only by engaging expertise of knowledge workers across professional boundaries, new technologies can be employed effectively. Furthermore, we hypothesized that there is more interest and enthusiasm to apply new technologies than the fear of them, but the lack of knowledge and the steep learning curve could be bottlenecks in adapting new technologies.

We crafted a questionnaire based on discussions including not only the knowledge workers themselves, but also with research personnel from trade unions and experts from The Finnish Work Environment Fund, as well as previous studies in the field. We applied theoretical frameworks such as technology readiness index [4], professional identity and agency at work with a subject-centred socio-cultural approach [5].

Following quantitative methodology, the online survey was distributed primarily within the network of trade unions representing knowledge-work in Finland (incl. Tradenomiliitto, Akava, Skilla and STTK), secondly, within employees of City of Helsinki, and thirdly, within networks of Haaga-Helia University of Applied Sciences alumni and partners. The sample consisted primarily of practitioners in supporting functions with knowledge-intensive tasks sharing their perceptions on the nature of new technologies in their work, and how their working practices are changing.

Based on our preliminary results (298 full-time employees), we found that the most widely applied new technologies currently in workplaces were digital assistant (e.g., chatbot; 37% of workplaces), RPA applications in financial management (23%) and customer analytics applications (18%). The majority of respondents (75%) considered that AI and/or RPA is or would be useful in augmenting their work. This applied to 11–20% (median) of all work tasks. Still, 36% were willing to learn and apply these methods to their work, but felt not to have skills for that. The lack of required skills (45%) and the lack of support and encouragement (22%) were considered obstacles. Also, 71% reported the need for improving their technical skills in order to take full advantage of new technologies. Hence, we conclude that adapting the continuous education approach on the topic of AI and new technologies, implementing pilot projects, involving employees at all organizational levels, would be particularly useful.

Our research produced new insight about the roles and potential of knowledge workers in the adoption of new technologies. The discoveries point towards redefining the traditional work roles towards community development and joint value creation that transcends organizational boundaries. The results are applicable in advancing interaction and communication underlying new technologies' integration in organizations as well as in increasing productivity and well-being at work.

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9.01

SAFETY LEARNING IN IMMERSIVE VIRTUAL REALITY (SLIVER)

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Abstract

Shortcomings in safety training have been identified as one of the main reasons for poor safety levels at work, such as in the construction industry (Guo et al., 2012; Pinto et al., 2011; Tam et al., 2004). The use of immersive virtual reality (VR) environments in education and training has gained popularity with the technology's swift development since the 2010s (Concannon et al., 2019; Makransky & Lilleholt, 2018; Pelargos et al., 2017), and they may indeed offer an effective and cost-effective alternative to traditional safety training. However, research on the effective use of immersive VR in occupational safety and its impact on safety learning remains scarce.

The Finnish Institute of Occupational Health (FIOH) and the University of Lapland are presently carrying out research on occupational safety training in an FIOH-developed immersive Virtuario VR environment (www.ttl.fi/virtuario). The study continues the research theme of the MoSaC (Modern Safety Learning for Construction Industry) project also conducted by FIOH in 2018–2020 and funded by the Finnish Work Environment Fund. MoSaC showed that training in immersive VR can build participants' capacity to identify occupational safety risks and factors, as well as strengthen their occupational safety motivation and awareness. Involvement in the VR training also increased the participants' initiative and activity regarding occupational safety issues (Nykänen et al., 2020a, 2020b; Tiikkaja et al., 2020).

The current study draws from social constructive and sociocultural theoretical frameworks (Säljö, 1999; Vygotsky, 1978) to develop a theoretically grounded and empirically tested pedagogical model for immersive VR learning. The pedagogically appropriate use of immersive VR requires the application of cognitive learning theories, taking the role of affect and motivational factors specifically into account (Makransky, Terkildsen, & Mayer, 2019). In developing this pedagogical model, the researchers give special attention to the learner's previous knowledge of the learning topic, self-assessment, reflection and experience of themselves and the learning situation (Bandura, 1977); the model also stems from previous simulation pedagogy research (cf. Dieckmann, 2009; Keskitalo, 2015; Poikela, 2017). Its focus lies on meaningful learning based on previous VR and simulation pedagogy FTL (Facilitating-Training-Learning) and ISSD models (Introduction, Simulator briefing, Scenario, Debrief; Keskitalo et al., 2010; Poikela et al., 2014; Poikela et al., 2015). With this background, the study differs from mainstream research on immersive VR environments, where learning theories often remain in the periphery (Radianti et al., 2020).

Previous studies focus on comparing VR training to training carried out in other media (Makransky, Borre-Gude, & Mayer, 2019; Meyer et al., 2019) and in varying VR settings (Radianti et al., 2020). The current study adopts a new angle on VR learning by developing a pedagogical model for immersive VR simulations through design-based research, and by studying a) the transfer effects of learning on safety behaviour in working life and b) the effect of different teaching methods within VR. The research questions are: 1) What kind of pedagogical model and method support the acquisition of skills and learning content in immersive VR occupational safety training?; 2) How should a training scenario in the immersive VR environment be planned

and carried out for effective and meaningful learning?; and 3) How does the safety content learned in immersive VR transfer to working life practices?

The study participants will be adults involved in working life recruited from two large Finnish organisations, one in the private and one in the public sector. Approximately 50 personnel members from each organisation will participate in a VR safety training and data collection carried out using mixed methods, both in the actual test situation and during the follow-up period. Quantitative data will be collected using a pre-test, post-test and 2-month follow-up questionnaires. Qualitative data, such as interviews, observation and video recordings, will be collected from 15–20 randomly selected participants.

This study's results will help develop more effective and meaningful occupational safety training in immersive VR. The results are expected to be widely applicable to the product and instructional design of immersive VR learning environments in different industries.

9.02

MOVEMENT OF INNOVATIONS AND LEARNING BY DOUBLE STIMULATION

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Abstract

Increasing diversity of clients, fragmentation of services, and lack of coordinated challenge homelessness frontline workers and call for new innovative solutions in their work. Multiple innovations emerged since the establishment of the Finnish Housing First strategy in 2008 (Pleace et al., 2016), but many of them are still scattered around the country or embedded in specific organizational contexts.

The purpose of this study is to shed light on the mobilization of dispersed and scattered ideas and social innovations to new organizations and workplaces in frontline homelessness work. The focus is on innovations increasing social justice to address acute human needs risking to become ignored (Martinelli, 2012). Especially, the challenges of welfare services are complex, dilemmatic, and ill-structured to start with, and there are no straightforward solutions to be introduced (von Hippel and Tyre, 1995). This study looks at how presentations of innovations among peers support their nationwide spread between organizations and workplaces.

Hence, innovations here are considered as employee-driven, and their value lies in employability in practice (Høyrup, 2010; Haapasaari et.al, 2018). The direct participation of frontline workers brings up the importance of considering work contexts as important sites of learning in innovation processes (Engeström and Sannino, 2010; Ellström, 2010). According to Ellström (2010), previous innovation research has, however, mainly focused on formal learning instead of other types of learning. The method of double stimulation (Sannino, 2020) is applied here as an alternative approach to examine how innovations may spread. Learning by double stimulation refers to learners' efforts to solve paralyzing conflicts of motives (first stimulus) by turning to artifacts (secondary stimuli) in problematic situations. The implementation of the secondary stimulus supports learners' understanding of problematic situations and creating new means to solve them.

The data of the study are collected in ten online workshops of a nationwide research project 'Collective Professional Agency in Finnish Homelessness Work.' The project enables frontline workers to learn about, to discuss and implement successful innovations developed elsewhere in the country. The workshop presentations are made available for wide use in the project's online video-library and can be discussed also in online webforums. The data consist of verbatim transcriptions of the workshop presentations and discussions and of the webforum discussions.

The activity-theoretical concepts of 'transformative agency by double stimulation' and 'conflict of motives' (Sannino, 2020) as well as Engeström's (1995) classification of solution, process and system innovation are applied in the analysis. The data-driven coding scheme traces the movement of the innovations between organizations and workplaces, the conflict of motives triggering their spreading and the further development of the innovations.

The findings uncover the dynamics through which presentations of innovations served as second stimuli in response of pressing conflicts of motives experienced by the frontline workers. Systemic innovations are identified as "umbrellas" comprising several sub-innovations (or solution innovations). The latter were created to solve specific local problems during the innovation process. Furthermore, the findings indicate solution innovations are put into use across organizations and wide geographical areas. Some commonly used innovations were also integrated to systemic innovations from other organizations. Systemic innovations were the most difficult to spread to other organizations and workplaces.

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9.03

EXPLORING THE ROLE OF SOCIAL MEDIA SUPPORT COMMUNITIES IN ONLINE FREELANCERS' LEARNING AND SKILL DEVELOPMENT

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Abstract

Work facilitated through online labour platforms, such as Upwork or Fiverr, is an increasingly relevant source of primary or supplementary income for millions worldwide (Kässi and Lehdonvirta 2018). Whereas workplace learning activities of workers in conventional organisational settings have been studied extensively over the last years and are recognised as key determinants of work satisfaction and success, little is understood about if and how online freelancers learn and develop their skills during their platform-based work (Margaryan 2019). A recent report revealed that self-regulated learning behaviours may be particularly relevant to this population due to a lack of access to learning opportunities available in conventional organisational work and that one in three online freelancers (and up to three quarters in certain vocational categories) regularly uses online support communities, such as discussion boards, to facilitate their workplace learning activities or seek help (Cedefop 2020). This research aims to understand *why and how online freelancers draw on online communities to facilitate their learning, particularly what topics they discuss in these communities and how these discussions contribute to their skill development.* To this end, we apply natural language processing (NLP) and qualitative content analysis to a new textual corpus (N=10108) of the complete content posted to the "r/Upwork" and "r/Fiverr" discussion boards on Reddit between 2012 and 2020. Theories of self-regulated workplace learning were not tested in platform work environments, raising the possibility that they may not directly apply to this new form of work without alteration. Studying the workplaces and social environments of online work will contribute to and develop this literature.

Method and Analysis

Data were collected from Reddit using the Pushshift API, a near real-time mirror of the discussion boards. Among the useful characteristics of Reddit communities are their anonymous nature, allowing for free exchange of opinion and disincentivising false / held-back reports, and their public availability, ensuring ethical compliance. We applied probabilistic topic modelling, a statistical technique for discovering latent semantic structures ("topics") in large bodies of text. Recent advances in NLP have allowed taking account of metadata in the statistical modelling process (structural topic models) and we included information about the source of the documents in the covariate determining topical prevalence. Rather than interpreting the results directly, we used this approach to gain access to the corpus by extracting representative documents for each topic (N=20) and proceeding with qualitative thematic analysis to validate our selection. In subsequent steps, we will apply content analysis through coordinated coding to identify skill development practices in these online freelancer communities.

Preliminary Findings

The optimal solution based on fit measures and an initial screening of topic keywords suggested 16 topics. Of these, three were excluded due to low semantic coherence and term exclusivity. The remaining 13 were transferred to a QDA software package for thematic coding. Based on the most prevalent terms and initial open coding, the identified topics were labelled **language skills & writing, time tracking & privacy, low paid work, enterprise & high paid work, communication, scores & metrics, geography, payments & ToS, profiles & rates, media, tax & legal, transactions & contracts, and social media & advertising**. The expected proportions (θ) for each topic varied between 3% and 11%. Initial analysis of the documents further revealed discussions surrounding platform-specific skills, such as *gaming the algorithm* or strategies for obtaining work on platforms, as well as the presence of environmental learning processes, such as *social modelling, seeking and giving feedback, instruction, and the setting of realistic performance standards based on community knowledge*. These promising findings indicate detectable learning activities and the need for further qualitative research. Systematic content analysis is currently ongoing based on a coding schema developed from previous survey and interview research into online freelancing (Cedefop 2020).

Contribution to the Work Stream

This research contributes to the work stream by analysing learning environments in an emergent form of platform-based, distributed work. Insights into the dynamics of online freelancing might provide an edge in a world of (suddenly remote) work disrupted by a global pandemic, where self-directedness and self-regulation take on new importance and where learning resources are more fragmented than ever. Studying and understanding online communities is also an important step towards updating theories of self-regulated learning in conventional organisational settings for the new realities of platformised work.

Keywords

topic modelling; online freelancing; skill development; workplace learning; platform labour

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A SYSTEMATIC LITERATURE REVIEW OF MANAGEMENT AND LEADERSHIP SUPPORTING LEARNING IN WORKPLACES

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Abstract

Changes such as digitalisation, crises and the multidisciplinary are increasing the pressures on continuous learning in the workplace: employees need to learn to maintain their skills and cope with their own work. These increasing demands on everyday life are forcing organizations to shape and develop practices that support learning at work. In research (Ellinger, Hamlin, Beattie, Wang, & McVicar, 2011; Ellström & Ellström, 2018; Macneil, 2001) and practical working life, leadership and management has been highlighted as one of the most important factors supporting personnel learning at work.

Learning in the context of work can be approached using two different concepts: *organizational learning* (OL) and *workplace learning* (WPL). They appear when organizations and people in workplaces undergoes and is confronted with changes and fostered to change their thinking or actions under the prevailing conditions. OL and WPL are basically about how knowledge, skills and experiences are built, reorganized, applied, shared and integrated in the context of work and organizations. Although the concepts partly overlap, it can be seen that OL refers more to organizational-level development, with WPL focusing more on the learning processes of individuals and teams. However, the learning of individuals and teams is a prerequisite for the learning of the entire organization.

Research related how learning is supported in organizations has increased steadily since the 21st century, and in recent years it has become increasingly focused on examining the links between leadership and learning. However, a clear overall picture of how line- and daily-level management and workplace learning are combined, or what day-to-day management practices support individual and team learning, has not been compiled (Ellinger et al., 2011). Concepts such as coaching leadership, mentoring, sparring and supervision have become involved in leadership research as forms of leadership that specifically support learning, but their structuring is partly detached and fragmented. In the current study, we see leadership and management emerging in the interaction between different agents at the workplace and in the practises of the organisation (Ladkin, 2020; Viitala & Jylhä, 2019). Thus, in this study, our aim is to gain a holistic understanding of learning-supportive leadership based on previously published research. To achieve this aim, we have formed two research questions for the current study:

1. How has management and leadership supporting learning been approached in previous studies?
2. How management and leadership practices have been found to promote learning in workplaces?

The research was conducted as a systematic literature review. The initial search was made through three databases: Scopus, Ebsco and Eric. The keywords were learning, *manage**, *leader**, work and in addition education and school were excluded. Journals were restrained according to their relevance to management, leadership, learning and development. In the second phase, the abstracts of the total amount of 730 articles were read and limited according to the main topic of the research. This screening limited the result to 61 articles. The articles were analysed using thematic analysis.

Our preliminary findings confirm that managing has an important role in enhancing learning. Managers have several means for supporting learning. Learning is a broad concept, and therefore there are many kinds of learning managers can support; informal and formal learning being one vast example. As a practical implication, the findings can be used as a tool for management education enhancing learning at work. Further research is needed to establish the role of organization in the learning process. Knowledge of how managers can enhance learning can be utilized also for remote working and crises situations. This paper is a multidisciplinary research for which the best knowledge of management and leadership and adult education is combined to serve both fields of study.

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9.05

CRISIS AS A LEADERSHIP LEARNING EXPERIENCE

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Abstract

Covid-19 transformed the world of business, pushing for the reinvention and development of leadership practices, and offered a unique opportunity for learning. Business leaders are faced with an amalgam of demands, ranging from navigating through uncertain landscapes, supporting employees and stakeholders through unpredictability, coping with the major impacts occurring at a high speed.

Employing qualitative methodology, the present research introduces the results from 11 entrepreneurial ventures in Finland. The semi-structured thematic interviews with the founders or CEOs of the ventures took place from September 2020 until January 2021. These eleven companies have applied for and received financial support for the development of their business during Covid-crisis. Consultations provided by the first researcher to businesses on applying for Corona-support funding (spring 2020) served as a source of additional research data.

The results indicate that the first moments of crisis in the spring 2020 were paralyzing. As business activities stagnated, the business leaders felt that the situation was out of their hands. Following the initial shock the majority of the leaders decided to act and pushed back. As one of the CEOs commented, "Corona made us take a huge leap in how the whole business is run. We had development and new business ideas prior to it, but Covid forced action".

Recognizing the crisis, envisioning the path forward and acting on it, helps business leaders to overcome the "normalcy bias", preventing them from underestimating the possibility of a crisis and the difference that it makes (Alon & Omer 1994). In all researched cases, the response of business leaders to the crisis was in line with the classic path of change management, evolving from the initial stagnation and resistance to committing to change, seeking and pursuing fresh opportunities.

The nature of learning changed as the crisis progressed. In the beginning, leaders' learning was reactive and followed the "putting out fires" -principle. At later stages the leaders began actively and curiously exploring the business environment that emerged from the new situation, and learning became more strategic.

The data showed that disruption caused by Covid-19 was an important, though undesirable, place for learning for all interviewed CEOs and founders. From a business point of view, the learning was related to placing business operations under scrutiny, examining scenarios and developing a new business opportunity or adjusting existing business models.

Soft leadership skills, communication and interaction skills, were highlighted in learning. The recognized importance of providing employees with a sense of context, reality, emotional support in the moments of crisis (Petriglieri 2020), was apparent in the interviewed leaders' behavior. On a personal level, business leaders' responses demonstrated the improvement of stress and time management skills, and noted that prioritizing became easier. The researchers observed a phenomenon of "deliberate calm" (see, e.g., Garcia 2006) in the business leaders, otherwise described as the capacity to detach from a tense and troubled crisis situation and practice clarity of thought about how to proceed, what decisions to make and actions to take.

As crisis put many business operations on hold, this created the space for reflection of the company and business model fundamentals that had previously been overshadowed by the rush of everyday business activity. Paradoxically, it was only the crisis in combination with the Covid-support financing that helped, or even forced, companies to strongly develop their business further, creating the basis for coping with the crisis.

The research contributes to the understanding of how learning and work of leaders is shaped by Covid-19 crisis. More classical views of crisis management imply the necessity and availability of a predefined response plan. For example, Fink (1986, 15) suggests that planning for a crisis "…is the art of removing much of the risk and uncertainty to allow you to achieve more control over your own destiny". Instead, the nature, the scope, the speed of Covid-19 crisis points towards the need for an expedited learning curve in business leaders, where they develop behaviors and mindsets that "prevent them from overreacting to yesterday's developments and help them to look ahead" (D'Auria & De Smet 2020, 2).

In addition to the contextual implications of Covid-19, the present research extends the body of literature on crisis leadership by combining it with the leadership learning outcomes.

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9.06

POSITIVE AND NEGATIVE LEARNING SPIRALS IN THE CONTEXT OF WORKPLACE DIGITALIZATION

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Abstract

Theory and background

The importance of continuous competence development has been emphasized in recent years and decades, both as the pace of change in working life accelerates and especially as digital tools become part of work and work communities. In this study, we seek to gain more insight into the current pressures of adapting to work-related changes and the associated learning demands that employees experience. We study learning at work and, in particular, adaptation to digital change in the context of office work. The digitalization is changing working life in many ways. As work and the work environment change, so do the job requirements, which requires employee adaptation (Jundt et al. 2015). We take a holistic approach to examine changes in both the way work is done and the nature of work and the resulting learning requirements.

Digital reforms are a big and expensive processes, and on paper they seem to streamline work processes and thus increase an organization's profitability. However, previous research (Vähämäki et al. 2020) has found that adapting to change and learning new ways of working takes time and may be perceived as challenging in many ways. According to Schraub et al. (2011) work-related changes have been found to cause strain and stress, which hampers the adaptation to change. Stress, in turn, adversely affects memory, for example, and thus makes it difficult to learn something new (Vogel & Schwabe, 2016). Such negative learning experiences further increase the strain and stress associated with change (Vähämäki et al. 2020), which can create a negative learning spiral.

Our research participates in a discussion on the interaction between employee and work environment in the middle of changes and increased learning demands. As a theoretical framework we apply a theory of producing space (Lefebvre, 1991; Hernes, 2004). Our aim is to produce a holistic and multifaceted understanding of the dynamic space of learning. We seek to understand how and why negative and, respectively, positive learning spirals evolve and strengthen. We study learning at the changing organizational context through interpretations produced from different actors in one case organization.

Data and method

We conduct your research as a qualitative case study. In our case organization office robots had been introduced to take care of part of the work process. Thus, the changes brought about by digitalization posed challenges to employee adaptation and learning. We look at the change in work through the experiences of employees and management. This allows us to examine the experiences from within (Shotter 2006) and delve deeper in listening the voice of employees about learning and change.

We collected empirical data through six focus group interviews, each attended by 2-6 representatives of the case organization. A total of 21 employees were interviewed (representing both management and employees). In addition, we participated in two in-house seminars, where we discussed issues related to organizational development, digital transformation and learning with the management representatives, and got acquainted with the daily work and work environment of employees.

Data analysis and preliminary results

We examine our material through the theory of producing space (Lefebvre, 1991 and Hernes, 2004). This allows us to better organize the diverse contextual matters and to understand how the learning process turns into either a positive or negative direction. We draw from Hernes' concept of organizational space to examine the state of learning as social, physical and cognitive space and the relationship between them.

The different narratives (talk) of employees' learning experiences can be seen as processes producing a negative or positive learning spiral. By using content analysis, we identify the factors that contribute to the formation of learning spirals. Then we categorize the factors into physical, social, and cognitive spaces so that we can understand the nature and manifestation of spaces contributing to learning experiences at work. In addition, we analyze the dynamics between spaces.

The examination of interaction between the spaces helps to understand how the factors contribute to the emergence of negative or positive learning spiral. According to our preliminary data analysis negative learning spiral is based on several simultaneous factors, some of which are clearly physical in nature (such as concrete hardware, software, job orders, robots) while others are more abstract and social and more difficult to perceive (atmosphere, training sessions, helping others). These are combined with cognitive or mental space, such as our rationally guided actions or emotional reactions and the meaning making of changes.

Conceptual learning spirals describe the interaction between the pressures from work environment, individual efforts to learn and the personal experience of learning within the continuous flow of changes. At the same time, they structure the multidimensionality of the learning process and uncover the difficulties of learning and adapting to change. From a practical point of view, our research opens up opportunities to understand how organizations could support individual learning at work.

9.07

PRESENTATIONS OF INNOVATIONS AS CONVEYORS OF EXPERIENCING AND AGENCY AMONG PRACTITIONERS IN HOMELESSNESS WORK

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Abstract

Joint online workshops may be an answer not only to the challenges created by the ongoing pandemic but also to complex needs in networked communities of practice. In the field of homelessness work, online workshops within a research project have enabled practitioners all over Finland across working units and sectors to engage in peer learning sessions to explore solutions to the most acute challenges they struggle with in their work. In this study, the theories of experiencing (Vasilyuk 1988) and transformative agency by double stimulation (TADS, Sannino 2015, 2020) are utilized as conceptual lenses to grasp the role presentations of innovations may play among peers for them to overcome paralyzing conflicts of motives, for instance between wanting to contribute to eradicate homelessness, but fearing to become an object of violent reaction by clients.

Based on discourse analysis of the transcribed workshop discussions, occurrences of Vasilyuk's typology of four life-worlds and TADS steps of collective transformative agency are analyzed to identify expressions of conflicts of motives, envisioning of future possibilities as well as features of social innovations practitioners find significant to adapt in their specific contexts. The analysis shows that presentations of innovations by peers in the workshops served as conveyors not only of specific solutions but also of a more holistic process in which experiencing and transformative agency closely intertwined. Practitioners faced together conflicts of motives and by this means engaged in envisioning future possibilities and transformation in their work through *increasing polyvocality, identification with successful practitioners, and collective sharpening of instruments seen as useful to mobilize change in their workplaces*. These results lead to a critical examination, highlighting the implications of Vasilyuk's typology for the undertaking of collective transformative agency, opening up the experiencing aspect of collective transformative agency which is still implicit in the TADS model.

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9.08

ENHANCING TRANSFORMATIVE AGENCY IN DIGITAL LEARNING PLATFORMS – COULD AI-BASED TOOLS HELP?

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Abstract

Today, organizations need to continuously improve their activities to succeed in a complex and changing environment. Thus, organizational learning and development has become a crucial competitive factor. Effective learning and development require that organizations harness the knowledge and understanding their employees possess of the different facets of work and its environments. For example, employees often have the best and up-to-date understanding of customer interface and the customers' needs. They also have knowledge of work practices and challenges related to them as well as innovative ideas for improvement, which should be seen as a driving force for collective development. This means that employees should have an active role in the development of the organization.

Developing new and breaking away from existing patterns of activity requires transformative agency and agentic actions by employees. Collective transformative agency means that a group of people takes initiatives to change the current frame of actions and search collaboratively for a new form of activity in which to become engaged. Previous developmental interventions intended aiming to support transformative agency are mainly conducted on face-to- face settings. This field of practice and scholarly work has shown that the manifestations of transformative agency include 1) resisting change, 2) criticizing current activity, 3) explicating, 4) envisioning future possibilities and new models of activity, 5) committing to actions, and 6) taking consequential actions to change the activity, but also 7) consolidating new practices after the intervention. While today, collaborative learning and development takes place increasingly online and mediated by digital learning platforms, it is important to explore how collective transformative agency emerges and evolves within these processes.

For an interventionist, digital learning platforms offer new kinds of tools to support collective interaction and sensemaking. Some of the tools are based on artificial intelligence (AI), like natural language processing technology. These tools enable the interventionist to, for example, classify discussions to thematic categories and condense rich and multi-voiced discussions into summaries of a few sentences in length. We query if and how transformative agency can be supported by AI-based tools on digital learning platforms?

Our data is collected from a developmental intervention targeted at a team of knowledge workers in a non-profit organization and conducted on a digital learning platform on 02 -08/2021. During the developmental process, the team aims to collaboratively develop the ways they organize their work, with the aim of creating a model for self-managing and collectively organizing team. The intervention is facilitated by a consultant, and the platform's AI elements are actively used as a part

of the intervention's pedagogical process. The process consists of six digital workshops sessions as well as assignments and asynchronous discussions before each session. The data consists of asynchronous and synchronous literal discussions and AI analyses and summaries of those discussions, as well as learning analytics of the digital platform.

In our presentation we show our preliminary analysis regarding whether AI analyses and summaries generate transformative agency, and if they do, how they are manifested in the developmental process conducted on a digital learning platform. We will also highlight possibilities and restrictions of AI tools in developmental interventions in a workplace context.

Our presentation is based on a research project, The Artificial Intelligence in Aid of Work Development (2020–2022) funded by the Finnish Work Environment Fund.

10.01

HOW TO CALCULATE THE EQUAL GENDER HOURLY WAGE GAP ACCORDING TO INTERNATIONAL AND NATIONAL LAWS

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Abstract

In her book, "A Finnish Woman and Man", in 1968, Elina Haavio-Mannila, an adjunct professor at the University of Helsinki, hypothesized that the difference in pay between men and women might be due to the fact that men invest more in work. She examined the difference in earnings between men and women from the statistics. Quote: "It is not clear here whether men and women do as much work to achieve these different prizes. Some data, for example, on the work of doctors and dentists show that women's lower income is linked to the fact that they work less than men each day." This hypothesis has not been studied further.

Equal contributions have been called for by the EU, the UN, the ILO, the Court of Justice, the European Parliament and many other bodies and researchers. They require that the pay gap be calculated taking into account the quantitative productivity (hours worked) and the qualitative productivity (working intensity inside the hours worked), which has been renamed the 'work performance' in Finland.

In addition to the entities listed above, non-discriminatory salary items include: overtime pay, allowances for uncomfortable working hours and working conditions. Non-discriminatory bonuses that are paid to men and women on an equal basis are all allowances defined by law or collective agreements.

In this study, we calculate as required by the above mentioned international organisations and the Finnish Constitution, the Gender Equality Act and the common sense to get as close as possible to the equal wage gap calculation. Our result is probably not the final truth, but we think it is the best possible calculation so far, given the demands of Elina Haavio-Mannila's hypothesis and equality.

The conclusion: When calculating equally, men receive an average of 75 cents gross before normal withholding and 68 cents net on their bank account in normal working hours, each time women receive an euro from the same amount of work.

Summary result from statistics data: Female wage earners earn about 76% of male wage earners. The hourly wage level of salaried male employees is about 75% of the hourly wage level of salaried women in equal comparison.

This hourly wage comparison is made over the course of a lifetime, with military service hours taken into account, calculating salary and pension per hour of work. This calculation does not address the question of whether men and women have on average equal value of work in terms of job requirements. It is ignored due to lack of data.

Keywords: Earnings, hourly wage level, wage gap, equality, equality policy

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10.02

JOB QUALITY OF WORKERS IN THE LOGISTICS SECTOR IN THE CONTEXT OF COVID-19 PANDEMIC CRISIS IN POLAND

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Abstract

In the paper we will present and identify, drawing from the literature review, crucial findings on changes and consequences of the Covid-19 pandemic in the logistics affected by the pandemic crisis. We are particularly interested in three occupational groups: (1) logistics centers employees; (2) lorry drivers; (3) couriers employed by delivery companies. Logistics can be seen as the most substantial industry in modern economies, as some scholars suggest, and the Covid-19 related lockdowns appear to confirm it. The logistics sector continued to operate at high intensity throughout the pandemic despite increased health risks for workers. Initial observations suggest that high fluctuation in customer demand translated into the oversupply of labour which contributed to the (further) precarisation of working conditions characterized by work intensification, drop in remuneration and deterioration of contractual conditions (Muszyński et al., forth.).

In the paper, we will review the existing research on three occupational groups mentioned and attempt to compare their working conditions and job quality prior and during pandemic based on the literature and secondary data (Statistics Poland, media coverage). Analysing job quality, we will focus on its dimensions such as: remuneration; working time; work pressure/ intensification; contractual conditions.

The paper is linked to the project „COV-WORK: Socio-economic consciousness, work experiences and coping strategies of Poles in the context of the post-pandemic crisis", funded by the National Science Centre in Poland, the NCN project number UMO-2020/37/B/HS6/00479.

10.03

MULTIPLE JOB HOLDING IN THE CHANGING LABOUR MARKET

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Abstract

Rapid technological transformation, globalisation, and demographic change are mega-trends that are transforming labour markets and the structure of employment. These mega-trends have also brought with them more diverse forms of work. Part of this diversification of work relationship is the rise of multi-activity at work: workers holding several jobs and multiple income sources at the same time. Multiple job holding has become more common also in Finland, but there is still only scarce research on the topic related to the Finnish labour market. The aim of the paper is to provide new research evidence on the determinants of multiple job holding as a whole and its different types and the persistence of multiple job holding. The data utilised in empirical analyses (statistical models) is Statistic Finland's register-based individual level panel data. The results suggest that men, younger, more educated and living in country side are more likely to hold multiple jobs. The most common type of multiple job holding is to combine salary work in the primary job with another salary work. The determinants differ to some extent by the type of multiple job holding. There also exists considerable persistence in multiple job holding over time.

INTRODUCTION AND DISSOLUTION OF VOLUNTARY EMPLOYEE REPRESENTATION IN TIMES OF CRISIS

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Abstract

The system of industrial relations in Germany faces the trend of declining collective bargaining agreements as well as works council coverage (Addison et al. 2017). It is observable that these traditional institutions are replaced by new forms of representation which are formed voluntarily (Oberfichtner and Schnabel 2019). These are usually defined as alternative or voluntary forms of employee representation in which they comprise forms such as employee spokespersons, round table conferences or additional management lines (Addison 2009). While there is empirical evidence on the economic effects and determinants of voluntary representation institutions (Ertelt et al. 2017), surprisingly little is known about the reasons for the introduction and dissolution in times of crisis.

This paper investigates how firms introduce or dissolve voluntary employee representation in crisis events. In turbulent times, the management has to make important decisions regarding the reorganization or downsizing of certain divisions (e.g. Teague and Roche 2014). These important decisions rely on specific and timely information (Quarantelli 1988). Employees usually possess exactly such specific and tacit knowledge that might help to overcome crisis situations. Worker representation which fosters efficient communication as well as decentralized and fast decision-making is therefore highly relevant (e.g. Hau et al. 2013, Chu and Sui 2001). Voluntary worker representation not only provides an efficient institutionalized communication channel for knowledge sharing among employees, but also between employees and the management. The paper contributes to the understanding of employer's countermeasures in times of crisis and more specific how they restructure and reorganize labor and employment practices during a crisis. Results are important for the understanding of employee-management relationships in a changing world of work, which is characterized by more flexible and globalized labor. The results might also have important implications for the understanding of industrial relations during and after the COVID-19 crisis.

To test the hypothesis, the paper uses comprehensive information stemming from the IAB Establishment Panel. The sample covers the waves 2004 to 2018 in which voluntary as well as statutory workplace practices (e.g. German works councils) are surveyed and which includes the period of the great financial crisis between 2008 and 2009. The panel structure additionally allows to estimate effects before, during as well as after the financial crisis. In using this exogenous shock, the paper applies Difference-in-Differences estimations to study changes in the probability of introduction or dissolution of these voluntary institutions within and after the financial crisis. It is additionally tested whether effects differ when establishments are differently affected. Detailed information whether an establishment is positively or negatively affected are used, which allows to analyze the exogenous crisis shock in great detail. First results reveal that the probability for the introduction of voluntary institutions increases in establishments which are negatively affected by the crisis. For establishments, however, which are positively hit by the crisis, the probability of introduction decreases. The results so far support theoretical predictions in which negatively hit establishments implement alternative representation schemes to deal with negative effects of crisis events. Findings are also in line with for example Gunnigle et al. (2013) wo find that the financial crisis further accelerated the decline in traditional representation institutions such as trade unions.

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10.05

CAREER ADAPTABILITY OF WORKFORCE UNDER COVID-19 SITUATION: THE CASE OF LATVIA

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Abstract

The paper examines psychological resources of Latvian workforce to manage their careers under situation of COVID-19 which likely causes occupation transitions or work-life traumas. This examination is based on Career Adapt-Abilities Scale presented by Savickas and Porfeli (2012) suggesting to measure four dimensions of the resources – concern and ability to control career path, curiosity about opportunities, and confidence about own abilities, being resources of development.

The study based on online survey data of Latvian workforce aged 18–62 (N=552) collected between 1 and 3 March, 2021. Level of adaptability for each dimension was compared among workforce that acknowledged encountering a need to change their job, occupation, or industry due to COVID-19 situation and those who not, as well as more generally across various industries.

Latvian workforce demonstrates the highest scores of self-evaluation in confidence and control dimensions. Both aspects are particularly specific to those who have not changed their jobs, occupation or industry due to COVID-19. On the other hand, those who had changed any of employment status characteristics gave a higher self-assessment in the concern and curiosity dimensions. Examining the most significant variations between resources of both workforce groups, following aspects appears as crucial: 'seeking for the educational and vocational opportunities' (concern dimension), 'perseverance' and 'counting on myself' (control), 'exploring opportunities of my occupation', 'looking for personality growing opportunities', and 'interested in new opportunities' (curiosity), as well as 'solving problems' (confidence).

Significantly, in industry breakdown, higher indicators of psychological resources are demonstrated by the employees of those sectors that have been experienced rapid development previously, during the period of economic growth, than employees in the sectors that have suffered more due to COVID-19 restrictions. Thus, the highest scores of concern and curiosity, as well as high level of confidence is demonstrated by employees of IT industry, while the lowest degree of psychological resources are demonstrated by manufacturing and retail, hospitality, and catering industry workers. Control of skill-level (high vs low) of workforce allowing to extract an impact of industry per se is limited under given sample size.

These results suggest that, in general, employees have a higher self-assessment in those dimensions of psychological resources that reflect their current needs in the labour market.

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10.06

COVID-19 AND THE NEW WORLD ORDER

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Abstract

The paper sustains that the economic recession and the mass layoffs the world is experiencing today are not the result only of the measures of isolation imposed by the corona virus, as mass media has led to believe, but of a deeper crisis in global capitalism's social and economic organization that requires now a thorough restructuring of labor at a worldwide level. The world economy has been experiencing notable downward trends in the past few years, of a critical nature at least since 2018, similar to trends observed in the years prior to the Great Depression. The paper discusses the Covid-19 virus as a social and political phenomenon, one that, as such, has represented both a mediating and a control channel for governments to confront and resolve capital's current need for restructuring an eroding system and form of social and economic organization. We will reflect on these issues and provide some outlook into what can be expected in the years to come.

12.01

ALGORITHMS AND DISCIPLINE: INSIGHTS FROM SPANISH WORKERS IN PLATFORMS

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Abstract

E-commerce and new kinds of services linked to the so-called platform economy are quickly gaining space at the expense of more traditional economic agents, creating new business models based on flexibility and digitalization. During the last decade, global retailers such as Amazon or Alibaba and platforms such as Uber, AirBnB or Deliveroo have become key suppliers, helping to transform the markets and consumer experiences. However, despite the economic success of these platforms, their business models remain highly controversial, as they have remarkable impacts not only on consumption patterns, competition or urban life but, more dramatically, in labour conditions. This has pushed widespread debates about new inequalities and the extension of the "working poor". The rise of a "gig economy" has led to a huge rise of insecure jobs, casual work and low wages. Given that the post-covid-19 scenario may also represent a definitive turn towards digitalization, it is worthwhile to discuss the sustainability and social impact of this economic model.

In this paper, we present the results of an empirical research on work conditions in the platform economy. Spain offers an interesting example as it is a service-based economy where these platforms have expanded their activity in an impressive way during the last decade. Our paper is based on an analysis of in-depth interviews (n=15) with different profiles of platform economy workers. These were carried out in the region of Madrid, Spain, during the autumn and winter of 2019-2020 (just before the outbreak of the covid-19 pandemic). With these interviews we aim to not only obtain information about the working conditions and routines of these employees (who worked for different platforms), grasping the new challenges these workers are facing, but also to gain further insights on new management cultures and the status of work in these new business models. Furthermore we will also reflect upon the relevance of the sphere of consumption and the current consumer culture, often neglected but critical to understand the appeal and success of these platforms.

12.02

PRECARITY IN DIGITAL WORK: EXPERIENCES OF DIGITAL HUMANITIES PRACTITIONERS IN THE NORDIC COUNTRIES

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Abstract

Precarity in digital work is often associated with online working on crowdsourcing platforms such as Amazon Mechanical Turk, or with digitally (inter-)mediated forms of working such as Uber or Deliveroo. However, another form of worker precarity emerges in the context of the establishment of Digital Humanities in universities in the Nordic countries where analogue work spaces are in the process of adapting to new working practices and the establishment of new disciplinary domains. Drawing on 30 interviews conducted between 2017 and 2018 with Digital Humanities practitioners in academe in Finland, Norway, and Sweden, this paper explores the complex and in certain ways gendered entanglement of analogue, entrenched academic practices and materialities *and* the requirements of the integration of new digital practices and materialities. The paper explores how this entanglement impacts on the work experiences of Digital Humanities practitioners, and diagnoses a form of double burden of precarity, derived in part from established academic employment conventions in the Nordic countries, and in part from the precarious process of integrating new knowledge domains into existing structures and modes of working, a phenomenon that the political scientist Fiona Mackay (2014) has described as 'nested newness' in another context.

12.03

CONSIDERATIONS ON THE REALIZATION OF CORPORATE SOCIAL RESPONSIBILITY IN TEMPORARY AGENCY WORK – RESTAURANT WORK IN FOCUS

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Abstract

As temporary agency work (TAW) becomes more common, many actors have entered the industry, not all of them strive to act responsibly. An expanding market easily attracts irresponsible activities in the hope of making big profits. In this activity, the employee might be left in a harmful position. TAW has been criticized for delegating decision-making power between an employee and an employer to an intermediary. Similarly, the focus of the arguments used in marketing temporary work also depends on the point of view. For example, Flexibility looks quite different depending on the actor's perspective. Most research in the area of TAW focuses on the viewpoint of the agency and the effects of TAW on end user company's processes is neglected. In the earlier research of TAW, it has been concluded that temporary agency workers suffer more drawbacks than normal employees. This has been known for years, since the beginning of the 2000's, but still there seems to be very little signs of improvement of the situation of temporary agency workers. On the contrary, literature and practice has shown the emergence of new ways to avoid regulations and to evade corporate social responsibility actions.

The key concepts in this study are *Corporate social responsibility* and *Temporary agency work (TAW)*. Socially responsible activities are sometimes viewed as an unnecessary burden because they can be costly and do not always produce immediate monetary benefits. Managers should, however, consider it as a long-term objective promoting the sustainability of their business rather than mere a source to spend money. TAW is characterized by a triangular working agreement. It means that work employment relationship includes three parties: the end user company that uses the workforce, the temporary work

agency that supplies the workforce and is the worker's official employer, and the worker who performs the work tasks. The following research questions were formed to examine CSR in this context:

RQ1: How the corporate social responsibility is realized in temporary agency work?

RQ2: How do different actors experience different aspects of temporary agency work?

CSR in TWA was studied in a restaurant context. Semi-structured theme interviews were conducted in five case restaurants. Managers of the restaurants (n=5) and temporary agency workers (n=6) working there were interviewed. Interview questions were formed from a widely used Conditions for work effectiveness questionnaire-II (CWEQ-II). In addition, expert interviews were conducted as group interviews. The experts represented a trade union for people working in private service sectors, a pension insurer that is a pioneer in work ability management in Finland as well as a temporary work agency. Interviews were recorded and transcribed, and notes were taken during the interviews to support the analysis. (Total n=17).

This study was qualitative and interpretative by nature. Qualitative research design allowed in-depth exploration of subjective understandings of the phenomena of the temporary agency work. Corporate social responsibility viewpoint set focus of research questions and analysis was conducted in two phases. On the first phase Nvivo-research program was used to categorize the initial data as NVivo provides an organized and structured approach to analysis. On the next phase iteration of the data and results of the previous phase were searched for units of significance again to bring forth the pertinent points for research questions. Finally, the units of significance were combined in a relevant way to obtain a uniform piece of explanatory material. Transcripts were kept for tracking and they were reviewed throughout the research, notes were made of emerging ideas and progress was constantly monitored.

The results, that are still in their analysis phase showed signs of common methods that are implemented in TAW and they were considered ambiguous depending on the point of view. Repeating concepts highlighted in the interviews, they were for instance flexibility and practices of larger companies operating in chains. Different forms of ownerships for the businesses like franchising and chains were seen to support or detract much from CSR of companies using TAW and many of the methods were argued, depending on the perspective, to be in use for the needs of agencies and end user companies, while they weaken the workers' ability to manage their work, future work possibilities and free time.

To this rich material a good line-up of interviewees has been obtained and the topic has been discussed from many angles. This research opens the debate on CSR of the restaurant industry by identifying potential challenges and problem areas from the perspective of several different parties.

12.04

CASUALISATION OF WORK, WELL BEYOND DIGITALISATION

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Abstract

Casual work is not a new phenomenon despite the denominations used to differentiate it from standard employment relationships, such as 'new forms of employment'. Accordingly, it is not a mere outcome of digitalisation and increased use of technology in work, work processes and organisation. Nevertheless, what currently appears to be at stake, is the current pervasive nature and speed of casualisation of work.

The Covid-19 pandemic put a magnified lens on persistent inequalities across societies and at work. The first emergency measures decided around the first burst of the pandemic in Europe, early 2020, did not covered groups of workers, essentially the ones in more casual forms of employment. These included workers who are not paid a salary, such as the self-employed, and those without regular working hours, such as workers who work on demand or have zero-hours contracts[1].

Building on several research done in recent years, in Eurofound[2], this article first describes the situation of casual work across Europe. It then explores the tensions that could open few paths mitigating worrying trends. Finally, it attempts a way forward on two issues, collective representation and business models, structural to casual work.

Firstly, a rapid mapping exercise shows that despite the absence of reliable comparable figures across European countries, estimated trends are worrying. Indeed, the increases of casual forms of work in new recruitments, raise concerns about precariousness. Casual work is systematically defined in contrast with more "standard employment forms", lacking various labour and social rights attached to the latter. Furthermore, the absence of systematic right to social protection increases the likelihood of workers in casual work, to live in poverty, especially on the long run, at pension age. Casualisation of work and employment is a direct outcome of flexibilization on the labour market and in forms of work.

Conversely however, critical tensions exist, questioning flexibility needs and casualisation demands. There is evidence of employers' need for a stable workforce. Developments in business models relying primarily or even exclusively on casual work, have also been questioned. There have been reactions from workers vis à vis the working conditions experienced in casual forms of work, as recent organised collective responses from individuals working through on-line platforms apps (such as Uber and Deliveroo, widely known and used across Europe) illustrate.

Bringing adaptability to markets and individuals needs are not the only side of the flexibilization coin. Progressively, key limits and negative impacts of flexibilization on productivity, quality and business reputation are identified. Workers also pay the flexibilization price, as general working conditions, health and well-being are impacted.

Final considerations on consequences of the current situation and tensions around casualisation of work are presented. They question the evolution of both, trade unions and of business models. Representing workers and making their voice heard has become increasingly challenging, when not impossible, for trade unions organisations. Are they still needed? Is their structuration the most adequate to represent and voice the concerns of casual workers? Could they still prove efficient when employment statuses are so diverse, and working conditions and labour rights so apart? Moreover, evolution of business models also challenges the use of standard employment relationships; the employer's role and function disappear in most complex business models construction.

It is therefore paramount to continue monitoring the pervasive effects of the use of casual forms of work, as employment relationships have proven (and will continue) to be very creatively knitted by the parties. Current legislative responses at national and European levels and actions from social partners and workers help devise future work environment and rights.

[1] Biletta (2020), Covid-19: All aboard: Hauling undeclared workers onto the pandemic rescue boats, Blog, Eurofound https://www.eurofound.europa.eu/publications/blog/all-aboard-hauling-undeclared-workers-onto-the-pandemic-rescue-boats; "While some countries took more casual forms of work into consideration – Czechia and Italy included the self-employed, for instance, while Poland covered civil contract workers – very few opened their schemes to other categories of workers. One exception is Spain, which issued a decree on 31 March offering support to specific groups of vulnerable people, not just employees: domestic workers, temporary workers ineligible for unemployment benefits who have lost their jobs, people unable to pay their rent, and women who are victims of domestic violence".

[2] Eurofound (2019), Casual work: Characteristics and implications, New forms of employment series, https://www.eurofound.europa.eu/publications/report/2019/casual-work-characteristics-and-implications Eurofound (2018), Work on demand: Recurrence, effects and challenges https://www.eurofound.europa.eu/publications/report/2018/work-on-demand-recurrence-effects-and-challenges Eurofound (2016), Exploring the fraudulent contracting of work in the European Union https://www.eurofound.europa.eu/sites/default/files/ef_publication/field_ef_document/ef1639en.pdf

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14.01

SUCCESSFUL IMPLEMENTATION AND INTEGRATION OF A DIGITAL HEALTHCARE PLATFORM SUPPORTING PATIENT- AND WORKFLOW IN A SWEDISH PRIMARY HEALTHCARE CENTER

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Abstract

This abstract is based on a pilot study from an ongoing project focusing the implementation of a digital platform offering support for both the patient- and workflow at a primary healthcare center in Western Sweden. The overarching aim of the

project is to follow the introduction and adaptation (normalization) of the platform in primary healthcare centers to study how digital support of the patient- and workflow affects the healthcare professionals (HCP) working routines and workload.

Through the platform, patients can make contact with the primary healthcare center digitally instead of through phone calls. Communication can take place synchronously or asynchronously and patient meetings digitally (through chat or video) or physically. Through the platform patients are directed to different categories of HCPs, depending on symptoms. We will present the findings of how the organization and leadership was prepared for the introduction of the platform and how the HCPs are prepared, trained and affected by the implementation. The primary healthcare center's motive for implementing the platform was to increase patient accessibility and experience, enhance resource utilization, and to decrease workload for HCPs (primarily the nurses).

Past research shows that implementations of this type of digital platforms are a complex process, involving a wide range of actors who translate means, actions, and objectives into care practices in different ways (Damschroder et al., 2009) not always rendering the expected effects (Cajander, Larusdottir, & Hedström, 2020). Also, early research on digital implementations in healthcare has been accused of being rich in data but "information poor" (Nilsen, 2020). However, several theoretical tools to comprehend and illuminate implementation failures or successes have been developed (Damschroder et al., 2009; C May & Finch, 2009; C. R. May et al., 2011; Nilsen, 2020; Tabak, Khoong, Chambers, & Brownson, 2012). One such explanatory framework is the Normalization Process Theory (NPT) (C May & Finch, 2009). NPT identifies and explains important mechanisms that promote or inhibit an implementation process. It allows a systematic exploration of how and why (or not) a digital healthcare platform becomes normalized and sustained in healthcare practice. NPT "characterizes and explains implementation processes as interactions between 'emergent expressions of agency (i.e., the things that people do to make something happen, and the ways that they work with different components of a complex intervention to do so); and as 'dynamic elements of context' (the social-structural and social-cognitive resources that people draw on to realize that agency)" (Carl May, 2013, p. 1). We use NPT and its constructs as an explanatory framework for analyzing the empirical findings from the pilot study.

Method

Methods of inquiry included semi-structured interviews (N=12) and observations during training sessions with the HCPs (2), as well as at a formal workplace meeting (1). The interviews were conducted with four nurses, three doctors, two managers, one psychologist, and one rehabilitation coordinator from the same healthcare center. We also interviewed one of the main initiators and developers of the platform. NPT has inspired the framing of the interviews as well as the data analysis.

Findings

The findings suggest that the digital platform has been successfully implemented and integrated into the everyday care routines at the primary healthcare center. In specific, it has positively affected the patient- and workflow as well as the HCP's working conditions. The findings also point at the importance of preparation on the organizational and leadership level before platform implementation. In the presentation, we will elaborate further on how the platform becomes successfully embedded and integrated by using the NPT constructs of coherence, cognitive participation, collective actions, and reflexive monitoring as an analytical lens.

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14.02

SOCIAL MEDIA – A TOOL FOR CARE WORKERS FOR CONSTITUTING CARE AND ELDERLY CARE ORGANIZATIONS

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Abstract withdrawn from WORK I, will be presented in WORK II or WORK III

14.03

NEGOTIATING CATEGORIES IN INTERPROFESSIONAL DESIGN WORK. A STUDY OF A TEAM DEVELOPING A PATIENT INFORMATION SYSTEM

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Abstract

Aims

The aim of this paper is to contribute to a better understanding of demands to expertise in interprofessional design work. To this end, we examine how a team comprising IT and primary care professionals in Norway mobilise knowledge and negotiate professional categories when developing a digital system for the registration and sharing of patient information across units of health care. Research has shown how the intensified digitalization in health care expands professional skills and competencies, through the need to understand the wider information environment in which working tasks are embedded, and through the need to configure and adapt general technologies for local use (Hertzum & Simonsen, 2019). Moreover, the professional-client interaction changes through the co-production of technologies and services (Lundin & Mäkitalo 2017). The way professionals with different expertise design technologies and ways of working concurrently, and what this implies for professional learning and development, is less investigated.

Methodology

We apply a socio-material perspective on collaborative work as communicative practice to analyze how knowledge is mobilized, generated, made sense of and negotiated among the participants in the design process. Further, we use the perspectives of Bowker and Star (2000) to specify how knowledge of work contexts are used to articulate and construct categories. Methodologically, we analyze data from one empirical study where a development team were followed over a period of one year through an ethnographic approach. Data comprises video and audio-taped observation of 21 design meetings, project documentation, 19 interviews and weekly talk with key participants. Selected interviews and episodes from the observations were transcribed and analyzed together with the additional data material, using Nvivo software. A two-step analysis was applied. First, we thematically categorized problems they worked on over sequences of events. Next, we conducted an in-depth analysis of interactional sequences to trace how knowledge was mobilized and activated into the group discussions around the problems and how this was made sense of collectively in the design team.

Findings

Our findings shows that the participating professionals drew on a range of epistemic resources in their contributions to the design process. These resources took different material-semiotic forms, such as standardized procedures, medical terminology and experience from health care work. The resources mediated different types of knowledge, and served to explicate tensions between stances and concerns which needed to be resolved in interaction. Articulation and negotiation of professional categories were

especially prominent in instances where the team was designing functionalities for fall risk assessment. Specific work contexts of health professionals were envisioned and communicated to the IT professionals in order to build a shared understanding of the system in use. By mobilizing knowledge of work contexts, the team could explore multiple potentials for the use of the system and potential categories of fall risk assessment could be validated. Finally, the participants need to take into account temporal aspects as they moved between and understanding of immediate care needs and the potential for preventive care through fall risk assessment.

Contributions

The paper has shown how interprofessional design work is accomplished through a range of communicative actions in which knowledge is mobilised and professional categories are negotiated. We argue that an understanding of these processes and the challenges they pose to participants are increasingly important. The digitalization of health care relies on the contributions of health professionals and their forms of expertise in design processes, which open new opportunities for learning at work. Rather than a general focus on enhancing digital competencies among health professionals, we suggest that more attention should be given to supporting these professionals' understanding of the design features of relevant information systems and how their expertise can be mobilized and better integrated in the design of such systems.

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14.04

IMPLEMENTING TECHNOLOGIES AS RENEGOTIATING OF RESPONSIBILITIES: A STUDY OF THE EMERGING WORK ROLE OF THE WELFARE TECHNOLOGY COORDINATOR IN MUNICIPAL HEALTH CARE

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Abstract

An aging population and growing service needs place pressure on health care services. Consequently, health care services have faced a need to adapt to new, potentially more effective ways of working, often by employing technologies to support the actual users of services in their own homes. These types of technologies, aimed at supporting citizens' independence and the quality of life as they age and experience chronic illnesses, are called welfare technologies. Since the efforts to test welfare technologies in public services have recently shifted from local pilots to full implementation, new work roles have been created to organise and coordinate implementation and drive the changes needed when working with new technologies to provide services.

This study aims to investigate one of the emerging work roles in municipal health care: welfare technology coordinators. In this role, specific workers are assigned the responsibility to coordinate activities related to implementation of welfare technologies in different city-districts in one large municipality in Norway. The coordinators' work was organised in collaborative clusters of four city districts as part of a municipality-wide project that aimed at integrating welfare technologies into home services. One employee from each city-district, mainly with a health-related bachelor level educational background, was recruited into a coordinator role. The coordinators have no personnel responsibilities, and they have no formal job description other than the spoken mandate to work towards implementing welfare technologies. These types of organisational roles are characterised

as ambiguous (Jackson & Schuler 1985), transitional (Ashforth, Kreiner & Fugate, 2000) or liminal (Swan, Scarbrough & Ziebro 2016), and boundary work (Langley et al., 2019) characterizes the type of work that is done.

Technology implementation processes often involve a significant amount of invisible work for adapting technologies to local practices and pursuits (Bergschöld 2018; Kamp & Hansen 2019). Many social and material actors must come together, and traditionally educated health care workers are required to become implementation agents (Ertner 2019). The ways and the degree to which implementers are able to renegotiate the responsibilities in the organisational hierarchy also seems to be necessary for successfully implementing organisational changes (Valentine 2018). However, there is a lack of knowledge about how—and by whom—implementation processes are conducted and coordinated, and on the ways the distribution of responsibilities is reinvented in the organisation.

This study aims to investigate how welfare technology coordinators navigate their professional role as implementation agents without an established position in the organisational hierarchy. Specifically, we explore this by observing how they initiate tasks and use strategies to change the equilibrium of responsibilities in their organisation.

Two rounds of exploratory in-depth interviews were conducted with four welfare technology coordinators. Each of the interviews lasted approximately 1.5 hours, and were audio recorded and transcribed. Taking a practice-based and socio-material approach to understand their lived experiences, we investigated how they take initiative in their role and select activities in order to influence the understanding of responsibilities in technology implementation among organisational actors.

We followed thematic analysis principles (Braun & Clarke 2006). Using an inductive approach, we conducted the analysis in three steps. First, we created broad thematic categories through in-depth reading of the data. Second, we generated theoretically informed categories based on perspectives of specific work roles and technology implementation. Lastly, we went back and forth between theoretically driven categories and inductively generated codes to form the final interpretative categories.

Preliminary analysis of the interview data revealed qualitative differences related to the type of tasks and strategies that the coordinators chose in order to influence the organisational actors' probability of re-evaluating their responsibilities with welfare technology implementation. We found three main categories of activities related to changing the distribution of responsibilities. In the first category, the activities were mainly related to influencing their colleagues' competences and knowledge about technologies. The second category consisted of the attempts made to influence managerial and leadership positions in order to negotiate their tasks related to managing workers' time and responsibility when using the technologies. In the third category, the coordinators interacted with the home-care workers directly, mindfully communicating new ways of thinking about home-care work with technologies and gaining ownership of new work practices.

Our tentative results suggest that the ability to navigate an open, ambiguous and transformative technology-driven coordinating role requires the ability to carefully choose and balance actions when attempting to influence the distribution of responsibilities. We argue that, in order to enhance the successful and sustainable adaptation of new technologies in health care services, a more in-depth understanding is needed of the way this work is performed by the people in organisational roles that have a coordinating responsibility.

14.05

REMOTE PHYSIOLOGICAL SIGNAL MEASUREMENT FOR INCREASING THE GAIN AND REDUCING THE STRAIN IN REMOTE WORK GROUP MEETINGS

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Abstract

Problem

This work is one part of a consortium project funded by the Finnish Work Environment Fund about analyzing physiological indicators for reducing strain and increasing gains from workgroup meetings. The project has two aims: the first aim is to

analyze physiological signals to find an optimal state of physiological arousal for group discussions, and explore how it will facilitate the interactions in remote group coaching sessions via Zoom, the second aim is to develop artificial intelligence (AI) methods to measure physiological signals remotely from face videos recorded during the Zoom group coaching sessions, which would greatly support the first aim. This study works on the second aim, which is important for the online mode of coaching and research due to the COVID-19.

Background

Physiological signals such as the heart rate (HR) and heart rate variability (HRV) are often measured to analyze human emotional changes, e.g., relaxed or stressed during a group coaching session. In a face-to-face session, a pulse oximeter can be attached to a client's finger for the measurement, but for a remote session via Zoom such measurement is inconvenient or impossible. Previous works from computer vision showed that the HR can be measured from facial videos basing on the fact that the blood volume change with heartbeat can cause facial skin color change and be captured by a camera. However, the challenge is that the talking and other facial movements can heavily deteriorate the measured signal quality. In this project, we try to develop a robust AI method to tackle these challenges under realistic conditions.

Data and method

The whole dataset contains recordings of 4 groups by 6 sessions. In each session, one consultant and a group of 10 participants join the meeting via Zoom which lasts for about 90 minutes. The face videos are recorded by OBS studio on the participants' computers. The physiological signals are recorded by the pulse oximeters. The pulse oximeter data works as the ground truth for evaluating the accuracy of the developed AI method. The data gathering is still in progress, and so far, we have obtained 6 sample videos of the total length of about 14 hours. We developed a preliminary but promising solution basing on results achieved on the data. By the time of the conference, the data gathering will be completed, and we will be able to provide more results based on a larger sample.

We first conduct preprocessing of the face videos to compensate for the motion influence. We use OpenFace software to locate and track facial landmarks to achieve stable facial area locations. Next, we further process these intermediate results to get the pulse signals. We explore and compare two approaches to obtain the pulse signals from videos, i.e., one traditional learning-free method and one deep learning-based method. The deep learning-based method needs extra data to be trained. We use our Oulu Bio-Face (OBF) dataset for training as a temporal solution. For the traditional learning-free method, it does not need training and can be directly applied to get the pulse signals. We measure the average HR in a 30-second window and plot the HR curve to track HR changes. We also apply postprocessing to filter the HR curve to remove outliers. The HR curves can be analyzed to detect some emotional events, i.e., as the indicators of stress, during remote group meetings.

Results

We use the mean absolute error (MAE) to evaluation the accuracy of our solutions. MAE is the mean absolute difference of HRs (in beats per minute, BPM) from the pulse oximeter and from the face video. With the whole pipeline of processing, we achieved MAE of 2.3 BPM and 3.0 BPM for the traditional learning-free method and deep learning-based method, respectively. MAE error of within 5 BPM is usually acceptable for non-medical usage and is promising for further strain analysis. The reason why deep learning-based method works slightly worse than traditional method is that the training data OBF has very different quality than the current data, in terms of resolutions, illuminance, and face motions. In the next step we will train the deep learning model on new data when the gathering is finished, and it is expected to further improve its performance. The current results show that, with the whole pipeline of processing, the two proposed methods both can achieve reliable HR measurement with acceptable error.

Conclusion

The COVID-19 is changing our living and working in many ways mostly towards the remote mode. Besides fighting against the virus, developing remote technology is also essential to better adapt to the new situation. Online meetings are widely used remote working form not only for group coaching but also for other fields. The AI solutions we proposed for remote HR measurement can potentially support various remote scenarios, e.g., for emotion or health state analysis.

DIGIKORNERI ENABLING SAFE PARTICIPATION AND COMMUNICATION FOR THE ELDERLY PEOPLE DURING COVID-19 PANDEMIC

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Abstract

Background

Foibekartano is a community for the good and diverse life for nearly 300 elderly, where we provide assisted living 24/7 for 114 residents. Foibekartano provides a living environment, in which residents may feel their life as meaningful and connected to society. Digitalization is strongly supporting participatory experiences and joint activities. Digital technologies, especially accessible technology and the use of social media is harnessed to support the community to interact and enable genuine inclusion. In the era of the COVID-19 pandemic, we developed new ways to interact safely with residents and their close ones.

Need for development

Social interaction is the basis of humanity. We felt it was important to develop secure ways to meet to support interaction during the exceptional time, when loneliness and lack of interaction are known to be related to, for example, depression. As the meeting restrictions continued, it was clear to us that our residents' communication with their close ones had to be secured. The desire to be connected continues for the rest of a person's life despite his or her state of health. The answer to secure communication was found in digital technology.

The innovation was named as 'Digikorneri' (Digital Corner). We piloted the Digikorneri concept to enhance interaction. When developing Digikorneris, we considered the individual wishes of our residents and their close ones for safe interaction (Kalske & Wallenius, 2015, Verma & Hätönen, 2011). We interviewed residents, their close ones and the personnel of what types of secure means of communication would work. The ease of use and the high quality large-screens became essential when building Digikorneris, enabling a sense of presence and contact even for the visually impaired and hard of hearing.

We utilized the PICO Structuring System (https://guides.mclibrary.duke.edu/ebm/pico 14.3.2021), a tool for structuring research questions. We defined the elderly of the Foibekartano housing service, their relatives and the Foibekartano personnel as customers. The phenomenon to be studied is the enabling of experiential interaction with a digital medium using accessible technology. Following accessible technology was used: a combination of a laptop, a large 43-inch screen, effortless mobility and good audio quality enable a holistic meeting experience. In addition, the Digikorneri had to be relatively easy to clean. The intervention under the study is compared to use of a traditional telephone or WhatsApp as a means of communication and compared to the availability of a functioning digital experience with high quality large-screens and good audio. We started with three Digikorneris and continued after two promising months with eight new ones.

Preliminary findings

The effects we potentially would find out are HILKKA recordings of interviews with the professionals. Based on the preliminary findings, it could be observed that with the use of Digikorneri, residents overall seem to feel better, calmer, more cheerful and daily lives go smoother. The need for sedative drugs per capita would be an interest. The result could be verified e.g. using the RAI (Resident Assessment Instrument) metrics used to monitor the well-being of residents. In addition, the professionals have pointed out that good feedback on the use of Digikorneri's has been received from those close to the residents. Residents' close ones' satisfaction with the service has increased and their close ones feel that the service is of high quality. Close ones have said that they can have a peace of mind, when they see that living at Foibekartano is going well.

With the help of Digikorneri, the personnel have expressed being able to reduce the concerns of close ones of residents. The personnel have reported less anxious attacks/anxiousness, and the trust on both sides has been strengthened. The personnel have also received good feedback from the relatives on the use of Digikoneri's careful guidance from relatives and clearly written instructions. The use of Digikorneri has become well-established and developed into the

daily lives of Foibekartano's residents and personnel. Digikorneris have also been actively used in joint meetings among the personnel.

Conclusions

The Digikorneris continue to be a permanent part of the daily lives at Foibekartano. The technology must be accessible and the responsibility for the usability and accessibility of the technology is taken care by the personnel. Without a doubt, the personnel are the key in this pilot project, especially the professionals' attitudes towards accessible technology. It is clear, that a professional act as an assistant enabling the use of the Digikorneri for the elderly. There has been a genuine interest in learning how to use the Digikorneris among the elderly and the professionals. Development has required motivating discussion and supportive leadership. Due to the positive feedback and interest received, we assume that the Digikorneris will remain in active use even after the COVID-19 period.

14.07

IT'S NOT ABOUT DIGITAL SKILLS – CHARACTERISTICS OF DIGITAL TECHNOLOGY USE IN FINNISH ELDERCARE WORK

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Abstract

Eldercare work has been a subject of rapid and forceful technological rationalization during recent years. This ongoing digitalization of various tasks in care work calls for learning new skills to more easily use and master modern digital technologies. In this study we examine characteristics of digital device and application (hereafter, digital technology) use in Finnish eldercare work comparing them with other occupational groups with similar skill level (ISCO 2-digit level). More specifically, we focus on the use of digital technologies experiences related to their use and the level of self-reported digital skills we compare the largest occupational group in eldercare sector, practical nurses (n=3065), to other service workers and sales workers -(excluding personal care workers) (n=389), and to clerical support workers (n=280).

Our analysis is based on two datasets. First, the data on the eldercare sector comes from the 2019 University of Jyväskylä survey on eldercare work, focusing on working conditions and digitalization of eldercare work. The survey data (n=6 375) was collected from members of four trade unions (Super, Tehy, JHL, Talentia) in April 2019 using an online survey. The questionnaire was administered in Finnish and Swedish. Second, we formed the comparison groups for practical nurses in elder care using the latest Finnish Working Conditions Survey from 2018 (n=4 110). These surveys have a range of identical questions on the use of technology in work, experiences on technology and digital skills. The two datasets were pooled together, and all analyses are based on this pooled dataset. We employ various logistic regression models to analyse the differences of the three groups regarding their basic background variables (multinomial), and how they differ in use of technology (binary) and experiences or attitudes on technology (ordinal).

According to analyses, the largest differences in background information between the groups were related to gender, working time arrangement and supervisory status. Not surprisingly, practical nurses in eldercare sector were almost exclusively female compared (97%) to service and sales workers (56%) or clerical support workers (75%) and practically none of them (1%, 45% and 28% respectively) had supervisory status. Similarly, a large majority of practical nurses in eldercare sector worked shifts (92%) compared to service and sales workers (33%) or clerical support workers (12%).

Practical nurses were very unlikely to use technologies such as social media, instant messaging and remote connection devices in their work compared to other two occupational groups. Concerning attitudes and experiences, practical nurses did not differ from the other groups in the level of self-reported digital skills or in the frequency of learning new devices at work. However, practical nurses did have clearly lower probability of high level of digital support from work organization. In addition, practical nurses and service workers were clearly less probable to spend large amount of time using different devices compared to clerical workers.

The results indicate that there are clearly more challenges in the eldercare sector adopting new digital devises and applications in work. We argue that these challenges do not derive from workers inability or willingness to use digital technologies. However, organizational support for the use of digital technology seems to be at the lower level than in other occupations with similar overall skill level. Thus, there is need for more focus on management and organizational practices to support adoption and use of new digital technologies in eldercare work.

16.01

ACCEPTANCE AND COMMITMENT THERAPY IN THE CONTEXT OF WORK – A SYSTEMATIC REVIEW

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Abstract

Previous studies have shown that Acceptance and Commitment Therapy (ACT) can be an effective treatment for many different types of psychological distress, such as depression and anxiety. ACT-based approaches have also been studied in working-life settings and used successfully, for example, in work-stress and burnout interventions. ACT has recently been the focus of many systematic reviews, but there has been as yet no systematic examination of ACT in the context of work. This is the research gap this overview aims to address.

The overall objective of this study is to explore, through a systematic review of the literature, the potential of ACT-based methods for working-life purposes. The first aim of this study is to evaluate and assess the effects of work-related ACT interventions. Secondly, this study attempts to further investigate what explains the intervention effect and thus identify the possible mediator(s) and moderator(s) of the interventions. Thirdly, this study also aims to examine the validity of these work-related ACT interventions. The final aim of this study is to examine the measures and outcome variables used in the work-related ACT research.

Data was retrieved from four databases – PubMed, PsychInfo, Scopus and Web of Science – by the author in spring 2021. Additional studies were identified by searching reference lists of full studies reviewed and analysing research resources on the website of the Association of Contextual Behavioural Science. Search terms included acceptance and commitment, psychological flexibility, work*, job, occupation*, organisation*, manage*, stress*, strain, staff, employ*, leader, executive, burnout, career, absence. Studies were included in the review, if they were a) acceptance and commitment (therapy) -based and b) work-related. Studies exploring ACT outside work context were excluded from the review. Included studies were also required to focus on adults, and all intervention delivery formats were included. Studies considering a single theoretical component of ACT, focusing for example solely on mindfulness processes and failing to recognise value and commitment processes, were not included in the review. Both randomised controlled trials (RCTs) and non-randomised settings were included in the review. Studies included in the review were required to be peer-reviewed publications or, to reduce the risk for publication bias, doctoral dissertations. Manuscripts not in the English language were excluded from the review. Data was searched, screened, extracted and analysed by the researcher.

The data extraction and analysis are in process and, therefore, the results of this systematic review will only be available by the end of June 2021. The synthesis of the reviewed literature is, however, anticipated to explain what role, if any, ACT-based methods can play in working life. It is additionally expected that identifying and assessing the usability and effectivity of ACT-based methods for working life will contribute towards a better understanding of the value of ACT for working-life purposes. In addition, it is assumed that this systematic review will provide interesting and novel insights into the potential of ACT for working-life skills, work-related stress and burnout, work-ability maintenance and wellbeing.

16.02

IMPACT OF THE COVID-19 PANDEMIC ON THE WORK ENVIRONMENT IN SWEDISH HOME CARE NURSING: SOME PRELIMINARY RESULTS AND A RESEARCH AGENDA FOR THE FUTURE

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Abstract

When the Covid-19 pandemic reached Europe in the spring of 2020 it implied radical work environment related challenges for the home care and home care nursing personnel responsible for the care of the most vulnerable risk groups. Not only were they set with the responsibility to protect the, often older, people that they cared for. They also risked to become exposed to an, at the time, largely unknown, but evidently lethal new virus. Over the last years we have studied teamwork and its relation to the work environment in Swedish home care nursing. Recently we have extended this work and added research questions regarding how Covid-19 has challenged and changed the work environment in home care and home care nursing. Here we intend to present some preliminary findings regarding how the challenges associated with Covid-19 was handled by four Swedish municipal home care nursing organizations. We will also give an outline of the project as a whole.

In Sweden the responsibility for healthcare is shared between municipalities and regions. With the municipalities being responsible for home care and home care nursing and the regions for primary care and specialized care. A consequence of this is that the municipalities are only allowed to employ nurses, physicians are employed by the regions. The results presented here are mainly derived from a workshop held in the early autumn of 2020. Additional data, used to contextualize and interpret the data from the workshop, consists of 24 interviews with home care nursing personnel and approximately 80 hours of ethnographic field observations performed early in 2020. All of the observations and most of the interviews was done before the Covid-19 pandemic forced the Swedish society to close down.

At the time of the workshop, there was a consensus among the participants that things had stabilized compared to the situation during the spring of 2020. All of the organizations had handled covid-19 cases, but there had only been a couple of larger outbreaks. Experienced issues related to Covid-19 could broadly be divided into three categories: 1) protective gear, 2) testing, and 3) social distancing.

During the first half of 2020 there was a general shortage of both protective gear and testing resources for Covid-19 in Sweden. The lack of protective gear had been a problem to the home care nursing organizations. In practice, their crisis management related to protective gear differed. In the organization that appeared to have the most successful strategy, they had centralized all logistics and storage of protective gear in the municipality, in order to avoid that, for example, one unit had a large storage of masks will other units were completely out of masks. Up until the workshop the participating organizations had conducted thousands of Covid-19 tests on both patients and personnel. Since it is the regions responsibility to analyse the tests, the tests conducted by home care nursing had to be handed in at the local primary care clinic from which it was sent to the laboratory. Testing took a lot of time and in the four home care nursing organizations the logistics around testing differed. When home care nursing had a suspected Covid-19 case, it could take up two hours to get the test done as they first needed to fetch the test material at the primary care clinic. One of the organizations that had experienced more Covid-19 related cases than the others had made a deal with the primary care clinic that allowed them to store the test material themselves. This decreased the time consumed by each test to 30 minutes. In order to increase social distancing, the home care nursing organizations had to varying degree turned to virtual meetings. For example, one of the organizations reported that they had bought laptops that the home care nurse brought with them to the patients home. Thus, they could hold care planning meetings with the primary care clinic virtually instead of physically.

The next step in the project will be to conduct a series of interviews and focus groups with personnel in home care and home care nursing regarding their experiences of the pandemic. Later on, we will also conduct observations and do more interviews and focus groups in order to study the long term effects of the pandemic on the ways of working.

16.03

VALIDITY AND RELIABILITY OF THE UPDATED VERSION OF THE EFFORT-REWARD IMBALANCE QUESTIONNAIRE IN THE 33. WAVE OF THE GERMAN SOCIO-ECONOMIC PANEL.

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Abstract

Research from the last few decades shows that persistently higher levels of psychological stress at work can have negative effects on health and work performance. A suitable instrument to make stress measurable and which has been used successfully for more than 20 years is the Effort-Reward Imbalance Model (ERI) by Johannes Siegrist (1996). It is a widely tested and internationally used medical-sociological-theoretical model based on the principle of social reciprocity. The exchange relationship manifests itself in the form of workloads (effort) that are perceived by the employee and gratifications (reward) that result from the employer. If the fairness of exchange is violated by the employer, there is an Effort-Reward Imbalance. If this imbalance of excessive workloads that are not compensated by adequate rewards persists, employees can experience distress, which can lead to coronary cardiovascular disease, cortisol dysregulation or the presence of lower immunoglobin A levels (u.a. Msaouel 2012 & van Vegchel et al. 2005).

Particularly in social science survey research, work is being carried out on measuring psychological characteristics, such as workload, as compactly as possible, since individual diagnostic measuring instruments for population surveys are often too extensive. For this assignment, Siegrist developed a short version of his original questionnaire with 10 items, which contains the three components of effort, reward and overcommitment. He showed in his work that the short scale for measuring the Effort-Reward Imbalance is valid and universally applicable for the entire population. In doing so, he created a measurement model that can be used for large-scale surveys.

Revisions are inevitable within such a long period of time, so that two measurement methods currently exist. Siegrist recommends using the updated measurement method, but the original questionnaire is still used in surveys. The following analysis will be based on whether and to what extent these two measurement methods are comparable.

The data basis for the following study is the German Socio-Economic Panel (SOEP) full survey from 2016, which is a representative population survey of all private households in Germany. In addition to an established set of items that is included every year, key topics are repeatedly set in which different measuring instruments are implemented. In the SOEP full census in 2006, 2011 and 2016, the Effort-Reward Imbalance short scale by Johannes Siegrist (1996) was used. In 2016 the updated version of the ERI questionnaire was used in the main sample and the original version was questioned with a smaller innovation sample at the same time. This created ideal basis for validating the updated Effort-Reward Imbalance scale in a representative survey.

Of these employees, just almost 12,000 received and answered the one-step ERI questionnaire, and around 500 employees from refreshment sample F were assigned the updated, two-step, ERI questionnaire. In the one-step measurement process, three components of the model are measured on a 4-point Likert scale from strong disagreement to strong agreement. In the two-step measurement, a filter question is asked in advance for the components of effort and reward as to whether the efforts and rewards are present and, in the second step, a subjective assessment of the burden on this item is asked. The advantage of the one-step measurement method is supposed to result in a lower failure rate, which could be confirmed.

Before the statistical analysis take place, a representativeness test is carried out which shows that the two samples in the SOEP are comparable. The data analysis was carried out with SPSS 25 with the exception of the confirmatory factor analysis, where the R statistics program were used. To check the updated Effort-Reward Imbalance scale, the descriptive statistics, Cronbach's alpha, inter-item correlation and the item scale statistics were checked for reliability. A confirmatory factor analysis was used for construct validity and a linear regression analysis was used to calculate the criterion validity. The item and reliability analysis shows that the mean values of the two samples differ greatly from one another for all items and constructs. However, the internal consistency shows acceptable and similar values for both samples. This also applies to construct validity and criterion validity; the structure can be shown in both samples.

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16.04

ADVANCING MENTAL WELLBEING AT THE WORKPLACE – WHAT WORKS?

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Abstract

Workplaces play a crucial role in improving the health and wellbeing of global populations. Prior to COVID-19 there was already an increasing acknowledgment that poor mental health, mainly depression and anxiety, is a leading cause of ill health and disability. This presents one of the toughest challenges to employee and societal wellbeing, as well as productivity. We cannot accept this status quo due to the major health and business implications, especially as many of the reasons leading to poor mental health are preventable and originate in the workplace.

The pandemic has triggered an enhanced focus on mental health with an incredible amount of resources being offered to employees, many working from home, on behalf of employers. While this development is very welcome, the question begs how effective are these resources and do employees get what they really need when it comes to improving their mental health and wellbeing and how have these changed with the pandemic? In most instances the evidence is scant and the impact is not measured. The evidence challenge is complicated by the need for a strategic, holistic, comprehensive approach to creating healthy workplaces. Part of this is the inclusive nature of looking at the needs of individual, team and organisational factors that focus on the promotion of positive mental health. Individual, fragmented programs will not succeed, especially if only focused on the individual symptoms and not a focus of a preventative nature.

The impact of the psychosocial working environment on employee health, safety and wellbeing has been widely researched. The need for psychosocial risk management with assessment of work organization and creative job design is as clear as ever. Psychosocial risk management is being mandated in a growing number of countries and is a central focus of a number of standards. Even if a legal requirement in many countries to create a healthy and safe working environment (physically and psychologically), why is there still a reluctance to focus on this area?

The Global Healthy Workplace Awards have accumulated eight years of best practice data from employers of all sectors and sizes from more than 50 countries. This session will showcase the analysis of global data for common success factors with a focus on mental wellbeing strategies, program design and evaluation. These can serve as lessons for employers to build their strategies on, applying a flexible approach within an ever changing world of work.

EXPLORING ESSENTIAL HR PRACTICES PROMOTING REMOTE EMPLOYEES' WORK WELL-BEING DURING COVID-19 PANDEMIC

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Abstract

Due to corona pandemic, remote work has increased drasticly and organisations develop and implement their HR policies and practices in this changed situation. In order to promote remote employees' performance and productivity in sustainable way, novel understanding what are essential HR practices that promote remote employees' well-being is needed.

In general, it has been suggested that HR practices that promote well-being can be categorized under five dimensions (Guest 2017). P*roviding engaging work* refers e.g. to jobs that promote autonomy and challenge. Second, *positive social and physical environment* includes practices promoting health and safety as a priority and employment security. Third category is a *voice*, linked to extensive two-way (vertical) communication in organization and employee surveys. Next, *investing in employees* involve practices that are related to recruitment and selection, and training and development. Last category is *organisational support* including supportive management and developmental performance management. The literature focusing on telework have shown that e.g. autonomy in work and suitable job design, sufficient resources for adoption of telework, supportive management culture, organizational climate of trust and effective formal and informal communication, are needed in order to support remote working.

The aim of this study is to explore how different types of HR practices are related on remote employees' work well-being. In particular, we study job autonomy as an indicator of *providing engaging work. Positive social and physical environment* is reflected by employment (in)security, horizontal interaction intensity (communication with colleagues) and organizational practices for remote office ergonomics and suitable facilities and attention paid on well-being (e-HRWB). *Voice* is studied through intensity of vertical communication (communication with supervisor) and remote work policies in organization. *Investing in remote employees* is focusing on questions if the skills needed in remote work are part of recruitment and selection and if training and development is available for remote work context (e-HRInv). *Organisational support* is investigated through supervisor support and performance management in remote work (e-HRPM, including items about goal-setting, assessment and rewards in remote work context). This study sheds light on work well-being from two different perspectives; first, satisfaction with remote work as a context specific variable, and second, work engagement as a general indicator of experiences at work.

The survey data (n=1029) for this study is collected from employees in one large multinational corporation in Finland in December 2020 after nine months of intensive remote work due to COVID-19 pandemic. A linear regression model was used separately for both models. Age, gender, having a partner and/or children and general stress related to COVIDd-19 pandemic were controlled for.

The results of the study show that satisfaction with remote work was in high level (mean 4.3 Sd 0.79, scale 1-5) and work engagement was in a good level too (mean 4.8, Sd 1.44 scale 1-7). For satisfaction with remote work, our model explained 11.2 % of its variance. Statistically significant relationships for satisfaction with remote work was found with job autonomy (β = .09; p=.008), e-HRWB (β = .08; p=.034) and e-HRPM (β = .14; p=.000), and from control variables, COVID-19 stress (β = -.25; p=.000). Statistically significant relationships for work engagement (19.1% of the variance explained by the model) was found with job autonomy (β = .18; p=.000), job (in)security (β = -.06; p=.04), communication intensity with colleagues (β = .12; p=.001), e-HRInv (β = .09; p=.01), supervisor support (β = .13; p=.000) and e-HRPM (β = .15; p=.000). From control variable age (β = .17; p=.000) and COVID-19 stress (β = -.09; p=.003) were significantly related on work engagement.

In conclusion, our model explained better the work engagement than the satisfaction with remote work. It is possible that for remote work satisfaction, contextual factors e.g., having space for remote office at home or time saved from work commuting play also important role in addition to HR practices. Different types of practices were also related to different types of well-being. However, for both types of work well-being, performance management played an essential role and therefore, goal-setting, regular assessment of work performance and acknowledging remote context in rewarding seem to be beneficial for remote employees' well-being. Second, job autonomy was also important for both types of well-being. In the light of this finding, remote employees' management might be challenging as the questions of what is the optimal balance between performance management practices (e.g. goal-setting and assessment of work performance) and job

autonomy may not be the easiest one to respond as in some extend, they can be seen as opposing elements of work. Overall, multiple HR practices seem to be needed, as different types of practices play different roles depending on what is the approach on work well-being.

16.06

HOMEWORKING AND THE PANDEMIC

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Abstract

We report a study of the effects of homeworking on well-being during the Covid-19 pandemic. Stay-at-home has been a central plank of many governments' response to Covid-19. Understanding the experience of homeworking is important both as an end in itself, and because it provides an opportunity for testing the effect of location on employees well-being alongside factors relating to the homeworking being enforced and in the context of concerns about the spread of the virus and its management. The study included a weekly diary survey over four weeks that was administered twice, in May and September 2020, covering 835 university employees across all occupations, academics and non-academics. Universities are a good location to isolate homeworking effects as incomes and workloads did not diminish during the lockdowns.

The results show that factors associated with the downside of homeworking – loneliness and inability to detach from work – dominate the average level of well-being in both phrases. Job insecurity is also important. Fluctuations in well-being on a weekly basis at both periods are affected by additional factors including job autonomy, social support, work–nonwork conflict and, strikingly, fluctuations in Covid-19 deaths. Results are consistent across three measures of well-being.

The study has a general significance for well-being research: we must not assume between- and within- person results will be the same. The core finding that loneliness and ability to detach from work are the key determinants of well-being levels and fluctuations confirms that the homeworking location is crucial. That factors associated with the enforced nature of the pandemic are less significant suggests that we need not be too wary of using the experience of the pandemic for making decisions about the future of homeworking as we move out of it.

16.07

TELEWORK IS HERE TO STAY – ARE HR PRACTICES IN YOUR ORGANIZATION UP TO DATE?

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Abstract

The aim of this study is to bring together literature concerning telework and well-being-oriented human resource (HR) practices. The Covid-19 pandemic introduced telework on a large scale and changed permanently the way we work. Several organizations, which rolled out telework at short notice, are shaping their HR practices. At the same time, organizations that were teleworking before the pandemic are forced to re-evaluate their HR processes. Thus, bringing together knowledge about telework and HR practices is relevant.

Telework research has focused on exploring how telework affects employees and what should be done in organizations in order to make telework beneficial. Depending on how telework is implemented, it can either improve or impair work-life balance, performance and job satisfaction. Additionally, harm to social interaction and career prospects can be expected if

these potential outcomes are not considered. The research literature reveals recurring aspects that require attention when benefits of telework are pursued: sufficient resources for adoption of telework, supportive management culture, organizational climate of trust, effective formal and informal communication, autonomy in work and suitable job design.

Well-being at work has gained attention during the past decade, as the fast-changing global work environment and knowledge-intensive work cause stress and health problems. Consequently, the discussion of relationship between HRM and performance has changed its focus from organizational to individual level: organizational goals should not be pursued at the cost of employee well-being. When organizations go for mutual gains, well-being is not regarded as means to achieve performance but an end in itself.

As a response to the scholarly discussion, Guest (2017) introduces an HRM approach promoting employee well-being. Guest's model includes provisionally five sets of HR practices that represent antecedents to employee well-being and a positive employment relationship – two domains influencing individual and organizational performance. These five bundles of HR practices from the perspective of telework are discussed below.

The first set of HR practices, *investing in employees,* addresses recruitment, selection, training, development and career support. Regarding telework, investments in training of both managers and employees are needed: managers have to improve their e-leadership skills, whereas employees should train self-leadership and time management. Telework competencies required from both managers and employees should be considered in recruitment and selection. Weakened career prospects belong to drawbacks of telework. Thus, HR practices should ensure that working "out of sight" does not impair career opportunities.

Secondly, *providing engaging work* is necessary for wellbeing, which is enhanced when employees are allowed to design their work, empowered to make decisions and able use their skills. Similar autonomy and skill utilization are necessary in telework, where managers and subordinates work at distance from each other. Additionally, suitability of tasks should be addressed in telework; job design is required to ensure that telework does not burden non-teleworking colleagues and weaken their job engagement.

Thirdly, HR practices supporting communication, employee health and safety and employment security promote *a positive social and physical environment*. Intensive internal communication, that prevents professional and social isolation, is vital in telework and requires more effort than face-to-face communication at the office. Formal knowledge sharing enables collaboration and innovation, while informal communication between co-workers is needed in order to develop relationships and enhance organizational commitment. In addition, ergonomics can be improved by providing employees computer equipment and office furniture to their remote office. In emergency situations such as pandemics, natural disasters and terrorist threats, telework ensures business continuity and thereby provides employment security.

The fourth set of HR practices, including e.g. two-way communication and employee surveys, refers to *voice*: employees have a say in decisions affecting them. A feeling of being heard and getting sufficiently information builds trust and creates foundation for effective communication in telework.

The fifth set of HR practices focuses on the *organizational support* covering supportive and participative management and organizational climate, flexible work arrangements and developmental performance management. Rolling out a telework program requires many kinds of organizational support, for example investments in ICT infrastructure, development of HRM and sufficient resources for training and tools. To overcome the main barrier for telework, i.e. managerial attitudes, management culture requires adjustment. In a desirable organizational climate, managers trust that teleworkers are doing a good job and teleworkers trust that they are treated equitably despite their physical location. Finally, performance management in telework should be based on results.

To summarize, telework should be embedded in organization's all HR practices; otherwise, negative outcomes of telework, such as job dissatisfaction, job loneliness and lower job engagement, are expected. Well-being-oriented HR practices offer a path to individual well-being and organizational performance arising from telework.

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PREDICTING MENTAL DISORDERS AMONG EMPLOYEES USING AI-BASED METHODS

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Abstract

Introduction

Finnish work life is going through a significant transformation in which the structures of work and the demands on worker skills are being reshaped by processes such as digitalization, globalization and aging. More and more occupations require complex skills related to cognitive capacities, interaction and self-management. Success in the labor markets and global economy is increasingly dependent on mental health and wellbeing. At the same time, academic studies suggest that the costs and work absences related to mental health problems are still increasing and consume a larger share of the resources of occupational health care. There is a need to develop new tools for the use of work organizations and occupational health care to support early intervention in the field of mental health problems.

Predictive methods related to occupational health and work ability have taken steps forward in recent years, and methods based on machine learning constitute a promising trend in this field. The aim of our project "With Better Predictions to more Sustainable Mental Wellbeing at Work" is to create predictive models that facilitate the early recognition of mental health problems. So far there have been few practical applications for these methods. In this project, our aim is to develop predictive tools for occupational health care.

In our project, we combine machine learning -based methods and large datasets that have rarely been used in the analysis of mental health issues. Our research questions are: 1) what are the subjective, social and work-related factors that predict mental disorders in the Finnish working population, and 2) what kind of healthcare paths do the different background factors predict?

Materials and methods

The research material consists of occupational health questionnaires and electronic patient records produced by Terveystalo, the largest healthcare service company in Finland. The questionnaires provide information on the self-rated health and wellbeing of employees. The patient records provide structured data on sociodemographic background factors, diagnoses and treatments as well as narrated data on symptoms and patient experiences as recorded by the physician.

This presentation intends to give some preliminary information about the first analysis of the project. We use the health questionnaires to predict the onset of mental health diagnosis. The population sample includes all persons who answered the occupational health questionnaire provided by Terveystalo, a total of 115 500 individuals. The register follow-up period starts from the questionnaire (first cases in 2016) and continues until the 31st of December 2019 or until the person receives a mental health -related diagnosis. We analyze how the different topics and items included in the health questionnaires (e.g., well-being, work conditions, health behaviors) as well as the social background factors predict diagnoses related to the affective and stress-related disorders as well as sleep disorders and burnout.

The main analyses utilize machine learning -based predictive models that recognize the relevant statistical dependencies and independent variables from the material. The material will be analyzed in a pseudonymized format, ensuring that the ethical standards and the principles of data protection are maintained throughout the research project. The main analyses will be conducted in spring 2021.

Outcomes

The project will produce novel information on the risk factors affecting the mental health of Finnish working age population. The project will also produce novel information on the factors affecting the treatment paths of the patients and their ability to return to work. This information can be used, for example, in intervention studies on work ability, in the training of healthcare professionals and in the development of workplace health and safety. The aim is to produce a user-friendly risk map that can

be used to calculate the risk of mental health problems as well as to estimate the most efficient treatment models. The risk map will be published for open use.

16.09

WORK EXPERIENCES AND WELL-BEING OF IT SPECIALISTS IN BUSINESS SERVICES INDUSTRY DURING COVID-19 PANDEMIC IN POLAND.

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Abstract

One of the most substantial characteristics of IT specialists' occupational situation (in pre-pandemic period), considering the work experiences, is that they tend to choose, beside standard work agreements, non-standard ones, i. e. fixed (business-to-business) contracts with employers, mediated by third parties – contract employment agencies. IT professionals also have an inclination to become freelancers mainly due to economic motivations, e. g. net income on non-standard agreement is much higher than on standard employment. Given these facts, crucial categories of work experiences of IT specialists are alienation and anxiety. It stems from the fact that these high-qualified professionals change employers/projects up to couple of times per year to increase their own employability level (measured by possession of technical and interpersonal skills, and by participation in the social networks) and to be competitive on the labour market. Their objective level of security of employment, income and social stability is incessantly in question (Barley, Kunda, Evans 2002; Barley, Kunda 2004).

The findings on biographical meanings and work experiences of high-qualified specialists employed at multinational corporations in Poland, however, suggest that the professionals have a proper socio-economic conditions (i. e. dominating role of standard employment agreement which provides security) to acquire e. g. biographical and occupational stability. Though, it is not unconditional as specialists must consent to bridging the gap between work and non-work spheres in their lives, considered as pivotal categories of work experience in late capitalism, as well as flexible and precarious labour market, inherent to it (Mrozowicki, Trapmann 2020; Haratyk, Gońda, Biały 2017; Gońda 2019). What is more, this situation is connected with: wide-spread narratives of community, openness and inclusion in workplaces, the promise of self-realization only if one is being responsible for her/his self-development (Biały 2015).

The paper will address the question of IT specialists' work experiences in business services industry during Covid-19-related lockdown in Poland in spring 2020, and further continuation of IT professionals' work mainly in a remote form. I will also investigate the impact of pandemic situation on IT specialists' (mental and physical) well-being. Based on a collection of 12 autobiographical narrative interviews (Schütze 1992) conducted (both on-line and face-to-face) in October and November 2020 with (females and males, as well as Poles and foreigners) IT specialists in 3 Polish cities differing in degree of social and economic advancement of the business services industry, I will make, on the one hand, a qualitative analysis of interviews' transcriptions underlining the categories related to work's meanings and its change during the pandemic. On the other, I will examine Polish press releases considering business services industry and work-related articles published since March until November 2020 in the most popular daily journals, pertaining to working life of IT professionals in Poland in times of coronavirus pandemic. Furthermore, I will present and identify, based on literature review, crucial findings on changes and consequences of the Covid-19 pandemic on IT specialists' work in the context of business services industry. During data analysis, I will draw an inspiration from the analytical procedures of the grounded theory methodology (Glaser, Strauss 1967; Charmaz 2006).

I will present initial findings on work experiences of IT specialists in business services industry focusing on changes of meanings in the spheres of: (1) mental and physical well-being of IT specialists, (2) work's organization (working from home and/or in "hybrid" mode), (3) relation between work and private life (work-life balance), (4) employment security and issue of employer's support in other areas of working and non-working life, (5) relation between managers and IT professionals, (6) and relation between employees.

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16.10

THE EMBODIMENT OF PRECARIOUS EMPLOYMENT: PSYCHOSOCIAL RISK FACTORS, WORK-LIFE CONFLICT, AND STRESS

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Abstract

Background

In the context of the substantial changes in labor markets of post-industrial countries over the last 30 years, the concept of precarious employment (PE) has emerged to indicate a generalized phenomenon of employment insecurity, income inadequacy, and lack of rights and protection, transversal to all types (or absence) of contracts and occupational categories. Several studies have shown that PE negatively affects physical and mental health of working people. However, the understanding of the pathways and mechanisms linking PE to poor health, continues to be a central challenge. Theoretically, it has been suggested that psychosocial working conditions could act as one of these pathways. Certainly, has been long demonstrated, mainly through the demand- model, that the psychosocial work environment may constitute risks of work-related stress. Extra-organizational factors, such as work-life conflict (WLC) and domestic demands, has been also pointed out as risk factors. However, most of these studies use subjective measures of stress. Stress activates the hypothalamuspituitary-adrenal (HPA) axis through hypercortisolemia which involves increases in cortisol levels and metabolites.

Objectives: This study analyzes the indirect effect of psychosocial risks factors (PRF) at work (i.e. psychological demands, control, social support and quality of leadership) and WLC in the relationship between PE and two outcomes: perceived stress (1), and the activity of the hypothalamuspituitary-adrenal (HPA) axis (2) in salaried workers from Barcelona.

Methods: Cross-sectional study in a sample of 250 workers of Barcelona, Spain, aged 25-60. We conducted a survey including questions on multidimensional precarious employment assessed by EPRES (Precarious Employment Scale), psychosocial risk factors scales based on Copenhagen Psychosocial Questionnaire (COPSOQ), and Perceived Stress Scale (PSS). We also collected hair samples to measure cortisol as a proxy of objective stress and other metabolites concentrations of the HPA axis. Structural equation models (SEM) and misspecification effect´s analysis was applied to estimate the PRFs indirect effect. Models were stratified by sex and adjusted for age and BMI.

Results: Among men, there is no significant association between PE and cortisol and other metabolites. PRFs and WLCs do not have a significant indirect effect. Among women, PE is not directly associated with cortisol or other metabolites, but an indirect effect of PRFs is observed for cortisol (B = 1.6; 95%CI: 0.2–3.0), DHF20α (B = 0.2; 95%CI: 0.02–0.4), DHF20β (B = 0.6; 95%CI: 0.1–1.1); for the last two, the association increases when WLC is added (B = 0.3; 95%CI: 0.08–0.5; B = 0.9; 95%CI: 0.3–1.5, respectively). In DHE20β there is a significant indirect effect of PRF and WLC only when adjusted simultaneously (B = 0.9; 95%CI: 0.1–1.6). Regarding the relationship between PSS and PE, among men, there is a significant indirect effect of PRF and WLC only when adjusted simultaneously (B = 0.9; 95%CI: 0.1–1.6). Among women, the indirect effect increases from B=2.6 (95%CI: 1.1–4.1) to B=2.9 (95%CI: 1.4–4.4) when WLC is added.

Conclusions: PE does not directly affect the HPA axis's activity, but it indirectly affects PRFs and work-life conflict among women. Perceived stress and PE are directly associated and an indirect effect of PRF and WLC has been found, which is higher among women. Gender differences suggest that women's labor options are more precarious and with worse organizational and non-organizational psychosocial conditions than men. In turn, women's health is more exposed to difficulties in reconciling work and family life, highlighting the sexual division behind the social organization of paid and unpaid work.

Key words: precarious employment, psychosocial working conditions, stress.

THE ROLE OF FORMALIZED COMPANY STRUCTURES FOR THE WELL-BEING OF MALE AND FEMALE EMPLOYEES

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Abstract

This paper examines the research question, to what extent formalized workplace structures can buffer the negative association of unfavorable working conditions with the well-being of male and female employees? The focus of interest is on gender-specific correlations. With reference to existing theoretical and empirical literature, positive correlations of workplace formalization with employee well-being can be assumed on the one hand. For example, bureaucratic structures can expand the scope of action of employees by making expectations and role definitions clear to employees and thereby reducing uncertainties (Sauer & Weibel 2012). It can also be assumed that formalized personnel management procedures and company policies on equal opportunity and diversity can reduce stereotyping and resulting discrimination by encouraging decision-makers to act less on the basis of personal preferences and prejudices (Stainback et al. 2010). In order to prevent discrimination and employee-unfriendly conditions in companies, formalized company structures, especially work councils can communicate the interests of employees to employers via their collective voice function and thus contribute to changes in the interests of employees (Grund & Schmitt 2013).

On the other hand, following existing studies, negative associations of formalized structures and employee well-being can also be assumed. Rogers & Freeman (2006), for example, refer to the work of works councils and staff councils, pointing out that these can be perceived by employees as paternalism and an encroachment on their own autonomy. In addition, neo-institutionalist studies indicate that formalized company structures, such as guidelines on equal opportunities and diversity, can have little positive effect or even a solidifying effect on discrimination if companies copy them from other successful companies in their organizational field but do not consistently implement the measures in company practice (Müller 2010).

In addition to the direct positive effects of formalization on employee well-being described above, it can also be assumed that such "egalitarian structures" can act as a buffer of unfavorable working conditions in companies. For example, Wood (2008) argues that the collective voice function of trade unions mitigates the negative effect of high job demands on the well-being of employees.

Finally, gender-specific correlations can be assumed, as for example women are underrepresented on works council (Hirsch et al. 2010). Thus, it can be assumed that works councils are "to be regarded as part of a male-dominated organizational culture" and therefore act more in the interest of men than of women (Ellguth et al. 2017: 198).

The above mentioned research question is analyzed using a linked employer-employee dataset of the establishment survey of the Socio-Economic Panel (SOEP-LEE). Dependent employees aged 18-64 are included in the analyses and multivariate linear regressions with interaction terms are estimated. For the analysis of the effects of working conditions on the well-being of employees, the Effort-Reward-Imbalance-Model (ERI) (Siegrist 1996) is applied. Following the Effort-Reward-Imbalance-Model, risky working conditions can be assumed if there is an imbalance between effort and reward. By formalization, I mean whether companies have works councils and staff councils, collective bargaining agreements, bureaucratic structures, or guidelines on equal opportunities and diversity. The dependent variable of the present study are job satisfaction and subjective health. In addition, I control for a number of relevant third-party variables.

The results of the regression models show three interesting statistically significant interaction effects in particular. The negative association of working conditions and job satisfaction is stronger for men in establishments without collective bargaining agreements. The negative association of working conditions and job satisfaction as well as subjective health is stronger for women in establishments with bureaucratic structures. The negative association of working conditions and job satisfaction is stronger for women in companies without guidelines on equal opportunities.

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16.12

UNCERTAINTY, WELL-BEING AND COGNITIVE STRESS IN THE COVID-19 PANDEMIC: A LONGITUDINAL STUDY IN THE UK

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Abstract

Responses to the Covid-19 pandemic has involved restrictions on people's mobility and for many confinement at home has been almost total as they worked from home. Moreover, people's experience of it has been dominated by uncertainty and this may be affecting their well-being and cognitive functioning. Most notable are uncertainties about the course of the pandemic, governments' and employers' responses to Covid-19, and of the recession consequent upon these.

This paper adopts appraisal theory to examine whether the uncertainty in the pandemic experienced by homeworkers was associated with lower levels of well-being and if this in turn generated cognitive stress.

Uncertainty is widely associated with anxiety but has been little introduced into the homeworking, or more general work psychology, literature. We are particularly concerned with the extent to which job-related factors, so central to theories of psychological strain – job autonomy, demands and support – are overridden as sources of well/ill-being by feelings of uncertainty. We address this in two ways. First, by assessing if uncertainties mean that these job characteristics are insignificant in the Covid-19 pandemic, thus reinforcing views of this as an unprecedented situation. Second, by developing a multidimensional measure of uncertainty surrounding the pandemic that includes uncertainties both in and beyond the immediate work context, we evaluate if the uncertainties at the job level are swamped by those more directly related to the pandemic and its management.

The study was conducted in two universities in England and covered all occupational groups, 34% being academics and the remainder covering a variety of professional services. The UK is a good place for this study. Uncertainty about the virus is global, but inconsistences, delayed responses, indecision and mixed messages have been readily apparent and indeed have become subject to intense criticism by the media in the UK and elsewhere. The uncertainty and its creation have become part of the story of Covid-19 in the UK.

Uncertainty is taken to have two dimensions, unpredictability and lack of clarity and we develop multi-dimensional measures of each of these. The dimensions of predictability are nature of the job, workload, work – home boundary management, organizational support, virus and the economy, and for measuring clarity we focus on the employer's and government's messaging. The rest of the measures include affective well-being and cognitive stress. Data were collected through an online questionnaire at three points in time: July and October 2020 and February 2021.

The results show strong relationships between the types of uncertainty and cognitive stress mediated through both anxiety and depression, with the uncertainty surrounding the virus and uncertainty about the work–home boundary management having the least effect, and uncertainty about support and clarity of government policy having the strongest.

The contribution of the paper is firstly that we introduce the neglected effect of uncertainty into the study of work-related well-being, particularly drawing on the appraisal theory of emotions (Lazarus, 1966) and self-determination theory (Ryan and Deci, 2017), and then assess empirically its significance Second, we consider the extension of uncertainty's effect on affective well-being on decision-making capacity through increasing cognitive stress, itself rather neglected in considerations of work-related stress (Albertsen, Rugulies Garde and Burr, 2010). Third, we develop a multi-dimensional scale for assessing uncertainty in the pandemic designed to be adaptable to all types of workplaces, occupations, countries and pandemics. Finally, and by no means least, we provide a distinctive input to the story of the pandemic based on data from a group of professional employees working at home, which will be particularly relevant for decision making about the future of homeworking.

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16.13

FEMALE MIGRANT STREET PROSTITUTION IN MILAN IN TIMES OF COVID-19. EXPLORING THE IMPACT OF THE PANDEMIC ON SEX WORKERS' QUALITY OF WORK.

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Abstract

The paper will present the results of an exploratory research on the effects of the COVID-19 diffusion, and the State's countermeasures to contain it. on female migrants' sex workers in the city of Milan (Italy). The latter has been chosen as unity

of analysis, because it is one of the main hubs of human trafficking in Europe and one of the main sex markets in Italy; and because it has been heavily hit by the pandemic in the first and the second waves of infection.

The study has used two main qualitative techniques, including interviews with key observers and ethnographic observation. The selection of people to be interviewed has occurred through snowball sampling, starting from three main NGOs working in the field of sex trafficking and street prostitution in the city of Milan, including *Lule, Caritas* and *Cooperativa lotta contro l'emarginazione*. The participant observation, carried out from January to October 2020, consisted in participating to the work of the so called '*unità di strada*' (street unit), which are outreach services offered by NGOs (social workers and volunteers go to the street where women work and provide them with health and legal information, and with the possibility to book medical examinations).

By collecting the narratives both of social workers and sex workers, the study has explored how the pandemic has influenced the quality of work in the sex street market. Indeed, it has addressed questions related to income, job security, and work organization, which in commercial sex context imply most of the times violence, psychological distress and health hazards.

On the one hand the paper will show how the mobility restrictions aimed at containing the widespread of the disease have reduced not only the demand of street sex services - leading to serious economic consequences for sex workers, not mitigated by state benefits since in Italy the State does not consider prostitutes as workers -, but also the supply - some women, for example, have decided to return to their home countries. Moreover, the paper will analyze how the pandemic has sharpened women's health risks.

On the other hand the paper will illustrate the various forms of 'resistance' which sex workers activate, in order to cope with economic difficulties. Women strategies went from asking help to NGOs (in this regard the use of mobile phones and the Internet was crucial), to accepting to move in the flats of their regular clients or ending up to increase the exploitive relationship established with pimps.

In the conclusion, the paper will emphasize that the effects of health crisis and emergency legislation have highlighted and accelerated some tendencies already characterizing sex work. The pandemic context both in its health dimension and in its social control dimension has made more explicit the condition of 'social death' characterizing women working in the sex industry, as much as the ambiguities that seem to mark the relationship between migrant sex workers and their traffickers, pimps and clients.

AUTHOR INDEX